Tim Skreen

#154163 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please do not restrict the Willamette river. Creating a 3.5 mile no wake zone we create congestion, it house take me an hour and 1/2 to go through the zone. No a fair or realistic proposal. All boats need to be aware of their surroundings. If you are not able to handle your boat, in any condition, you should go back for more training. Please respect the Willamette river for all boaters. Thanks Tim SKreen timskreen@gmail.com

Testimony is presented without formatting.

Robert Bernstein

#154162 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

wife and i support stronger enforcement of a low wake zone and more enforcement and higher penalties for this and for any destruction of Natural habitat..

Testimony is presented without formatting.

Jan Jackson

#154160 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners: Thanks for the opportunity provide testimony today in regard to the South Reach plan, and the needs of non-motorized boaters and other non-motorized users of the Willamette. This waterway should be multi use which includes the ability of non motorized vehicles to participate safely. I am a SUP and this section of the waterway is the most convenient for me for day use. It is unpleasant at best and dangerous at worse to try to navigate on top of a board through chop created by motorized vehicles travelling quickly. It has occurred frequently that I am rocked or knocked off my board by inconsiderate boats creating big wakes. • Boats that generate artificial waves for “wake dependent” water sports have a variety of negative impacts to the river’s ecology, and to other river users. • Whether one is in a canoe, kayak, or even other motorized craft - artificial “surf” waves are hard to cross, and can even swamp other craft. This has occurred numerous times over the past few years. • Artificial waves make staying upright in my boat problematic, and frequently these folks pass too close furthering endangerment to other river users. • The artificial waves have an impact on sensitive nearshore habitats, and also impacts to native fish found in all of the nearshore areas along this stretch of the Willamette. This was outlined in a letter from NOAA Fisheries in January, to the Oregon State Marine Board. To date, the OSMB has done nothing to address this issue. • The turbidity generated by these artificial waves also harms water quality, in a time of year where turbidity is not natural along the Willamette, again potentially affecting a range of aquatic species. • Based on impacts to people, and the river’s ecology - I feel that a No Wake Zone needs to be established from the Steel Bridge to Elk Rock Island. Today we have craft built for one thing - to generate artificial waves that can be surfed. Importing surf waves from a beach to inland waters simply does not make sense. This issue is being seen all around the United States, and it needs to be addressed in Portland. Thank you for your time and responsiveness to this issue. Jan Jackson

Testimony is presented without formatting.

Stacie Hall

#154159 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please create penalties for removal of vegetation along the river bank. One of the biggest environmental challenges in the South Reach of the Willamette is the ongoing illegal removal of vegetation in the greenway adjacent to the river. Removal of trees and shrubs reduces habitat, disrupts nesting of native birds, decreases shade which raises water temperatures, and increases erosion of the riverbank. I recommend to perform the following: • Increase monitoring to survey for illegal removal of vegetation in the greenway • Increase penalties for illegal removal of vegetation in the Greenway • Sharply increase fines for repeat offenders of removing vegetation from the greenway

Testimony is presented without formatting.

Gary Sultany

#154158 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear people, Please strengthen the no wake laws and enhance penalties for violators. We need much more vigilance for wildlife habitat throughout the metropolitan Portland area. Please demonstrate real leadership. Thank you.

Testimony is presented without formatting.

Ann Littlewood

#154157 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

What's up with trashing the Willamette Greenway? Why on earth are people cutting down riverside vegetation? Please address this with real penalties. Also, expanding the no-wake zone will help all other recreationists and help the riverbanks without interfering with the boaters. Please protect this wonderful environment.

Testimony is presented without formatting.

Chelsea Mitchell

#154156 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thank you for taking the time to review my testimony. I see creating a no-wake zone of this size will only swap one set of problems for another. Sending all motorized boats to a smaller section of the river will create an unsafe boating environment. I'm unclear why we are prioritizing one type of river user without even trying to find a solution that would work for all. Policing, policies and boater/paddler education seems a better place to start rather than taking away river rights.

Testimony is presented without formatting.

Kathryn Sheibley

#154155 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I urge you to increase the Slow/No Wake Zone around Ross Island and to increase penalties for illegally destroying wildlife habitat along the Willamette River. Motorized boats both endanger non-motorized recreationists and disturb river bank vegetation important to birds and other wildlife. The illegal removal of vegetation along the Willamette disrupts nesting of birds, decreases shade which raises water temperature and increases erosion of the river bank.

Testimony is presented without formatting.

Miriam Rosenthal

#154154 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I live along this stretch of the river. The riverfront is heavily used by walkers, bikers, runners, birds (including great blue herons and bald eagles) and kayakers and sailboats etc. The roar and the waves created by fast traveling motorized boats is overwhelming. The wake of these boats splashes up on the fragile, muddy shoreline, disrupting the flocks of waterbirds that hug the shoreline and eroding the area. One time this spring there was even a pontooned helicopter apparently practicing landings and takeoffs creating an incredible noise level. I urge the adoption of the Riverplan to protect this heavily used, beautiful stretch of Portland.

Testimony is presented without formatting.

Julia Griswold

#154153 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am not in favor of this proposal. Artificial wake is detrimental to the shore causing erosion and increased turbidity and under cuts shore vegetation by washing roots energetically until they loose their soil support and collapse. Erosion is hastened beyond what happens during storm events. The noise and random chaos of motorized recreation is offensive to and startles wildlife and likely also results in harm to animals and birds in freak accidents. It would increase river traffic and would also require more monitoring which in turn will bring more traffic. It also interferes with general enjoyment of wild, natural, scenic, meditative riverlife. Much motorized recreation is adrenaline driven which often also brings reckless excitement and foolhardy decision making. I worry about alcohol consumption in the hands of fast vehicles because it is far more dangerous to others than drinking in a canoe or inner tube. I also support the build out of Poet's Beach for swimmers and a sandy shoreline exposed to increased wake will require a lot of monitoring and costly maintenance. The PNW is famous for its natural beauty. Let's keep that going.

Testimony is presented without formatting.

Tim Donner

#154152 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Motorized Boats create significant environmental damage by disturbing nearshore habitat for listed salmon species and eroding river bank vegetation that is important for native birds and other wildlife. Removal of trees and shrubs reduces habitat, disrupts nesting of native birds, decreases shade which raises water temperatures, and increases erosion of the riverbank. Extend the current no wake zone the full length of the Holgate channel along Ross Island. Prioritize impacts to wildlife and habitat along the Willamette, especially surrounding Ross Island and Holgate Channel when considering a Slow Wake Zone. Consider safety impacts to non-motorized recreationists when considering a Slow Wake Zone. Increase monitoring to survey for illegal removal of vegetation in the greenway Increase penalties for illegal removal of vegetation in the Greenway; Sharply increase fines for repeat offenders of removing vegetation from the greenway

Testimony is presented without formatting.

Matthew Lachmann

#154151 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Planning and Sustainability Commissioners: Thanks for the opportunity to provide testimony today in regard to the SouthReach Plan. My comments below reflect the needs of non-motorized boaters and other non-motorized users of the Willamette River. I am requesting that the Commission consider adding provisions to this Plan for extending a “No Wake Zone” from the Steel Bridge to Elk Rock Island. As noted in the Plan, Volume I: Policies, Objectives and Recommendations, the City recognizes WED’s--”Wake Enhancing Devices” and their harm to river users and its ecology. Additionally, there are also boats that generate substantial artificial waves which also have a variety of negative impacts to the river’s ecology and to other river users. These boats are designed to create as much wake as possible for ‘wake dependent’ activities. Establishing a “no-wake” zone will help to minimize these activities in the areas of the River which are most vulnerable to them and provide for a sharing of resources. Some additional findings are noted below: Whether one is in a canoe, kayak, or even other motorized craft -artificial “surf” waves are hard to cross, and can even swamp other craft, causing them to capsize as has happened over the past several years. Artificial waves make staying upright in a non-motorized craft problematic. Avoiding the waves is difficult as these users can pass too close to non motorized craft--creating furthering endangerment to other river users. In addition to humans, the artificial waves have an impact on sensitive nearshore habitats, and also impacts to native fish found in all of the nearshore areas along this stretch of the Willamette. I understand this was outlined in a letter from NOAA Fisheries in January 2020 to the Oregon State Marine Board. The turbidity generated by these artificial waves also harms water quality, in a time of year where turbidity is not natural along the Willamette, again potentially affecting a range of aquatic species. Based on these impacts to humans, and the River’s valuable ecology, I encourage the Commission to support a No Wake Zone from the Steel Bridge to Elk Rock Island. Thank you, Matthew Lachmann

Testimony is presented without formatting.

Rod Monroe

#154150 | June 17, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I want to strongly urge the PSC to reject the proposed South Reach Plan for the Willamette River. This plan is counter to the goal of making the Willamette, a public resource, accessible to all people. The promotion of one form of recreation, by those who use that recreation, to the exclusion of other forms of recreation is wrong and should not be tolerated by the governing agencies. The small but vocal voice promoting their exclusive use of the river should not take away the access of the majority to other recreational uses. Not only is this discriminatory, but is unsafe, concentrating recreation in smaller areas of the river. As a frequent user of the Willamette, I enjoy the broad diversity of recreation available to the public. I also generally see those widely diverse forms of recreation being courteously and responsibly sharing this public natural resource with each other. Please do not submit to this self serving special interest group that wants to limit the recreation on the Willamette to their exclusive use. I have enjoyed the Willamette as a place that I can enjoy recreation with my family and friends. Please do not take that choice away. This proposed rule change is a another blow to the livability of Portland; by limiting the available recreation to a small exclusive group. Please reject the proposed South Reach Plan.

Testimony is presented without formatting.

Andrew Holtz

#154118 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

The South Reach urban river section is no place for damaging and hazardous wake sports. We live at the Oregon Yacht Club. Our house and boat are regularly thrashed by wakes from wake sport boats operating in the main channel of the Willamette... hundreds of yards away. Neighbors have had bolts sheared off from the connections between their homes and the moorage walkway by the constant heavy banging from these big wakes. We are located entirely within the Holgate Channel Slow No Wake Zone, but that hasn't protected us... which means the sensitive shoreline habitat in the channel is also not being protected as intended. Part of the problem is that many (if not most) boaters are ignorant of the Holgate Channel rules. A true shore-to-shore Slow No Wake Zone in the South Reach would be successful where the small, piecemeal Holgate Channel rules have failed. But even if every boater within the Holgate Channel obeyed the existing rules, we and the river habitat would still be buffeted by wake sports boats in the main channel. Non-motorized users are the majority in this stretch of river… a majority that is growing every year. Even though there are many, many kayakers, canoers, sailors, swimmers, etc. here, they do not disturb the environment or other people on the river or along the shore. But one wake boat disrupts the river from shore to shore and up and down the stretch. A few users are destroying the experience for everyone else. It is as if off-road ATV racers were allowed to run wild in public parks. And as with uncontrolled motor sports on land, these powerful machines are dangerous to other people on the river. When I kayak, I have to have my head on a swivel, alert at all times for the hazard of a boater kicking up a wake from even half a mile or farther away. Their ‘fun’ comes at the expense of many, many others. We designate racetracks for motor sport enthusiasts on land. We deserve no less protection on the river. For the safety and comfort of other river users, for the protection of river habitat and wildlife, in order to get the highest and best value from our precious river, institute a Slow No Wake Zone in the South Reach.

Testimony is presented without formatting.

Elaine Cohn

#154117 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners: Thanks for the opportunity provide testimony today in regard to the South Reach plan, and the needs of non-motorized boaters and other non-motorized users of the Willamette. • I use a stand-up paddle board and numerous times, the waves from other crafts have swamped my board. • The boats sometimes pass too close, making me feel extremely unsafe. • The artificial waves have an impact on sensitive nearshore habitats and native fish found along this stretch of the Willamette. To date, the OSMB has done nothing to address this issue. • Based on impacts to people, and the river's ecology - I feel that a No Wake Zone needs to be established from the Steel Bridge to Elk Rock Island. Please help to make our recreational sport a safe one for everyone! Thank you for your time and responsiveness to this issue.

Testimony is presented without formatting.

Glenn Fithian-Barrett

#154116 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners: Thanks for the opportunity provide testimony today in regard to the South Reach plan, and the needs of non-motorized boaters and other non-motorized users of the Willamette. • Boats that generate artificial waves for “wake dependent” water sports have a variety of negative impacts to the river’s ecology, and to other river users. • Whether one is in a canoe, kayak, or even other motorized craft - artificial “surf” waves are hard to cross, and can even swamp other craft. This has occurred numerous times over the past few years. • Artificial waves make staying upright in my boat problematic, and frequently these folks pass too close furthering endangerment to other river users. • The artificial waves have an impact on sensitive nearshore habitats, and also impacts to native fish found in all of the nearshore areas along this stretch of the Willamette. This was outlined in a letter from NOAA Fisheries in January, to the Oregon State Marine Board. To date, the OSMB has done nothing to address this issue. • The turbidity generated by these artificial waves also harms water quality, in a time of year where turbidity is not natural along the Willamette, again potentially affecting a range of aquatic species. • Based on impacts to people, and the river’s ecology - I feel that a No Wake Zone needs to be established from the Steel Bridge to Elk Rock Island. Today we have craft built for one thing - to generate artificial waves that can be surfed. Importing surf waves from a beach to inland waters simply does not make sense. This issue is being seen all around the United States, and it needs to be addressed in Portland. Thank you for your time and responsiveness to this issue.

Testimony is presented without formatting.

Erin Patterson

#154115 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am writing to share my disappointment with the very narrow focus of the South Reach Plan's solution to basically shut down the main channel on the Willamette River, right in downtown to beyond. We have a beautiful, public river and my family are river enthusiasts from boating, swimming, kayaking, SUP. We find that we are able to co-exist with other river users so I get a little confused why our city would then put one user group above all others? This plan is not inclusive or supportive of safety overall. Such a large stretch of the river becoming a no-wake zone will only cause congestion and safety issue when this traffic gets pushed elsewhere. I'm also shocked to see that the voices of our businesses that operate on the river are not represented? How do they function in a no wake zone without adding 30-45 minutes to their drive? We are supposed to support everyone rights, so I believe there is compromise in here versus taking away the public's river rights. The traffic and use of the river continues to grow, and just like our roads, we need to manage it with policing and process. Not one type of user group owns this river, it belongs to all of us as Oregonians. There also seem to be environmental and safety claims used to justify restrictions on boat navigation, but these have been highly contested, including the Oregon Fish & Wildlife and the Portland Fire & Rescue Sheriff and Harbormaster. The city needs to start listening to its experts. I'd like to see a more inclusive solution presented that supports all user groups. I know that Holgate was given as a no-wake zone to support the paddlers that are weary of intermixing with other traffic, but broadly our river is a public, multi-use commercial river and all plans, especially from a state agency, should reflect that.

Ethan Seltzer

#154114 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thanks for the opportunity to testify. I have two issues that I'd like the PSC to consider. First, as a former resident of the Brooklyn neighborhood, and active member, at that time, of the Brooklyn Action Corps, I urge you to accelerate your commitment to providing the Brooklyn neighborhood with convenient, safe access to the river. This has been an issue for the neighborhood since the 1970s. At one time the City actually had funding committed to providing river access along Center Street but that plan was shelved when Federal policy changed with the election of President Reagan coupled with the election of Mayor Ivancie. Brooklyn has been working for improved river access for 50 years, and though it's encouraging to see it called out in the plan, the action plan condemns these good intentions to the far future. River Communities Action Item #1, and River Recreation Action Items R1E and R4A should all be moved up from "6-20 year" into the "next 5 years" category, or better, "with adoption of the plan". The policies are fine but the commitment to action needs more than the current draft provides. Second, the plan should unambiguously state that the City will seek a slow/no wake zone designation from the Steel Bridge to the southern city limits, and will work with the City of Milwaukie to extent that slow/no wake designation to Elk Rock Island. This should appear as a specific action item to be acted on with adoption of the plan. The in-river recreation objective 11 is simply too general to be of use. It's time for the City to take a strong stand on behalf of human-powered recreation in the south reach. If powered, wake generating recreation can occur without causing further damage to riparian areas and banks, then it should only be allowed by permit, and for limited times. As the plan notes, the current situation is characterized by a real lack of attention or concern on the part of wake=generating users, and the only way to manage the conflicts arising between wake generating recreation and human powered river recreators is to unambiguously state that it is the policy of the City and the State to establish this larger slow/no wake zone. This commitment to human powered use shouldn't be evident only be inference, as it currently appears to be. Education of wake generating users is not the kind of direct action needed now for both environmental and other reasons. Simply put, we need a greenway for a river, not a highway. The plan needs to be much clearer and more direct on this topic. Again, thanks for the chance to testify. And thanks for taking up this work. River access and health has been an issue and a desire for the entire 40 years that I've lived in Portland, and it's hopeful to see it finally coming together in this plan.

Testimony is presented without formatting.

Christine Linder

#154113 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

As someone who enjoys my paddle board on the Willamette, it is very important to me to have zones that are more quiet and wake-free. I also do enjoy boating and realize the river is for multi-recreation use in a congested urban area. I feel zones are the best way to accommodate the needs of a variety of water sport users. I have been thrown off my board in large wakes of confused water and need to drop to my knees to maintain balance on a regular basis. It is both unsafe and unpleasant to be surrounded by motor craft with large wakes. Please consider this as a no-wake zone. Thank you.

Testimony is presented without formatting.

Sher Davidson

#154112 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I kayak with a group of women kayakers every week on the Willamette and other local rivers. We have noted over the last two years more and more jet skiers and have felt unsafe due to the large wakes they create. I highly recommend that there be a slow-wake zone between the Steel Bridge and Elk Rock Island. In addition, my husband almost capsized in his kayak while kayaking between Cedar Creek put in and Mary S. Young State Park. Given the environmental damage these wakes create, perhaps the zone should extend further.

Testimony is presented without formatting.

Peter Carew

#154111 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am a Portland resident and an active kayaker. I believe that for water safety and for livability that there be a Slow No Wake (SNW) zone between the Steel Bridge and Elk Rock Island. Thank you for your attention to this testimony.

Testimony is presented without formatting.

JEFFREY EDWARDS

#154110 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners: I generally enjoy taking my inflatable kayak on the Willamette River but when boats go by too fast and make a large wake it makes it much less enjoyable and a little dangerous in that I think my boat may be flipped over. I am also a Registered Geologist in Oregon (PG-1661), and I understand the negative impact that the artificial waves have on sensitive nearshore habitats; and the turbidity generated by these artificial waves also harms water quality. Based on impacts to people, and the river's ecology - I feel that a No Wake Zone needs to be established from the Steel Bridge to Elk Rock Island. Thanks for the opportunity provide testimony today in regard to the South Reach plan, and the needs of non-motorized boaters and other non-motorized users of the Willamette. Sincerely Jeff Edwards

Testimony is presented without formatting.

Michael Denton

#154109 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Stop the South Reach, Proposed Draft. We have to stop a few people from controlling what others do. That is exactly what this is about. I am a kayaker, swimmer, fisherman, water skier and wakeboarder. I want all people to enjoy this federal river in the way they desire. I have found different days and times that are better for me to do the different activities on the river. For example swimming and kayaking seem to be smoother in the morning so I adjust to that schedule. What I won't do, is try to change the whole river use so that others can't enjoy it in the way they desire. Stop and think about others instead of just yourself. Be inclusive, be friendly and enjoy the river with everyone, that is the Portland way, that is the American way. It is still a free country so let people be free!

Testimony is presented without formatting.

erich koeller

#154108 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners, I wish to voice my support for the proposal to limit watercraft speeds and wakes in the South Reach Willamette. As a user of small watercraft both motorized and paddled I have repeatedly been dangerously 'rock and rolled' by high wakes. Erosion and aquatic ecology concerns are also considerable. The current speed and wake limit on the east side of Ross Island has been a blessing and success. Expanding this to the Steel Bridge to Elk Rock reach is warranted and equitable. We are long past the era of the 'wild west. Thank you.

Testimony is presented without formatting.

Peg Malloy

#154107 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am writing to urge the Commission to recommend the creation of an expanded Slow No Wake Zone in the City of Portland. There is currently a partial slow wake zone in a portion of the Holgate Channel. It should be expanded to the river area between the Hawthorne and Sellwood bridges. A larger slow wake zone will increase safety, enjoyment on the river for all users and improve the river's ecological health. Wakes cause significant erosion on both sides of Ross Island and effect the shallow water habitat critical for endangered salmonids. I commend the Commission for sending a letter to the Oregon State Marine Board recommending a Slow No Wake Zone between the two bridges. I encourage the Commission to take the next step. Please recommend to Portland City Council that it work with the Marine Board and make an expanded slow wake zone reality.....for human safety and ecological health of the Willamette River. Thank you.

Testimony is presented without formatting.

Peter McMinn

#154106 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

In support of a No-Wake Zone between the Sellwood and Hawthorne bridges To: Portland Planning and Sustainability Commission Re: Slow No Wake Zone on the Willamette River Commissioners, I recently received the City of Portland's announcement informing me that the Portland Planning and Sustainability Commission (PSC) will be taking testimony on recreational activities on the Willamette River as part of the PSC's planning for the South Reach of the Willamette. The announcement specifically mentioned the fact that the city is soliciting additional information regarding recreational boating. As a regular sailor and kayaker on the Willamette, I feel the Commission needs to take my concerns into consideration as well as that of those who recreate with motorized craft. Therefore, I am writing to urge the Commission to recommend establishing a Slow No Wake Zone on the Willamette River. I believe the zone should be established, at a minimum, between the Hawthorne and Sellwood Bridges. Establishing this zone to reduce wake action in this stretch of the river would help protect canoeists, kayakers, stand up boarders, and swimmers from wakes. A Slow/No Wake Zone is important for human health and safety, for the river's ecology, and protection of endangered fish. I am familiar with the Marine Board's current public process soliciting input from the public on wake issues on the lower Willamette River. Through that process the National Marine Fisheries Service has advised the Marine Board that noise and wave actions are frequently a threat to juvenile salmon and steelhead and that they expect that wake sports are likely to have a significant adverse impact on those listed species and their critical habitats. I sail competitively out of Willamette Sailing Club. As a club running formal races throughout the year, abiding by maritime law governing river traffic is our primary concern. During peak recreation months, I observe most power boaters safely navigating around our events. Many of these are wake boats who are respectful of others using the river. However, a few wake boaters appear oblivious of human powered boats, kayaks, and SUPs, and understanding the power of their boats, a few have even made it a point to cause problems for these craft. I have witnessed a novice kayaker nearly capsize due to wakes from a wake boat whose operator seemed to be enjoying the havoc he was creating. On occasion, we have wake boats intentionally "waking" our events for reasons only they will know. It may only be a few bad actors ruining the experience of the river for others, but it only takes one tragedy to make it even more obvious that a no-wake zone is needed between the Sellwood and Hawthorne bridges. Respectfully, Peter McMinn

In support of a No-Wake Zone between the Sellwood and Hawthorne bridges

To: Portland Planning and Sustainability Commission
Re: Slow No Wake Zone on the Willamette River

Commissioners,

I recently received the City of Portland's announcement informing me that the Portland Planning and Sustainability Commission (PSC) will be taking testimony on recreational activities on the Willamette River as part of the PSC's planning for the South Reach of the Willamette. The announcement specifically mentioned the fact that the city is soliciting additional information regarding recreational boating. As a regular sailor and kayaker on the Willamette, I feel the Commission needs to take my concerns into consideration as well as that of those who recreate with motorized craft. Therefore, I am writing to urge the Commission to recommend establishing a Slow No Wake Zone on the Willamette River. I believe the zone should be established, at a minimum, between the Hawthorne and Sellwood Bridges.

Establishing this zone to reduce wake action in this stretch of the river would help protect canoeists, kayakers, stand up boarders, and swimmers from wakes. A Slow/No Wake Zone is important for human health and safety, for the river's ecology, and protection of endangered fish. I am familiar with the Marine Board's current public process soliciting input from the public on wake issues on the lower Willamette River. Through that process the National Marine Fisheries Service has advised the Marine Board that noise and wave actions are frequently a threat to juvenile salmon and steelhead and that they expect that wake sports are likely to have a significant adverse impact on those listed species and their
critical habitats.

I sail competitively out of Willamette Sailing Club. As a club running formal races throughout the year, abiding by maritime law governing river traffic is our primary concern. During peak recreation months, I observe most power boaters safely navigating around our events. Many of these are wake boats who are respectful of others using the river. However, a few wake boaters appear oblivious of human powered boats, kayaks, and SUPs, and understanding the power of their boats, a few have even made it a point to cause problems for these craft. I have witnessed a novice kayaker nearly capsize due to wakes from a wake boat whose operator seemed to be enjoying the havoc he was creating. On occasion, we have wake boats intentionally "waking" our events for reasons only they will know. It may only be a few bad actors ruining the experience of the river for others, but it only takes one tragedy to make it even more obvious that a no-wake zone is needed between the Sellwood and Hawthorne bridges.

Respectfully,

Peter McMinn
520 S Florida St
Portland OR, 97219

Candy Ringler

#154105 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Hello Commissioners! I live near the Willamette River and have kayaked and canoed on it for 25 years. I have seen watercraft use increase dramatically in that time & increasingly find it challenging to negotiate some of the large waves created by fast motor craft. I also see up close the bank erosion & turbidity created by such waves. I support a Slow No Wake Zone in this area for human safety & river health. What a good combination! Sincerely, Candace Ringler

Testimony is presented without formatting.

Jim Scott

#154104 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

This section of the river should remain peaceful for the vast majority of folks that sit in contemplation by it's side, walk or cycle nearby paths, paddle it's waters, or live nearby. The activities of a few, causing noise and air pollution as well as erosive and disruptive waves' at the expense of peace of mind and safety for the vast majority of Portlanders who want to enjoy the river in peace, just doesn't make sense. Let them use less populous areas for their 'fun'

Testimony is presented without formatting.

Dan Kent

#154103 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

hello Planning and Sustainability Commission: As a Willamette River enthusiast who frequently takes my kids and their friends on stand up paddle board trips upriver from the Hawthorne Bridge, I'm strongly in favor of the recommendation that there be a Slow No Wake (SNW) zone between the Steel Bridge and Elk Rock Island. We've been nearly hit on our SUPs on multiple occasions over the years by speeding boats, particularly on summer weekend afternoons. There have been many times that the Willamette has seemed more like a freeway than a river and natural area. I urge you to support the Slow No Wake (SNW) zone proposal. thanks, Dan Kent

Testimony is presented without formatting.

Theron Brayman

#154102 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I support the proposal for a Slow No Wake (SNW) zone between the Steel Bridge and Elk Rock Island. I am a resident of Oak Grove, near Elk Rock Island and, like a lot of people, I like to kayak in the Milwaukie Bay - Elk Rock Island area. Wake boarders, high speed jet skis, and other high wake generating water craft in this area create conditions that are potentially unsafe for human powered watercraft and detrimental to enjoyment of the river environment. Thank you for your consideration.

Testimony is presented without formatting.

ray thomas

#154101 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

My name is Ray Thomas and I am an owner of a 47' houseboat, two rowing shells, several jetskis and I frequently swim in the Willamette River in the area of inquiry here. I have been hit with dangerous wakes from wake and surfing boats, PWCs and large powerboats while attempting to enjoy the river on many occasions. On several occasions the wake was so large it even caused a TV and other items on my 47' boat to fall off shelves. In my rowing single these wakes have brought waves over the gunwale of my boat and almost swamped me. While persons testifying that the no wake zone is unnecessary may be responsible boaters who respect the safety of others, there is a substantial number of power boaters who simply ignore other river users and endanger them. As a swimmer I have had several close calls where jetski operators have zoomed close to me. It is my experience in the Riverplace area that the majority of powerboaters do not even follow the no wake requirements within 200' of a moorage. Further, PWC operators by and large do not follow the 200' rule OR the 100' no wake rule near other vessels which are contained in OAR 250-010-0025 and 250-021-0030(7). It is no hardship for power boaters to move to north of the Steel Bridge to enjoy their high speed or high wake play activities. The river is simply too narrow to safely accommodate their activities and other users. On many occasions I have seen their wakes dangerously wash over the swim dock south of the Hawthorne bridge and also hit SUP paddlers and the boats of non-motorized users. I have also observed on many occasions the Multnomah County Sheriff Marine boat personnel observe these dangerous activities and do nothing. It is apparently too much to expect law enforcement to enforce the existing legal requirements but a no wake zone removes any ambiguity about distance and speed. It is also important that the authorities post the rules, and for the last three years signage has been missing after a winter high water event carried the old signs away and they were never replaced. I urge the Commission to enact an expanded no wake zone even if it is on an experimental basis to see how it works in practice. It is my view that many more people would use the river for non-motorized boating and swimming if the powerboat speeds were reduced. As it is now the Willamette Park boat launch area, and downtown areas are very dangerous for anyone attempting to venture on the water. The vast majority of river users enjoy low speed activities in the South Reach areas which do not interfere with wildlife or other river users. We can make an important investment in our river by limiting the speeds in the South Reach now.

Kelly Gilmore

#154100 | June 16, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

As a boater in Oregon that utilizes the waterways from the cascades to the coast as well as this particular stretch of river on occasion, this proposed no wake zone for such a large portion of the river is disappointing and frustrating. I am opposed to the no wake zone in the current draft. A potential solution could be designating times of the day that the area is no wake like in the mornings when the paddlers are frequently out or something of that nature that is a compromise rather than a close minded "just shut it down" approach. The thousands, if not tens of thousands of boaters that utilize this portion of river will be very upset if this current proposal comes to pass. Please consider everyone when making your decisions. Thank you

Testimony is presented without formatting.

Robin you Cody

#154099 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Hello Commissioners. I am very much in favor of a Slow/No Wake Zone on both sides of Ross Island. For a 77 year old canoe guy and kayaker like me, there's no other place downtown to paddle safely to birdsong. Those goddamn jet-powered watercycles, in particular, throw a smelly wake as dangerous and obnoxious as any speedboat on the river. Slower is better thru this limited stretch of the Willamette. For motorboats, there is plenty of river elsewhere in the city. THANKS already for your work on this. I'll be glad to give you my two minutes' worth at the oral testimonial. Riverman, Robin Cody.

Testimony is presented without formatting.

Kenneth Rice

#154097 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please take the time to hear from everyone that this will effect. To date the public hearing process has been a sham. Please take into account the economic impact this could have. Recreational boat employs thousands of people in the Portland area. The Holgate channel has already been designated a slow no wake zone. At the time that was done the Oregon State Marine Board assured boaters that the main channel of the river would remain open to ALL boaters and the waterskiers were told to move there. Are you trying to take away what has already been promised? Thank you Ken Rice

Testimony is presented without formatting.

Baron Adams

#154096 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

My family and I oppose the restriction of no wake zone on the lower river that has been purposed. The proposal of "no wake" from Sellwood Bridge to the Hawthorne Bridge we appose due to safety concerns. By limiting the areas that "wakes" can be produced will create safety hazards in the "open" areas. This is due to spreading all types of users thru the entire river. I grew up on the Clackamas River and have used the entire Lower Willamette River my entire life for all activities. Please do not allow certain groups limit who and who can not use the river system. My number 1 focus on the river is Safety. By limiting the areas that the river can be used by all types of users will decrease safety for everyone. Baron Adams 971-202-8725

Testimony is presented without formatting.

Sean Mobley

#154095 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I have lived on the upper Willamette river for over 20 years now. I have seen all types of boats use this river, from barges with tug boats, to speed boats, to fishing boats, to wakeboard boats, to kayaks and paddle boards. I believe ongoing boater education is key for everyone to continue enjoying the river safely. Vessels under power need to understand how to manage their wakes. We need everyone to utilize slow to no wakes when not engaged in a tow sport and to reduce wakes on pick up when riders have fallen. Vessels being paddled should travel closer to the banks and docks when possible and use caution when in the middle of the river. The river has many types of vessels on it, it is the responsibility of its captain to know and understand how to operate their vessel safely and in consideration of others. It is the responsibility of the Marine Board to make sure our river is utilized safely by all. It seems that rules and regulations are being pushed by resources and agendas, rather than continuing to make the waterway available for everyone to enjoy safely. Congestion, confusion, and a lack of direction are making the Willamette river a dangerous place to navigate! We need laws and regulations for all not just a the few. This waterway should be for everyone!

Testimony is presented without formatting.

Stephen Campbell

#154094 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am writing to express my concern over limiting or restricting boats that make wakes on the Willamette. For many years I have lived at the Oregon Yacht Club in a floating home. I swim, paddle board, kayak, wake surf, wake board, fish, yacht (not my own!) and jet ski among other things. I have friends up and down the river with docks and also recreate on the river. Most everyone that I have spoken with is against any new regulations. I have not experienced any problems with wakes. Although living on the river you have to expect some rough water sometimes but mostly from storms, floods, snow, debris and wind. Similar to living on a golf course, you have to expect a golf ball once in a while. Or if you live near an airport you can't complain about airplane noise. It is also somewhat elitist to live on the water or put a dock in and expect everyone else to modify their behavior. Any damage done by wakes would most likely be from deferred maintenance on the home/dock. From what I have learned in my years of boating, you are responsible for your wake whether you are in a no wake zone or not. It boils down to education and common courtesy. If the new no wake regulations are being made to accommodate paddlers, that would be just wrong. It would be discriminatory to prioritize one group over another and push that group into a congested area creating a dangerous situation. I am much more concerned about the derelict boats possibly dumping sewage into the river. The river belongs to everyone. Thank you!!

Lenny Dee

#154093 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

We need quiet rivers. No wake slow zone between Hawthorne and Sellwood Bridges

Testimony is presented without formatting.

John LeCavalier

#154092 | June 15, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Commissioners, I am writing to urge you to recommend establishing a Slow No Wake Zone on the Willamette River, at a minimum between the Hawthorne and Sellwood Bridges. This reach of the river provides unique opportunities for non-motorized recreation as well as habitat for fish and wildlife. I am a kayaker and stand up paddle boarder, and, I will be sixty-nine years old next spring. This is one of the only, if not the only place in the city, I can count on for a minimum of wakes and noise from motorized watercraft. My greatest fear is falling off my board or capsizing in my kayak, and I take extra precaution to afloat. This Slow No Wake Zone provides a much safer and more enjoyable experience. And, I know this also protects other non-motorized activities: canoeists and swimmers are even more at risk and it's reassuring to share the river with them. A Slow/No Wake Zone is also important for the health of the Willamette River and associated riparian areas, including fisheries; noise and wave action pose a threat to juvenile salmon and steelhead. Most of my interactions with jet skiers or motorized boaters have been positive, though it's a regular experience to be on my SUP and have folks zoom right by with apparently no sense of their impact. Please protect this area to provide safe and high-quality non-motorized uses. There's plenty of river for all of us. This South Reach is a sanctuary and needs to be protected. Thank you for your consideration. John LeCavalier Respectfully,

Testimony is presented without formatting.

David Miller

#154090 | June 13, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

This proposal totally discriminated against all power boats and even many sailboats. The original no wake zone In the Holgate channel was the first step, it was implemented because people falsely said that wake boats were causing erosion to the banks of the river. There was never any actual study done to confirm this false idea. That was by far the best spot to wakeboard, wake surf or waterski on the entire river. It was taken away in an instant by false claims of erosion. Now a certain group of boat haters want to take an even larger portion of the river for themselves. This is just wrong and will cause further animosity and division among the many river users. I would like to see a compromise, maybe from the Ross Island bridge to the steel bridge for a no wake zone. This would open the downtown waterfront to more paddle sports, and since it’s a horrible place for wake sports it would actually be a win win. Thank you for your consideration.

Testimony is presented without formatting.

James Moreland

#154087 | June 11, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I live on the lower willamette river in the Milwaukie area and have for 20 years. I am a avid boater and access all areas of the lower Willamette all the way to the Columbia on a regular basis. I am against the proposed no wake restictions as it will cause excessive congestion, sheriff safety access timing, and unfairly give one group greater access than others for use and enjoyment of the river.

Testimony is presented without formatting.

Gary Piercy

#144069 | June 8, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

1) Area-Tom McCall Waterfront Park. In light of the un-used river wall, please consider putting floating docks for boats along the waterfront. Most water front towns us this feature to attract business to the waterfront and allow short term tie-ups for boaters. 2) Ross Island Nature Area. The Ross Island lagoon is too deep for most boaters to anchor except very close to the shore. It is 125 feet in the middle. Consider anchoring a large barge/float in the middle for recreation boats to tie up to. With two porta-potty type restrooms it would allow all boaters to keep from polluting the river and make use of this special feature on our river.

Testimony is presented without formatting.

Jonathan Van Bourg

#144068 | June 8, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

To whom it may concern, I have tried my best to review the Portland River Plan/South Reach. It isn't easy because there is so much information but no concise clear presentation of what is being proposed. If I have asked questions that are addressed in the Plan then please point me in the right direction to find answers. However, I have a few comments about what is covered and particularly about what is not covered. 1. Ross Island is the elephant in the room. I assume that all of Ross Island will soon all be city property to be managed by PP&R but it will not to become a public park only a wildlife refuge. There is a lot of cleanup that will need to be done and who pays for it all is important. There is a serious summer algae problem in the lagoon that will need to be addressed. Instead of just publishing a warning, the problem of HAB's should be addressed with treatment and oxygenation of the benthic zone of the lagoon. Also the bald eagles on Ross Island have effectively taken over the island for breeding so the herons, egrets and osprey have mostly departed. Finally, many local residents like myself would be happy for a chance to explore the island and help the PP&R with cleanup. This should be an open public, community process. 2. The homeless/houseless population that lives along the Willamette river, and in boats and in the South reach is a serious issue that needs to be addressed. There are tents and trash, feces and people all along the East side, down by the river and below 99E and even in Oaks Bottom refuge. There are still many dilapidated boats in the Ross Island channel. If we can't help these poor people find a safe place to live then we should at least provide them with public trash cans with frequent pickup, public toilets and showers. Again, many local residents would be happy to help with cleanup but it needs to be coordinated with PP&R or whatever bureau is responsible. 3. There should be plans for a public boat ramp and boat access on the East side of the river too. Maybe once Ross Island Sand and Gravel is gone. 4. There was recently a lot of work done at Oaks Bottom, removing the culvert and installing a bridge. I was surprised to hear that the project would also fix the problem with invasive plants and animals. There is now just as much purple loosestrife as before and the lagoon used to have muskrats but now we have Nutria. 5. The report states that there are 2 CSO's, Combined Sewer Overflow's that flow into the South Reach. There should be no CSO's in the Willamette river if people also swim in the river. Eliminating CSO's should be part of the plan. If there is anything I can do to help then please let me know. Thanks, Jonathan Van Bourg 723 SE Bidwell St. Portland, Oregon 97202 (415) 246 8727

Testimony is presented without formatting.

Dixie Johnston

#103451 | February 27, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Letter attached.

Testimony is presented without formatting.

Rubber Plantation on Rio Negro Near Manaus, Brazil
(Tributary of Amazon)

Feb 21, 2020

Dear Jeff,

Thank you and the City staff for the work on the So Reach project. I greatly appreciate the detailed langugе for the complex project. Please continue the trajectory as you plan for the Recommended Draft.

I am enclosing two news articles in support for a Healthier Willamette River.

Excellent presentation and responses at PSC work session on 11th.

Respectfully,
Dixie Johnston

Metro & Northwest

The Willamette River flows through Portland. American Rivers named the Willamette to its annual list of "America's Most Endangered Rivers," out Tuesday, *Associated Press, file*

ENVIRONMENT

Group urges federal action to protect Willamette fish

Associated Press

CORVALLIS— The federal government should take action to protect fish runs in the Willamette River, according to a national conservation group.

American Rivers named the Willamette in northwest Oregon to its annual list of "America's Most Endangered Rivers," released Tuesday, The Corvallis Gazette-Times reported Tuesday.

The Army Corps of Engineers should act to protect imperiled spring chinook salmon and winter steelhead runs by improving operations at its 13 Willamette Basin dams, American Rivers said, adding that Congress should secure funding for the work.

An estimated 300,000 spring chinook and 200,000 winter steelhead once came back from the ocean each year to spawn in the Willamette Basin, But those numbers have plummeted since the dams' construction, with fewer than 5,000 spring chinook and 1,000 winter steelhead making the return trip last year, the report said.

Without functioning fish ladders, salmon and steelhead swimming upstream to spawn must be collected and trucked to the tops of the dams, while juveniles migrating downstream cannot get past dams without being forced through power turbines, the report said.

The Corps should follow the terms of a federal biological opinion issued in 2008 following a lawsuit by nonprofit watchdog Willamette Riverkeeper, which called on the Corps to make significant improvements to fish passage and water quality at its Willamette Basin dams, the report said.

"The threat is inaction, to sum it up in a word," said David Moryc, senior director of American Rivers. "We have to do something to make sure Willamette River winter steelhead and spring chinook don't go extinct."

Cities Eye Gizmos to Clean Waterways

By Scott Calvert

Karima Cherif has seen the future of litter reduction in San Francisco Bay, and it is a drag queen decked out in long eyelashes, boa, rainbow colors and lights. She even has a possible name in mind: Trasharella.

"It's very in the spirit of San Francisco," Ms. Cherif said of her vision for an exuberantly adorned machine that would pull floating trash from the water and plop it into a dumpster.

Ms. Cherif, project lead of San Francisco Bay Trash Wheel, draws inspiration from across the country, in Baltimore Harbor's murky waters. There, Mr. Trash Wheel and two other googly-eyed garbage munchers in recent years have scarfed up tons of plastic bottles and other flotsam that had been headed for the harbor from tributaries such as the Jones Falls.

Trash wheels—floating, stationary gizmos that use water current and solar energy to power a conveyor belt—are on a roll in the U.S. at a time of growing public awareness about the environmental toll of trash on rivers, harbors, bays and oceans.

Clearwater Mills LLC, the Maryland company that built the three Baltimore wheels, has a fourth on the way for the harbor. It has done assessments for Ms. Cherif's group and others in Atlanta, Milwaukee and Jamaica Bay, N.Y. The city of Newport Beach, Calif., said it expects to install one in Upper Newport Bay by late 2021 using a $1.7 million grant.

In Los Angeles County, a Dutch environmental group called the Ocean Cleanup will test a similar machine it calls the Interceptor for two years in Ballona Creek. The Ocean Cleanup says two of its Interceptors are operating in Asia, with more planned. Clearwater Mills also works outside the U.S. and says it has a Panama project in the pipeline.

"There's plenty of trash to go around," said Clearwater Mills founder John Kellett, who came up with the idea for a trash wheel in 2007.

The idea is to trap trash before it flows from a river or stream into open bay or harbor waters. Booms guide debris to the trash wheel's mouth, where rakes nudge it onto a conveyor belt. The belt is powered by an old-fashioned water wheel spun by the current and augmented by energy from solar panels. The dumpster floats on a separate platform and is taken away when full.

When Mr. Trash Wheel made its debut in 2014, it had zero personality or human features. Days later, a YouTube video of it in action went viral, and a marketing firm advised the Waterfront Partnership to capitalize with a cartoonish makeover. "I went home and built the first set of googly eyes in my basement," said Adam Lindquist, who directs the partnership's Healthy Harbor Initiative.

The partnership has since added Professor Trash Wheel, and the Maryland Port Administration operates Captain Trash Wheel. Today the machines all have separate social-media accounts.

The machines vary in size and cost between $400,000 and $800,000, including design modifications, permitting, transport, assembly and installation, said Mr. Kellett. In Baltimore, the money has come from grants and fundraising.

Baltimore needs "anything and everything that works to get trash out of the waterways," said city public works spokesman Kurt Kocher.

Newport Beach officials heard about the trash wheel on social media, said John Kappeler, a city engineer. He said the trash wheel will help cut down on trash in the pristine upper bay and give visiting schoolchildren a tangible lesson on littering.

> The idea is to trap trash before it flows into open bay or harbor waters.

"We're trying to make the connection between the Starbucks coffee cup 10 miles inland from Newport Bay that ends up in the bay," Mr. Kappeler said, adding that officials are still angling for a "cool, catchy name."

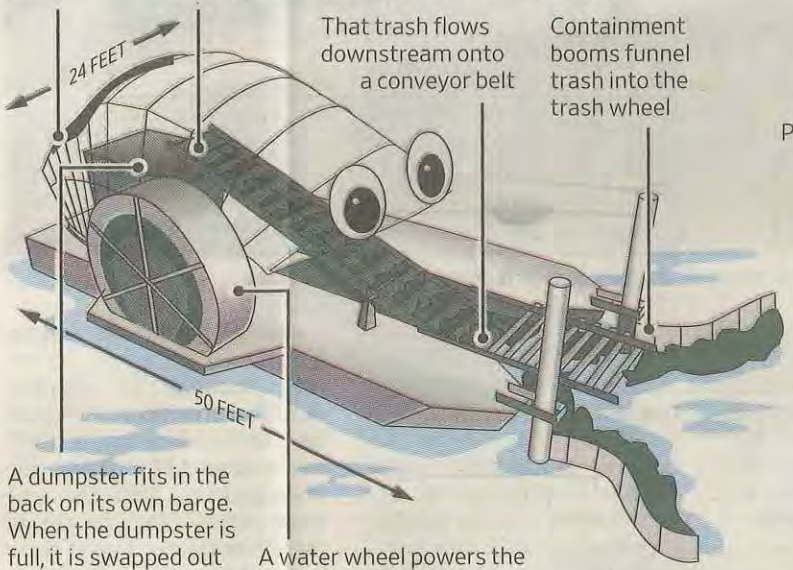
If Milwaukee gets a trash wheel, its name will probably riff on Lynyrd Skymmr, the garbage skimmer boat operated by the local sewer authority, said Lilith Fowler, executive director of Harbor District Inc., an organization formed to revitalize the city's harbor and surroundings. She said her group is about ready to embark on a fundraising campaign.

"After every spring rain, you see this kind of flotilla of trash moving through the city and headed toward Lake Michigan," Ms. Fowler said.

In New York City, a feasibility study identified the outfall of Fresh Creek in Brooklyn as a good location for a wheel to stem the tide of trash entering Jamaica Bay, said Alex Zablocki, executive director of the Jamaica Bay-Rockaway Parks Conservancy. As in Milwaukee, funding is the key hurdle, he said.

Baltimore's experience shows the trash wheels are no cure-all. The city also uses four skimmer boats that cruise around the harbor scooping up trash. They collected 503 tons of garbage last year, the most in five years, but officials note that 2018 was unusually rainy.

How the Trash Wheel Works



Estimated trash collected by Baltimore's three trash wheels since 2014

1,335,807
Plastic Bottles

12,478,576
Cigarette Butts

673,218
Plastic Bags

Note: Dimensions are for the largest trash wheel, Mr. Trash Wheel
Source: Waterfront Partnership of Baltimore
Dylan Moriarty/THE WALL STREET JOURNAL

Ruth Spetter

TESTIMONY REGARDOMG RIVER PLAN/SOUTH REACH PROPOSAL

AS APPLIED TO 12410 SW RIVERSIDE DRIVE, PORTLAND, OREGON

(2/25/20)

I. REQUESTED OUTCOME

I am asking that the Commission reverse the staff proposal for my property and leave the property with the existing environmental zoning.

II. BASIS FOR REQUEST

No physical change has occurred on the property since it was environmentally zoned by the County in the 1980s. The staff proposal is egregiously restrictive without support from facts or the regulations upon which they depend.

No regulation requires this. Some actually are contrary to this proposal as they impact existing residential use.

The proposed rezoning creates a major impact on the value of my property. This is a real life situation. I am 70 years old. I need to be able to sell the house in order to live the rest of my life. There is no need to adopt the staff proposal. I am asking you to use your power to prevent an unnecessary and desire situation.

The rezoning is unsupported by any changes on the property.

The rezoning is unsupported by any condition on the property.

The City's park land abuts my property. I ask why is the City limiting the use of my property so severely and doing nothing to the rich neighborhoods across the street from me and below me when they have the same tree conditions I have and sit right along the river? It does not feel right. It feels like there may be another reason for the City's action on this one little lot and the two next to it. I am only addressing how it feels.

III. THE AMOUNT OF DOCUMENTATION SHOULD NOT SWAY YOU

Staff depends on many studies. The admirable nature of the study topics prove nothing about the appropriate zoning for any certain piece of property.

Planners, like any of us, can become enthralled with their data and I am asking you not to be likewise enthralled but to consider the reasons the regulations upon which staff depends were adopted and see that keeping the existing zoning on my property is all that is needed to meet the objectives addressed by these studies. I am asking you to do this because of how this proposal will affect my future. I am asking you to look at the regulations, look at the land and see that the existing zoning is adequate as it has been.

IV. THE REGULATIONS UPON WHICH STAFF DEPENDS ARE FOCUSED ON THE WILLAMETTE RIVER AND ITS RESOURCES. THERE IS NO NEXUS BETWEEN THE CITY'S PROPOSAL AND THE OBJECTIVES OF THE REGULATIONS AS APPLIED TO MY PROPERTY.

A. The Objectives of State Land Use Goal 15 CANNOT be used to Support More Stringent Environmental Zoning on My Property

State Land Use Goal 15, ("Goal,") is entitled "Willamette River Greenway" and, as I understand staff, was a guiding, if not *the* guiding, concept document for the City's river plan work.

By its own terms the Goal's purpose is:

"To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational uses of lands *along* the Willamette River and the Willamette River Greenway." (Emphasis supplied.) OAR 660-015-0005 Opening Paragraph.

My property is in no way "along" the river. It sits more than 100 feet above the river. As stated previously, my property has no contact with the river or any river related uses. Why it was ever included in the Greenway is a mystery to me but certainly, unlike most Greenway property, my property is far, far away from the river and river related uses.

The Goal continues: "The qualities of the Willamette River Greenway shall be protected … *consistent with the lawful uses present on December 6, 1975."* (Emphasis supplied.) My house is a lawful use and has existed for almost 100 years, well before December 6, 1975.

The Goal then discusses agricultural lands, recreational lands, public access to the river, "significant" fish and wildlife areas, public safety, vegetative fringe along the river, timber resources, aggregate extraction, and setbacks from the river". None of these apply to my property.

It provides that "lands committed to urban uses … shall be permitted to continue as urban uses including "residential uses"…." The proposed zoning would greatly interfere with the use of my long existing residential use sitting more than 100 feet above the river with no access to the river.

The Goal also discusses acquisition of lands but staff has not, to my knowledge, suggested acquisition of my or any of the three properties along Highway 43 which have been singled out for the intense environmental zoning limitations. This intensification is not required by the Goal.

In Section K the Goal makes it clear that this objective is not to interfere with the normal uses of an existing residential use, to not limit normal and customary uses of the property and the same as to emergency needs. "Landscaping, construction of driveways, modification of existing structures or placement of such subsidiary structures or facilities adjacent to the residence as are usual and necessary to such use *shall not* be considered an intensification for purposes of this Goal." K.3. (Emphasis supplied.)

In other words, protection of the river was not intended to negatively impact existing residential uses which in no way impact the river or its uses like my property.

B. <u>City Code Title 33.440 Greenway Overlay Zones – River Focus Here Too – No Basis for Applying most Stringent Environmental Zoning to all of my Property.</u>

The City's Greenway Overlay Zones chapter ("**Greenway Zones**,") also strongly focuses on the river itself and the use of the lands sitting on its banks.

These regulations are intended to: "Protect, conserve, enhance and maintain historical, economic, and recreational qualities of *lands along* Portland's rivers. … increase public access to and along the Willamette River for the purpose of increasing recreational opportunities, providing emergency vehicle access, assisting in flood protection and controlling, providing connections to other transportation systems, and helping to create a pleasant, aesthetically pleasing urban environment; and implement the City's Willamette Greenway responsibilities, and implement the water quality performance standards … to protect functional values of water quality resources which include maintaining a vegetative corridor to separate protected water features from development, … maintaining natural stream corridors, …." 33.440.010 (Emphasis supplied.)

None of these goals apply to my uphill site. My property does not sit along the river. It has no access to the river, no trails, no river banks, no recreational uses, not in a flood plain, not in a setback area and so on.

I keep repeating this because I think that a fair reading of Goal 15's objectives is river protection without negative impact on existing residential uses and the City's proposed rezoning, being over broad, has a major negative impact on existing residential uses far beyond anything imagined by the authors of the Goal or Title 33.440, and not necessary or reasonably connected to the objectives stated by the Goal or Code.

The five river overlay zones are listed in 33.440.030. They do not provide a reasonable basis for the City's current decision to completely encircle my home with environmental zoning, something the County never found necessary and the need for which has no factual, supporting evidence.

The River Natural Overlay Zone: Intended to protect lands with "*significant importance* as wildlife habitat." I have not been shown any facts suggesting that my property, lying as it does directly on (or along) a highway and ending as it does at a manmade tunnel, is of significance for wildlife habitat. (Emphasis supplied.)

While the City's materials still suggests the possibility of elk roaming the area I can tell you that in almost 40 years there have been no elk on my property nor have I seen any elk on the properties abutting mine.

As we have no police protection the area is policed by a provide security service. This service alerts its members to unusual events. I am a member. I have never seen a report of an elk herd or a single elk roaming the any of the area. Never. Not one.

Apparently, a cliff dwelling bird has been seen on the cliffs of a property about half a mile or more north of mine. I have no cliff at the end of my property. I have never seen this bird. There are no photos of it flying over my property.

(As an aside I note that one of the maps staff is reviewing is one designating the property (the Bishop's Close) where there is a cliff, and the bird has been seen, as open for development.)

The words "significant importance" were used to indicate not just land upon which plants and animals might exist but something much more. There are no facts of which I am aware indicating that my property actually is "significant."

It is grossly unfair to burden my property so drastically based on no proof of its actual significance.

C. <u>METRO's Title 13 does not require my property to be encircled by environmental zoning</u>

Metro's Title 13, Nature in Neighborhoods, is another document upon which staff relies. It is a 121 page document. I only learned of it just as I was leaving town for the Christmas Holidays. I have not been able to read and digest it. My preliminary comments on Title 13 are thus limited in terms of reference to specific sections. I do not believe it changes anything in terms of my arguments.

The intent of Metro's Title 13 is:
"Conserve, protect, restore a continuous, ecologically viable streamside corridor system … that is consistent with upland wildlife habitat and with the surrounding urban landscape" and to prevent water pollution. Section 13.07.1310.

Nothing in this intention statement means that properties, like mine, more than a hundred feet from the river, with no alleged impact on the river or access to the river, and with no reasonable basis for being called a significant wildlife habitat must be entirely zoned environmental. In fact, I would argue it says just the opposite. I would further argue that all of the regulations upon which

the City relies say just the opposite and expect regulations to be respectful of existing uses and *not* be overbroad in their application.

D. RIVER PLAN/SOUTH REACH VOL.3 – NATURAL RESOURCES

Preliminarily, it struck me that Volume 3 very generally addresses many laudable concepts, interesting bits of information about history, nature, and aspirational relationships. Addressing the same, in concept, however, in no way requires that my specific property be rezoned environmentally as staff is currently proposing.

Again, I noticed the focus on the river itself. See pages iii-iv, discussing the river and its riverbanks, riparian corridors and floodplains. Not my property.

I noticed that under "Trees and Landscape Vegetation," on page v, it is stated that only "patches of trees that are at least one-half acre in size are assigned a relative rank for wildlife habitat." I have no such patch on my property.

It is also stated that: " Ross Island, Oaks Bottom Complex, Willamette Moorage, Powers Marine and parts of Dunthorpe all have significant tree canopy and receive a medium relative rank for wildlife habitat." Looking at the oak map there are heavy patches of oak across the highway in Dunthorpe. If protecting these trees, and thus the birds you believe rely upon them, are your goals why are the large patches of oak and other trees, just across Highway 43, in Dunthorpe, going unregulated? Why are the very same trees, in Dunthorpe, listed as "low rank resource?"

Why are the large properties down by the river, which have land the City designates as "forest" in their back yards, unrestricted while my property is severely limited? See maps 67 and 69.

From a scientific standpoint – it makes no sense. Birds fly over highway 43. They do not know about Greenway boundaries. Why is a property like mine, with no or little canopy, especially up where the house is located, so severely zoned, (right up to the road,) while the large estates, with many trees, just across the highway, are not regulated at all? How does not achieve the City's objectives?

Why are the very same types of trees which are being identified as a basis for the severe environmental zoning on my property, but located in Dunthorpe proper, listed as "low rank resource," and the properties only designated "tax lot"?

I also note that the large properties at the river, with a City designated" forest" behind them, do not appear to have been given any wildlife ranking and simply designated "tax lot." Is this an intentional discrepancy and if not why, in terms of the City's objectives, are they not also designated special habitat area?

I also note that the City has, at least in part, designated property outside of the River Plan's boundaries. See map 69. Why wasn't that done in Dunthorpe? River Plan boundaries obviously do not limit the area reviewed by the City and determined to be Special Habit Areas.

Ominously, it is further stated that: "the protection recommendation for these habitat areas and other similarly-vegetated areas *is to limit future development.*" This sounds close to a planned taking by the City without compensation for the properties it is proposing for the strict environmental zoning.

It looks like my property is zoned woodland on the maps. Of course it is not a woodland – it is part of a residential strip which runs along Highway 43. And, while there certainly are some park areas south of the Sellwood Bridge there are many, many existing residences too on the east and west sides of Highway 43, such as my own. This is a residential area.

I am feeling that the City sees my property, due to its being next to the City park land, as a nice park or Greenway extension, perhaps some time in the future. Limiting the development possible on it would certainly benefit the City in that case.

But my property is private property. It should not be burdened with unwarranted environmental zoning, punished in effect, because it is next to the City's "park" property.

The objectives listed starting on page 3 once again are river specific which is not surprising considering the Goal and its objectives.

The Overview section, pages 6-18 continues this river related review discussing the river, its flows, and its importance for fish habitat. It also addresses birds in a very general way by noting that as many as 245 types of birds could be using a flyway running from Alaska to Argentina. Nice to know but not property specific. No basis for the extreme environmental zoning on my property.

Some of these birds, the report states are " species of concern," and this may be true but it in no way tags my property as the saving landscape for these birds – there is nothing specific. It is interesting for bird lovers to read but does not support the rezone which is a very big deal to me.

Habitats which protect the birds are listed as "rivers, and open waters, wetlands, native oak, riparian bottom land hardwood forest, grassland habitat, and mudflats." Page 9. There are oaks on the City property. Except for the oak none of the other types of land for these potentially endangered birds fits my property and I am not sure about the oak on my property either.

Certainly, the amount of oak the introduction to this volume states will be regulated is not applicable to my property.

The proposed, strangling rezone is not necessary to reach the City's objectives and is a stretch too far.my property. The City's stated objectives can accomplished by dropping the zoning to the bottom of my property. Not by encircling my home.

As to mammals – the majority the report addresses those which use the river. My property does not go to the river. I do not have the habitat the City is trying to preserve. Limiting and impeding my ability to sell my property, through unnecessary but frightening environmental zoning envelopment, does not make sense, does not provide a nexus between the City's objectives and my property.

At this time I have not had an opportunity to see the Adolfson Associates habitat inventory report. See page 56 of Vol. 3. I thus cannot comment upon it or determine its reliability and applicability to my property and the proposed rezoning. If, however, it recommended that my property, and those of my neighbors, be designated a highly important habitat area, it is in error for all of the reasons discussed above.

In terms of basis for the proposed rezoning of my property, the general concepts found in Vol. 3, page 73, do not support the rezoning for my property and reinforce my contention that it is special, river related aspects of the lands abutting the water which are properly the focus of Vol. 3 and the River Plan effort. Property unlike mine. Especially see pages 72-73.

Chapter V of Vol. 3 describes the results of information relied upon by the City. It discusses:

1. River bank character and vegetation. My property is more than 100 feet from a riverbank.

2. Fish and wildlife – The river is discussed here, as a corridor for fish and wildlife. Types of fish are discussed for several pages. My property is more than 100 feet from the river, has a train tunnel and other properties between it and the river. It does not affect fish.

3. Birds – the river is described as an important flyway for birds as are its wetlands, open water, beaches and rocky out-crops as are trees and shrubs for "neotropical migrant songbirds." Page 79. I have never seen such a bird on my property. No such bird has ever come to a feeder when I had feeders. I would have noticed.

Bridges are described as attractive to Peregrine falcons. My property does not contain or have any connection to a bridge, cliff or similar structure. I have never see a Peregrine falcon at all let alone on my property.

4. Mammals – Nothing in this section would suggest that my home must be encircled by strict environmental zoning. Nothing suggests that the negative impacts of the proposed rezoning will do anything for any creature listed. The property is nowhere near to the river.

5. Macroinvertebrates – Theses are aquatic insects – no applicable to my property.

Vol. 3 states that there are significant amounts of oak and madrone trees in this study area and cliffs. See page 188. I have no madrone trees. There is no cliff below by property. My property sits west of the tunnel. I have been told that the property east of mine has no cliff associated with it either. My property should not be so heavily, environmental zoned. My home, sitting as it does at a highway, should not be considered a significant habitat and certainly not that portion of it right up against that highway.

Fish are discussed starting at page 191. Not applicable to my property or a basis for its rezoning.

The river "and shallow water habitat are designated Special Habitat Areas because they meet the following criteria:

- "An at risk species use the habit area on more than an incidental basis to complete one or more life history phases.

- "Wildlife connectivity corridor

- "Migratory stopover habitat." Pages 193-194.

There are no facts supporting a determination that my property, high above the river, mostly open and free of trees and significant bushes, provides any of these things. It should not be considered a special habitat area.

According to Vol. 3, the City's property contains a rare combination of Oregon white oak and madrone trees. My property does not. My property should not be burdened with environmental zoning simply because it sits next to the City's property especially where the portion of the City's property with those trees exists north of the wide open slope next to my property.

It feels like the City has come into possession of a property with trees, land formations and vegetation meeting the criteria for a Special Habitat Area and perhaps would like to extend, some day, its property to the south. With the proposed rezoning the City would limit the uses on the three properties directly south of its property even though they do not meet the criteria for Special Habitat Area. Otherwise, the proposed rezoning makes no sense and does not meet the City's own area criteria for such a designation.

Vol. 3 goes on to say that the property within the Plan's designated Dunthorpe area has been evaluated for "relative riparian and wildlife habitat quality." P 195. All of the "ranked resource areas provide at least some important riparian and habitat value." P 196. My property has zero riparian value sitting as it does more than a hundred feet above the river and an honest look at the property as habit would rank zero to low for any endangered species.

"Within the context of this inventory model, a wildlife habitat patch is defined as forest and/or wetland areas 2 acres in size or greater." P 196. I have no such patch on my property.

"Special Habit Areas … consist of rare and declining habitat types and features that provide critical habitat for at-risk plant and animal species." Clearly, this is a high standard and is not applicable generally.

The River Plan, as applied to my property and the two south of me, appears to be being used as a place holder for the City for species for which there is no proof of existence at these locations. It is not truly a preservation document so much as a way to limit development on our three properties, as the Plan provides is its intention.

E. <u>Use Regulations</u>

Code section 33.440.100 A. provides, in part, that: "In most cases, the greenway zones do not restrict primary uses that are allowed in the base zones by right…." My residential use is allowed in the base zone by right and has been for many, many years. There is no issue about this.

I'm not sure that the rest of this section applies to existing uses but since none of the Greenway overlay zones apply – this section only supports my position that my use of the property should rightfully be left alone and not burdened with the environmental zone and certainly not to the extent of encircling my property.

If the City, even in light of the fact that my property has no river impact, still wants to place an environmental regulation upon the property then the only reasonably defensible decision would be to do so lower on the property where there are a few trees closer to trees on the City's property but not up around the house where there is so much open space on my property and the City's.

Once again, my property is not on the river's bank, not in a flood zone, is not in a river setback area, does not affect salmon restoration areas, is not riparian, has no trails, has no river access

V. MY PROPERTY COMPLETELY VISIBLE FROM THE CITY'S PROPERTY WITH THE NAKED EYE AND HAS BEEN SO FOR DECADES – NOTHING NEW

My property can be seen from the City's property and the land along the state highway. It is just land – with no special attributes. It has been that way for decades. No new fancy radar required to see what is there and that nothing has changed.

All sides of my property are visible from the right of way and or City property and have been so for years.

Standing on the highway shoulder at the City's property, and looking south to my property you will see some trees and quite a bit of scraggily hedge. I do not know what kind of hedge it is.

Thereafter, is the parking pad and proceeding past the parking lot there is just highway railing and some potted plants. There is one tree in this area too.

The eastern or river side of my property is open space until you get to the bottom where there are few more trees. This is very similar to the abutting City property.

No one would every call the trees on my property a "forest." The sky is visible as are abutting lands. The only part of the property where there are some trees close together is at its bottom, just as exists on the City's property.

The county saw no need to encircle my home with environmental zoning and there is no need to do so today. Nothing has changed.

VI. THE LAND

A. THE CITY PROPERTY

The City owns some land along Highway 43 just north of Lake Oswego. A portion of that land is level and contains some trees and weeds. Directly south on the same site is a large, wide, open swath of steep hillside running west from the Highway towards the Willamette River on the east. I do not know that it actually goes to the river but it may.

The wide open hillside is what abuts my property. There are some trees toward the bottom of the City's property but generally the property is wide open. There was a snag close to the highway for a while but it appears to have been removed by the City.

Two years ago the City killed everything growing on the hill and the dead stalks and debris lie there still. Every summer I worry about fire from that hillside as the fallen stalks and debris lie there and bake.

The City's property is called a park but the fact is that there is no public access. On the west side the property ends in either a state highway stone wall or a link fence which is in poor repair.

The portion of the City's property running along highway 43 is littered with all manner of debris including bottles, pieces of fabric, wrappers, food containers and so on. Plastic buckets also lie on the slope itself. The property has been in this condition for years. I know because I took the bus to work for 34 years right on 43. I've seen that property in this condition for a long time.

The City's property is in no way what anyone would consider a park.

B. MY PROPERTY

I own a small steep, narrow site directly abutting the City's land. My home is very small and is about 100 years old. The site is too small to subdivide. I have lived on this property for approximately 42 years.

The west end of my property abuts the highway and, except for a small parking pad, my property directly abuts Highway 43. There are no sidewalks.

The property runs down a steep hill to the east and stops at the west end of an existing train tunnel and existing train tracks. The tracks and tunnel are still in use.

My property does not go to the river, has no rights to access the river. It has no way to access the river. It does not provide access to the river for any river related activities. It does not contain any trails. Why it is include in the Greenway in the first place is not clear to me.

My property does not sit within the flood plain and does include any river banks or setback areas. It is a small piece of land on a slope running between a state highway, a tunnel and tracks.

The property east of the tunnel and tracks belongs to someone else.

One or two fir or pine trees exist on the side abutting the City's open hill but generally the property is open just like the City's hillside until the bottom where there are a few more trees and, with the City trees, can create a sort of canopy though not dense.

It is through this shared, slightly treed area that the County ran the environmental zoning.

What the City is proposing today, however, is to rezone all of my property environmental, even though most of it is open space AND NOTHING HAS CHANGED ON THE PROPERTY SINCE THE COUNTY'S ZONING. From an environmental aspect this makes no sense. If you want to want to limit development on the property, for whatever reasons, then that is the way to do it.

All sides of my property are visible from the right of way and or City property and have been so for years.

Standing on the highway shoulder at the City's property, and looking south to my property you will see some trees and quite a bit of scraggily hedge. I do not know what kind of hedge it is.

Thereafter, is the parking pad and proceeding past the parking lot there is just highway railing and some potted plants. There is one tree in this area too.

The eastern or river side of my property is open space until you get to the bottom where there are few more trees. This is very similar to the abutting City property.

There is one tree close to the house. It will never be removed as it would take the hill with it. It appears to be some type of oak.

No one would every call the trees on my property a "forest." The sky is visible as are abutting lands. The only part of the property where there are some trees close together is at its bottom, just as exists on the City's property. No one would ever call my property "significant" for any reason which ought to be the basis for such constricting environmental zoning..

VI. WHY THIS IS SO IMPORTANT TO ME

Every bit of environmental zoning limits the value of a property and means thousands of dollars to anyone who owns it in terms of hearings, reviews and compliance.

When there is no proof that the siting of any animals the City is trying to protect has occurred on my property, when there is no forest around my house, when there is no indication that any rare flowers are growing on my property, when there is no proof that any birds require my house to be encircled with environmental zoning any more today than they did 20 years ago when the same trees existed and open space existed, and when that same encircling zoning will deeply cut into the attractiveness of my property to any potential purchaser, and thus the purchase price, you

can see why the City's decision to apply so much environmental zoning to my property is, to me, critical, unreasonable, unnecessary and so damaging.

If the City feels compelled to apply the protective zoning apply it where it might make a difference and more likely effect the City's stated goals without damage to the homeowner. If there is a canopy it exists down there between the lower part of the City's property and mine, at the tunnel.

The City's decision should be a solid one not just based on prior actions by another entity for whom it now acts.

VII. CITY'S PROPOSED REZONING WORKS AS A DISiNCENTIVE AND PUNISHMENT

As I read the maps, large estates across the highway from my home and those closer to the river, are left unregulated while the three properties (mine and the two south of me) at the highway are encased with environmental zoning.

As I understand it, these larger properties are not receiving the environmental zoning because they have already cut down all the trees, or they simply have been left out of the study area. The City's own maps make it clear that many trees and tree canopies exist in these areas, many more than on my property. A walk or drive through both areas would show the same.

If the City's objectives are really the preservation of plants, trees and animals, even those not seen by anyone living today, rather than some other objective, then there is no need to encircle my home with environmental zoning. Drop the zoning down to the lower part of my property where the trees on the City's property are closer to the trees on my property.

If the City's objective is something else, some unspoken future Greenway plan for example, which would benefit the City by limiting development on my property, using the zoning this way would be improper. I am not aware of such a plan but the proposed rezoning is so unwarranted by the facts on the ground that I am trying to understand what might be underlying the decision.

IX. NO NEW FACTS EXIST TO SUPPORT PROPOSED REZONING

Staff says that the new proposed rezoning is due to new evidence regarding what exists on my property but there are no new facts and anyone can see that just be looking.

The City does not need some fancy new fly over LIDAR mapping to see the existing trees and open spaces on my property and the vast swathe of open space on its property where it abuts my own. Staff can, and has long been able, to see my property on all sides from the City's property and the state right of way.

There are no new trees. You can tell that the existing trees have been there a long time. There are no new facts supporting this drastic rezoning

X. CONCLUSION JUST BECAUSE YOU CAN DOES NOT MEAN YOU SHOULD WHEN NOT NECFESSARY AND VERY VERY HARMFUL

I believe I have made my points about why the River Plan should not propose placing my property in very limiting environmental zoning.

If the City insists on placing environmental zoning I have suggested that the location most appropriately is at the lower end of my property where what collected trees there are close to those trees on the City's property which, like mine, has a lot of open space higher on the slope.

Thank you for the time you have given to me and for considering my comments.

SUMMARY SHEET FOR USE WITH SPETTER WRITTEN SUBMISSION

Susannah Marriner

#103450 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Letter attached.

Testimony is presented without formatting.

I HAVE BEEN A PORTLAND RESIDENT FOR 25 YEARS. AS I LIVE IN THE PEARL, ONE OF THE HIGHEST DENSITY NEIGHBORHOODS IN THE CITY, THE GREENWAY HAS BEEN A REFUGE FOR ME ALL THESE MANY YEARS. I WALK THE GREENWAY PATH SEVERAL TIMES A WEEK (WEATHER PERMITTING) AND HAVE DONE SO ALL THESE MANY YEARS. THE GREENWAY IS NEAR AND DEAR TO MY HEART - TO BE ABLE TO ENJOY THE DEEP PEACE AND QUIET IN THE EARLY MORNING HOURS - TO BE IN THE COMPANY OF OSPREY, RED-TAILED HAWKS, BALD EAGLES - HAS BEEN SUCH A COMFORT. I AM WRITING TO YOU TODAY IN THE HOPE THAT YOU WILL REMEMBER THAT THE GREENWAY PATH WAS INTENDED FOR ALL THE CITIZENS OF PORTLAND. PLEASE MAINTAIN THE INTEGRITY OF THE PATH AS IT IS A REMINDER TO US ALL THAT WE SHARE IT WITH WILDLIFE, NATIVE PLANTS - IT IS SO MUCH MORE THAN A WALKWAY - IT IS THE VERY HEARTBEAT OF THE CITY. PLEASE PROTECT THIS BEAUTIFUL GREENWAY PATH AND ALL THE MANY LIFEFORMS IT NURTURES:

- THE NATURAL RESOURCES EXISTING IN SOUTH REACH DESERVE A 100-150' SETBACK
- ANY DEVELOPMENT SHOULD MOVE OUTSIDE

THE SETBACK

- STRENGTHEN THE LANDSCAPING REQUIREMENTS TO INCLUDE REVEGETATION EVEN WHEN REMOVING INVASIVE SPECIES WITH NATIVE PLANTS.

THANK YOU FOR YOUR TIME - AND PLEASE CONSIDER - WHAT I HAVE TO SAY.

WE ARE SO VERY FORTUNATE TO HAVE THIS WONDERFUL PARK. WE ARE SO VERY FORTUNATE TO LIVE IN SUCH A VIBRANT, BEAUTIFUL CITY.

SINCERELY,

SUSANNAH MARRINER
1230 NW 12TH AVE APT 334
PORTLAND, OR 97209

Joe Severson

#103449 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thank you for the opportunity to provide testimony. Please find the attached pdf.

Testimony is presented without formatting.

Oregon
Kate Brown, Governor

State Marine Board
435 Commercial St NE, Suite 400
PO Box 14145
Salem, OR 97309-5065
Main (503) 378-8587
Fax (503) 378-4597
www.BoatOregon.com

To:
Debbie Bischoff
Senior Planner, River Planner
City of Portland Bureau of Planning and Sustainability

Date: 2/26/2020

Attn: River Plan/South Reach Proposed Draft

Thank you for the opportunity to participate in the proposed draft review process, and for accepting our comments from previous iterations of the draft review process.

On the topic of regulatory requirements described in the River Plan, river overlay zones, Metro's Title 13 Nature in Neighborhoods Program, and the City of Portland's NRI, includes a minimum of 50 feet of a setback to protect the riparian corridor. We respect and understand the need to have the setback and a robust riparian zone along the river corridors. We request an exemption for public boating facilities (paddling and motorized) to accommodate ADA accessibility. Public facilities must comply with the Americans with Disabilities Act. For reference, here is the link to the U.S. Access Board ADA Standards for Recreation Facilities Chapter 10. Recreational boating is in part 1003. ***https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards/chapter-10-recreation-facilities#1003 Recreational Boating Facilities***
Chapter 4 Accessible Routes covers the route from the designated parking space to the top of the boat ramp, carry down or gangway connection. Because of these requirements, an exemption should be allowed associated with boating facilities (water-dependent).

The River Plan proposes improvements and renovations at six public boating facilities. Renovations such as boating improvements to Powers Marine Park, former Staff Jennings site, Oaks Park dock for boat tour/excursions and community boathouse, Spokane Street boat launch, Sellwood, and adding a non-motorized launch at Willamette Park. Is it planned for all six sites to be improved, or are some sites intended as alternative locations? Motorized boating facilities are commonly located every five miles along a waterway, and every one to three miles for non-motorized boating with access staggered from bank to bank. Staggering boating access in this way has become the national standard and relates to how boaters use facilities. Spokane Street, Oaks Park, and Sellwood, for example, are existing or proposed boating facilities within a third of a mile from each other on the same bank. The south reach is already heavily used by recreational boaters. The Marine Board considers proximity to existing facilities when evaluating grant applications.

The River Plan calls for boat storage for non-motorized watercraft at parks and open spaces with boat launches. When planning for the placement of such amenities, for safety, we recommend avoiding areas adjacent to or near amenities designed for launching motorized boats and the boat maneuver area. A maneuver area of 90 feet from the top of the concrete boat ramp allows adequate space for boaters to align their trailers with the ramp before backing down the ramp. Careful consideration over the

placement of amenities such as a kayak rack to allow for staging, transferring gear, loading, and unloading from the boat storage can enhance the boating experience for everyone.

The Marine Board strongly recommends that any recreational boating development, replacement, or improvements be implemented and operated through Portland Parks and Recreation. Doing so would provide for consistency in operations and better alignment with the City of Portland bureau's mission and vision statements. An example would be the development of a Spokane Street boat launch owned by the Portland Bureau of Transportation.

The South Reach River Plan includes guidelines for residential docks, in which; the plan outlines protections for shallow water habitat and navigation. The guidelines do not include any information for applying these criteria to river conditions and loading criteria such a wind, wave, wake, current, debris, impact, etc. Many parties are purchasing docks and are frustrated when the docks do not perform to their expectations. The Willamette River is dynamic and subject to fluctuations in water elevations and flow. The Marine Board recommends including in the residential dock guidelines; that floating structures must be designed and engineered for the waterway conditions and their intended use of the floating structure.

Additionally, we recommend that structures should be set back from the edge of the navigational channel a minimum of 100-feet but preferably 200-feet. We appreciate that the Plan recognizes that structures should not be in the navigational channel creating unlawful obstructions and impeding navigation. A setback from the navigation channel will also provide a buffer from wake and wave action.

The Willamette Park Redevelopment and Phasing Plan identify laying back the bank south of the boat ramp to create additional shallow water habitat. We recommend that the City complete hydraulic analysis and modeling of the proposed bank modifications. Doing so may help the City avoid an increased financial burden to complete maintenance dredging for the boat ramp.

Willamette Park is a regionally significant boating facility. The parking area and parking spaces are under-sized for current standards and can become difficult to maneuver in the travel aisles. If a commercial or retail business establishes within Willamette Park, careful consideration should be given to determine how to separate boat rental activities from the boat ramp and boating associated parking. Separation of use and well thought out management plan will reduce conflict and congestion at this popular regional destination. The creation of a dedicated non-motorized launch in Willamette Park, as identified in the River Plan, will help separate that use. Additionally, we would recommend adding retail after the establishment of a dedicated non-motorized launch is complete.

With the passage of Senate Bill 47 in 2019, the Waterway Access Permit replaces the AIS permit. The permit funds two programs: AIS Prevention Program and Boating Facility Grant Program to facility providers. The Boating Facility Grant Program is a funding source to improve and develop recreational boating facilities by adding single parking spaces, non-motorized boat launches, restrooms, and low-freeboard docks, for example. The Waterway Access Permit will continue to fund the AIS Prevention Program. Grants will also be available for tribal governments, and public and non-profit entities for boating safety education/equipment.

Recreational boaters and riparian landowners heavily use the South Reach of the Lower Willamette in Portland. As a result, we strongly recommend that the City of Portland carefully evaluate any amenities,

infrastructure, new or increased use that would compound or exacerbate these conditions. The Marine Board would like to remain informed on this planning process.

We look forward to discussing alternative solutions or concepts. We much appreciate this opportunity to collaborate and look forward to future partnering opportunities between the City of Portland and the Oregon State Marine Board.

Joe Severson, GISP
Oregon State Marine Board
Planning and Mapping Coordinator
Boating Facilities Program
503.378.2629

Ruth Spetter

#103448 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Letter attached.

Testimony is presented without formatting.

Ruth Spetter

TESTIMONY REGARDOMG RIVER PLAN/SOUTH REACH PROPOSAL

AS APPLIED TO 12410 SW RIVERSIDE DRIVE, PORTLAND, OREGON

(2/25/20)

I. REQUESTED OUTCOME

I am asking that the Commission reverse the staff proposal for my property and leave the property with the existing environmental zoning.

II. BASIS FOR REQUEST

No physical change has occurred on the property since it was environmentally zoned by the County in the 1980s. The staff proposal is egregiously restrictive without support from facts or the regulations upon which they depend.

No regulation requires this. Some actually are contrary to this proposal as they impact existing residential use.

The proposed rezoning creates a major impact on the value of my property. This is a real life situation. I am 70 years old. I need to be able to sell the house in order to live the rest of my life. There is no need to adopt the staff proposal. I am asking you to use your power to prevent an unnecessary and desire situation.

The rezoning is unsupported by any changes on the property.

The rezoning is unsupported by any condition on the property.

The City's park land abuts my property. I ask why is the City limiting the use of my property so severely and doing nothing to the rich neighborhoods across the street from me and below me when they have the same tree conditions I have and sit right along the river? It does not feel right. It feels like there may be another reason for the City's action on this one little lot and the two next to it. I am only addressing how it feels.

III. THE AMOUNT OF DOCUMENTATION SHOULD NOT SWAY YOU

Staff depends on many studies. The admirable nature of the study topics prove nothing about the appropriate zoning for any certain piece of property.

Planners, like any of us, can become enthralled with their data and I am asking you not to be likewise enthralled but to consider the reasons the regulations upon which staff depends were adopted and see that keeping the existing zoning on my property is all that is needed to meet the objectives addressed by these studies. I am asking you to do this because of how this proposal will affect my future. I am asking you to look at the regulations, look at the land and see that the existing zoning is adequate as it has been.

IV. THE REGULATIONS UPON WHICH STAFF DEPENDS ARE FOCUSED ON THE WILLAMETTE RIVER AND ITS RESOURCES. THERE IS NO NEXUS BETWEEN THE CITY'S PROPOSAL AND THE OBJECTIVES OF THE REGULATIONS AS APPLIED TO MY PROPERTY.

A. The Objectives of State Land Use Goal 15 CANNOT be used to Support More Stringent Environmental Zoning on My Property

State Land Use Goal 15, ("Goal,") is entitled "Willamette River Greenway" and, as I understand staff, was a guiding, if not *the* guiding, concept document for the City's river plan work.

By its own terms the Goal's purpose is:

"To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational uses of lands *along* the Willamette River and the Willamette River Greenway." (Emphasis supplied.) OAR 660-015-0005 Opening Paragraph.

My property is in no way "along" the river. It sits more than 100 feet above the river. As stated previously, my property has no contact with the river or any river related uses. Why it was ever included in the Greenway is a mystery to me but certainly, unlike most Greenway property, my property is far, far away from the river and river related uses.

The Goal continues: "The qualities of the Willamette River Greenway shall be protected … *consistent with the lawful uses present on December 6, 1975."* (Emphasis supplied.) My house is a lawful use and has existed for almost 100 years, well before December 6, 1975.

The Goal then discusses agricultural lands, recreational lands, public access to the river, "significant" fish and wildlife areas, public safety, vegetative fringe along the river, timber resources, aggregate extraction, and setbacks from the river". None of these apply to my property.

It provides that "lands committed to urban uses … shall be permitted to continue as urban uses including "residential uses"…." The proposed zoning would greatly interfere with the use of my long existing residential use sitting more than 100 feet above the river with no access to the river.

The Goal also discusses acquisition of lands but staff has not, to my knowledge, suggested acquisition of my or any of the three properties along Highway 43 which have been singled out for the intense environmental zoning limitations. This intensification is not required by the Goal.

In Section K the Goal makes it clear that this objective is not to interfere with the normal uses of an existing residential use, to not limit normal and customary uses of the property and the same as to emergency needs. "Landscaping, construction of driveways, modification of existing structures or placement of such subsidiary structures or facilities adjacent to the residence as are usual and necessary to such use *shall not* be considered an intensification for purposes of this Goal." K.3. (Emphasis supplied.)

In other words, protection of the river was not intended to negatively impact existing residential uses which in no way impact the river or its uses like my property.

B. <u>City Code Title 33.440 Greenway Overlay Zones – River Focus Here Too – No Basis for Applying most Stringent Environmental Zoning to all of my Property.</u>

The City's Greenway Overlay Zones chapter ("**Greenway Zones**,") also strongly focuses on the river itself and the use of the lands sitting on its banks.

These regulations are intended to: "Protect, conserve, enhance and maintain historical, economic, and recreational qualities of *lands along* Portland's rivers. … increase public access to and along the Willamette River for the purpose of increasing recreational opportunities, providing emergency vehicle access, assisting in flood protection and controlling, providing connections to other transportation systems, and helping to create a pleasant, aesthetically pleasing urban environment; and implement the City's Willamette Greenway responsibilities, and implement the water quality performance standards … to protect functional values of water quality resources which include maintaining a vegetative corridor to separate protected water features from development, … maintaining natural stream corridors, …." 33.440.010 (Emphasis supplied.)

None of these goals apply to my uphill site. My property does not sit along the river. It has no access to the river, no trails, no river banks, no recreational uses, not in a flood plain, not in a setback area and so on.

I keep repeating this because I think that a fair reading of Goal 15's objectives is river protection without negative impact on existing residential uses and the City's proposed rezoning, being over broad, has a major negative impact on existing residential uses far beyond anything imagined by the authors of the Goal or Title 33.440, and not necessary or reasonably connected to the objectives stated by the Goal or Code.

The five river overlay zones are listed in 33.440.030. They do not provide a reasonable basis for the City's current decision to completely encircle my home with environmental zoning, something the County never found necessary and the need for which has no factual, supporting evidence.

The River Natural Overlay Zone: Intended to protect lands with "*significant importance* as wildlife habitat." I have not been shown any facts suggesting that my property, lying as it does directly on (or along) a highway and ending as it does at a manmade tunnel, is of significance for wildlife habitat. (Emphasis supplied.)

While the City's materials still suggests the possibility of elk roaming the area I can tell you that in almost 40 years there have been no elk on my property nor have I seen any elk on the properties abutting mine.

As we have no police protection the area is policed by a provide security service. This service alerts its members to unusual events. I am a member. I have never seen a report of an elk herd or a single elk roaming the any of the area. Never. Not one.

Apparently, a cliff dwelling bird has been seen on the cliffs of a property about half a mile or more north of mine. I have no cliff at the end of my property. I have never seen this bird. There are no photos of it flying over my property.

(As an aside I note that one of the maps staff is reviewing is one designating the property (the Bishop's Close) where there is a cliff, and the bird has been seen, as open for development.)

The words "significant importance" were used to indicate not just land upon which plants and animals might exist but something much more. There are no facts of which I am aware indicating that my property actually is "significant."

It is grossly unfair to burden my property so drastically based on no proof of its actual significance.

C. <u>METRO's Title 13 does not require my property to be encircled by environmental zoning</u>

Metro's Title 13, Nature in Neighborhoods, is another document upon which staff relies. It is a 121 page document. I only learned of it just as I was leaving town for the Christmas Holidays. I have not been able to read and digest it. My preliminary comments on Title 13 are thus limited in terms of reference to specific sections. I do not believe it changes anything in terms of my arguments.

The intent of Metro's Title 13 is:
"Conserve, protect, restore a continuous, ecologically viable streamside corridor system … that is consistent with upland wildlife habitat and with the surrounding urban landscape" and to prevent water pollution. Section 13.07.1310.

Nothing in this intention statement means that properties, like mine, more than a hundred feet from the river, with no alleged impact on the river or access to the river, and with no reasonable basis for being called a significant wildlife habitat must be entirely zoned environmental. In fact, I would argue it says just the opposite. I would further argue that all of the regulations upon which

the City relies say just the opposite and expect regulations to be respectful of existing uses and *not* be overbroad in their application.

D. RIVER PLAN/SOUTH REACH VOL.3 – NATURAL RESOURCES

Preliminarily, it struck me that Volume 3 very generally addresses many laudable concepts, interesting bits of information about history, nature, and aspirational relationships. Addressing the same, in concept, however, in no way requires that my specific property be rezoned environmentally as staff is currently proposing.

Again, I noticed the focus on the river itself. See pages iii-iv, discussing the river and its riverbanks, riparian corridors and floodplains. Not my property.

I noticed that under "Trees and Landscape Vegetation," on page v, it is stated that only "patches of trees that are at least one-half acre in size are assigned a relative rank for wildlife habitat." I have no such patch on my property.

It is also stated that: " Ross Island, Oaks Bottom Complex, Willamette Moorage, Powers Marine and parts of Dunthorpe all have significant tree canopy and receive a medium relative rank for wildlife habitat." Looking at the oak map there are heavy patches of oak across the highway in Dunthorpe. If protecting these trees, and thus the birds you believe rely upon them, are your goals why are the large patches of oak and other trees, just across Highway 43, in Dunthorpe, going unregulated? Why are the very same trees, in Dunthorpe, listed as "low rank resource?"

Why are the large properties down by the river, which have land the City designates as "forest" in their back yards, unrestricted while my property is severely limited? See maps 67 and 69.

From a scientific standpoint – it makes no sense. Birds fly over highway 43. They do not know about Greenway boundaries. Why is a property like mine, with no or little canopy, especially up where the house is located, so severely zoned, (right up to the road,) while the large estates, with many trees, just across the highway, are not regulated at all? How does not achieve the City's objectives?

Why are the very same types of trees which are being identified as a basis for the severe environmental zoning on my property, but located in Dunthorpe proper, listed as "low rank resource," and the properties only designated "tax lot"?

I also note that the large properties at the river, with a City designated" forest" behind them, do not appear to have been given any wildlife ranking and simply designated "tax lot." Is this an intentional discrepancy and if not why, in terms of the City's objectives, are they not also designated special habitat area?

I also note that the City has, at least in part, designated property outside of the River Plan's boundaries. See map 69. Why wasn't that done in Dunthorpe? River Plan boundaries obviously do not limit the area reviewed by the City and determined to be Special Habit Areas.

Ominously, it is further stated that: "the protection recommendation for these habitat areas and other similarly-vegetated areas *is to limit future development.*" This sounds close to a planned taking by the City without compensation for the properties it is proposing for the strict environmental zoning.

It looks like my property is zoned woodland on the maps. Of course it is not a woodland – it is part of a residential strip which runs along Highway 43. And, while there certainly are some park areas south of the Sellwood Bridge there are many, many existing residences too on the east and west sides of Highway 43, such as my own. This is a residential area.

I am feeling that the City sees my property, due to its being next to the City park land, as a nice park or Greenway extension, perhaps some time in the future. Limiting the development possible on it would certainly benefit the City in that case.

But my property is private property. It should not be burdened with unwarranted environmental zoning, punished in effect, because it is next to the City's "park" property.

The objectives listed starting on page 3 once again are river specific which is not surprising considering the Goal and its objectives.

The Overview section, pages 6-18 continues this river related review discussing the river, its flows, and its importance for fish habitat. It also addresses birds in a very general way by noting that as many as 245 types of birds could be using a flyway running from Alaska to Argentina. Nice to know but not property specific. No basis for the extreme environmental zoning on my property.

Some of these birds, the report states are " species of concern," and this may be true but it in no way tags my property as the saving landscape for these birds – there is nothing specific. It is interesting for bird lovers to read but does not support the rezone which is a very big deal to me.

Habitats which protect the birds are listed as "rivers, and open waters, wetlands, native oak, riparian bottom land hardwood forest, grassland habitat, and mudflats." Page 9. There are oaks on the City property. Except for the oak none of the other types of land for these potentially endangered birds fits my property and I am not sure about the oak on my property either.

Certainly, the amount of oak the introduction to this volume states will be regulated is not applicable to my property.

The proposed, strangling rezone is not necessary to reach the City's objectives and is a stretch too far.my property. The City's stated objectives can accomplished by dropping the zoning to the bottom of my property. Not by encircling my home.

As to mammals – the majority the report addresses those which use the river. My property does not go to the river. I do not have the habitat the City is trying to preserve. Limiting and impeding my ability to sell my property, through unnecessary but frightening environmental zoning envelopment, does not make sense, does not provide a nexus between the City's objectives and my property.

At this time I have not had an opportunity to see the Adolfson Associates habitat inventory report. See page 56 of Vol. 3. I thus cannot comment upon it or determine its reliability and applicability to my property and the proposed rezoning. If, however, it recommended that my property, and those of my neighbors, be designated a highly important habitat area, it is in error for all of the reasons discussed above.

In terms of basis for the proposed rezoning of my property, the general concepts found in Vol. 3, page 73, do not support the rezoning for my property and reinforce my contention that it is special, river related aspects of the lands abutting the water which are properly the focus of Vol. 3 and the River Plan effort. Property unlike mine. Especially see pages 72-73.

Chapter V of Vol. 3 describes the results of information relied upon by the City. It discusses:

1. River bank character and vegetation. My property is more than 100 feet from a riverbank.

2. Fish and wildlife – The river is discussed here, as a corridor for fish and wildlife. Types of fish are discussed for several pages. My property is more than 100 feet from the river, has a train tunnel and other properties between it and the river. It does not affect fish.

3. Birds – the river is described as an important flyway for birds as are its wetlands, open water, beaches and rocky out-crops as are trees and shrubs for "neotropical migrant songbirds." Page 79. I have never seen such a bird on my property. No such bird has ever come to a feeder when I had feeders. I would have noticed.

Bridges are described as attractive to Peregrine falcons. My property does not contain or have any connection to a bridge, cliff or similar structure. I have never see a Peregrine falcon at all let alone on my property.

4. Mammals – Nothing in this section would suggest that my home must be encircled by strict environmental zoning. Nothing suggests that the negative impacts of the proposed rezoning will do anything for any creature listed. The property is nowhere near to the river.

5. Macroinvertebrates – Theses are aquatic insects – no applicable to my property.

Vol. 3 states that there are significant amounts of oak and madrone trees in this study area and cliffs. See page 188. I have no madrone trees. There is no cliff below by property. My property sits west of the tunnel. I have been told that the property east of mine has no cliff associated with it either. My property should not be so heavily, environmental zoned. My home, sitting as it does at a highway, should not be considered a significant habitat and certainly not that portion of it right up against that highway.

Fish are discussed starting at page 191. Not applicable to my property or a basis for its rezoning.

The river "and shallow water habitat are designated Special Habitat Areas because they meet the following criteria:

- "An at risk species use the habit area on more than an incidental basis to complete one or more life history phases.

- "Wildlife connectivity corridor

- "Migratory stopover habitat." Pages 193-194.

There are no facts supporting a determination that my property, high above the river, mostly open and free of trees and significant bushes, provides any of these things. It should not be considered a special habitat area.

According to Vol. 3, the City's property contains a rare combination of Oregon white oak and madrone trees. My property does not. My property should not be burdened with environmental zoning simply because it sits next to the City's property especially where the portion of the City's property with those trees exists north of the wide open slope next to my property.

It feels like the City has come into possession of a property with trees, land formations and vegetation meeting the criteria for a Special Habitat Area and perhaps would like to extend, some day, its property to the south. With the proposed rezoning the City would limit the uses on the three properties directly south of its property even though they do not meet the criteria for Special Habitat Area. Otherwise, the proposed rezoning makes no sense and does not meet the City's own area criteria for such a designation.

Vol. 3 goes on to say that the property within the Plan's designated Dunthorpe area has been evaluated for "relative riparian and wildlife habitat quality." P 195. All of the "ranked resource areas provide at least some important riparian and habitat value." P 196. My property has zero riparian value sitting as it does more than a hundred feet above the river and an honest look at the property as habit would rank zero to low for any endangered species.

"Within the context of this inventory model, a wildlife habitat patch is defined as forest and/or wetland areas 2 acres in size or greater." P 196. I have no such patch on my property.

"Special Habit Areas … consist of rare and declining habitat types and features that provide critical habitat for at-risk plant and animal species." Clearly, this is a high standard and is not applicable generally.

The River Plan, as applied to my property and the two south of me, appears to be being used as a place holder for the City for species for which there is no proof of existence at these locations. It is not truly a preservation document so much as a way to limit development on our three properties, as the Plan provides is its intention.

E. <u>Use Regulations</u>

Code section 33.440.100 A. provides, in part, that: "In most cases, the greenway zones do not restrict primary uses that are allowed in the base zones by right…." My residential use is allowed in the base zone by right and has been for many, many years. There is no issue about this.

I'm not sure that the rest of this section applies to existing uses but since none of the Greenway overlay zones apply – this section only supports my position that my use of the property should rightfully be left alone and not burdened with the environmental zone and certainly not to the extent of encircling my property.

If the City, even in light of the fact that my property has no river impact, still wants to place an environmental regulation upon the property then the only reasonably defensible decision would be to do so lower on the property where there are a few trees closer to trees on the City's property but not up around the house where there is so much open space on my property and the City's.

Once again, my property is not on the river's bank, not in a flood zone, is not in a river setback area, does not affect salmon restoration areas, is not riparian, has no trails, has no river access

V. MY PROPERTY COMPLETELY VISIBLE FROM THE CITY'S PROPERTY WITH THE NAKED EYE AND HAS BEEN SO FOR DECADES – NOTHING NEW

My property can be seen from the City's property and the land along the state highway. It is just land – with no special attributes. It has been that way for decades. No new fancy radar required to see what is there and that nothing has changed.

All sides of my property are visible from the right of way and or City property and have been so for years.

Standing on the highway shoulder at the City's property, and looking south to my property you will see some trees and quite a bit of scraggily hedge. I do not know what kind of hedge it is.

Thereafter, is the parking pad and proceeding past the parking lot there is just highway railing and some potted plants. There is one tree in this area too.

The eastern or river side of my property is open space until you get to the bottom where there are few more trees. This is very similar to the abutting City property.

No one would every call the trees on my property a "forest." The sky is visible as are abutting lands. The only part of the property where there are some trees close together is at its bottom, just as exists on the City's property.

The county saw no need to encircle my home with environmental zoning and there is no need to do so today. Nothing has changed.

VI. THE LAND

A. THE CITY PROPERTY

The City owns some land along Highway 43 just north of Lake Oswego. A portion of that land is level and contains some trees and weeds. Directly south on the same site is a large, wide, open swath of steep hillside running west from the Highway towards the Willamette River on the east. I do not know that it actually goes to the river but it may.

The wide open hillside is what abuts my property. There are some trees toward the bottom of the City's property but generally the property is wide open. There was a snag close to the highway for a while but it appears to have been removed by the City.

Two years ago the City killed everything growing on the hill and the dead stalks and debris lie there still. Every summer I worry about fire from that hillside as the fallen stalks and debris lie there and bake.

The City's property is called a park but the fact is that there is no public access. On the west side the property ends in either a state highway stone wall or a link fence which is in poor repair.

The portion of the City's property running along highway 43 is littered with all manner of debris including bottles, pieces of fabric, wrappers, food containers and so on. Plastic buckets also lie on the slope itself. The property has been in this condition for years. I know because I took the bus to work for 34 years right on 43. I've seen that property in this condition for a long time.

The City's property is in no way what anyone would consider a park.

B. MY PROPERTY

I own a small steep, narrow site directly abutting the City's land. My home is very small and is about 100 years old. The site is too small to subdivide. I have lived on this property for approximately 42 years.

The west end of my property abuts the highway and, except for a small parking pad, my property directly abuts Highway 43. There are no sidewalks.

The property runs down a steep hill to the east and stops at the west end of an existing train tunnel and existing train tracks. The tracks and tunnel are still in use.

My property does not go to the river, has no rights to access the river. It has no way to access the river. It does not provide access to the river for any river related activities. It does not contain any trails. Why it is include in the Greenway in the first place is not clear to me.

My property does not sit within the flood plain and does include any river banks or setback areas. It is a small piece of land on a slope running between a state highway, a tunnel and tracks.

The property east of the tunnel and tracks belongs to someone else.

One or two fir or pine trees exist on the side abutting the City's open hill but generally the property is open just like the City's hillside until the bottom where there are a few more trees and, with the City trees, can create a sort of canopy though not dense.

It is through this shared, slightly treed area that the County ran the environmental zoning.

What the City is proposing today, however, is to rezone all of my property environmental, even though most of it is open space AND NOTHING HAS CHANGED ON THE PROPERTY SINCE THE COUNTY'S ZONING. From an environmental aspect this makes no sense. If you want to want to limit development on the property, for whatever reasons, then that is the way to do it.

All sides of my property are visible from the right of way and or City property and have been so for years.

Standing on the highway shoulder at the City's property, and looking south to my property you will see some trees and quite a bit of scraggily hedge. I do not know what kind of hedge it is.

Thereafter, is the parking pad and proceeding past the parking lot there is just highway railing and some potted plants. There is one tree in this area too.

The eastern or river side of my property is open space until you get to the bottom where there are few more trees. This is very similar to the abutting City property.

There is one tree close to the house. It will never be removed as it would take the hill with it. It appears to be some type of oak.

No one would every call the trees on my property a "forest." The sky is visible as are abutting lands. The only part of the property where there are some trees close together is at its bottom, just as exists on the City's property. No one would ever call my property "significant" for any reason which ought to be the basis for such constricting environmental zoning..

VI. WHY THIS IS SO IMPORTANT TO ME

Every bit of environmental zoning limits the value of a property and means thousands of dollars to anyone who owns it in terms of hearings, reviews and compliance.

When there is no proof that the siting of any animals the City is trying to protect has occurred on my property, when there is no forest around my house, when there is no indication that any rare flowers are growing on my property, when there is no proof that any birds require my house to be encircled with environmental zoning any more today than they did 20 years ago when the same trees existed and open space existed, and when that same encircling zoning will deeply cut into the attractiveness of my property to any potential purchaser, and thus the purchase price, you

can see why the City's decision to apply so much environmental zoning to my property is, to me, critical, unreasonable, unnecessary and so damaging.

If the City feels compelled to apply the protective zoning apply it where it might make a difference and more likely effect the City's stated goals without damage to the homeowner. If there is a canopy it exists down there between the lower part of the City's property and mine, at the tunnel.

The City's decision should be a solid one not just based on prior actions by another entity for whom it now acts.

VII. CITY'S PROPOSED REZONING WORKS AS A DISiNCENTIVE AND PUNISHMENT

As I read the maps, large estates across the highway from my home and those closer to the river, are left unregulated while the three properties (mine and the two south of me) at the highway are encased with environmental zoning.

As I understand it, these larger properties are not receiving the environmental zoning because they have already cut down all the trees, or they simply have been left out of the study area. The City's own maps make it clear that many trees and tree canopies exist in these areas, many more than on my property. A walk or drive through both areas would show the same.

If the City's objectives are really the preservation of plants, trees and animals, even those not seen by anyone living today, rather than some other objective, then there is no need to encircle my home with environmental zoning. Drop the zoning down to the lower part of my property where the trees on the City's property are closer to the trees on my property.

If the City's objective is something else, some unspoken future Greenway plan for example, which would benefit the City by limiting development on my property, using the zoning this way would be improper. I am not aware of such a plan but the proposed rezoning is so unwarranted by the facts on the ground that I am trying to understand what might be underlying the decision.

IX. NO NEW FACTS EXIST TO SUPPORT PROPOSED REZONING

Staff says that the new proposed rezoning is due to new evidence regarding what exists on my property but there are no new facts and anyone can see that just be looking.

The City does not need some fancy new fly over LIDAR mapping to see the existing trees and open spaces on my property and the vast swathe of open space on its property where it abuts my own. Staff can, and has long been able, to see my property on all sides from the City's property and the state right of way.

There are no new trees. You can tell that the existing trees have been there a long time. There are no new facts supporting this drastic rezoning

X. CONCLUSION JUST BECAUSE YOU CAN DOES NOT MEAN YOU SHOULD WHEN NOT NECFESSARY AND VERY VERY HARMFUL

I believe I have made my points about why the River Plan should not propose placing my property in very limiting environmental zoning.

If the City insists on placing environmental zoning I have suggested that the location most appropriately is at the lower end of my property where what collected trees there are close to those trees on the City's property which, like mine, has a lot of open space higher on the slope.

Thank you for the time you have given to me and for considering my comments.

SUMMARY SHEET FOR USE WITH SPETTER WRITTEN SUBMISSION

louis lustenberger

#103447 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Riverpoint Homeowners' Association February 26, 2020 Portland Planning and Sustainability Commission River Plan/South Reach Testimony 1900 SW 4th Avenue, Suite 7100 Portland, OR 97201 Re: February 25, 2020 Public Hearing On River Plan/South Reach Dear Planning and Sustainability Commission: Last night the undersigned members of the Board of Directors of the Riverpoint Home Owners Association (Riverpoint) attended the above captioned hearing and presented oral testimony on the South Reach Plan, in support of Riverpoint's previously submitted written testimony. During the meeting, there was a brief discussion of moving the Willamette River set back from the current 25 ft to 100 ft. We have attended all of the local public meetings in which planning staff discussed the South Reach Plan. At no time during these meetings was a 100 ft set back discussed or even mentioned. Increasing the set back to 100 ft has deleterious consequences for the residences, such as Riverpoint, which line the Willamette River's west bank. The increased set back would be large enough to reach the inside of many of those buildings. The cost of their flood insurance, assuming it could be obtained, would skyrocket and any construction in the setback would be restricted if not prohibited. A setback increase of this size requires an extended examination of its consequences, which to our knowledge, has not been part of the public discussions to date. We appreciate your consideration of these comments. Sincerely yours, Lou Lustenberger and Ed Newbegin Members of The Riverpoint Board of Directors 6114 SW Riverpoint Lane Portland, OR 9723

Testimony is presented without formatting.

Kaitlin Lovell

#103446 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please find BES' official comments and supporting documentation attached. Thank you for the extra time to submit these. Kaitlin

Testimony is presented without formatting.

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Ted Wheeler, Mayor ▪ Michael Jordan, Director

TECHNICAL MEMORANDUM

To: Sallie Edmunds and Mindy Brooks, Bureau of Planning and Sustainability

CC: Kaitlin Lovell and Paul Ketcham, Bureau of Environmental Services

From: Chris Prescott, Julia Bond, Dave Helzer, and Mary Bushman (retired), Bureau of Environmental Services and Libby Smith, GSI Water Solutions

Date: **February 10, 2020**

Subject: Ecological Characterization of the Lower Willamette River through Portland: Hydrology, Habitat, Water Quality, and Biological Communities

The Bureau of Environmental Services' (BES) Watershed Services Group has been working on an ecological characterization of the lower Willamette River to support a number of river planning efforts at BES and other bureaus, including the Bureau of Planning and Sustainability's (BPS) South Reach Plan. The full characterization report is organized around the four *Portland Watershed Management Plan* (City of Portland 2005) goals for hydrology, habitat, water quality, and biological communities.

The habitat and biological sections were completed and submitted as addenda to the Central City Plan. This report combines those sections with new sections on hydrology and water quality to provide a more complete characterization of ecological conditions.

Ecological Characterization of the Lower Willamette River through Portland

Table of Contents

1 Landscape setting

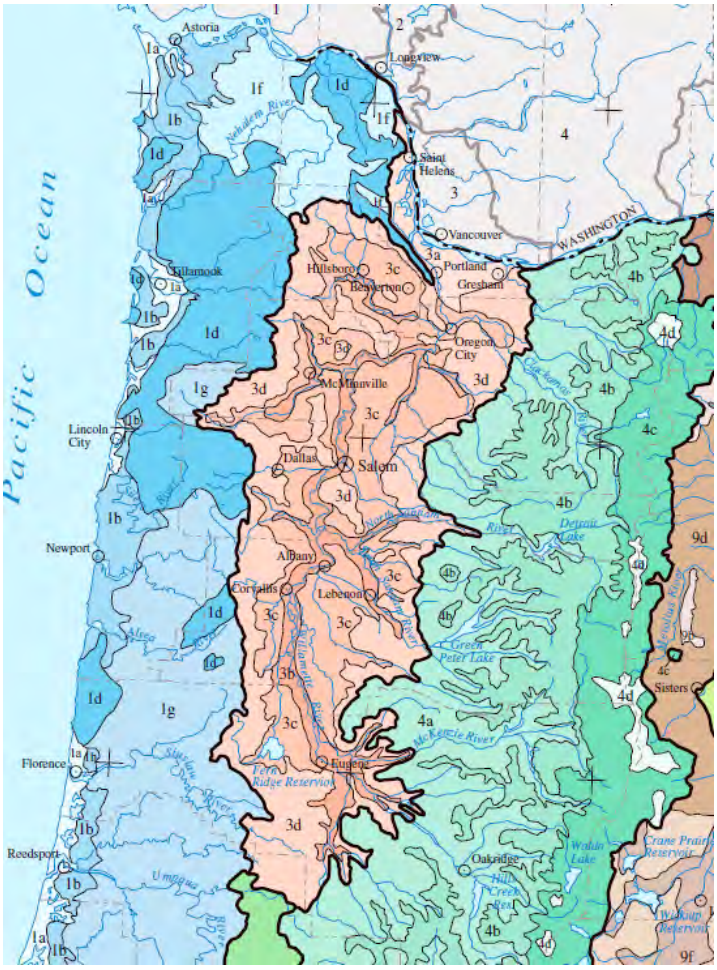
The lower Willamette River through Portland marks the confluence of the 13th largest river in the country[1] with the fourth largest river in the country. Many of the ecological properties and economic importance of this location are due to the juncture of these two large river basins. In many ways the lower Willamette – the reaches from Willamette Falls to the mouth – is defined by and distinct because of the proximity and influence of the Columbia River. The Missoula Floods that coursed down the Columbia River over 10,000 years ago scoured many of the morphological features that still define the structure of the Lower Willamette River channel and surrounding areas, and its hydrology is daily and seasonally influenced by flows from the upper Columbia Basin, and the tidal effects transmitted from the coast.

The lower Willamette River is quite different in nature from the rest of the Willamette Basin above it. Just below the Falls and in the southern section of the South Reach, the river is naturally incised into steep bedrock walls that confine the narrow channel. The floodplain is very narrow or nearly non-existent, and the river reaches some of its greatest natural depths through this section (over 100 feet). However, as the Willamette approaches the Central Reach, landform constraints become less severe, the channel widens and, by the North Reach, conditions become increasingly influenced by the Columbia River. Historically the reduced landform constraints allowed the formation of floodplains and off-channel habitats, with large off-channel lakes such as Guilds, Doane, and Ramsey lakes. In particular, the Columbia Slough and Sauvie Island formed a large floodplain wetland complex near the confluence that provided high quality and extensive habitat for large numbers and types of biota at this ecological crossroads. For salmon, wildlife, and Native Americans, this segment was a historical gateway for one of the greatest salmon runs in the world. For birds, it is part of the Pacific flyway from north to south, and a key corridor between the coast and the interior of the Columbia Basin. For early settlements all along the river, the Willamette afforded transportation opportunities for both people and goods that contributed to the growth and prosperity of the basin over time.

The majority of the lower Willamette is in the Willamette Valley ecoregion (Figure 1). Thorson et al. (2003) describe this ecoregion as typically containing terraces and floodplains, scattered hills, buttes, and adjacent foothills. Historically, it was covered by prairies, oak savanna, coniferous forests, extensive wetlands, and deciduous riparian forests. The western bank of the lower Willamette is formed by the Tualatin Mountains, which are in the Coast Range ecoregion. This was historically a mosaic of western red cedar, western hemlock, and seral Douglas-fir blanketed inland areas of the Coast Range ecoregion (Thorson et al 2003).

[1] The river is the 13th largest in the conterminous United States in terms of discharge and is the largest of all major United States rivers in terms of discharge per square mile of drainage area (Uhrich and Wentz 1999).

Figure 1: Ecoregions of the Willamette Valley. From Thorson et al. 2003.



1.1 Climate

Uhrich and Wentz (1999) describe the climate for the overall Willamette Basin, summarizing that the proximity to the Pacific Ocean and exposure to prevailing westerly winds produce cool, wet winters and warm, dry summers. In the Lower Willamette area, winter is characterized by mild temperatures, cloudy skies, and rain. Freezing temperatures are rare. Spring is transitional: starting damp and cool in March, and turning more dry and warm after May, though overcast skies are common. Summer arrives in early July, when dry, warm afternoon highs in the 80s occur regularly. By early to mid- October, fall arrives with temperatures back into the 60s. As the night hours progress, the valley cools, and fog forms on clear nights.

Precipitation falls mostly as rain, with an average of only four days per year recording measurable snow. Nearly 90 percent of the annual rainfall occurs between mid-October and mid-May, and about 3 percent occurs in July and August, though this is variable across the area (NOAA 2010 pgs. 1 – 3). Destructive storms are rare, though thunderstorms can occur during any month. Thunderstorms in the winter and spring are weak; however, those in summer can produce lightning, strong winds and large hail.

1.2 Geologic History

The geologic history of the lower Willamette River is as fascinating and violent as any place on Earth. Like many coasts bordering a subduction zone, the Willamette Valley was created by the piling up of ocean volcanoes as the Juan de Fuca plate slid beneath the growing Pacific coastline around 35 million years ago (MYA). Tectonic folding and uplift further helped create a valley separated from the coast and Eastern Oregon.

Around 14 – 17 MYA, massive lava flows began to emerge from fissures across the landscape of eastern Washington, Idaho and Oregon. The lava flowed down the ancestral Columbia River to the coast, and in the process laid a thick basalt layer from Portland to Salem. This created Willamette Falls, and in so doing created a lower river much different in character from the basin above it.

The lower Willamette River was then repeatedly reshaped by a series of floods that are estimated to be the second largest floods ever to occur on Earth (O' Connor and Costa 2004). Madin (2009) describes the Missoula Floods:

> "Toward the end of the last ice age, the Portland Basin, Tualatin Basin, and Willamette Valley were swept by repeated colossal glacial outburst floods called Bretz, Missoula, or Ice Age Floods. These catastrophic events occurred between ca. 23–15 thousand years ago and dramatically reshaped the landscape of the Portland area. The outburst floods ended while sea level was still at its glacial low stand, so the Columbia and Willamette rivers in the Portland Basin flowed through canyons graded to that lower sea level. During the Holocene sea level rise, the canyons rapidly filled with alluvium to their current level, and the water surface of the Columbia and lower Willamette River are just at sea level today."[2]

The Missoula Floods burst out of the highly constrained Columbia River Gorge landscape and fanned across east Portland. The original landscape of east Portland was obliterated and reshaped; many of these flood features are still obvious today. Alameda Ridge is an enormous gravel bar that deposited behind Rocky Butte. Sullivan's Gulch – down which highways, light and heavy rail travel – is a remnant Missoula Flood channel.

One of the most transformative events for the lower Willamette channel – and indeed for the entire Willamette Basin – came when the flood waters carrying ice, sediment, trees and bus-sized boulders, slammed into the resistant Tualatin Mountains that were nearly perpendicular to its path. Given the northwest angle of the West Hills, more than half of the flood likely deflected and followed the Columbia's abrupt northward turn at Portland. Flow backed up at the narrows at Kalama, WA, and forced the flood over Willamette Falls to fill the Willamette Valley and create temporary Lake Allison. The fertile soil from the plains of eastern Washington settled and was deposited in the Willamette Valley over the course of dozens of Missoula Floods.

Many other geologic events are important to the lower Willamette's landscape. These include the formation and eruption of the Boring Lava Domes that formed Rocky and Powell buttes and Mt. Tabor, and the transport of wind-blown soils from eastern Washington that deposited throughout the West Hills draining to the river. These are described fully in Madin (2009).

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[2] http://www.geosociety.org/meetings/2009/SelfGuideFieldTrip.pdf

2 Hydrology

Patterns of flow in the Willamette River are critical to the ecological processes that shape the structure and function of the river and its floodplain. Daily, seasonal, and annual variations in flow affect:

- channel structure;
- substrate composition;
- the extent and composition of the floodplain;
- groundwater dynamics;
- the fate and transport of contaminants, nutrients, sediments, organic matter, and other materials;
- the composition of plant and animal communities, through effects on their distribution, behavior and physiology.

King County (Fuerstenberg 2003 and Cassin et al. 2003) provide an extensive review of the literature and a conceptual framework on the types of flow alterations and their effects on diverse aspects of ecological health.

2.1 Flow in the Lower Willamette River through Portland

Flow in the lower Willamette River is determined by a complex and dynamic set of factors. Portland is situated at the confluence of the Columbia River—the fourth largest river in the U.S. by discharge (Kammerer 1990)—with its second largest tributary, the Willamette River. Factors that influence flow in these two large river systems range across landscapes from the Rockies to the Pacific and from Canada to southern Oregon and Nevada, and cumulatively play a role in determining local patterns of flow.

Physically, the two rivers are located at a transitional point on a geomorphologically diverse landscape. The Columbia River abruptly changes from a highly constrained channel with minimal floodplain within the Columbia Gorge to an unconfined channel within a broad alluvial valley as it flows towards Portland. The Willamette River undergoes a similar transition, from a highly constrained channel within deep bedrock walls below Willamette Falls to a wider, less constrained channel as it hits the city boundary. The topographic constraints on both rivers open up considerably as they flow through Portland, and in particular the floodplain at the confluence was historically large, encompassing the entirety of Sauvie Island and the Columbia Slough (PNERC 2002). The joining of the two rivers also creates the largest secondary channel in the entire Willamette Basin when Multnomah Channel diverts from the mainstem 3.1 miles from the mouth. The Multnomah Channel carves a smaller meandering 21-mile channel between Sauvie Island and the Tualatin Mountains, creating a large deltaic island.

This combination of large rivers interacting, dynamic geomorphology within a transitional landscape, and tidal effects transmitted up the Columbia River from the ocean create some of the most complex hydrology in the Willamette Basin. Some of the basic patterns of flow in the lower Willamette, the major factors that shape these patterns, and the changes that have occurred over time in these patterns are described below.

The characteristics of flow in the lower Willamette River are determined by three major factors:

- Riverine flow from the Willamette River above Portland, determined by the cumulative contributions of flow from groundwater, tributaries, and rivers throughout the basin above it,
- Riverine and tidal flow in the Columbia River, and
- Local physical conditions in the channel, floodplains, tributaries and groundwater.

These factors are described below.

2.2 Flow in the Willamette River above Portland

Patterns of river flow in the Willamette Basin above Portland strongly reflect seasonal variation in precipitation. The basin experiences temperate marine climate with dry summers and wet winters. In the winter, warm moist air from the ocean tends to collide with cold continental air masses producing frequent rains and heavy snow packs in the Cascades. Mean annual precipitation within the basin increases with elevation, ranging from around 40-50 inches per year in the valley to almost 150 inches near the crests of the Coast and Cascade Ranges (PNERC 2002). Approximately 70–80 percent of precipitation falls between October and March; less than 5 percent in July and August (Figure 2).

This pattern is reflected in river flows from the upper basin into the Lower Willamette River. Flows at Salem, used here as an indicator of upper basin flow patterns[3], show a sharp rise in the daily mean flows from October to December over the period of record as wet winter weather sets in (Figure 3). Daily mean flows tend to be highest between late November and January, then show a steady gradual decline from February to August. August typically exhibits the lowest average flows over the period of record, with flows gradually increasing in late August through September. Over the period from Oct. 1972 to Sept. 2000, the average flow at Salem was 22,729 cubic feet per second (cfs). The maximum measured flow over the entire period of record was 342,000 cfs on January 8, 1923; the minimum recorded flow was 2,480 cfs on August 8, 1940.

[3] Salem is the USGS flow gauge furthest downstream in the upper basin with a substantial period of record (1909 – present). Eighty percent of the flow in the entire Willamette Basin originates upstream of Salem (Peter Klingeman, 2001; "Hydrology of the Willamette River and Impacts of Reservoirs"; presented at the Willamette River Watershed Conference).

Figure 2: Variation in monthly rainfall across the Willamette Basin. Based on PRISM 30-year monthly normals for precipitation (http://prism.oregonstate.edu/normals/).

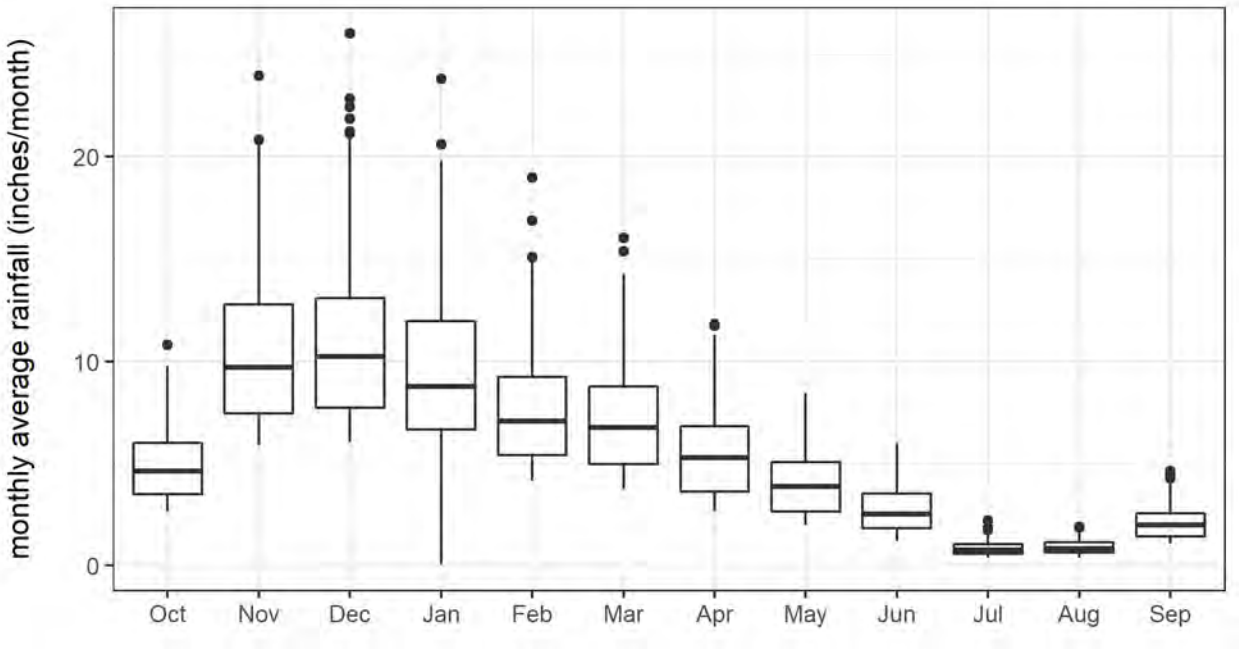
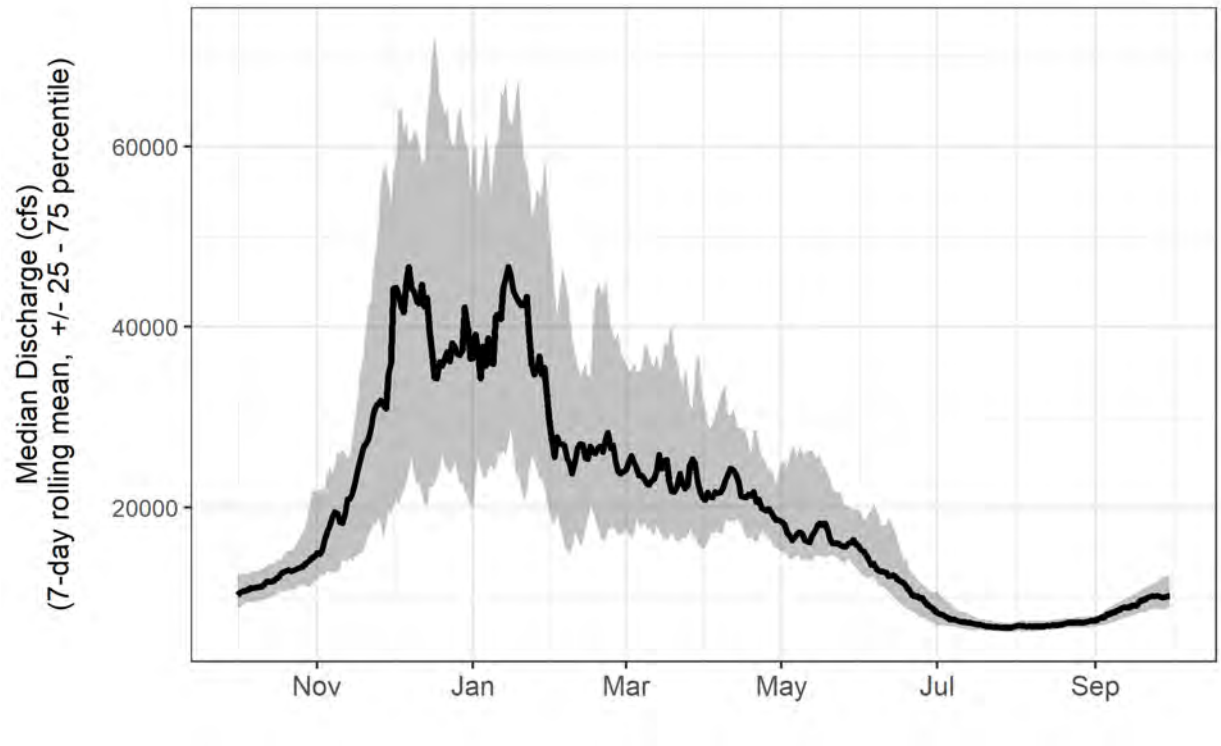


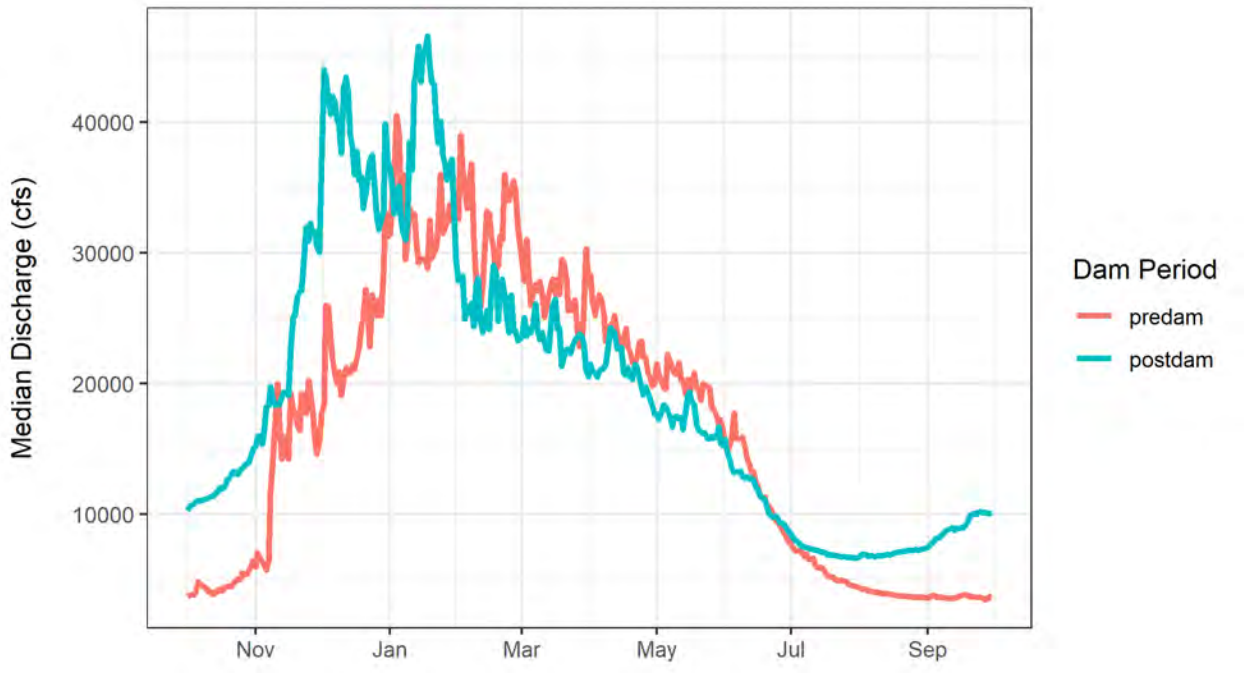
Figure 3: Annual hydrograph for the Willamette River at Salem. The black line is the median 7-day rolling mean flow, from Oct. 1972 to Nov. 2019 (the period of record at the Portland gauge, to allow comparison of the same time period), at the USGS Salem gauge (gauge #14191000). The rolling mean is intended to reduce the peakiness of the curve from short term individual high events, and capture flow conditions typical of that time of year. The grey area indicates the interquartile range (25th–75th percentile) in flow for that date.



Seasonal flow patterns in the Willamette Basin have changed due to the construction of dams and water management practices. Dam construction began in 1894 when the City of Portland constructed the first dams in the Willamette Basin for water supply purposes. The Willamette River basin has 11 major reservoirs with a combined capacity of 1.9 million acre-feet (Laenen and Risley 1995). The largest of these is Lookout Point on the middle fork of the Willamette River near Lowell with a storage capacity of 477,700 acre-feet. In total, there are 371 dams with a storage capacity of 2.7 million acres throughout the basin (PNERC 2002). The majority of dams and the largest reservoirs were constructed in the period between 1942 and 1969 (PNERC 2002, Gregory et al. 2019). The presence and operations of these dams has had a major effect on flow patterns in the upper basin flowing into Portland.

The effect of dams on flow patterns can be evaluated by comparing the "pre-dam" years (1909-1941) to "post-dam" (1968-present) years of record. Two of the larger differences between the pre- and post-dam periods are in the rising limb of the hydrograph and in the summer low flow period. Historically prior to dams the hydrograph started its increase in November and rose somewhat gradually compared to the post-dam period, reaching its maximum in early January (Figure 4). In the post-dam period, the rising limb starts a bit earlier in October and rises more rapidly, reaching a peak near the beginning of December. The descending limb of the hydrograph during the pre-dam period was somewhat higher than the post-dam period, meaning that late winter to early summer flows were somewhat higher before dams, but for both periods the rate of descent was roughly similar.

Figure 4: Comparison of the median of daily mean flow at Salem in the "pre-dam" (1909-1941) and "post-dam" (1968-present) periods. Source USGS gauge #14191000.

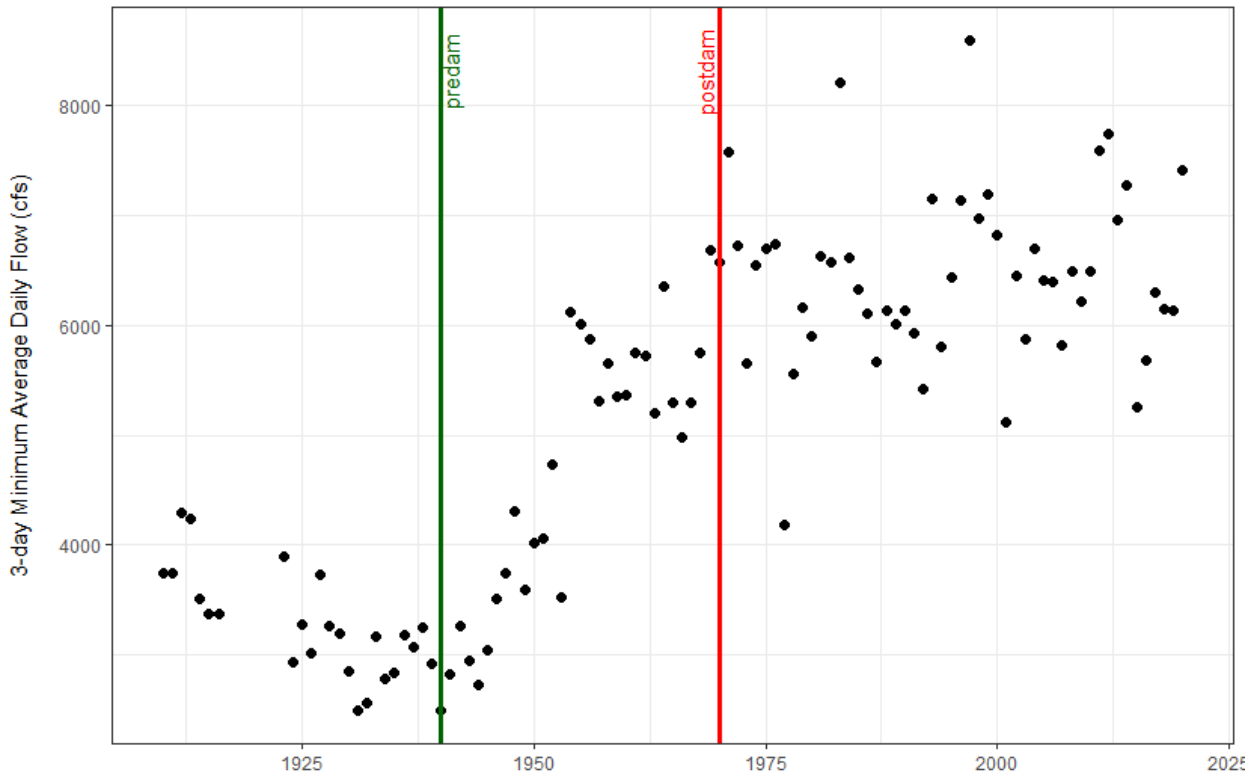


One of the most dramatic changes evident from this comparison is the markedly higher flows in the post-dam period during the summer low flow period. In the pre-dam period, the summer low flow period was marked by gradual decreases in flow until reaching a low in August. The lowest

flows occurred from August to the end of September, with mean flows around 3,750 cfs during this period. Summer low flows during the post-dam period are much higher, occur earlier, and for a shorter period of time. Post-dam summer low flows begin around the middle of July and start to increase at the beginning of September. Mean low flow during this time is 6,933 cfs. Differences in the pre- and post-dam summer low flow periods are different enough that their interquartile ranges—the 25th to 75th percentile flows for that period—do not overlap: pre-dam low flows had an interquartile range of 3,335 to 4,454 cfs; the post-dam range is 6,391-7,639 cfs.

The marked change in summer low flows are best illustrated by plotting the annual 3-day minimum flow over time (Figure 5). Prior to dam construction, 3-day low flows were typically below 4,000 cfs (with two exceptions). As dam construction began, summer low flows began to rise dramatically, and by the beginning of the post-dam period summer low flows were typically above 5,000 cfs (with one exception).

Figure 5: The 3-day annual minimum flow over time at Salem. Source USGS gauge #14191000.

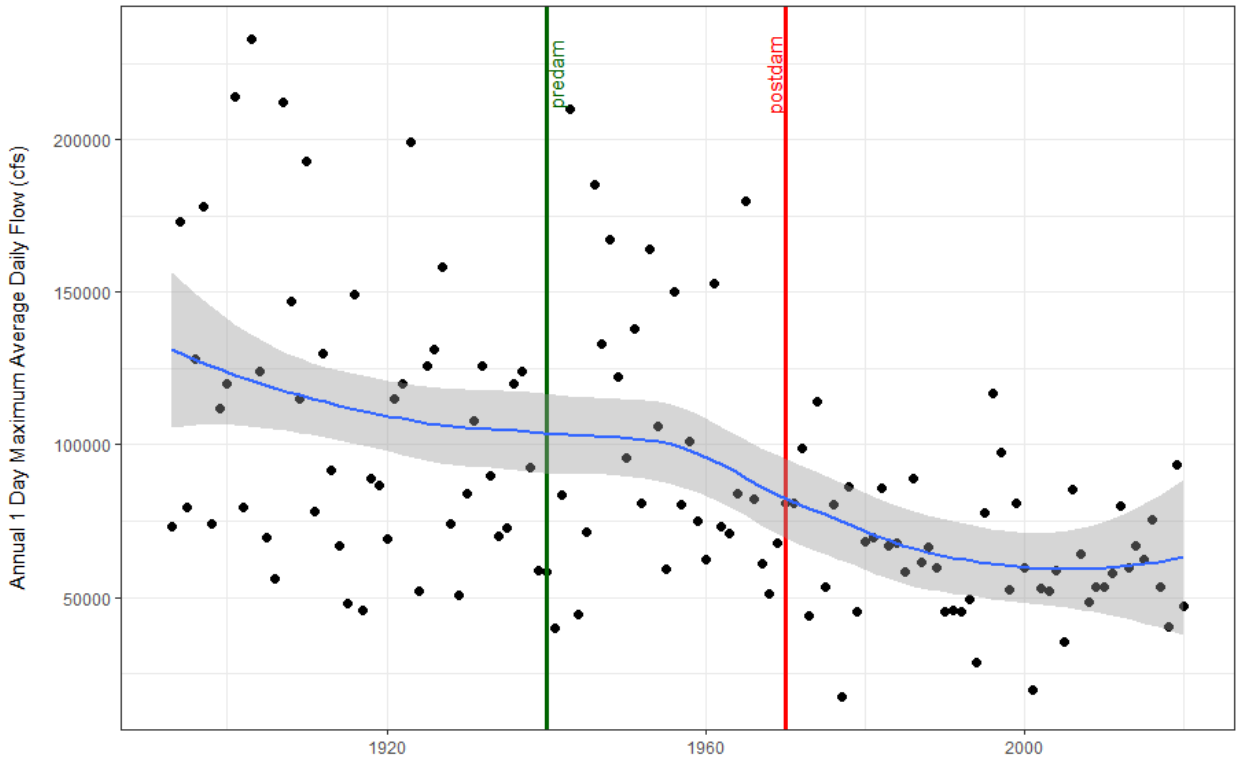


Another important change between pre-and post-dam periods is the reduction in peak flows. Dams have sharply reduced the peaks of large episodic floods that occurred during winter and spring prior to their construction. Data from the Albany gauge are most effective in showing changes in high flows, since the Albany period of record goes back to 1893 and the three largest floods and half of the ten largest floods occurred before the Salem gauge began operating in 1909. Gregory et al. (2019) used data from this gauge to document the changes in high flows due to the dams:

> "Of the 69 floods that would have exceeded the regulatory flood level after 1969, sixty did not reach flood stage… A historical unregulated flow with 10-year recurrence probability had a discharge of 5,600 m^3/s, but the same discharge has a 100-year recurrence probability after dam construction. The current regulated 2-year return flood discharge (1,980 m^3/s) is 40% lower than the historical unregulated 2-year return flood." (pg. 4)

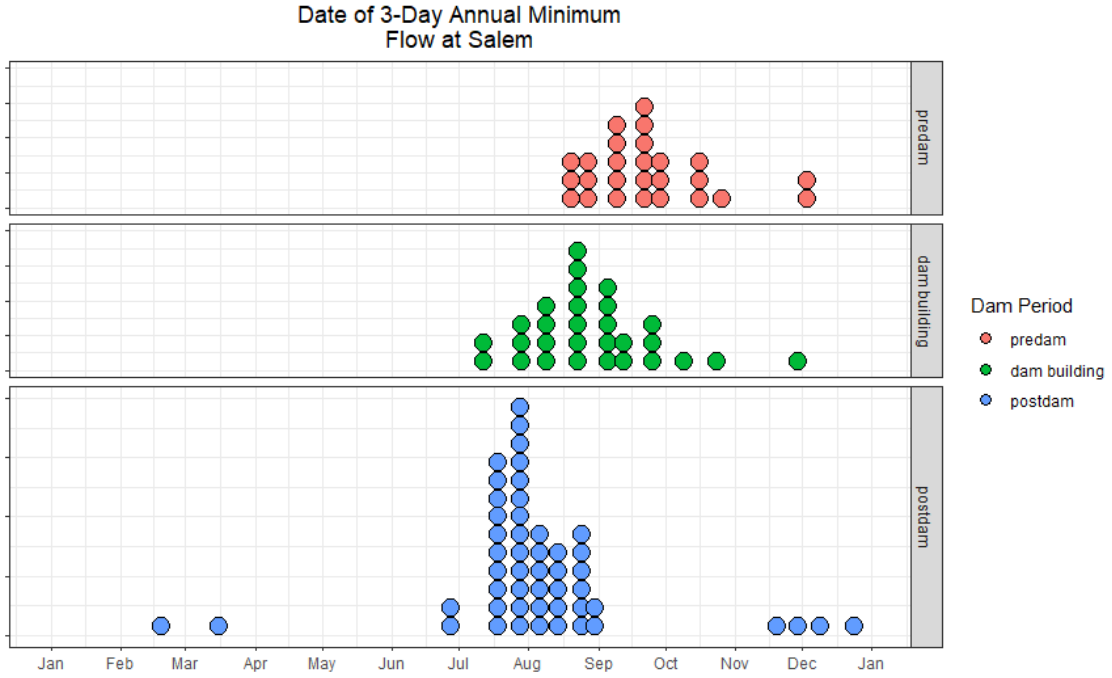
Figure 6 provides another illustration of these changes. Prior to the beginning of dam construction, 22 out of 48 years had 3-day maximum average daily flows above 100,000 cfs; only two out of 50 years had flows above that level after construction of the dams. Sixteen floods with flows above 125,000 cfs occurred before and during the construction of the dams, whereas no flood higher than 103,500 cfs occurred after dam construction.

Figure 6: Annual 3-Day maximum flows at the Albany gauge. The blue line is a loess fit to the data; the grey band is the standard error for the loess fit. Source: USGS gauge #14174000



As described earlier, the timing of the summer low flow has changed as well. In the pre-dam period 3-day minimum flows at Salem typically occurred from mid-August through September (Figure 7). During dam construction this began shifting earlier, and by the post-dam period the minimum flows typically occurred from mid-July through August.

Figure 7: The date of the 3-day average minimum flow at Salem in the pre-dam, dam building and post-dam periods. Source USGS gauge #14191000.



Taken together, these changes in high and low flows mean that the seasonal variability of flow within a year has been reduced. The average annual coefficient of variation (the standard deviation of flow for that year divided by the average flow for the year) has significantly decreased between the pre- and post-dam periods: the pre-dam median annual coefficient of variation was 1.02, the post-dam is 0.86, and the 25th percentile post-dam coefficient (0.96) is greater than the 75th percentile post-dam coefficient (0.93).

2.3 Flow in the Columbia River

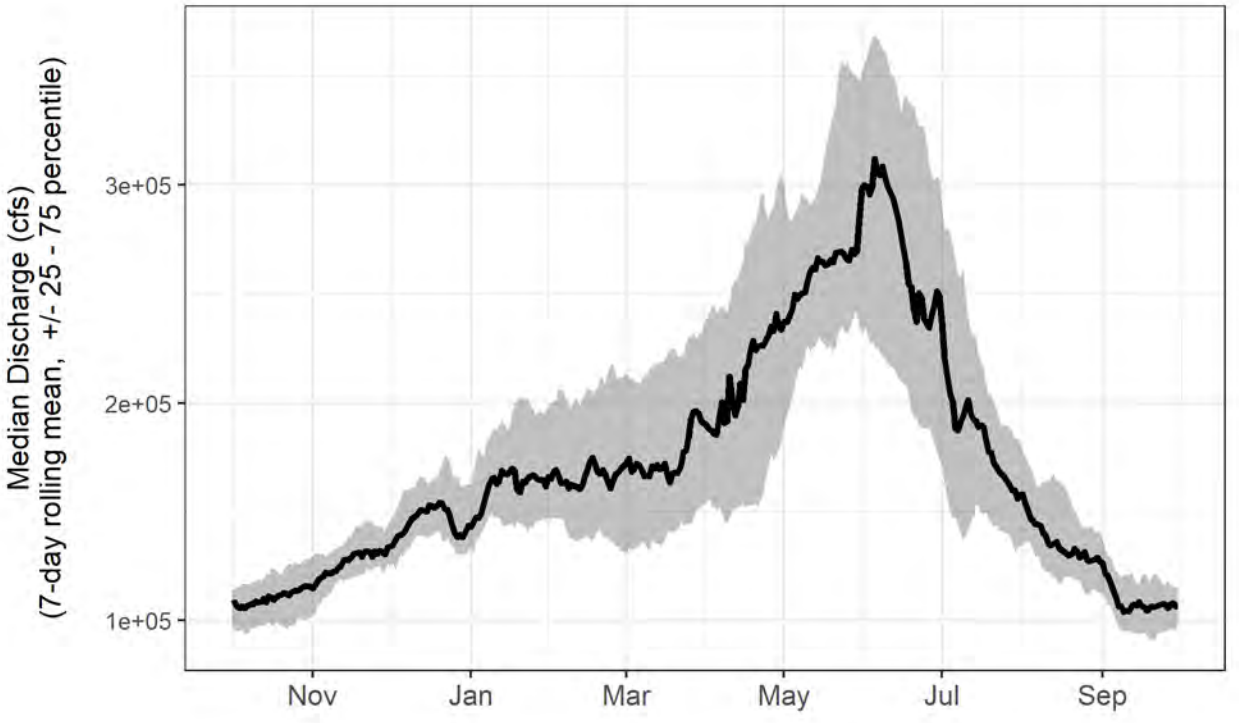
The second major factor affecting flow in the Lower Willamette River through Portland is the pattern of flow in the Lower Columbia River. The Lower Columbia River essentially determines the baseline water level of the Lower Willamette River. When water levels in the Lower Columbia River are higher than in the Lower Willamette—typically during the Columbia's spring and early summer freshets—the Lower Willamette will stop or even reverse flow as water levels equilibrate. When water levels are higher in the Lower Willamette, backwater effects are reduced. Flow conditions in the Lower Columbia River therefore have a very strong influence on water levels, flow directions and velocity in the Lower Willamette River. The Columbia River is also the pathway by which tidal flows are transmitted from the Columbia River estuary to the Willamette River. Lee and Risley (2002), who identify four major sections of the Willamette River, classify the reach below Willamette Falls as the tidal reach, and describe it as largely controlled by backwater from the Columbia River.

High flows occur later in the water year in the snowmelt-driven Columbia River than they do in the rainfall-driven Willamette River. Whereas flows in the Willamette River rapidly increase from November to December, Lower Columbia River flows increase more gradually, with steepest rises in flow from April to June. This is due to spring snowmelt runoff from the Cascade and Rocky

Mountain Ranges to tributaries of the upper and middle Columbia. The period of maximum flows is much shorter and more peaked than in the Willamette. Columbia River flows drop rapidly from peak flows in June to the period of lowest average flow during September through November. In addition to their mismatched periods of high flow, the hydrographs in the Willamette and Columbia are skewed to opposite sides of the water year: the most rapid changes in Willamette flow are the fall increases from November to December; in the Columbia the most rapid changes are the summer decreases from June to September.

Sixty percent of the flow in the Columbia River occurs between May and July. The average annual flow at the Dalles[4] is 177,900 cfs. A maximum flow of 1,230,000 cfs was recorded on June 6,1894. Eighteen ninety-four was one of the wettest years on record and flows throughout June of 1894 were high, as the 17 highest flows on record were recorded in late May and June of 1894. A minimum flow of 36,000 cfs was recorded on January 1937. January of 1937 was the driest month on record; nine of the ten lowest flows over the entire period of record were recorded in this month. This was a dry period caused by prolonged winter cold in the interior (Sherwood et al. 1990).

Figure 8: Annual hydrograph for the Columbia River at The Dalles. The black line is the median 7-day rolling mean flow, from Oct. 1972 – Nov. 2019 (the period of record at the Portland gauge, to allow comparison of the same time period), at the USGS gauge at The Dalles (gauge #14105700).



Like the Willamette River, flow in the Columbia River has undergone a number of dramatic changes over time in response to dam regulation and irrigation withdrawals. Dam building in the Columbia Basin began in 1909. Since then 29 major federal dams, dozens of large non-federal

[4] The Dalles is the USGS flow gauge furthest downstream in the upper basin with a substantial period of record (1879 – present).

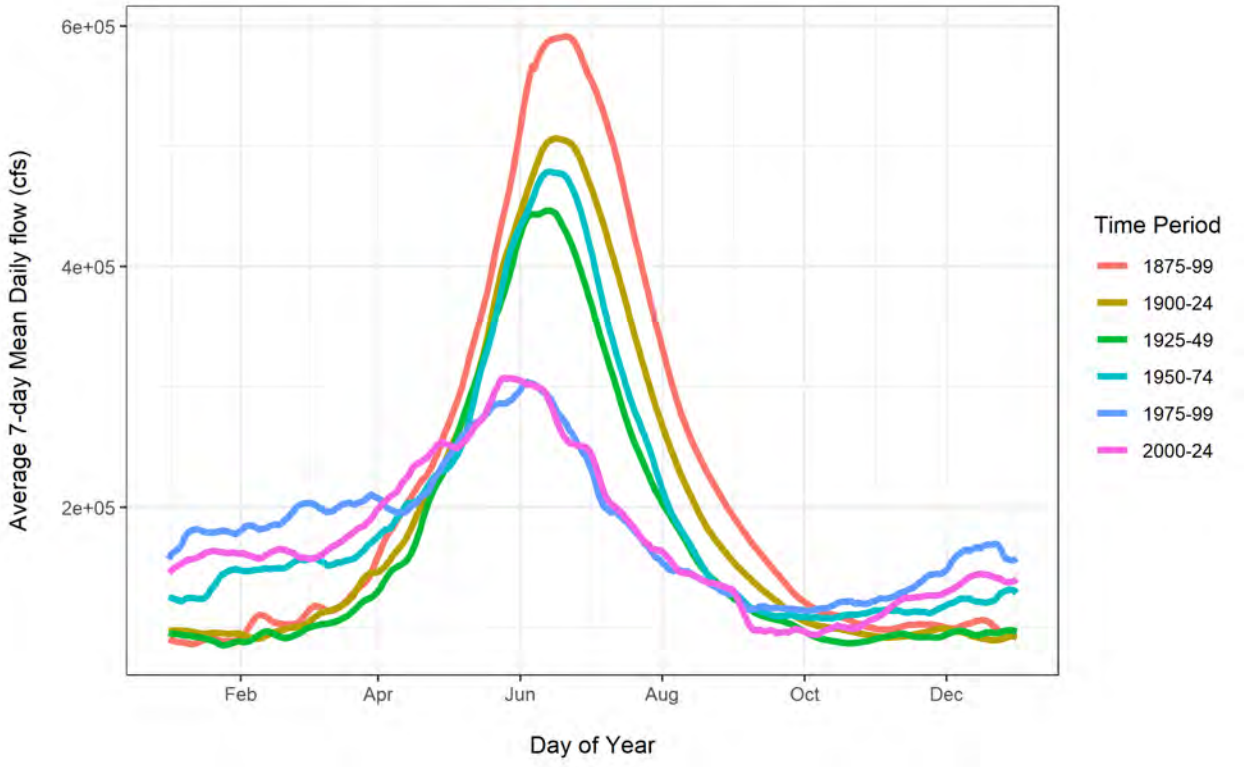
dams, and hundreds of smaller dams have been built (BPA 1991). Much of the dam construction occurred between 1933 and 1982, during which 21 large dams on the Columbia and Snake rivers were built (ISAB 2000). Flow regulation by dams became significant in about 1969; reservoir capacity doubled in the Columbia Basin between 1967 and 1975 (Sherwood et al. 1990).

The management of these dams has resulted in major changes in Columbia River flows, altering seasonal flow patterns. Naik and Jay (2010) note that the average annual Columbia River flow has been reduced by 17% since 1900 due to climate change and water withdrawals.

Flows during spring freshets (from April–July) have decreased by 50-55%, and winter flows (from August–March) have increased by 35% (ISAB 2002). Spring freshets now occur earlier, are of a smaller magnitude, and occur over a longer portion of the year than they did prior to dam regulation. Total annual flows have decreased by 15%, due to a combination of climate variability and irrigation withdrawals.

Some of the changes in the hydrograph over time are depicted in Figure 9. The hydrographs show that the spring-summer peak of the 7-day rolling mean of flows has decreased by almost half over time: from just under 600,000 cfs during the 1875-1899 period, to around 300,000 cfs under the current flow management regime. Seven-day minimum flows have increased from around 85-100,000 cfs in the pre-dam era to around 120-165,000 cfs post-dam. Figure 9 also shows that the biggest changes in low flows came between the 1925-49 and 1950-74 period, whereas the biggest change in high flows came later between the 1950-74 and 1975-99 periods.

Figure 9: Changes in the hydrograph for the Columbia River at The Dalles over time. The y-axis depicts the average for the 7-day running mean of daily flows. The colored lines depict 25-year intervals. Source: USGS gauge #14105700.

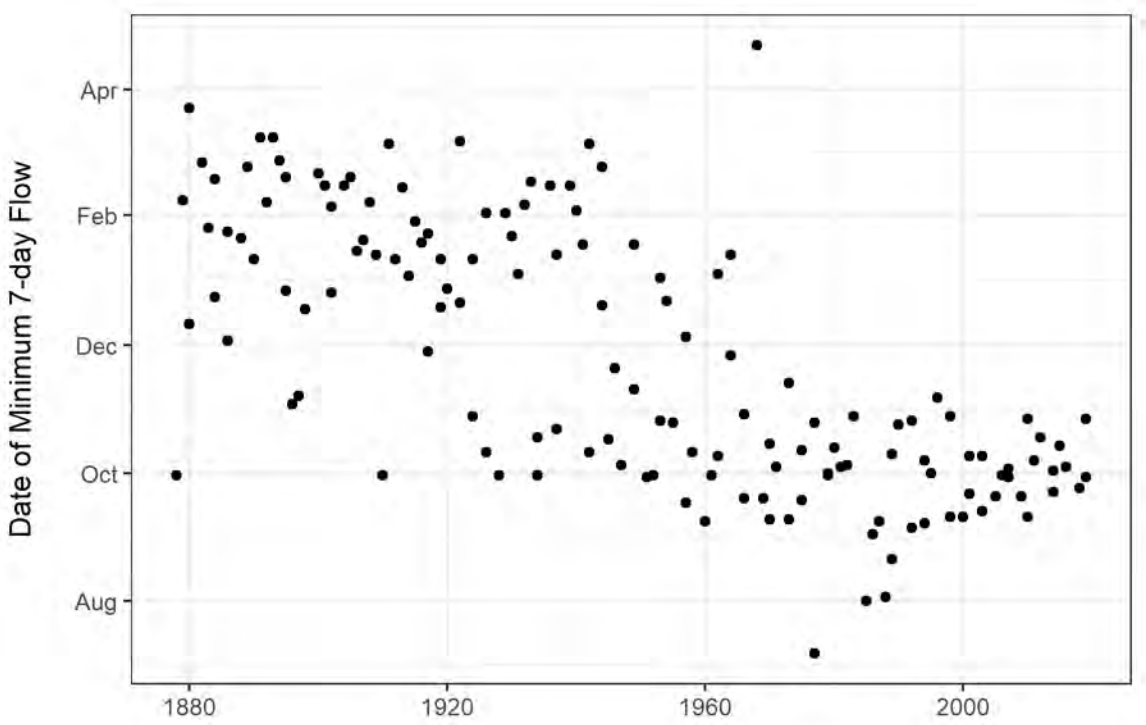


The period of the largest changes in high flows is consistent with the observation of Bottom et al. (2005), who noted that seven large dams high in the basin were completed between 1967 and 1973, and these more than doubled the storage capacity of the total dam system.

There has also been shift in the timing of minimum and maximum annual flows over time. The change in date of the maximum flow has been moderate and gradual: peak flow used to occur across the month of June, with occasional years with peaks in late May or early July. They now occur across the month of May and early June.

Changes in the date of the minimum flow changed more dramatically and suddenly. The date of the annual low flow typically occurred from December–April prior to 1920. From 1920-70 the annual minimum shifted earlier into the fall and currently occurs from September–November under the current flow regime (Figure 10).

Figure 10: Change over time in the date of the annual 7-day minimum flow in the Columbia River at The Dalles. The year on the y-axis has been divided into a July-June year to avoid splitting the year in the middle of the date changes. Source: USGS gauge #14105700.



2.4 Local Physical Conditions

While the larger patterns of flow in the lower Willamette River (e.g., the annual hydrograph, maximum and minimum flows) are determined by basin-wide natural factors such as climate and geology, and human factors such as dam management and irrigation, local conditions within Portland do have a strong and important influence on the way in which a given volume of water flows through this confluence area. The shape of the channel, the composition and configuration of the banks, and the configuration and composition of the floodplain and off-channel habitats all determine critical characteristics such as how frequently a given river flow accesses the floodplain;

the amount, duration, and locations where floodwaters can be stored; the configuration of the low flow channel; and local patterns of velocity, sediment transport, and other hydraulic factors. Beyond just the physical passage and storage of river flows, these factors also determine the nature of the interaction between the river and the floodplain and all the ecological interactions that are dependent on this (e.g., maintaining wetlands, seasonal patterns of vegetative growth, wet season use of floodplain habitats by aquatic species).

The existing conditions in the river channel and floodplain, and the way in which these have been changed from historical conditions is described in detail in the habitat section of this report (Section 3). To summarize, the channel and floodplain in the lower Willamette River have been extensively changed over the last 150 years. The channel has been deepened, narrowed, and simplified; the banks have been hardened and lined. Floodplain and off-channel habitats have been filled and banks steepened throughout the length of the river within Portland. Much of the floodplain storage has been lost over time due to these cumulative actions. Some of that flood storage capacity has been transferred to the main channel through deepening of the channel and steepening of the banks, but this precludes or diminishes many of the valuable ecological functions that occur when high river flows inundate the floodplain (e.g., sediment deposition, groundwater recharge, habitat use by aquatic species; Junk et al. 1989; Regier et al. 1989).

The impact of these physical changes on hydrology is that flow is now largely contained and constrained within the channel. The river currently accesses its floodplain far less frequently than it did historically. The width of the floodplain (PNERC 2002, Prescott et al. 2016), and the role of the floodplain in storing flood flows, has been greatly reduced. The concentration of flows into the main channel has altered the way in which the river accommodates and responds to high flow events. Reduction in the complexity of the channel and its banks and reduced frequency of floodplain interactions affects small-scale patterns of flow, velocity, and river hydraulics; flow is now probably more uniform across the channel because of the lack of structural channel complexity, although there are no historical data to evaluate these changes.

The local tributaries that flow into the lower Willamette River through Portland, and the nature in which the tributaries interact with the mainstem, have also been extensively altered. The discharge of some streams, such as former tributaries to Balch, have been re-routed from the Willamette mainstem to the combined sewer system and into the wastewater treatment plant. The confluences of many other tributaries that drain into this reach have been redirected into culverts or pipes for long sections before discharging into the mainstem (e.g., the Forest Park streams). The magnitude and seasonal distribution of the flows within the tributaries has also changed. Flows in Johnson Creek are now significantly "flashier" (Clark 1999). The Columbia Slough—once an extensive system of floodplain, off channel habitat, streams, lakes, and seasonal wetlands—now has heavily managed flow patterns that are highly altered from their historical condition. Flow in the Slough is controlled by pumping and levees that are maintained to provide flood control and drainage services. The seasonal patterns of flow in the middle and upper Slough are disconnected from the seasonal patterns of the Columbia and Willamette which historically had a large influence on them.

The tremendous changes in physical conditions through this reach have also likely altered the nature of groundwater recharge and discharge: the proliferation of impervious surfaces, vegetation

removal, "urbanization" of soils (e.g., compaction, loss of organic matter), loss of wetlands, bank hardening, reduced floodplain connectivity, and other changes along the reach have decreased the ability of water to infiltrate into the soil and recharge groundwater. Reduced recharge coupled with the fact that many of these structures impede historical pathways of groundwater flow would likely result in reduced levels of groundwater discharge to the mainstem.

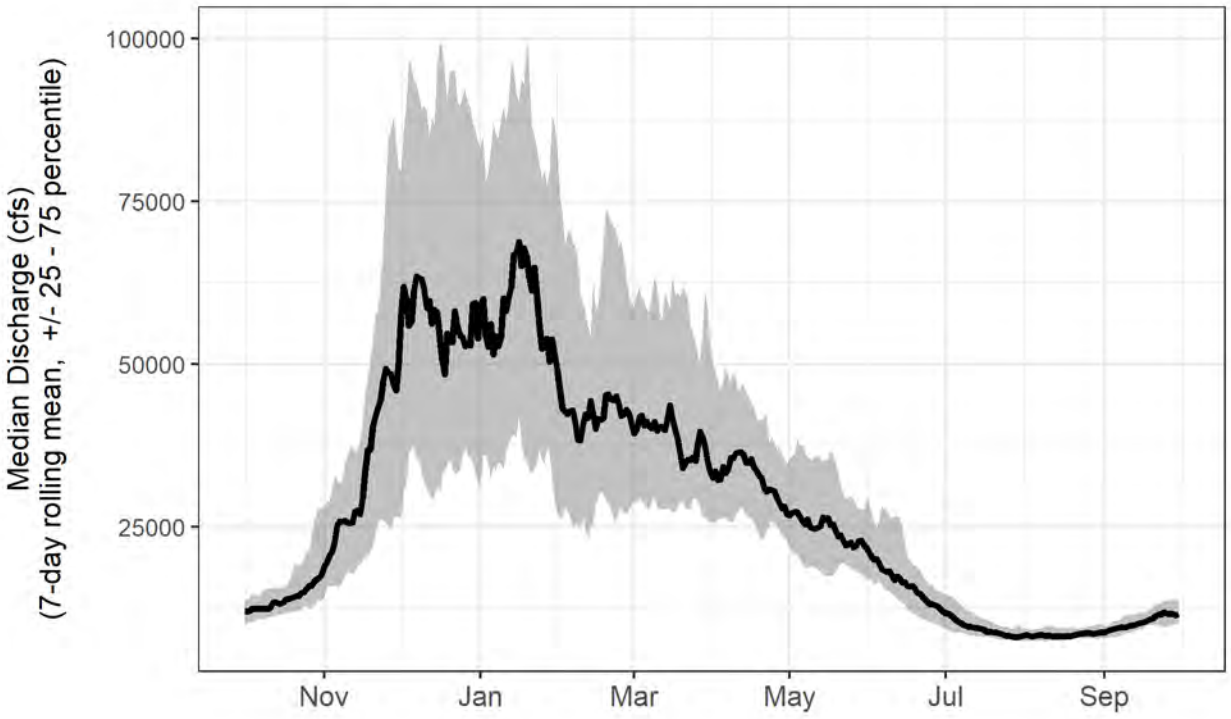
In sum, changes in physical conditions through this reach have altered the interaction between the river and its floodplain, groundwater recharge and discharge, small-scale patterns of flow and velocity, tributary inflows, and the nature of the interaction between the tributaries and the mainstem. Although these changes are not on the same scale as the large-scale changes due to dam management in the Columbia and Willamette rivers, they are nevertheless important components of how water flows through this section of the river and the ecological functions it performs in doing so.

2.5 The Cumulative Result – Flow in the Lower Willamette River at Portland

Patterns of flow in the lower Willamette River reflect the complex cumulative interaction of the three factors previously described: flow from the Willamette Basin, flow from the Columbia River, and local physical conditions in the channel, floodplains, tributaries, and groundwater.

The U.S. Geological Survey (USGS) has measured flow at Portland since 1973. The seasonal patterns of flow are very similar to patterns observed upstream at Salem (Figure 11). Annual minimum flows typically occur in August over the period of record. Average flow gradually increases in September, then rapidly increases from October to December. The highest average flows occur from December to January. Between January and February average flows begin to decrease, although high flows greater than 150,000 cfs can occur any time between late November and March. The maximum flow over the period of record at this gauge occurred on February 9, 1996, when flows reached 420,000 cfs during the flood of 1996. This flood produced the four highest daily average values ever measured in the Willamette River at Portland from February 8–11. The second largest measured flood occurred approximately one year later from Dec 31, 1996 – January 4, 1997, when flows reached a peak of 293,000 cfs on January 2nd. Average flow gradually decreases throughout the spring and summer to the lowest flow averages in August.

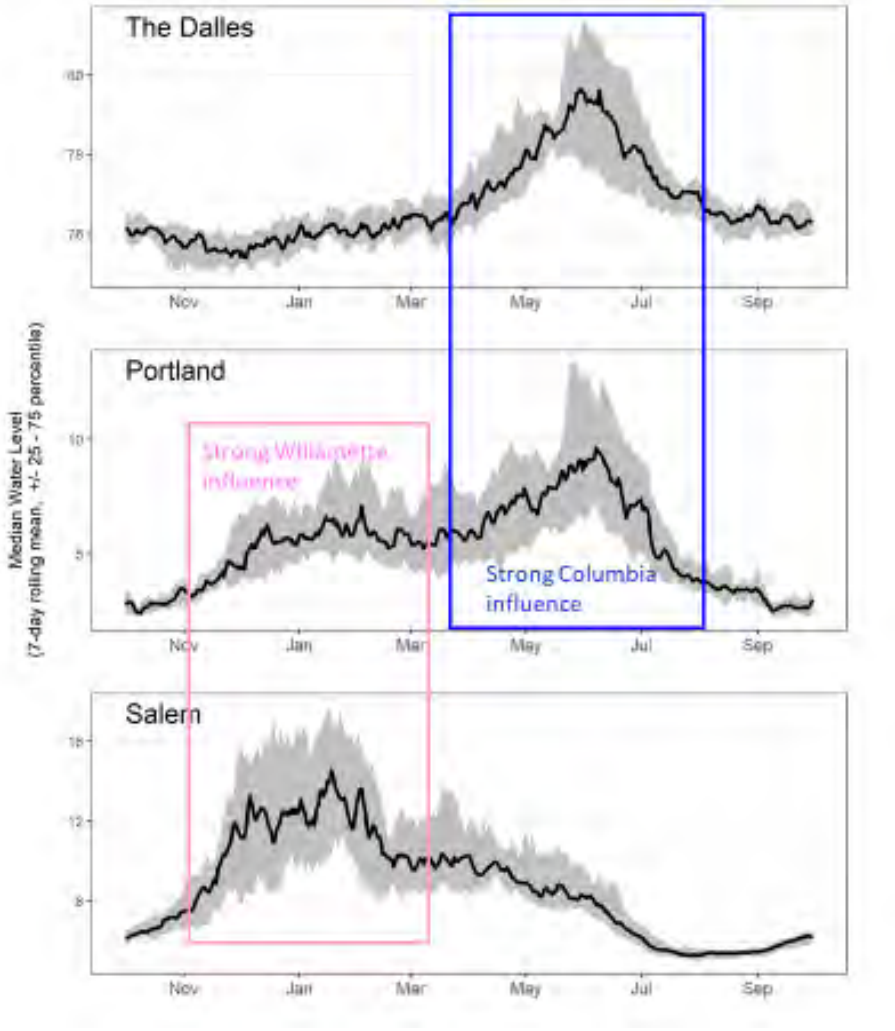
Figure 11: Annual pattern in flow for the Lower Willamette River at Portland. The black line is the median 7-day rolling mean flow, from Oct. 1972–Nov. 2019, at the USGS Morrison gauge. The rolling mean is intended to reduce the peakiness of the curve from short term individual high events, and capture flow conditions typical of that time of year. The grey area indicates the interquartile range (25th–75th percentile) in flow for that date. Source: USGS gauge #14211720.



As water flows from the upper basin and reaches Portland, the effects of interactions with the Columbia River become increasingly strong towards the mouth of the Willamette. The seasonal hydrographs of the two river systems are noticeably different. The Columbia River experiences its highest flows in June, and lowest average flows in October–November. The Willamette River experiences highest average flows in December and January, and lowest average flows in August.

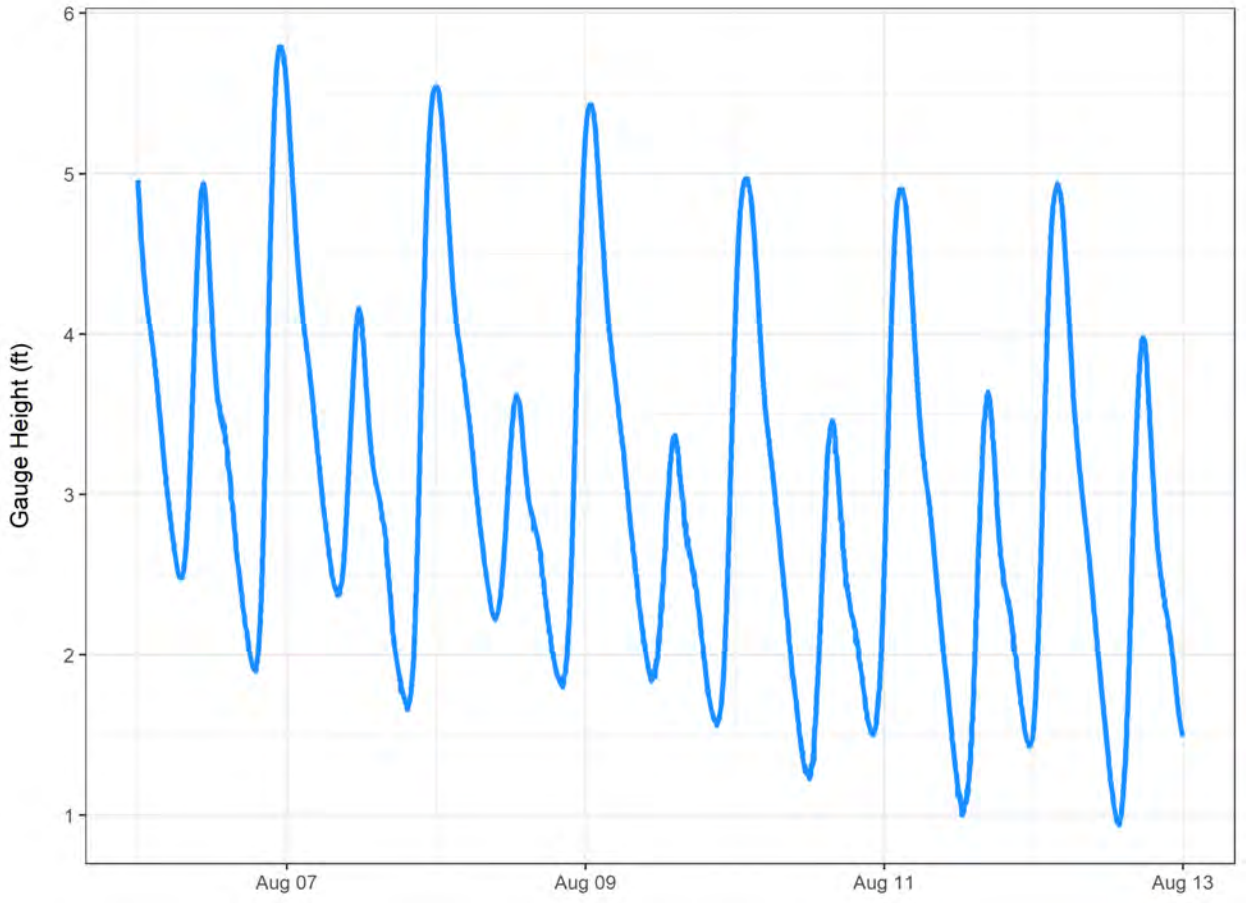
The mismatch in seasonal maxima and minima between the river systems means that the effects of the Columbia River on flow in the Lower Willamette River will vary throughout the year. In spring and summer when spring freshets are occurring in the Columbia River system, the level of the Columbia River is likely to be high relative to the Willamette River and backwater effects are typically at their strongest (Figure 12). During these periods a given flow coming from the upper basin will result in higher water levels and lower velocities than the same flow in late fall and winter, when water levels in the Willamette are high relative to the Columbia and backwater effects are at their minimum. Figure 12 also makes it clear that the Columbia River has a larger effect on water levels in Portland than the Willamette: although the flow coming into Portland from the Willamette is highest in December–January, the highest water levels in Portland occur in May-June when the backwater effects from the Columbia River are highest. Water levels in May-June are approximately 75% higher than in December–January when Willamette flows are highest.

Figure 12: Comparison of water levels in the Columbia River at The Dalles, the Willamette River at Salem, and the Lower Willamette River at Portland. Source: USGS gauges at Salem, The Dalles, and Portland.



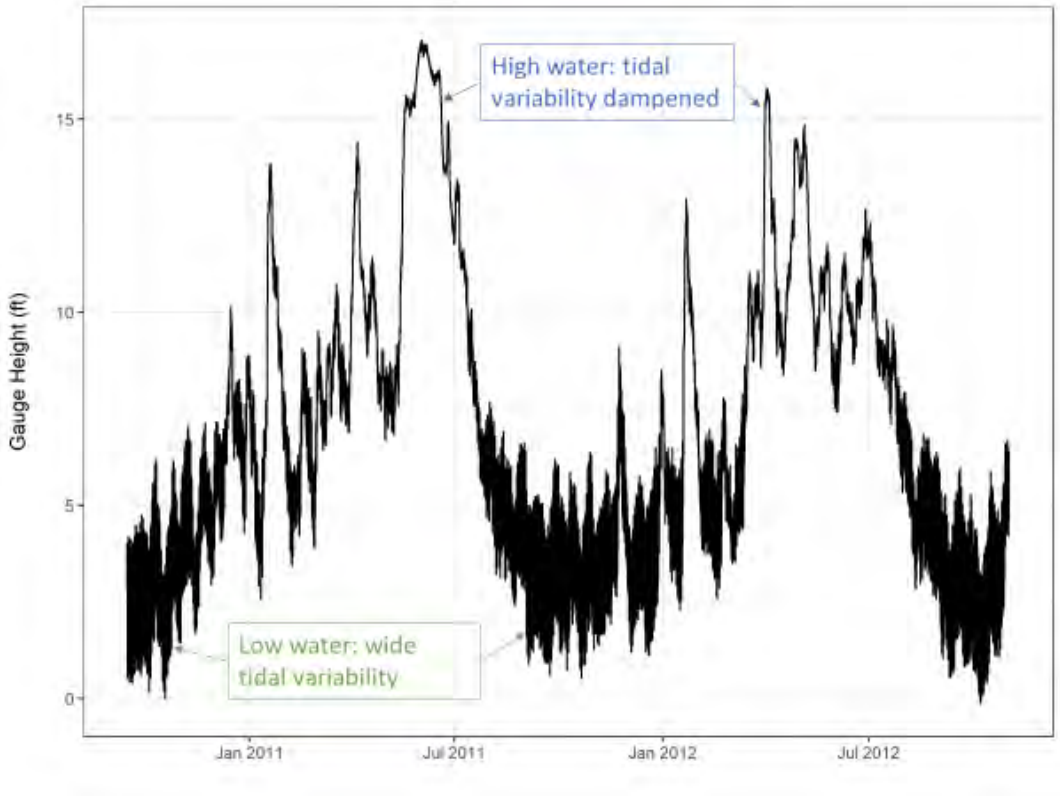
Interaction with the Columbia River is also what produces daily tidal fluctuations in the lower Willamette River. The Columbia River Estuary experiences mixed semi-diurnal tides, meaning that there are two cycles of high and low tides each day but the two high and low tides are of different height, with one cycle having greater tidal range than the other (Figure 13).

Figure 13: Water levels in the lower Willamette River at the Morison Bridge from Aug. 6 – Aug. 12, 2019. The graph shows an example of the mixed semi-diurnal pattern of tides transmitted up the Columbia from the estuary: within a given day the peaks of the two high tides and troughs of the two low tides are of different heights. Source: USGS gauge #14211720.



Tidal range in the Lower Willamette River can vary from around 1 to 4 feet depending on the semi-diurnal tidal cycle, the phase of the spring-neap tidal period, and the amount of flow in the Willamette and Columbia rivers. Jay et al. (2015) provide an extensive and detailed account of the dynamics and factors affecting tidal variability in the Columbia and Willamette rivers. They note that tidal range varies inversely with river flow, and the Corps further elaborates that "[t]idal effects are noticed at harbor stages less than 12 feet, and are pronounced at stages less than 5 feet which are common in the summer and fall." (U.S. Army Corps of Engineers 2014) pg. 4). This is illustrated in Figure 14.

Figure 14: Water levels in the Lower Willamette River from winter 2010-11 to fall 2012. Tidal variability is highest during low water periods, and dampened during high water in the Columbia or Willamette rivers. Source: USGS gauge # 14211720.



Although flow reversals do not occur in the Columbia River as far upstream as the Willamette River confluence, tidal effects do alter velocity and water level as far upstream as the Bonneville Dam and these semi-daily fluctuations in water level are sufficient to cause flows to stop or even reverse in the lower Willamette through the tidal cycle. Water velocities are highest—and flow reversals least common—January through April when Willamette flows are high and Columbia flows are low (Figure 15). Water velocities are lowest and flow reversals most common from July to October when flow in both river systems are lowest and tidal effects which produce the flow reversals are most pronounced. Flow reversals can occur nearly 25% of the time during this period.

Figure 15: Mean water velocity by month at Portland. Based on data from 1/30-2017 – 12/31/19, the period of record available for web retrieval. Velocities below the red line indicate flow reversals. Source: USGS gauge #14211720.

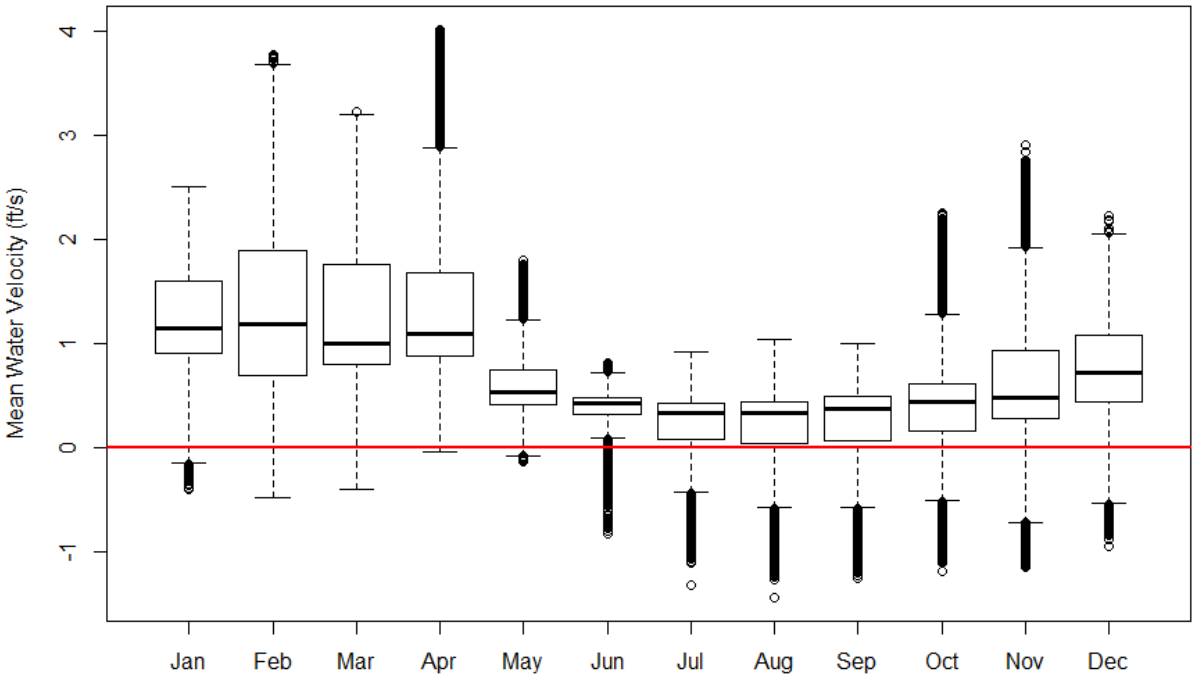
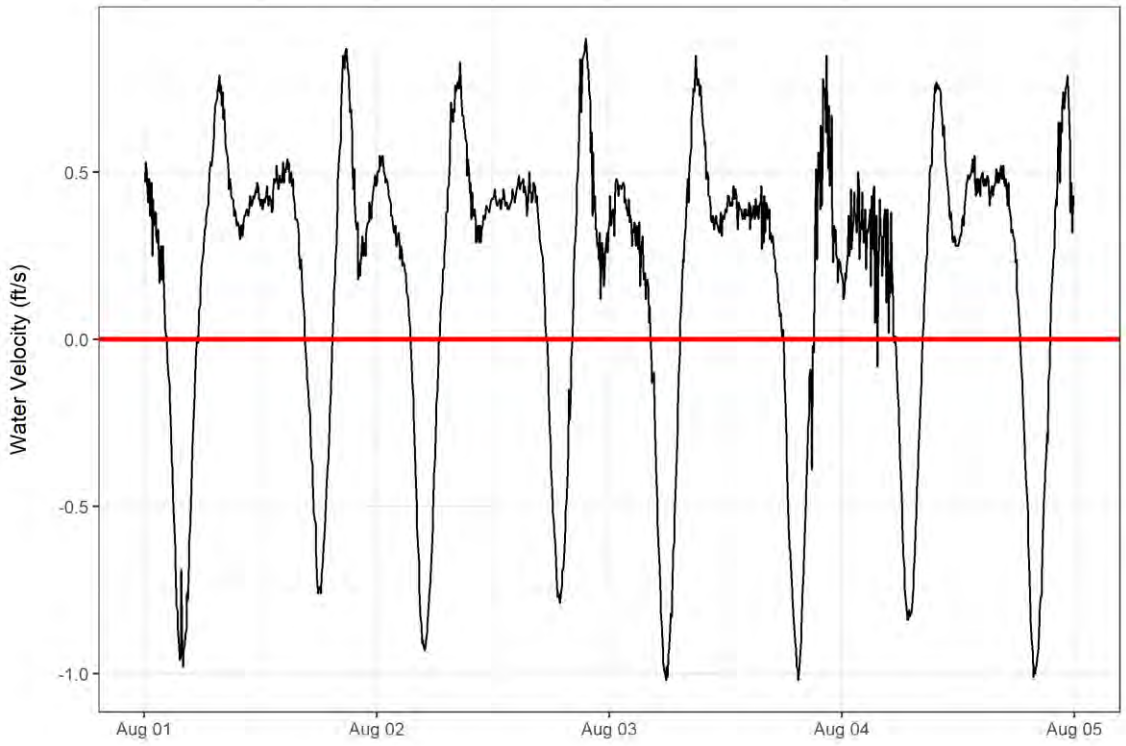


Figure 16: An example of summer flow reversals at Portland from August 2019. Velocities below the red line indicate flow reversals. Source: USGS gauge # 14211720.



Flow reversals tend to be very rapid and of short duration near the peak of the high tide (Figure 16). Flow is typically positive and somewhat consistent for most of the tidal cycle, then rapidly

reverses to the peak negative flow and quickly returns to levels close to those before the flow reversal.

Tidal effects on flow and water levels in the lower Willamette River occur all the way up to Willamette Falls, but flow reversal becomes insignificant upstream of the Morrison Bridge (Limno-Tech 1997). The presence of tidal variability and semi-diurnal flow reversals has a number of implications for important ecological processes such as sediment and contaminant transport and inundation of habitats and vegetation at the water's edge.

Unfortunately, the gauge at Portland does not provide an adequate period of record for evaluating changes in flow patterns over time. USGS installed the gauge in 1973, after the most significant period of dam building[5] and after the most significant changes in flow had already occurred. The excellent periods of record at the Salem and Dalles gauges do provide some foundation on which to hypothesize how changes in flow over time in the Upper Willamette and Lower Columbia would affect local flow conditions. It is probable that water levels during the low flow period in the Lower Willamette are markedly higher under current conditions than they were historically. Flow during low flow periods has increased in both river basins over this time, increasing the amount of water coming from the upper basin and the backwater effects from the Columbia River. Similarly, peak flows in both basins have been reduced, from December to April in the Willamette Basin and from April to July in the Columbia Basin. This has probably decreased peak flow events in the lower Willamette from December to April, and decreased the magnitude and duration of high water events due to backwater from the Columbia River from April to July. Together, these changes mean that the variability of flows and water levels in the lower Willamette River have been reduced, and the seasonal pattern in that variability has been altered.

2.6 Ecological Implications of Changes in Mainstem Flow at Portland

Flow regimes are critical to nearly all the ecological processes important in maintaining the health of the lower Willamette River. Understanding the changes in flow patterns that have occurred in response to human activities is a critical component in understanding the nature and dynamics of ecological problems in the river and its floodplain, the processes causing those problems, and the most appropriate and effective approaches for addressing them.

Human activities have had a number of profound effects on mainstem flow in the lower Willamette River—increasing flows during low water seasons, reducing the frequency and magnitude of peak flow events, altering the seasonal timing of flow changes, altering channel structure, filling or degrading floodplain and off-channel habitats, and limiting the ability of the river to access its floodplain. These significant changes have undoubtedly had profound and wide-ranging impacts on a number of processes critical to the riverine-floodplain ecosystem. Characterizing the entire range of probable impacts that such fundamental and important changes would have on ecosystem structure and function is beyond a scope that can be covered here[6], but some of the major implications are worth highlighting.

[5] Henry Hagg was the only major dam constructed after this point, in 1975.

[6] Fuerstenberg (2003) and Cassin et al. (2003) provide comprehensive assessments of ecological responses to human alterations of flow regimes.

Seasonal variability in flow is one of the major environmental cues to which plant and animal life histories respond. Seasonal changes in water level define the patterns of inundation and exposure that create seasonal wetlands and are important signals for the onset of critical biological processes such as emergence, migration, and reproduction. Wetland plants, salmon, aquatic insects, and other plants and animals have adapted to the seasonal patterns of flow over thousands of years, and their life histories reflect this ecological history. The rapid, human-induced changes in flow patterns mean that many native species are no longer adapted to the range and timing of flow conditions, adversely affecting their productivity, behavior, and survival. Floodplain areas that normally would be exposed during the summer and develop into seasonal wetlands as exposure stimulates wetland plant growth are now no longer exposed in the amounts, frequencies, or timing that they were in the past because dry season water levels are considerably higher than they were historically. Many plants (for example, wapato *Sagittaria latifolia)* are critically dependent on this seasonal pattern and timing of exposure.

Reduction in the magnitude and frequency of peak flow events alters habitat-forming and –maintaining processes. Floods are critical for maintaining many elements of riverine habitat, including channel and floodplain morphology, substrate composition, and wood accumulations (Junk and others 1989; Regier and others 1989; Poff and others 1997). Reducing the frequency and size of floods affects a number of important ecological processes including transport of sediment and wood, the frequency of channel-forming flows, and the disturbance events needed to create a mosaic of diverse habitat patches that provide habitat suitable for a wider range of species.

The changes in flow entering Portland are exacerbated by the changes in local physical conditions. The frequency and duration with which a river accesses its floodplain is diminished not only because of reduced peak flows, but also because floodplain and off-channel habitats have been filled and banks steepened. Seasonal wetlands have been reduced not only because the range in seasonal flows has been reduced and smaller areas experience seasonal inundation and exposure, but also because the areas where these wetlands occurred have been filled or developed. This juxtaposition of multiple impacts increases the severity of these changes on ecological functions.

2.7 Future Changes

Dams were the major source of change in the hydrology of the lower Willamette River over the past century, but dam building has largely ceased in the Northwest for a number of reasons, including the listing of salmon under the Endangered Species Act. The major changes in hydrology looking forward will likely be due to climate change. A collaboration of federal agencies (RMJOC 2018) summarized a number of studies on regional impacts of climate change and note significant changes that will impact hydrology in the Columbia Basin: "as warming continues, Columbia River Basin snowpack is likely to decline, winter stream flows will tend to increase, peak seasonal snowmelt season (freshet) will tend to occur earlier in the spring, and summer flows will likely decrease." (BPA 2018, pg. 9). USGS (2018) also summarized findings from reports by regional agencies on changes in both the Willamette and Columbia rivers:

> "Projected future trends indicate an earlier peak in the spring freshet is likely on the mainstem, shifted on average by about 1 month, from a May to June peak in current conditions to a late April to early May peak in the 2040s. Concurrently, increases in winter (November–March) runoff volume in the Willamette Valley are plausible as

> well. Although the future spring Columbia River peak stage would not coincide with the stage of Willamette River winter flows, the rise on the Columbia River would begin earlier, effectively increasing 2040s winter discharges in the Columbia River at the time of the peak flow on the Willamette River. This pointed to a February 1996 type winter rain-on-snow event as being more likely to cause plausible extreme future floods than the spring freshet." (USGS 2018; pg. 41).

Most of these changes will continue trends away from the patterns that species have evolved with over millennia, changing the timing and magnitude of seasonal flow patterns. Lower summer flows is one change that actually reverses a trend away from historical conditions induced by dam management over the past century, but because of other changes in the Columbia Basin ecosystem it comes at a very heavy cost, increasing summer water temperatures in a system that is already too hot. Temperature is one of the most common reasons for water quality impairment across the Columbia Basin and is a major limiting factor for salmon populations across the basin (NMFS 2011, NMFS 2013, NMFS 2015).

3 Habitat

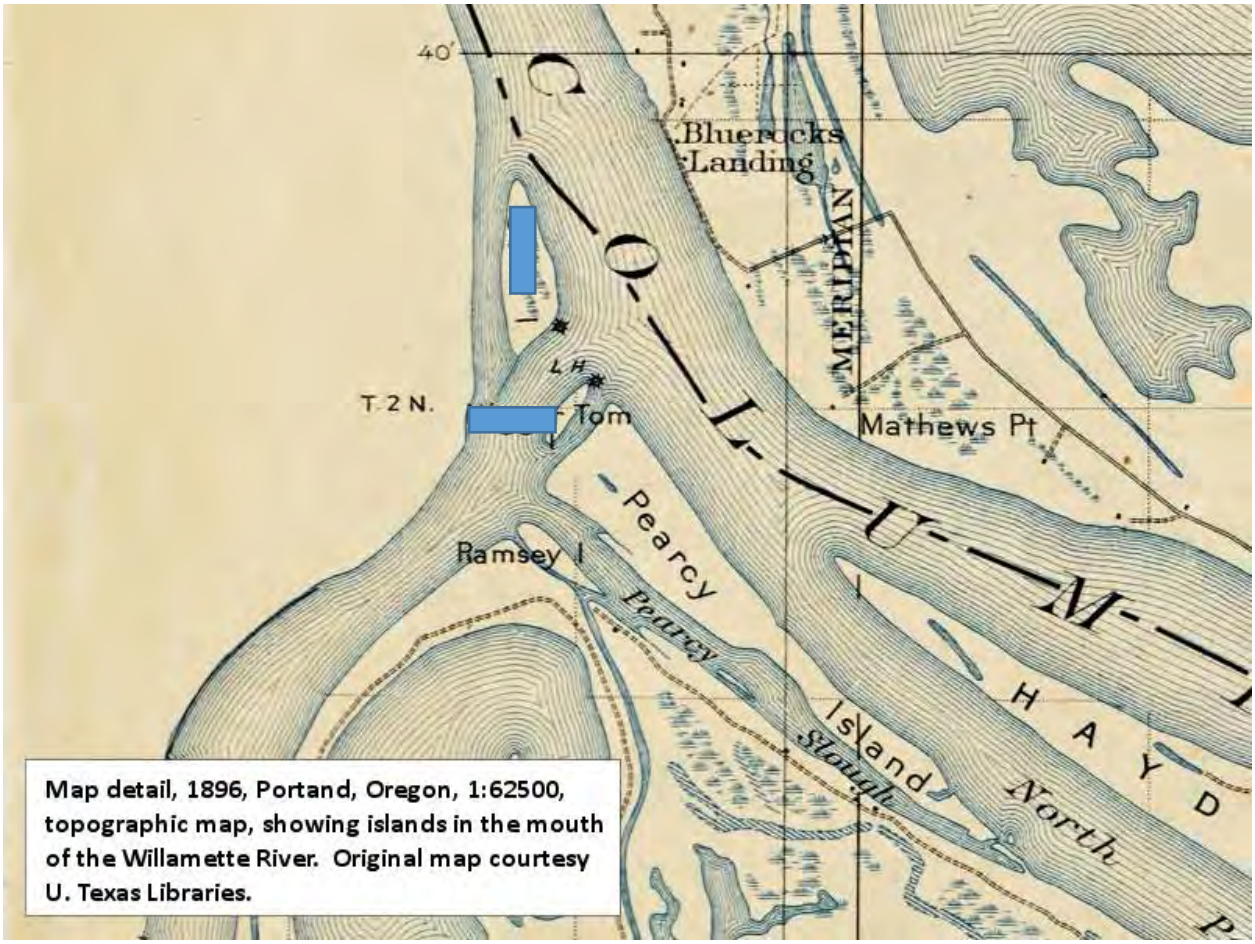
Adolfson (2003) provides a concise description of the historical natural setting of the Lower Willamette River prior to human development: "Historically, the Willamette River in the Portland area comprised an extensive and interconnected system of active channels, open slack waters, emergent wetlands, riparian forest, and adjacent upland forests on hill slopes and Missoula Flood terraces. Prior to settlement, the river was embedded in the regional forest network, and intricately connected to the Columbia floodplains." (p. 6)

This section provides an overview of historical and current aquatic and water-related habitat components of the north, central, and south reaches of the Lower Willamette River. These habitat components include: shallow water habitat, floodplains, off-channel, riverbank condition, and vegetation (both riparian and upland). The section concludes with a summary of the terrestrial habitat priorities and habitat types by reach.

3.1 Bathymetry/Shallow Water Habitat

Originally the lower Willamette channel was a transitional zone from a highly constrained basalt trench from the Willamette Falls to the South Reach, then a gradually widening and less constrained channel as it reached the confluence with the Columbia River. The general course of the channel through Portland has likely been consistent over time since the Missoula Floods dramatically reshaped the area. The one exception to this was the mouth of the river, where the Columbia Slough and Sauvie Island provided low-lying areas that were reconfigured during floods. Early maps of the mouth show multiple islands and channels that have been lost as the main channel was simplified for navigation and development (Figure 17).

Figure 17: Map of the mouth of the Willamette River. Offensive historical names have been covered in the original map.



Bathymetric surveys have been completed in the lower Willamette River through Portland in 1888 - 1895[7], 2001[8] and 2004[9]. It is difficult to compare these datasets quantitatively, however. The 2004 data are the only survey tied to a vertical reference point – Ordinary High Water (OHW[10]). The 1888-95 and 2001 surveys are not tied to a specific datum or elevation – they were conducted during a period of summer low flow that would have been approximately near Ordinary Low Water (OLW). Summer low flows have changed from 1888 to the present due to hydrologic alteration of the Willamette and Columbia rivers caused by dams, and tides can vary water depths in Portland by up to 3 feet over a tidal cycle (Section 2). Therefore, comparison amongst the datasets is limited to more qualitative analyses.

In order to provide a qualitative comparison of the changes in bathymetry over time, the data were mapped to address the question "how much shallow water habitat was present during the

[7] Metadata: https://www.portlandmaps.com/metadata/index.cfm?&action=DisplayLayer&LayerID=52237 and http://www.fsl.orst.edu/pnwerc/wrb/metadata/ac1895p.html

[88] https://www.portlandmaps.com/metadata/index.cfm?&action=DisplayLayer&LayerID=53476

[9] https://www.portlandmaps.com/metadata/index.cfm?&p=1&s=abstract&b=9&c=50022&o=asc&action=DisplayLayer&LayerID=53396

[10] North American Datum of 1983/1991 (HPGN)

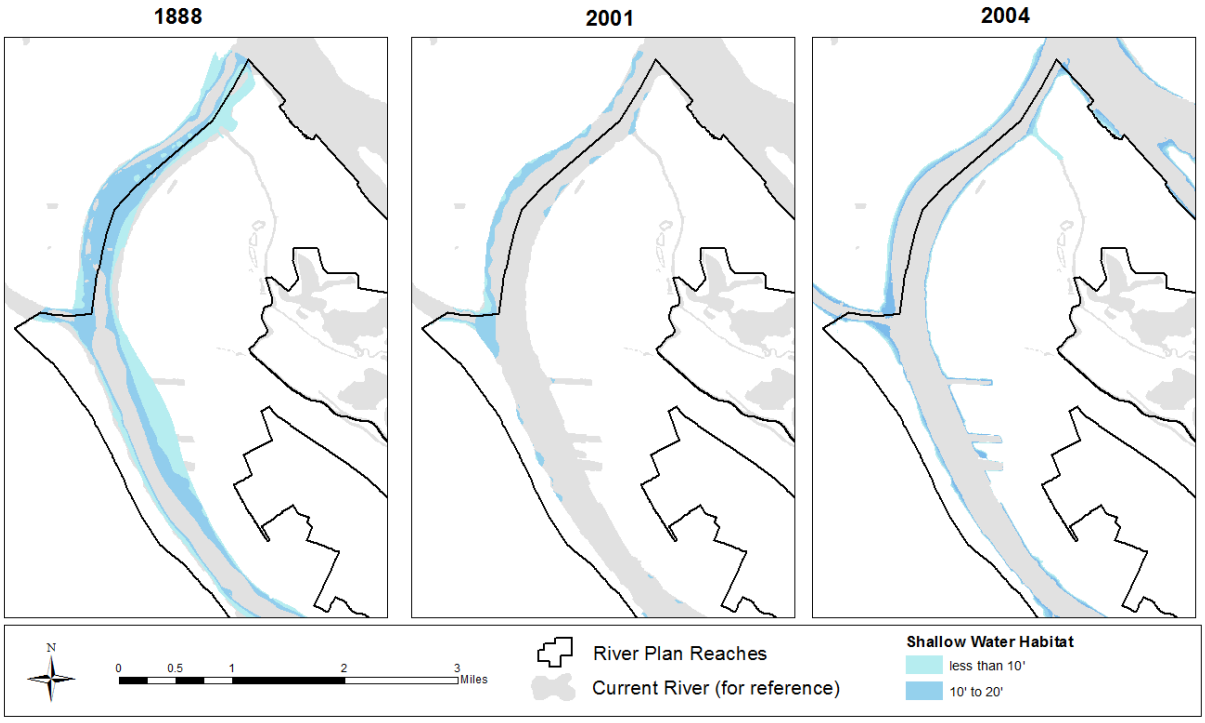
summer low flow conditions at the time of the survey?" For the purposes of this question shallow water was considered to be areas 20 feet deep or less during OLW. The 2004 OHW data were converted to OLW depths by subtracting 7.9 feet (Stillwater Sciences 2014). Comparison of shallow water habitat for the three reaches is described below.

3.1.1 North Reach

The channel of the North Reach as it approached the confluence was the most dynamic and complex of the reaches from the falls to the mouth. The joining with the Columbia provided dynamic hydrology that reworked the low-lying topography through floods. Like the confluence of most Pacific Northwest rivers massive wood accumulations would have been present, and early settlers spent considerable time removing wood from the channel for navigation. It was noted that "Because the Willamette River provided the critical transportation route for moving wheat to Portland and then on to oceanic markets, the federal government funded the construction of a steam-powered "snag-puller" in 1869 to remove obstructions from the river." [11]

The earliest channel surveys showed extensive shallow water habitat from Multnomah Channel to the mouth (Figure 18). South of this area provided a more gradually sloping bathymetry, with more extensive shallow water habitat on the east shoreline (near the current terminal slips) than the west shoreline. The current channel conditions on both sides of the river in this area show very steepened slopes with a very narrow marginal band of shallow water during low flow conditions.

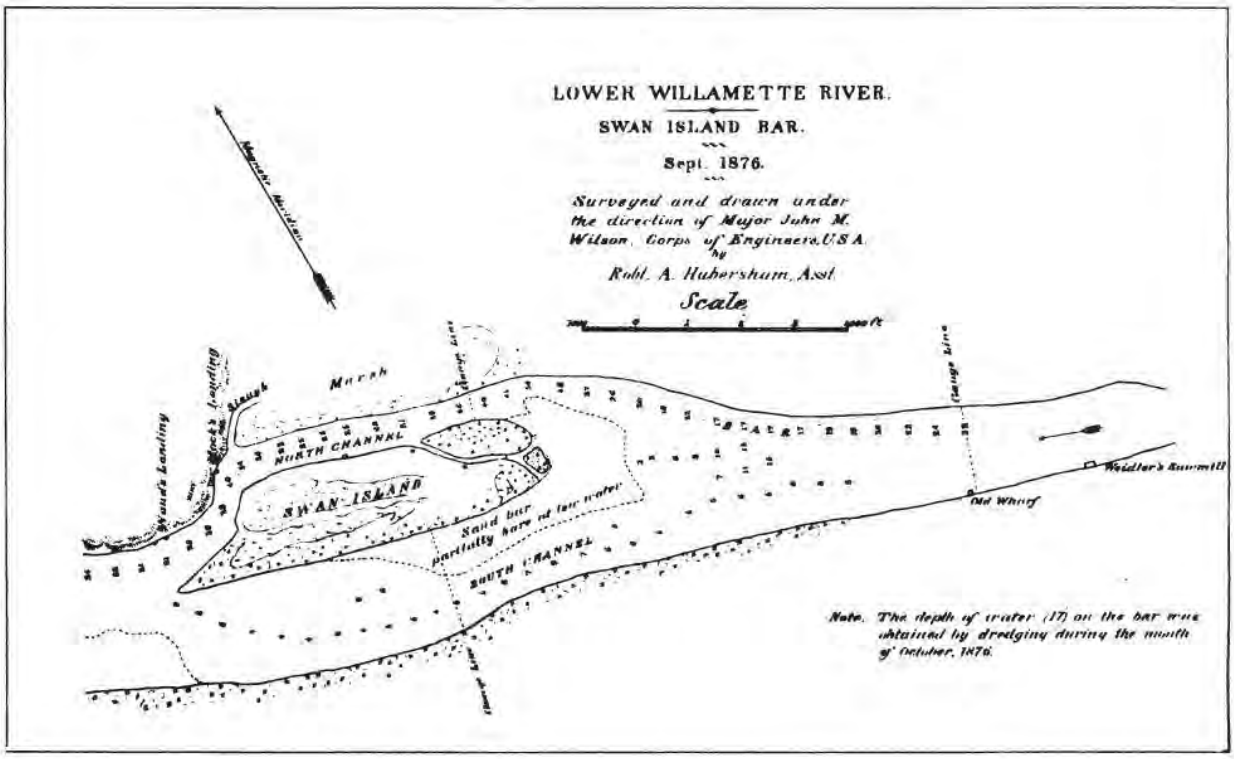
Figure 18: Shallow water habitat in the northern section of the North Reach.



[11] Oregon Encyclopedia: http://www.oregonencyclopedia.org/articles/willamette_river/#.VtjPQubX-I4

Moving further upstream to the southern portion of the North Reach, historical comparison reveals one of the more dramatic changes in the channel. The historical channel flowed to the east of Swan Island—a proper island at the time—and what is currently the main channel was a secondary channel with the largest expanse of shallow water habitat across the entire lower Willamette mainstem. The main channel was filled and Swan Island connected to the eastern bank in order to build the original Portland Airport[12], the current main channel was directed through this former shallow water habitat, and Swan Island Lagoon was created out of the original main channel (Figure 19).

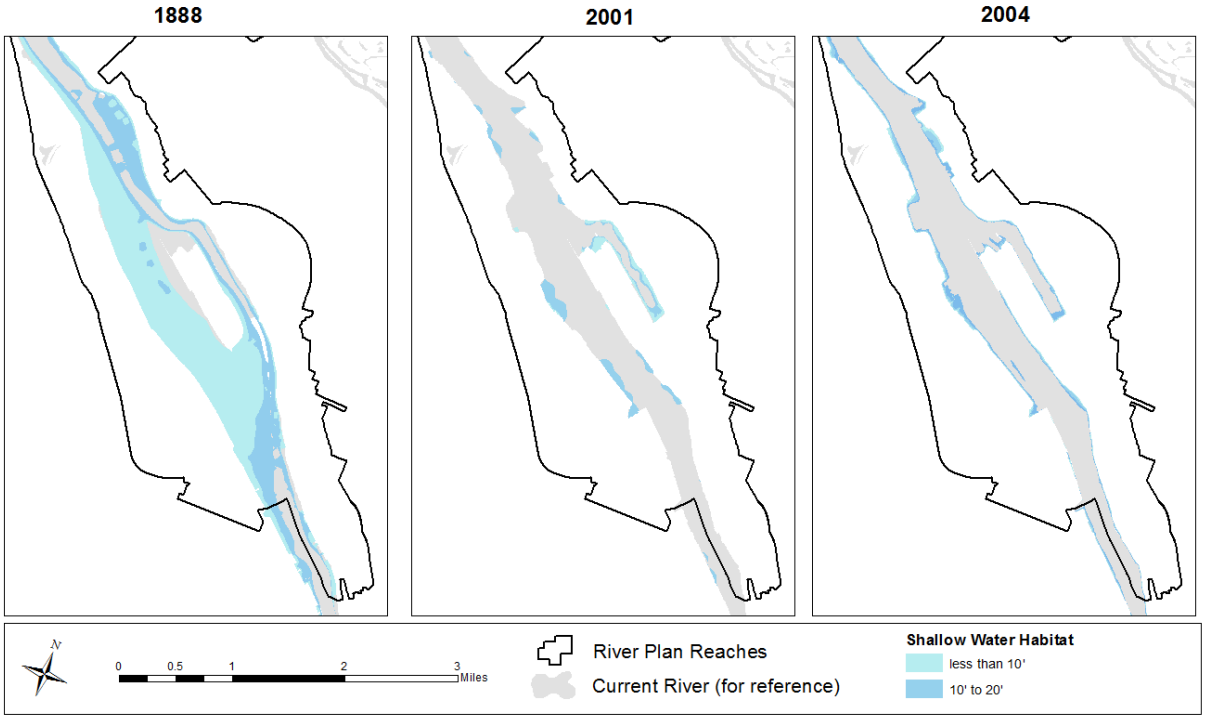
Figure 19: 1876 map of the original river configuration at Swan Island. The deeper main channel was historically to the east of Swan Island (towards the top of the map). Source: http://www.portlandwaterfront.org/timeline2.html.



The primary remaining shallow water habitats in this section are small alcoves, wider areas, or backwaters that provide room for more gradual channel slopes such as Willamette Cove, Terminal 1 and the end of Swan Island Lagoon (Figure 20).

[12] Swan Island was first noted as Willow Island in 1844. Lt .Charles Wilkes did visit and chart Swan Island (the first to do so), calling it Oak Island in his diary and Willow Island a decade later when the four-volume account of his voyage was published. He said: "The grove of oak on this island was beautiful, forming an extensive wood, with no undergrowth. The species of oak that grows here is white oak, of very close grain."

Figure 20: Shallow water habitat in the southern section of the North Reach.

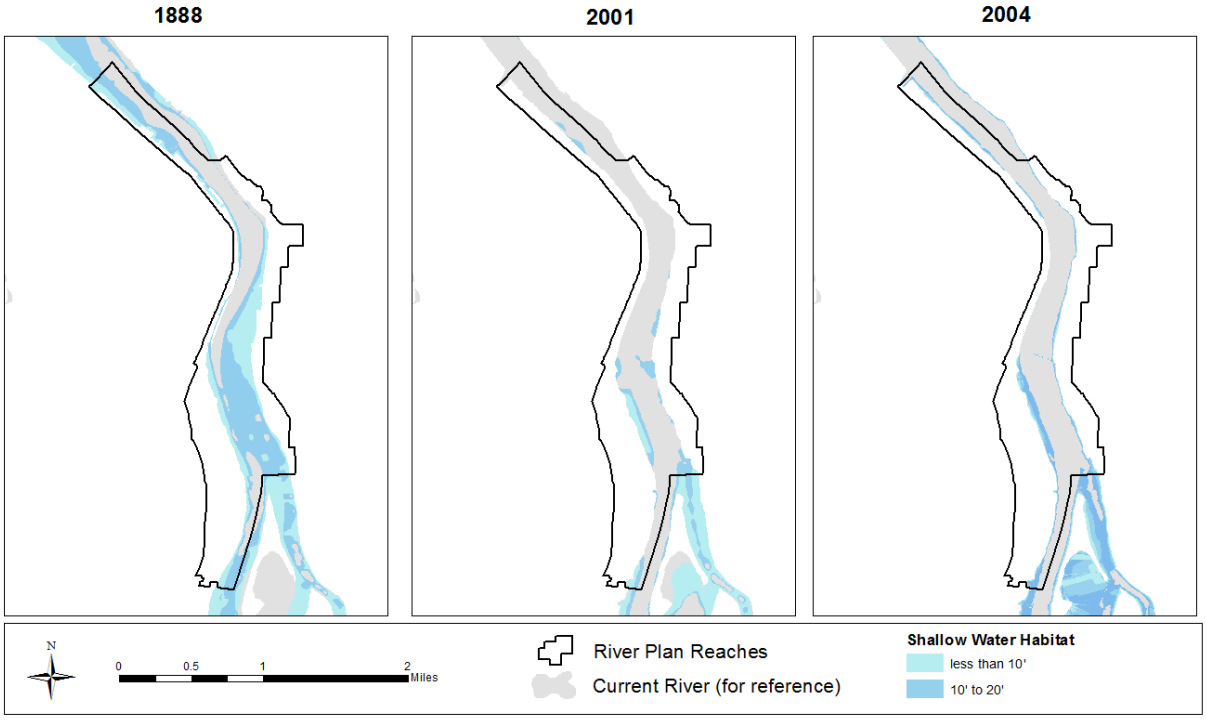


3.1.2 Central Reach

The Central Reach was historically narrow and moderately constrained, with shallow water habitat across the channel downstream (north) of the tip of Ross Island. The thalweg (deepest portion of the channel) bounced back-and forth between the banks as it traversed this reach.

Currently, because of the downtown seawall, extensive riprapped banks, and steep channel slopes along this reach, shallow water habitat is limited to very small, steepened areas such as the northern half of South Waterfront and the east bank beneath the Hawthorne Bridge (Figure 21).

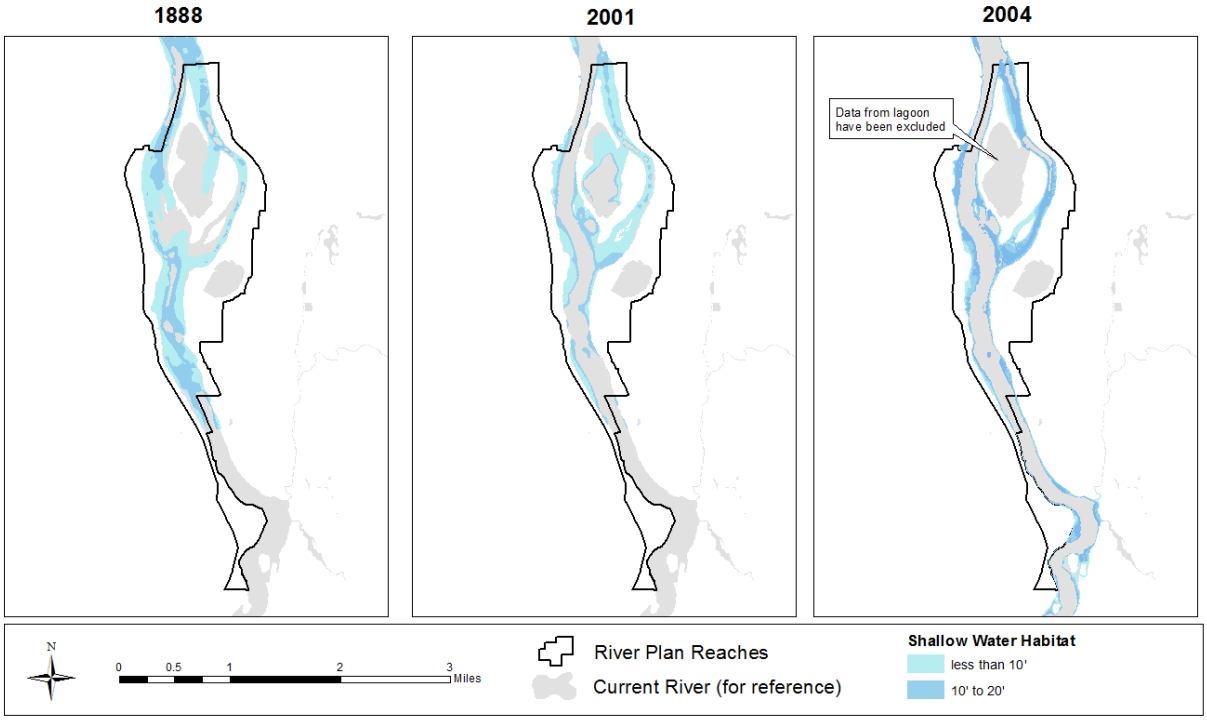
Figure 21: Shallow water habitat in the Central Reach.



3.1.3 South Reach

The South Reach historically provided considerable shallow water habitat and channel complexity as the river flowed through and around Ross Island. Ross Island was originally a group of islands with shallow channels between them that changed form in response to large floods (see, for example, Figure 33). Most of the channel upstream of Ross Island other than the thalweg was less than 20 feet deep. Currently, much of the shallow water habitat upstream of Ross Island and in the main channel to the west of Ross Island has been lost, but Holgate Channel to the east of Ross Island provides one of the only secondary channels in the entire lower Willamette, and is mostly less than 20 feet along its course (Figure 22).

Figure 22: Shallow water habitat in the South Reach. Note: the 2004 data in Ross Island Lagoon are in error and are in the process of being corrected, and so have been excluded from the map.



3.2 Floodplains and Off-Channel Habitats

From Multnomah Channel to the mouth, the Willamette River formed the southern portion of a vast floodplain system that included Smith & Bybee Lakes, Sauvie Island, and the Multnomah Channel, and Vancouver Lake and what is now Ridgefield Wildlife Refuge across the river.

Through Portland the floodplains are bounded by the Willamette Escarpment and the Tualatin Mountains. The channel and floodplain widen as the river flows through Portland, where landform constraints become less severe, and conditions become increasingly influenced by the Columbia River. Historically the reduced landform constraints allowed the formation of floodplains and off-channel habitats through Portland, with large off-channel lakes such as Guilds Lake, Doane Lake, and Ramsey Lake. Tributaries, including the Columbia Slough, and Miller, Doane, Balch and Tanner creeks were all connected to the mainstem. Prior to development, the mouth of the Willamette River provided one of the most extensive floodplain and off-channel habitats below the Falls. The Oregon History Project (Toll 2003) describes the city before construction of the dams:

> "The Willamette Valley was periodically flooded by late spring thaws in the Cascades. Portland's business district was overrun in 1853, 1854, 1862, 1871, and most severely in 1876 and 1894. On June 24, 1876, the water flooded stores along Second Street, reaching a high-water mark of twenty-five feet. In June 1894, the waters reached Northwest Tenth and Glisan and Southwest Sixth and Washington streets, a high water mark of over thirty-three feet…

Boats floated through the downtown like gondolas in Venice, conveying produce and people to the second story of three and four story masonry buildings. Unlike fires, which city officials tried to prevent with building codes and to fight with a professional force, floods seemed inevitable. Prevention of floods awaited the construction by the city of higher walls along the waterfront and ultimately the construction of dams on the upper Willamette by the Army Corps of Engineers."

Figure 23: Picture of the 1894 flood inundating the North Park Blocks. Source: http://www.oregonencyclopedia.org/articles/willamette_flood_1894_/#.V1fMcZErI2w

Along its length, riparian forests, mudflats, off-channel streams, lakes and wetlands were connected to the river during seasonal high flows. In-channel islands such as Sauvie, Swan and Ross islands provided high quality fish and wildlife habitat that would change configuration in response to floods. The historical floodplain provided storage for floodwaters and sediment, nutrient exchange, as well as groundwater and wetland recharge. The floodplain also served as a source of organic matter and food supply (e.g., insects) to the Willamette River, and as a refuge for fish and wildlife during floods, providing slower flows and hiding spaces to avoid the high flows of the main channel.

Processes that have led to changes from historical to current floodplain conditions primarily involve the placement of fill and structures to support industrial, commercial, transportation and residential development of the floodplain. Placement of fill alters floodplain function by disturbing native vegetation, modifying absorption rates, and isolating the floodplain from the channel, thereby reducing the frequency of inundation from flooding events. The placement of structures in the floodplain – buildings, roads, pipes and utilities – cover the floodplain, diminish or eliminate its ability to provide many functions to the river, and introduce pollutants.

As a result of these processes, off-channel habitat in the lower Willamette River is one of the habitat types most greatly diminished in quantity and quality from historical condition. Floodplain fill, vegetation removal, bank and channel alterations, and urban development have destroyed

floodplain, off-channel, and riverine habitats or greatly altered their structure and function. Large off-channel lakes such as Guilds Lake and Ramsey Lake were filled to provide land for downtown and port development, while Doane Lake was reduced in size and its connection to the river severed. At the same time, tributaries all along the lower river were piped underground to support development and disconnected from the mainstem channel. Most of the tributaries draining the Tualatin Mountains (West Hills) into the Willamette from the west have been disconnected by the presence of long culverted or piped sections.

The Portland Harbor Remedial Investigation (EPA 2016) describes many of the areas which received fill:

> "Anthropomorphic fill blankets much of the lowland area next to the river and is predominantly dredged river sediment, including fine sand and silty sand. Hydraulic dredge fill was used to fill portions of the flood plain, such as Doane Lake, Guild's Lake, Kittridge Lake, Mocks Bottom, Rivergate, and a number of sloughs and low-lying areas. The fill also was used to connect Swan Island to the east shore of the Willamette River and to elevate or extend the bank along significant lengths of both sides of the riverfront by filling behind artificial and natural silt and clay flood levee dike structures. Rocks, gravel, sand, and silt also were used to fill low-lying upland and bank areas. The thickness of this unit ranges from 0 to 20 or more feet." (pg 3-3).

This section provides an overview of historical and current floodplain conditions of the North, Central, and South reaches of the Lower Willamette River. Information is presented by reach, first for the east, and then the west bank.

3.2.1 North Reach – East Bank

The floodplain on the eastern shore at the confluence with the Columbia consisted of a portion of Ramsay Lake, cottonwood and ash riparian forest, wetlands (emergent, forested, and scrub-shrub), and prairie (GLO vegetation surveys, Graves, et al. 1995). The largest of the tributaries flowing into the North Reach joined the Willamette at the northern tip of this subwatershed. The Columbia Slough, a 19-mile 32,700 acre watershed which was originally a large series of wetlands, lakes and channels, formed the floodplain of the Columbia mainstem and the Willamette mouth. Based on a visual estimate of 1964 and 1996 flooding events depicted in Hulse et al. (2002), an estimated 90% of this area was covered during historical floods. Ramsey Lake - the largest of the off-channel lakes in the lower Willamette at approximately 650 acres, was nestled between the lower several miles of the Slough to the east and the Willamette mainstem to the west, forming a large floodplain wetland complex. Vegetation surveys suggest these wetlands were connected to the main channel through marshy areas to the south in what is currently the International Slip and Schnitzer Steel.

Upstream of the confluence, topography increasingly constrained the channel and floodplain. In wider areas such as Willamette Cove and Mocks Bottom, the floodplain included wider bottomlands and wetlands at the foot of these escarpments. At Mocks Bottom an extensive floodplain historically bordered the main channel to the east, and contained a large marsh and forested wetland complex (Figure 24). When considered with the Guilds Lake bottomland on the opposite bank the Willamette River, the floodplain would have been over 2 miles wide at this point.

Extensive fill along the eastern banks has greatly reduced the extent of floodplain. Ramsey Lake and much of the low-lying land along the Rivergate area have been filled for industrial development. Small remaining pockets that are either in the Federal Emergency Management Agency (FEMA) 100 year floodplain or that were inundated in the 1996 flood include the lower lying areas of Kelley point Park, the low-lying areas surrounding International Slip, and the end of the Swan Island lagoon and southern end of Swan Island where the original main channel was filled to connect Swan Island to the eastern bank.

3.2.2 North Reach – West Bank

Along the west bank of the North Reach a broad Willamette River floodplain historically existed from the confluence with the Columbia River to the Multnomah Channel that included large portions of Sauvie Island. Flooding may have extended up to 1,000 feet or more from the river at the marsh area south of the Miller Creek confluence. Historical maps show wetlands and an off-channel waterbody where Miller Creek joins the Multnomah Channel (Figure 24).

Upstream of the Multnomah Channel, the floodplain was constrained throughout the Linnton area as the channel flows near the base of the Tualatin Mountains, and flooding was limited to areas near the bank. South of Linnton on the west bank across from St Johns, the Tualatin Mountains begin to diverge from the main channel and a shelf of low lying bottomlands are present between the base of the mountains and the channel. It was on these bottomlands that the extensive off-channel floodplain lakes were present, from north to south including Doane Lake, Kittridge Lake and Guilds Lake, the latter an old cut-off meander of the historical channel. Along the length of the Tualatin Mountains a large number of perennial and intermittent streams flowed down the flanks of the West Hills onto the floodplain platform below, often passing through lakes and wetlands along the way.

With a few exceptions, the current 100-year floodplain does not extend much beyond the existing channel boundaries (FEMA 1982 and 1986), due to filling for industrial and commercial use. The mouth of lower Miller Creek and the wetlands on the north and south of the PGE property are still subject to Willamette River flooding, and portions of the Morse Brothers, Owens Corning and Linnton Plywood properties were either flooded in 1996 or are within the 100-year FEMA floodplain. Sauvie Island – nearly all of which would have flooded under historical conditions – has been diked and much of its interior has been disconnected from the river. Much of the former Alder Creek Lumber property is outside of the dike and experiences flooding. This property was recently purchased by Wildlands, Inc., restored, and is being used to provide credits for Natural Resource Damage Assessment liabilities by providing high quality off-channel and floodplain habitats that are well-connected to the mainstem.[13]

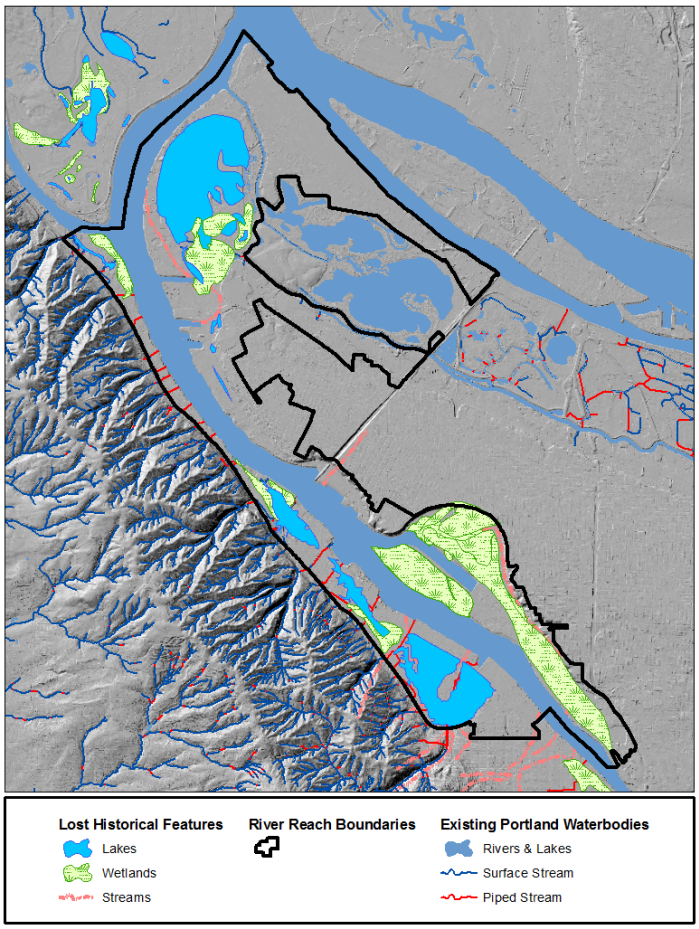
Miller Creek, at the junction with the Multnomah Channel, is the only creek draining Forest Park with any fish passage. Miller Creek is a forested, high quality watershed largely contained within Forest Park, the largest forested park within city limits in the country. The connection of Miller Creek to the Willamette is compromised by culverts underneath the railroad, and lower channel alterations including the redirection of the channel into the back end of a marina. The Oregon

[13] https://www.fws.gov/oregonfwo/Contaminants/PortlandHarbor/Documents/AlderCreekFactSheet.pdf

Dept. of Transportation replaced the culvert under Highway 30 with a bridge in 2003. Improvements to the confluence and lower channel are being developed as part of the Natural Resources Damage Assessment settlements.

All other Forest Park streams—Doane, Saltzman, Balch and numerous unnamed perennial and seasonal streams – are piped from the foot of the West Hills under Highway 30 (and associated industrial development) and disconnected from the Willamette River (Figure 24). Doane Lake across from Willamette Cove was mostly filled during development, and the remnant portion is separated from the river and other habitats on all sides by railroad berms. Guilds Lake, the largest lake on the west side, and Kittridge Lake were completely filled.

Figure 24: Historical off-channel lakes, wetlands and streams that have been lost over time in the North Reach.



3.2.3 Central Reach – East Bank

The East bank of the Central Reach was described by Harvey Scott in 1890:

> "From Albina southward the surface sinks by small degrees, broken here and there by ravines, until at the site of East Portland, three profound chasms or gulches, unite to form an illuvial bottom, making easy ingress from the river, but a bad water front. The first of

these on the north is Sullivan's Gulch, fifty feet deep and two hundred yards across; its bed a morass. It is down this cleft that the O. R. & N. R. R. finds a passage from the plain to the river level. Next south is Asylum Gulch, leading back to a powerful spring which leaps from under the plain behind, giving birth to a stream of water sufficient for the supply of the water works of East Portland. A mile south of this is Stephens Gulch, bearing off another clear stream, of many times the volume of the foregoing, which also springs bodily from the ground. It is by this depression that the O. & C. R. R. passes out of the city. South of the mouth of Stephens Gulch, the ground once more rises, gaining an altitude about the same as that of Albina, and it is called Brookland[14]. … The strip of alluvium in front of East Portland, at the mouth of the gulches, is but a few hundred paces across, and thence the surface rises easily, nowhere attaining an elevation of more than one hundred feet, and develops into a plain with many variations of surface leading out three miles further to Mt. Tabor."

The historical floodplain in the east side of the Central Reach was not extensive, based on imagery (Hulse et al. 2002), vegetation descriptions (Christy et al. 2000), and the Coast Survey maps. It was generally limited to the shoreline, though the river would flood into the three the gulches; for example, in Sullivans Gulch as far up as the present location of NE 16th Avenue (City of Portland Bureau of Planning, 1993).

The Surveyor General's Office map from 1852 indicates a creek flowing east to west in the approximate location of the current SE Belmont Street. This creek enters a lake at approximately the location of the current SE 12th and Morrison Streets (Surveyor General's Office, 1852). This was likely Asylum Creek –mentioned in Harvey Scott's description above and also known as Hawthorne Springs (Figure 25)—which was mentioned in the Oregon Journal in 1929[15]:

"Interesting history of the Central East Side is recalled by completion of the Grand Central Public market, which occupies what once was the course of Asylum creek, a stream originating near Mount Tabor and meandering through the East Side past an insane asylum on what is now East 10th street, to the Willamette River near Oak Street.

…Man-made alterations, made principally since 1900, have changed the terrain of the Central East Side section considerably. Grand Avenue ran along the crest of a bluff overlooking the river, and was regarded as "high land." It was a broad peninsula extending northward to Stark Street, where the declivity of Asylum creek caused a dip in the land.

Another indentation of water into the east Side was Stephens slough and creek, over which the Inman-Poulsen mill now stands. Asylum creek, which passed through the center of the district, arose near Mt. Tabor, passed along the southern line of Lone Fir cemetery and in a southwesterly course went to East 12th and Hawthorne, swinging abruptly into a northwesterly course. At 12th and Hawthorne the stream was fed by a spring, which

[14] Currently the Brooklyn neighborhood – the bluffs on the east bank above Ross Island.

[15] 1 The Oregon Journal (Portland), 8 November 1929, page 31, col. 1. As found at: http://www.lenzenresearch.com/GCPMsite.pdf

produced 1,000,000 gallons of water daily. This spring is still in action and has created an engineering problem for the city engineer and nearby residents"

The historical floodplain was filled and developed for the settlement of East Portland and the Central Eastside Industrial District. Currently, I-5 and industrial land occupy much of the floodplain closest to the river. A portion of the area under the I-5 freeway along the railroad tracks and SE 2nd Avenue flooded during the 1996 event, though development has effectively eliminated floodplain function in this area.

Figure 25: Picture of slough at Hawthorne Springs.

Figure 26: Oregon General Land Office Cadastral Survey Map; digital image, University of Oregon Map Library (libweb.uoregon.edu/map/map resources/about_glo.html). The map shows an off-channel lake and streams on the west side, and streams flowing through ravines on the east.

3.2.4 Central Reach – West Bank

The 1964 flood extended up to a half mile inland from the Willamette River downtown and in what is now referred to as the South Waterfront area, and the quote in the introduction to this section make it clear that earlier floods regularly inundated downtown streets.

Tanner Creek was one of the few named creeks that flowed into the Central Reach on the west side. Tanner Creek flowed into Couch Lake, a low, swampy area within the floodplain that extended from just south of the Steel Bridge to the Fremont Bridge. (Figure 32; *Portland Online, re: Tanner Creek* http://www.portlandonline.com/bes/index.cfm?c=dbijg).

Figure 27: A map depicting Tanner Creek's origins in the West Hills and discharge into historical Couch Lake before flowing into the Willamette.

© Oregon Historical Society - indicating the original flow of Tanner Creek

Other unnamed streams are currently piped underground and would have also provided off-channel habitat in this reach. There was also an unnamed lake and stream just north of Ross Island on what is now South Waterfront. (Figure 32).

Fill for development of downtown limits the floodplain to the channel with a few small exceptions on the west side. Just south of Terminal 1 and south of the Fremont Bridge flooded in the 1996 flood up to Front Ave. Plywood walls and sandbagging kept the 1996 flood from overtopping the seawall, but most of South Waterfront flooded[16] and is included in the FEMA 100-year floodplain.

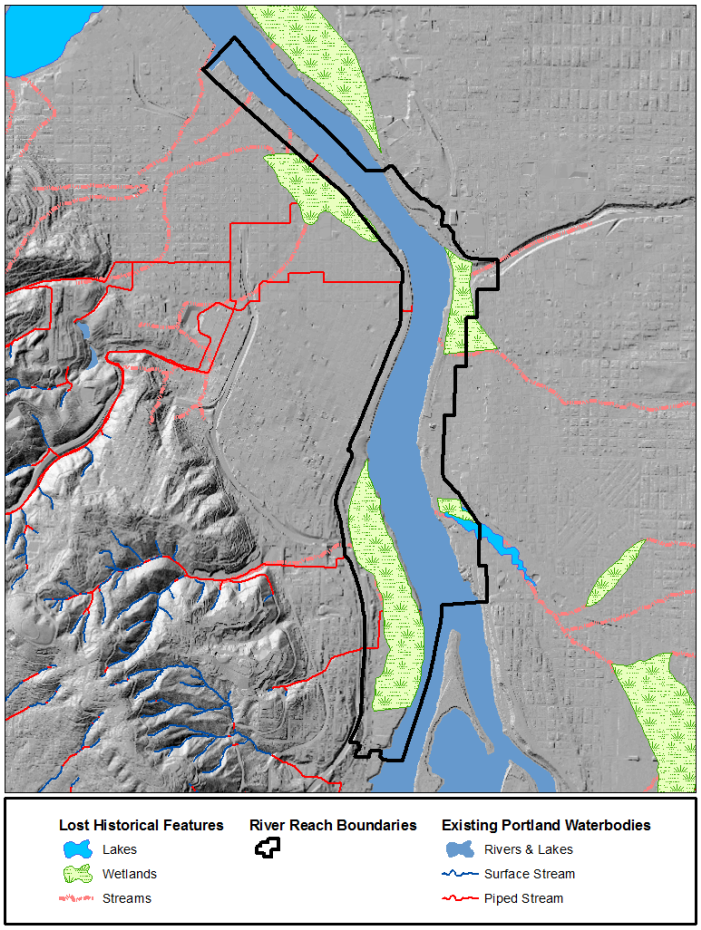
No tributaries currently join the mainstem above ground in the Central Reach. The off-channel habitat present in this reach was quickly filled in the early development of downtown and East Portland, and no off-channel habitat of any type currently exists in this segment. Tanner Creek is currently piped underground and flows through a pipe to discharge beneath the former Centennial Mills site. The Portland Parks Bureau daylighted a small portion of Tanner Creek to construct Tanner Springs Park[17], and the Portland Harbor Natural Resource Damage Assessment Trustees have advocated for daylight and restoration of the confluence with the Willamette.[18]

[16] Note: an error in the mapping data excludes South Waterfront from the 1996 flood footprint, but aerial photos of the event show much of the area inundated during the flood.

[17] https://www.portlandoregon.gov/parks/finder/index.cfm?propertyid=1273&action=viewpark

[18] http://www.fws.gov/oregonfwo/contaminants/portlandharbor/Documents/RestorationPort_AppA.pdf

Figure 28: Historical off-channel lakes, wetlands and streams that have been lost to development over time in the Central Reach.



3.2.5 South Reach – East Bank

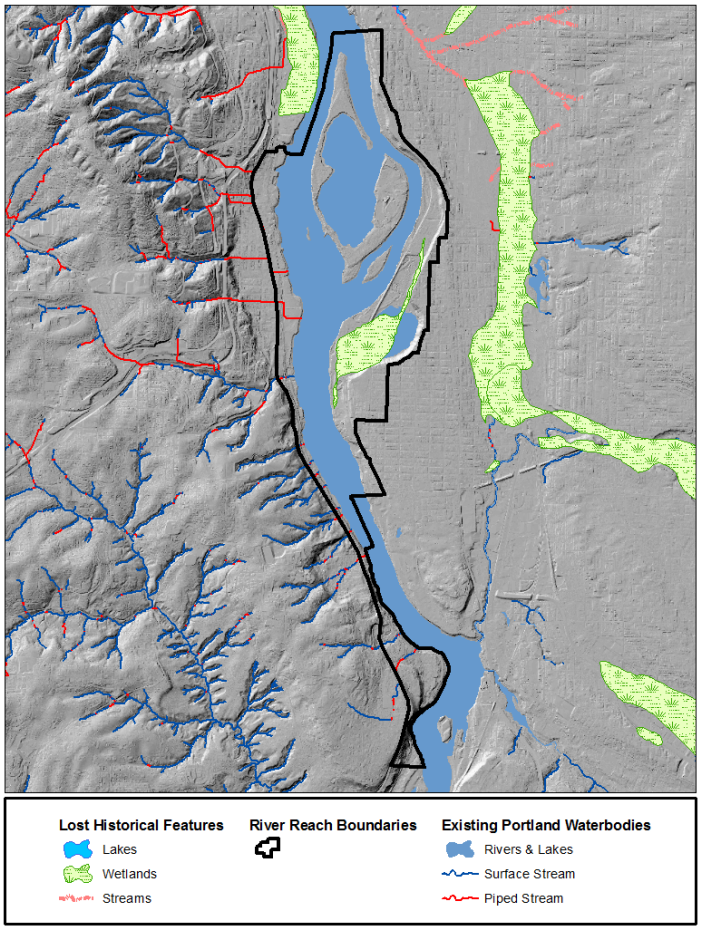
On the east side of the South Reach Oaks Bottom – a large marsh, scrub-shrub, and forested wetland complex – bordered the main channel and extended approximately 2,000–2,500 east to the bluffs. This wetland complex (~ 292 total acres) was fed by springs and tributaries coming from the uplands.

The Willamette Park/Ross Island/Oaks Bottom complex provided a high-quality combination of in-channel gravel islands, secondary channel, and off-channel habitat. In-channel islands and gravel deposits typically have a strong hyporheic connection to the river, and provide important functions for river health. The flow of river water through the gravel cools and cleans the water, and fish are often found at the upwelling sites common on these features. The island and Oaks Bottom wetland complex would have been inundated under flood flows, providing high quality habitat and refuge.

Although outside the boundaries of the South Reach and the city limits of Portland, Johnson Creek is a major tributary to the lower Willamette River. This creek – particularly the lower portion of this watershed with the abundant groundwater flow provided by Crystal Springs, would have provided valuable off-channel habitat and cool water refuge to juvenile salmon migrating through the lower river.

Ross Island provides the greatest amount of remaining connected off-channel habitat in the Lower Willamette River through Portland (Figure 29). The Holgate Channel provides relatively high-quality secondary channel, although bank erosion is prominent along the eastern bank of the channel. The interior lagoon within Ross Island has actually increased in size and depth due to mining activities. Although the mining activities have considerable impacts on the quality of habitat in the lagoon, the island still provides high quality off-channel habitat relative to the rest of the reaches. In general, having a habitat complex of the quality and diversity of Ross Island and Oaks Bottom in such close proximity to the heart of downtown is an invaluable resource that is rare in urban areas across the country.

Figure 29: Historical off-channel lakes, wetlands and streams that have been lost to development over time in the South Reach.



The confluence with Johnson Creek still provides valuable off-channel habitat, but the impacts to Johnson Creek and in particular the excessive heating of Crystal Springs have diminished the quality of lower Johnson as an off-channel refuge.

1.1.1. South Reach – West Bank

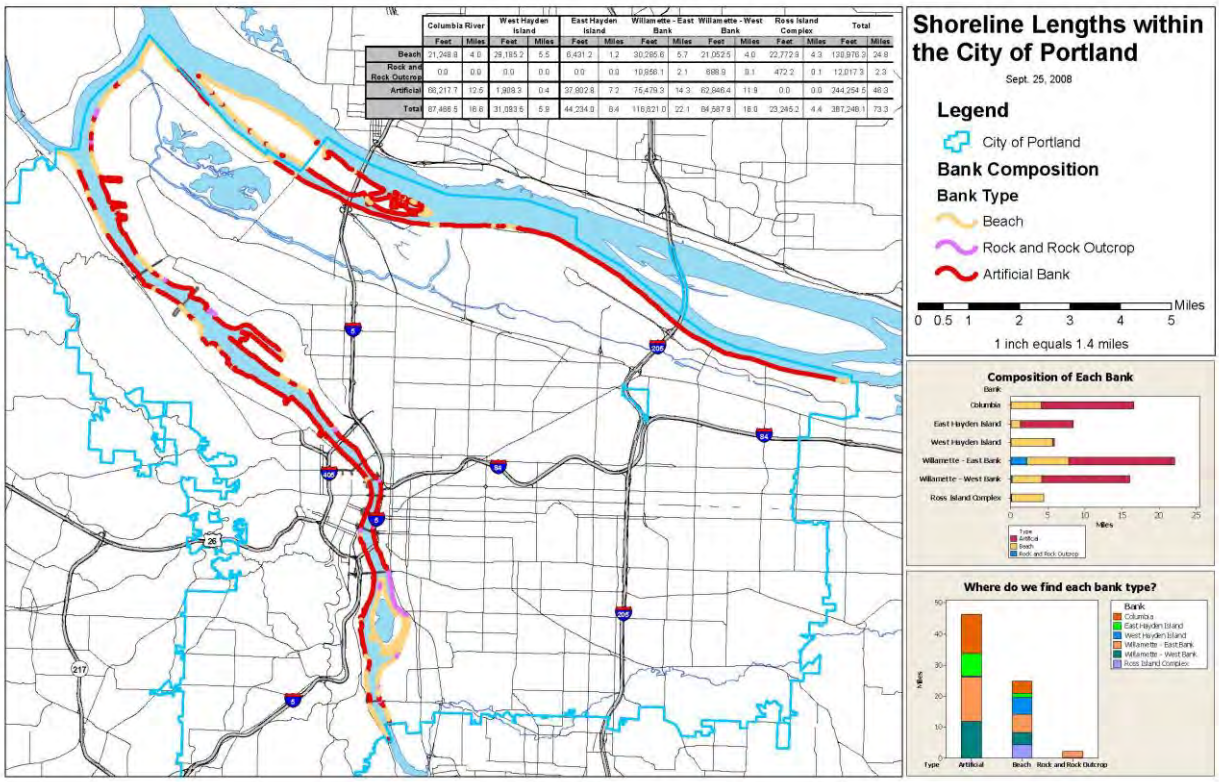
At the south end of South Waterfront in the vicinity of Cottonwood Cove the topography narrowed the historical floodplain considerably. To the south the floodplain expanded again as the topography curved away from the river in the Johns Landing area, the 1964 and 1996 floods covered the majority of what is now Willamette Park up to the rail line. The historical floodplain is estimated to be 1000 - 1500 feet wide in this area. The historical floodplain in the Stephens Creek and Riverview areas was constrained by the base of the Tualatin Mountains and the basalt trench through which the main channel flows (Hulse et al., 2002), and is therefore limited to only a very narrow frontage of the Willamette River. The banks in this subwatershed did not substantially overflow during historical (1861-1890) or recent floods (1940-1996) (Hulse et al. 2002). There were a number of small tributaries draining the West Hills and joining the mainstem along the length of this segment, the largest of these being Stephens Creek.

Many of the small tributaries draining the west side have been piped underground, and all of them pass through culverts and are disconnected from the mainstem. The lower portion of Stephen's Creek contains one of the highest quality remaining examples of bottomland forests surrounding tributary confluences with the mainstem and contains one of the more diverse salmonid assemblages of the tributaries sites sampled so far within the City of Portland (ODFW 2002). This confluence has been extensively restored. A Combined Sewer Overflow pipe running along the stream was removed in 2008[19], the channel and floodplain improved and revegetated, and a culvert below the trail was replaced with a bottomless culvert that allowed fish, amphibian and other wildlife passage to an additional section of the creek.

3.3 Bank Condition

ODFW documented bank composition in the ODFW fish study (ODFW 2005). Over time the City of Portland has filled in some gaps in the ODFW survey (e.g., Swan Island Lagoon) and extended the survey out into the Columbia river shoreline within Portland. The results of both surveys are show and summarized in Figure 30. The results within each reach are described in the sections that follow.

Figure 30: River bank composition along the Willamette and Columbia rivers through Portland.



[19] https://www.portlandoregon.gov/bes/index.cfm?&a=192593

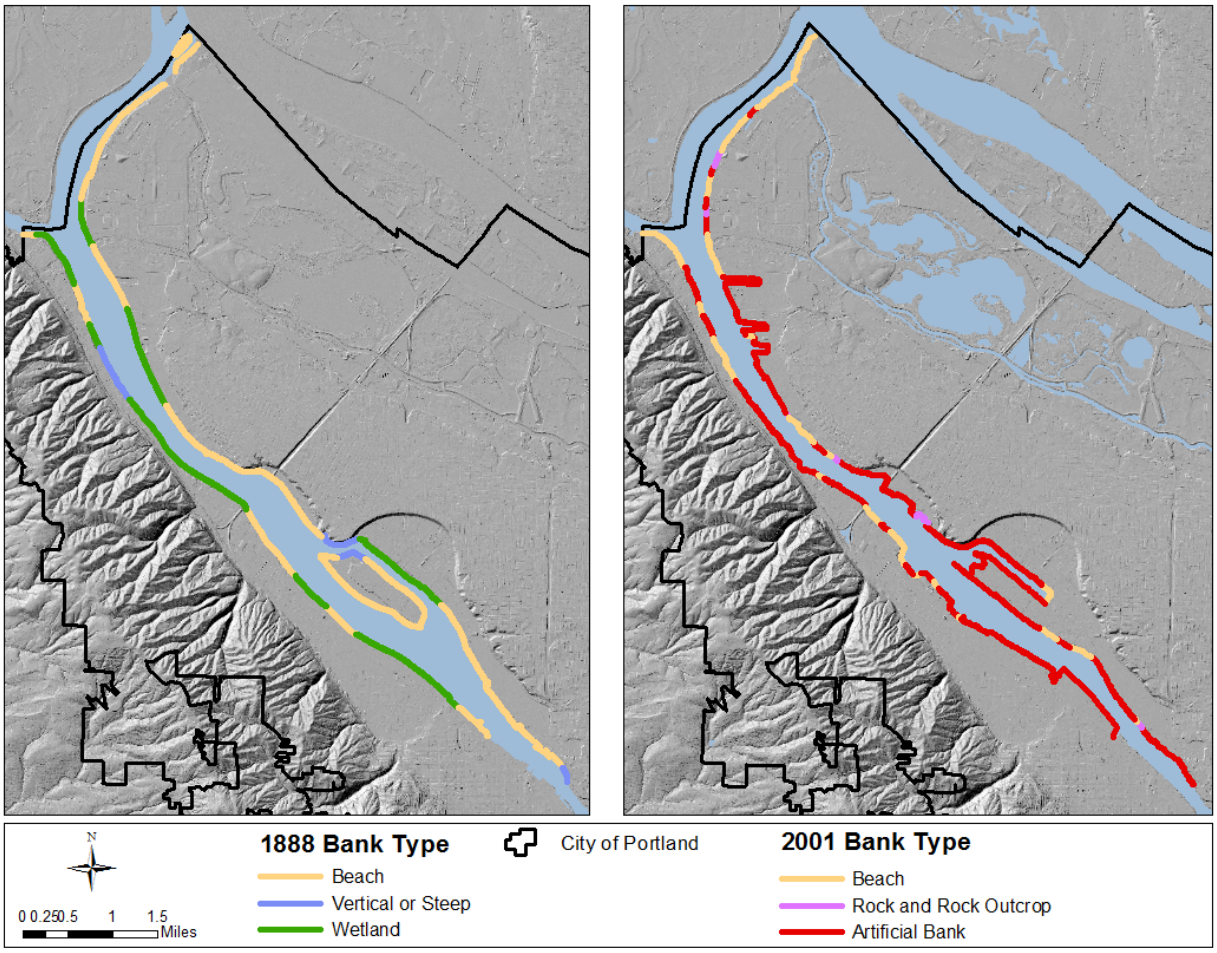
3.3.1 North Reach

Historical. As discussed previously, the North Reach was one of the most unconstrained reaches below Willamette Falls. The low-lying floodplains and delta islands and dynamic river processes probably resulted in significant channel movement, and therefore, changing bank conditions. The *Willamette River Inventory* (Adolfson 2003) states that the river was historically a half mile wide with a large shoal along the east river bank, across from the Linnton subwatershed in the North Reach. Surveys from the 1800's indicate that the banks in the North Reach were dominated by beaches (59% of the bank length), followed by wetlands (33%) and steep banks (7%; Figure 31).

Current. Although the length of beach habitat has been reduced by over half of what was present historically, the reach currently retains a significant portion of beach habitat (25% of total reach length), particularly along the eastern bank of the north end of the reach and near the mouth of Multnomah Channel. However, no wetland habitat remains[20], and 73% of the banks have been converted to artificial bank structures such as rip rap and seawall. Bank hardening is most prevalent along the dock and industrial facilities throughout this reach (Figure 31). Banks have been diked and steepened with dredge fill over the years, which has further confined the channel and limited connection to the floodplain.

[20] Note that one exception would be the wetlands at the Portland General Electric. The banks are correctly classified as beach, but wetlands are present just beyond the banks.

Figure 31: Changes in bank types along the North Reach of the Lower Willamette River. Artificial banks now comprise 73% of the segment length, and wetlands are largely absent as a bank type.



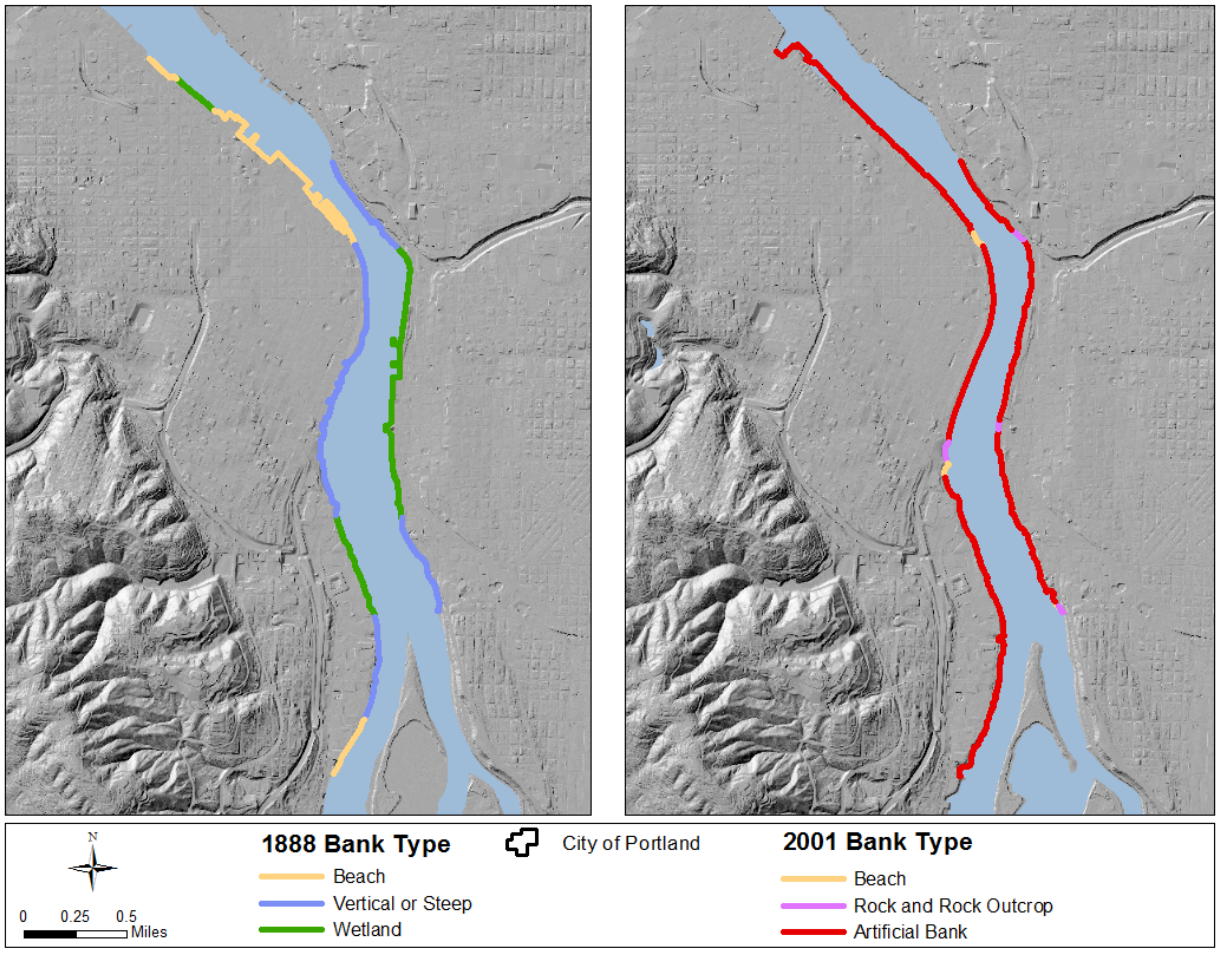
1888			2001		
Bank	**Length**	**Percent**	**Bank**	**Length**	**Percent**
Beach	71977	59%	Beach	32408	25%
Vertical or Steep	8930	7%	Rock	3707	3%
Wetland	40623	33%	Artificial Bank	95346	73%

3.3.2 Central Reach

Historical. The Central Reach was historically moderately constrained. Surveys from 1888 indicate that the banks in this segment were equally divided between wetlands and vertical or steep banks, with steep banks dominating the west bank and wetlands along the east bank (Figure 32). Wetlands on the west bank were primarily along the low shelf provided in what is currently South Waterfront. On the east bank wetlands comprised about two-thirds of the reach, from Sullivan's Gulch to the south. Beaches were not nearly as prevalent in this reach as in the north and south reaches.

Current. The Central Reach has the highest percentage of artificial bank structures (93%), with only a few short stretches where natural bank remains. Seawall, unclassified fill, and vegetated rip rap are the most common bank types in this segment. Wetlands have been entirely eliminated and beach habitat has been reduced ten-fold from historical lengths.

Figure 32: Changes in bank types along the Central Reach of the Lower Willamette River. Artificial banks now comprise 93% of the segment length, and wetlands are absent as a bank type.



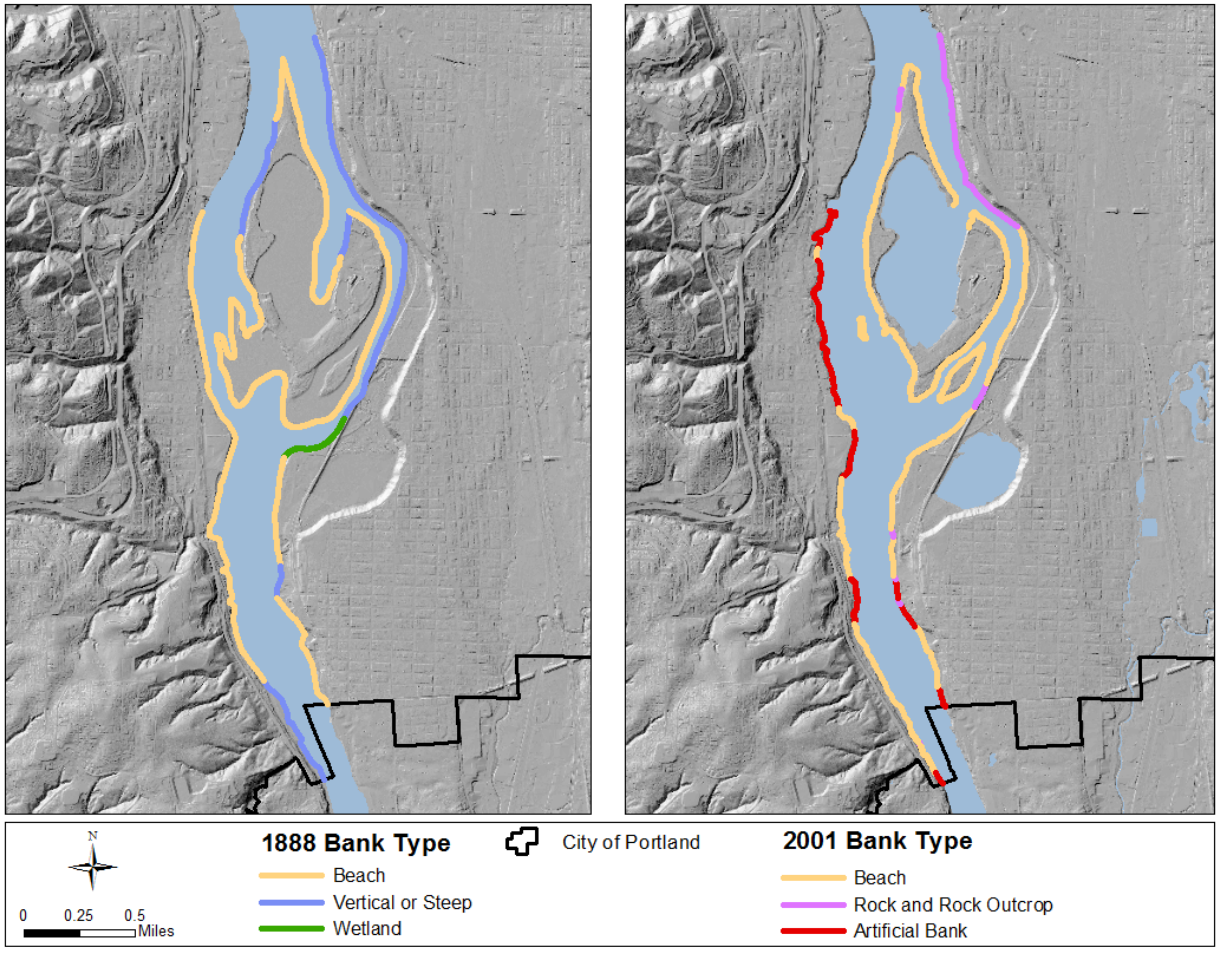
1888			2001		
Bank	**Length**	**Percent**	**Bank**	**Length**	**Percent**
Beach	11156	28%	Beach	1048	3%
Vertical or Steep	16110	40%	Rock	1389	4%
Wetland	12574	32%	Artificial Bank	33526	93%

Figure 33: An historical aerial photo from 1926 showing Oaks Bottom and Ross Island. Consistent with the bank survey, the banks adjacent to the southern tip of Ross Island are low-lying, and the wetland appears to be hydrologically connected to the mainstem, whereas the banks further north along Holgate channel appear steeper.

3.3.3 South Reach

Historical. The nature of the north and south sections of the South Reach – the upstream Sellwood section and the downstream Ross Island section – are very different. The channel was historically confined in the upstream Sellwood portion, the most restricted portion within the management area. The channel is less confined upon reaching Ross Island and Oaks Bottom. Surveys from 1888 indicate that the banks in the South Reach were dominated by beaches (69% of the bank length, primarily on the west bank and around Ross Island), followed by steep banks (28%, primarily on the east bank around Ross Island; Figure 34). Wetlands did not appear to be common along the banks of this reach (4%), but did occur at the southern end between Ross Island and Oaks Bottom.

Figure 34: Changes in bank types along the South Reach of the Lower Willamette River. Artificial banks now comprise 17% of the segment length, and wetlands are largely absent as a bank type. Note that the interior of Ross Island is not included in 2001, since these are changing in adjustment to past mining and along the south from restoration.



1888			2001		
Bank	**Length**	**Percent**	**Bank**	**Length**	**Percent**
Beach	43620	69%	Beach	40601	71%
Vertical or Steep	17808	28%	Rock	6921	12%
Wetland	1824	3%	Artificial Bank	9452	17%

Current. The South Reach currently has slightly more beach habitat (71% of the bank length) than historically. This is in part due to differences in how banks were categorized in the two surveys – the 2001 survey did not have a "steep" category. Much of the shoreline along the Holgate Channel and northern part of Oaks Bottom is considered beach in the recent survey, in spite of the fact that the banks are steep due to the railroad berm separating Oaks Bottom form the mainstem. Twenty-three percent of the banks have been converted to artificial bank structures such as rip rap and seawall, by far the lowest of any of the segments. Bank hardening is most prevalent along the western shore opposite of Ross Island, along South Waterfront and Willamette Park.

3.4 Vegetation

As stated in Christy and others (2009) assessment of vegetation change in Portland: "Urbanization has had inevitable and predictable effects on the region's vegetation. Wetlands have declined locally by 97 percent, coniferous forest by 92 percent, prairie and savanna by 90 percent, riparian and wetland forest by 58 percent, and oak communities of any sort by 40 percent." (pg. 2)

3.4.1 North Reach

Based on surveys in the 1850's, the northern half of the North Reach was a vast complex of forested, scrub shrub, and prairie wetlands (Figure 35). The west hills and Willamette Escarpment formed the edges of the riparian area contributed to the diverse plant communities that supported the bountiful Willamette River wildlife.

Many forested and woodland areas both near the river and in the uplands had recently burned. The history of vegetation in the Portland area includes the indigenous people that managed vegetation for thousands of years before approximately 1840. The Cowlitz and Upper Chehalis Indians of the Puget lowlands and the Kalapuya tribes of the Willamette Valley regularly set fires to favor plants on which they depended for food and medicine. Important savanna plants were camas (Camassia sp.), wild onion (Allium sp.), and tarweed (Madia sp.). Some woodlands were deliberately left unburned to provide areas where deer, elk, grouse, and other game would concentrate. The remnant of the diverse habitats is noted in detail in the 1852 maps. (2012, Biodiversity Guide)[21].

Sauvie Island provided extensive wetland prairie habitat, with isolated patches of emergent wetlands and ponds. Ash-mixed deciduous forest occurred along the riparian portion of the island closst to the main channel and Multnomah Channel.

The most obvious change from the historical condition has been the large-scale removal and transformation of vegetation throughout the riparian and upland areas adjacent to the North Reach. Over time the floodplains and riparian areas have been filled and cleared of vegetation to provide industrial and port facilities along the mainstem, and agricultural and residential uses along Sauvie Island. In addition, physical and hydrological changes[22] have reduced the frequency with which the river interacts with the floodplain. This represents a major shift in conditions and stress to vegetation adapted to regular inundation, and so remaining or newly establishing vegetation in the riparian and floodplain reaches has adapted to these altered conditions.

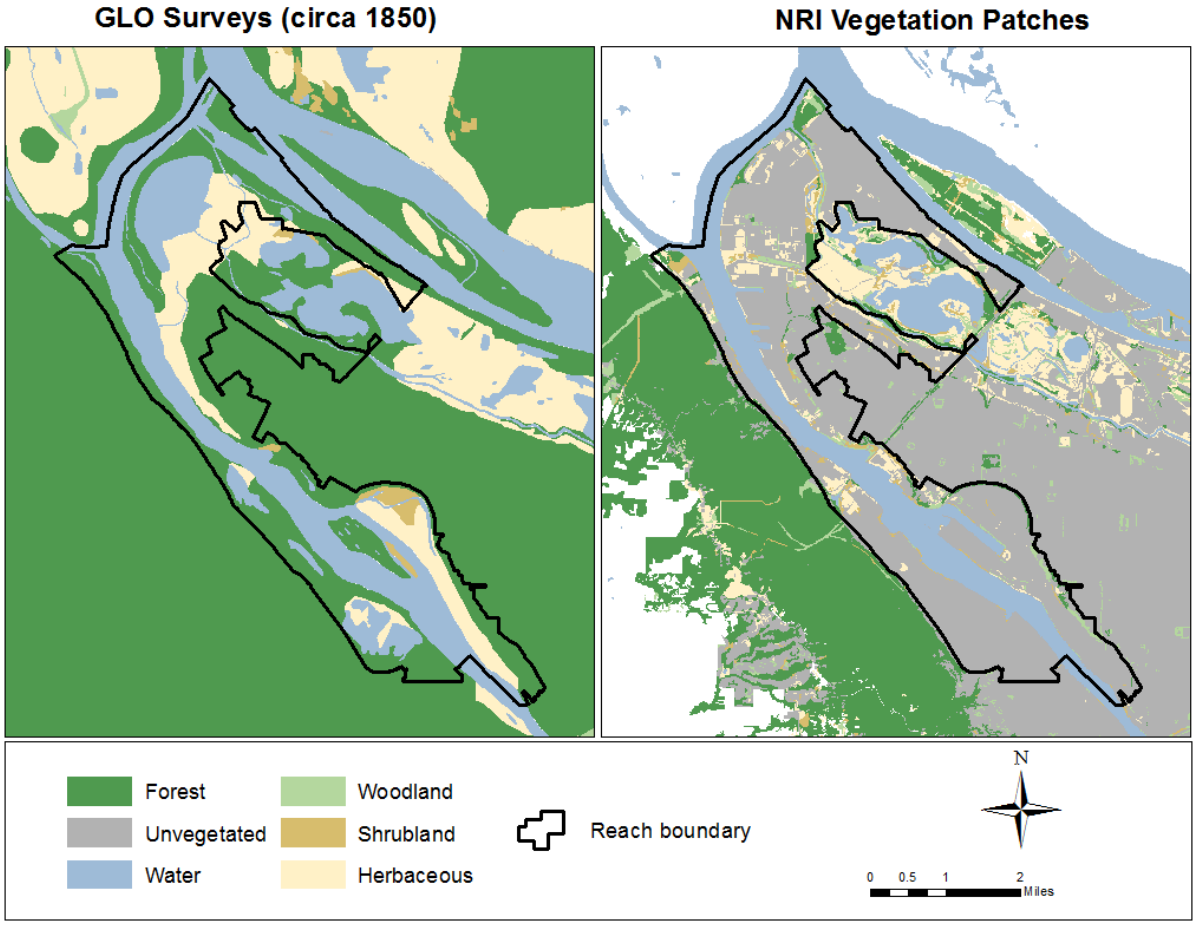
Relative to the adjacent uplands—where Forest Park still provides a large contiguous upland forest—the riparian and floodplain areas of the North Reach have few remaining vegetated patches of significant size. The *Willamette River Inventory* (Adolfson 2003) describes the composition and nature of these few remaining habitat areas, which include Kelley Point Park, remnant riparian forest, and the Harborton Forest and Wetlands. These areas are generally

[21] The Intertwine Alliance. 2012. Biodiversity Guide for the Greater Portland-Vancouver Region. A. Sihler, editor. The Intertwine Alliance, Portland, OR. www.theintertwine.org

[22] Filling floodplains and the reduced range of flows (reduced peak flows and higher summer low flows. The will be described in the hydrology chapter of the full report.

comprised of bottomland forest, shrub and meadow structures. Cottonwood with willow, snowberry, and blackberry understory are prominent, with ash in the Linnton/Harborton area.

Figure 35: Historical and current vegetation in the North Reach. Note that in the current NRI Vegetation Patches panel, "unvegetated" means that if any vegetation is present, it is of a size smaller than the 1/2 acre threshold used in the NRI.



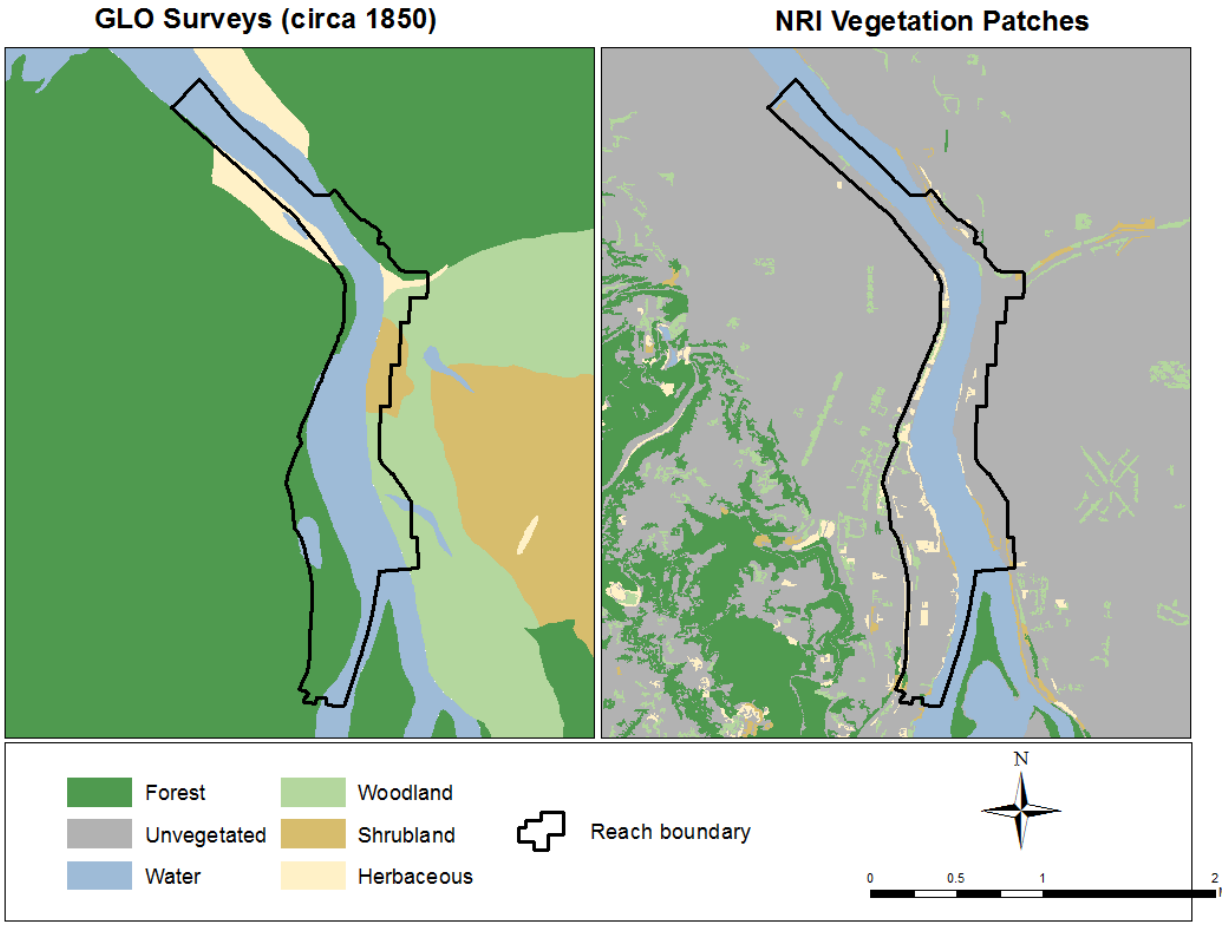
3.4.2 Central Reach

Historically the vegetation was a diverse assemblage in the short Central Reach. Mixed conifer, red alder-mixed conifer, and prairie covered the western banks; Douglas fir-white oak, mixed conifer, and shrubland covered the eastern banks (Figure 36[23]). An emergent wetland was located at the mouth of Sullivan's Gulch. The 1850's vegetation maps show some small off-channel lakes that are not evident in the 1888 channel survey. These may have been filled by the 1888 survey, by which point downtown had undergone significant development. As in the North Reach the diversity of the vegetation was driven by disturbances such as floods and fire. The open woodlands and

[23] Note that for comparison to the current Natural Resources Inventory the historical data are aggregated into the NRI categories (Forest, Woodland, etc.). However, the original GLO data did provide more detailed species composition and the species mentioned are from these more detailed data.

prairies on the east side were unhospitable landscapes for the typical coniferous forest of the NW, high water tables, and frequent fire maintained open woodlands and prairies. The lake at the confluence of Marquam Gulch provided wetlands functions in the Willamette River floodplain, and suggests that the high water table in this area influenced the vegetation community of the riparian area.

Figure 36: Historical and current vegetation in the Central Reach. Note that in the current NRI Vegetation Patches panel, "unvegetated" means that if any vegetation is present, it is of a size smaller than the 1/2 acre threshold used in the NRI.

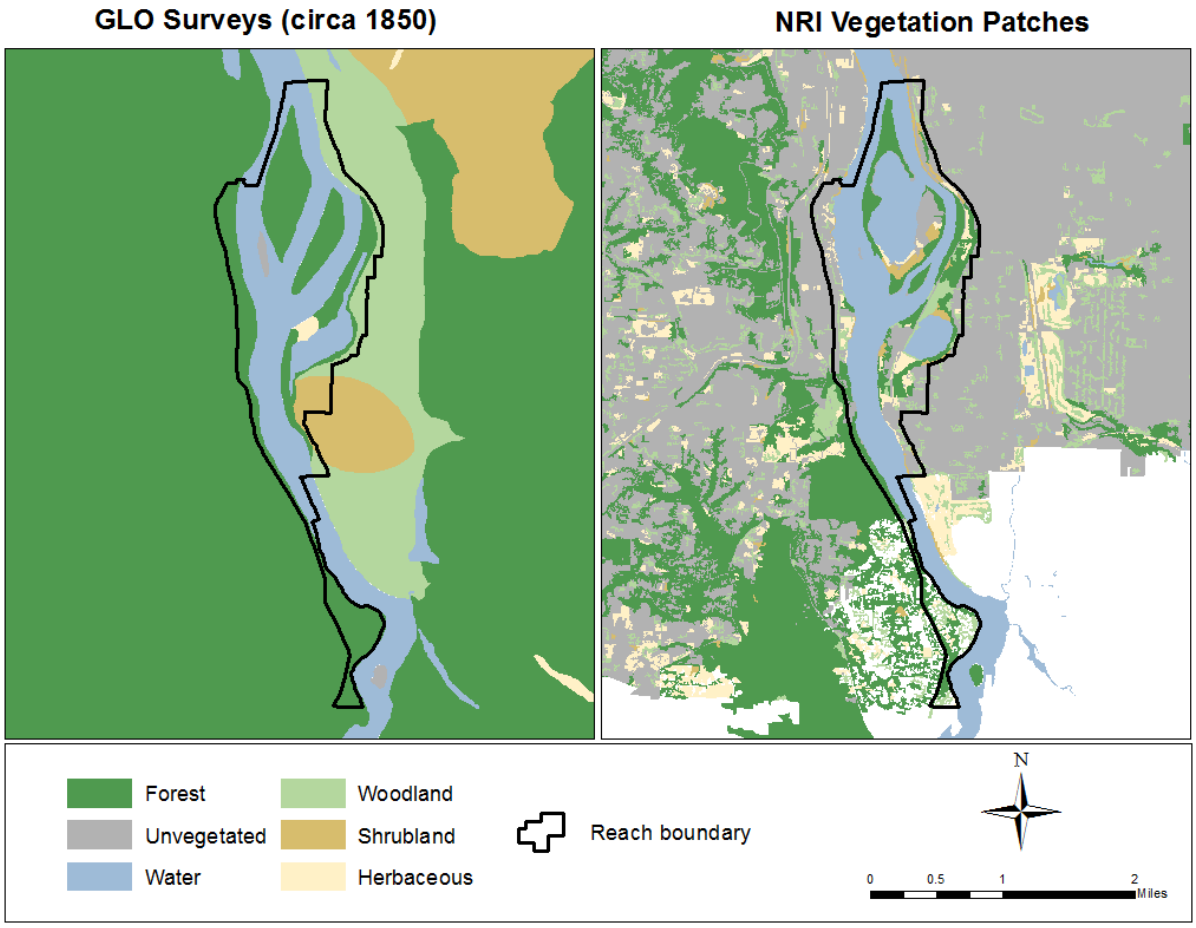


The Central Reach was the first reach to experience large scale vegetation removal as the city was platted and developed. The current density of street trees is actually higher than is evident in many of the early historical photos of downtown, although of no comparison to the amount, diversity, or composition of vegetation present in the 1850's survey. Little significant vegetation remains in the riparian areas of the Central Reach (Figure 36).

3.4.3 South Reach

The western banks of the South Reach were dominated by mixed conifer, with a small patch of ash mixed deciduous riparian forest. That small patch is at Willamette Park which is home to 2-300-year-old Oregon white oak. Aerial views of the park in the 1949 Memorial Day flood show the oaks in standing water. Oak woodlands are tolerant of winter and spring flooding and this is a good example of long-lived oaks in the River's floodplain. The vegetation of the eastern banks was more varied, with mixed conifer, Douglas fir-white oak, savanna, and prairie present. Ash-mixed deciduous was present on Ross Island and in Oaks Bottom (Figure 37).

Figure 37: Historical and current vegetation in the South Reach. Note that in the current NRI Vegetation Patches panel, "unvegetated" means that if any vegetation is present, it is of a size smaller than the 1/2 acre threshold used in the NRI.



The South Reach still retains some vegetation in close proximity to the channel at Willamette Park, Powers Marine Park, Ross Island, Oaks Park, and Oaks Bottom. In addition, the physical and hydrological changes described earlier have reduced the frequency with which the river interacts with the floodplain. This represents a major shift in conditions and stress to vegetation adapted to regular inundation, and so remaining or newly establishing vegetation in the riparian and floodplain reaches would have to adapt to these altered conditions. There are remnant ancient oaks in the floodplain wetlands of Dunthorpe (Fielding Wetlands).

The *Willamette River Inventory* describes the composition and nature of these few remaining habitat areas, which include Ross Island, Oaks Bottom, Cottonwood Bay, Stephens Creek, Willamette Park, and Powers Marine Park. These areas are generally comprised of bottomland forest, shrub and wetland areas. Cottonwood with willow, red osier dogwood, and blackberry understory are prominent, with foothill savanna/oak woodland and conifer/hardwood forests also present.

3.5 Habitat Types

The Bureau of Environmental Services (BES) identified and mapped key natural resource features as part of the Portland Watershed Management Plan's terrestrial work (the Terrestrial Ecology Enhancement Strategy), including resources in the Lower Willamette River (BES 2010). Anchor habitats, special status habitats, special status species and habitat corridors were defined, identified, and in some cases, mapped. Special status habitats in the Lower Willamette include:

- herbaceous wetlands
- upland prairie and native grasslands
- oaks woodlands
- interior forests
- late successional conifer forests
- bottomland hardwood forests and riparian habitats

Some of these features are mapped with the BPS NRI process, including Special Habitat Areas. BES completed additional mapping, summarized for the Lower Willamette River in Table 1.

Table 1: Natural resource features identified as part of the terrestrial Ecology Enhancement Strategy.

NORTH REACH				
Site	**Anchor**	**Species Assemblages**	**Special Status Habitats**	
			Interior Forest	**Oak Woodland**
Kelly Point	✓	✓		
Ramsey Wetland Complex	✓	✓		
Harborton Forest & Wetland Complex	✓	✓		
Burlington Bottoms	✓	✓		
West Wye & Powerline Wetlands		✓		
Forest Park	✓	✓	✓	✓
Westside Wildlife Corridor[1]	✓	✓	✓	✓
Doane Lake & Wetlands	✓	✓		
Willamette Bluff Oak Corridor[2]		✓		✓
Balch Creek		✓		
Balch Creek Headwaters[5]			✓	

CENTRAL REACH				
Westside Wildlife Corridor[1]	✓	✓		✓
Cottonwood Bay[3]		✓		
Marquam Nature Park			✓	
SOUTH REACH				
Westside Wildlife Corridor[1]	✓	✓		✓
Willamette Park		✓		✓
Riverview Cemetery	✓		✓	
Ross Island	✓			
Oaks Bottom Wildlife Refuge	✓	✓		✓
South Portland Waterfront[4]	✓	✓		
Waverly Country Club				✓
Elk Rock Island	✓	✓		✓
Elk Rock Cliff		✓		✓
Tryon Creek State Natural Area	✓	✓	✓	
Willamette Bluff Oak Corridor[4]		✓		✓

1. Council Crest, Marquam Nature Park, Terwilliger Wilds, Stephens Creek Canyon, George Himes Park, Forest Park, Tryon Creek State Natural Area
2. Univ of Portland, Mock's Crest, Willamette Cove, Baltimore Woods, Marquam Oaks, Dunthrope Oaks, Oaks Bottom Bluff, Elk Rock Island & Cliff
3. West river shoreline across from Ross Island
4. Moorage Park & Powers Marine Park
5. Metro properties, Audubon Society of Portland Sanctuary, and private forest lands outside City of Portland

4 Water Quality

BES has operated an ambient water quality monitoring program on the Willamette River since the 1990s. As part of this program, BES collects water quality samples to assess river conditions under different seasonal states and river flows. The monitoring data are used to identify whether the portion of the Willamette River flowing through Portland is attaining the applicable water quality standards and can be used to assess trends in different parameters over time.

This report provides a summary of the water quality data collected as part of the Bureau's Willamette River ambient water quality monitoring program. In addition to the water quality summary, this report provides an assessment of water quality trends observed at the mainstem ambient monitoring sites. Extensive monitoring of the Willamette River has been conducted as part of the Portland Harbor clean-up effort (EPA, 2016). A more extensive summary of the sediment data collected as part of the Portland Harbor monitoring effort is included in Section 4.7.

4.1 Designated Beneficial Uses

Multiple designated beneficial uses apply to the lower Willamette River. These represent the "purpose or benefit to be derived from a water body as designated by the Water Resources Department or the Water Resources Commission" (340-041-0002(17)). For the lower Willamette River in Portland, the designated beneficial uses include (340-041-0340 Table 340A):

- Public and private domestic water supply
- Industrial water supply
- Irrigation
- Livestock watering
- Fish and aquatic life
- Wildlife and hunting
- Fishing
- Boating
- Water contact recreation
- Aesthetic quality
- Hydro power
- Commercial navigation and transportation

The water quality standards that apply to this segment of the Willamette are based on the designated beneficial uses listed above. In addition, fish designation uses also apply. The lower 50 miles of the Willamette River has been designated a salmon and steelhead migration corridor from the confluence with the Columbia River to Newberg (OAR 340-041-0028 Figure 340A).

4.2 Sampling Approach and Monitoring Locations

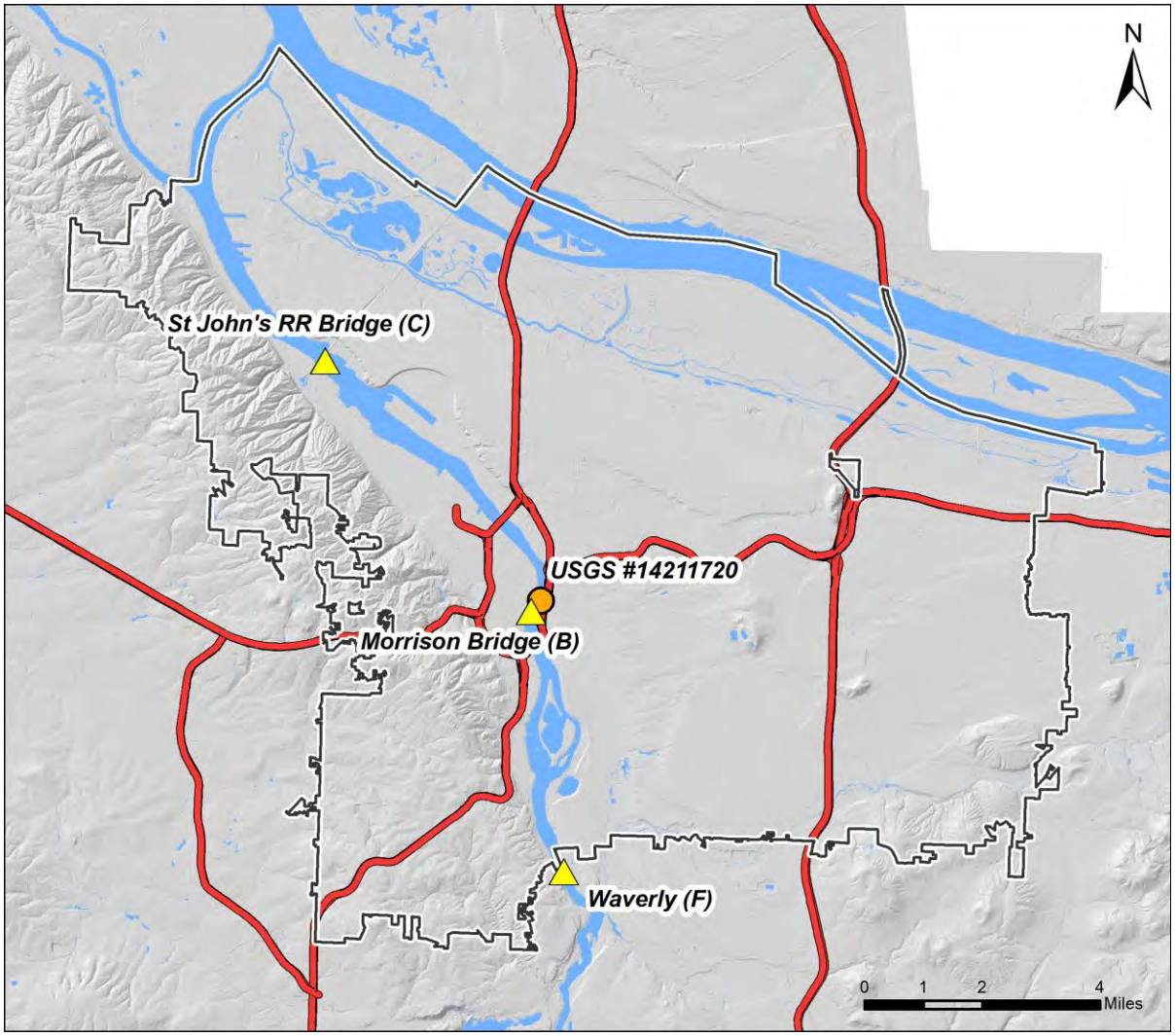
The ambient water quality monitoring program operated by BES has evolved over time. Since the beginning of the program, BES has sampled six different monitoring stations along the Willamette River (Table 2). The sites provide information on water quality at different points along the Willamette River in Portland. Currently, there are three active Willamette river stations, capturing

conditions at different locations throughout the city. All samples are collected from approximately 10 feet below the water surface.

Table 2. Active and discontinued BES sampling sites on the mainstem Willamette River.

Site ID	Location Description	Year Last Sampled	Status
A	Tryon Creek Bridge - River Mile 20.0	2000	Discontinued
F	Waverly Country Club - River Mile 17.4	2019	Active
B	Morrison St Bridge - River Mile 12.7	2019	Active
E	Swan Island - River Mile 8.8	1999	Discontinued
C	St John's RR Bridge - River Mile 6.8	2019	Active
D	South Kelly Point Park - River Mile 1.1	2011	Discontinued

Figure 38. Location of the active Willamette River monitoring stations and the USGS stream gauge (#14211720).



Past analyses of data from the monitoring sites has informed changes to ambient monitoring program. Sampling at the Kelly Point Park station (D; river mile 1.1) was discontinued in 2011. Analysis of the samples from this site revealed that the observed conditions were highly influenced by conditions in the Columbia River. Sample collection at the Tryon Creek bridge station (A; river mile 20.0) was discontinued due to problems associated with sampling near the discharge point from the Oak Lodge wastewater treatment facility. Sampling of the Swan Island station (E; river mile 8.8) was suspended in 1999 due to budget restrictions.

The original sampling approach employed by the ambient monitoring program included the collection of samples from three locations across the channel (east, middle, and west) at each monitoring station. *In situ* measurements were recorded at each of the three points across the channel (east, middle, and west) at each monitoring station and samples for other analytes (except *E. coli* and nutrient samples) were collected as a composite of samples from the three points across the channel. In 2013, BES staff assessed the difference between the east/middle/west composite samples and single grab samples collected from the middle of the channel. The analysis found no differences in concentrations between the single grab samples and the composite samples across all analytes (Abrams, 2013). Based on the results of the analysis, the east/middle/west composite sampling was discontinued. Since 2013, only grab samples from the middle of the river have been collected.

In addition to changes to monitoring locations, BES has made adjustments to the frequency of sample collection over time. At the beginning of the program, BES collected Willamette River samples on a weekly basis. In July 2000, the sampling frequency was reduced to twice per month and then reduced to monthly sampling at the beginning of 2003. Not all analytes have been sampled at the same frequency. For example, some metals were collected during each sampling event, while others were collected on a quarterly basis. More detailed information on the sampling frequency of each analyte is included in the summary below.

Water quality data are also recorded by the USGS in Portland. The USGS operates a continuous stream gauge at the Morrison Bridge (USGS# 14211720). In addition to flow, the gauge records chlorophyll concentrations, conductivity, dissolved oxygen, dissolved organic matter, *in vivo* fluorescence as a measure of cyanobacteria, pH, nitrate, and turbidity.

4.3 Water Quality Data Summary

This section provides a summary of the water quality data collected to date at the three active Willamette River monitoring stations. The summaries are presented by site for each analyte. Based on the findings from the prior comparison of the east/middle/west composites to the single grab samples (Abrams, 2013), the composite samples and mid-river grab samples are presented and summarized together.

4.3.1 Field Measures

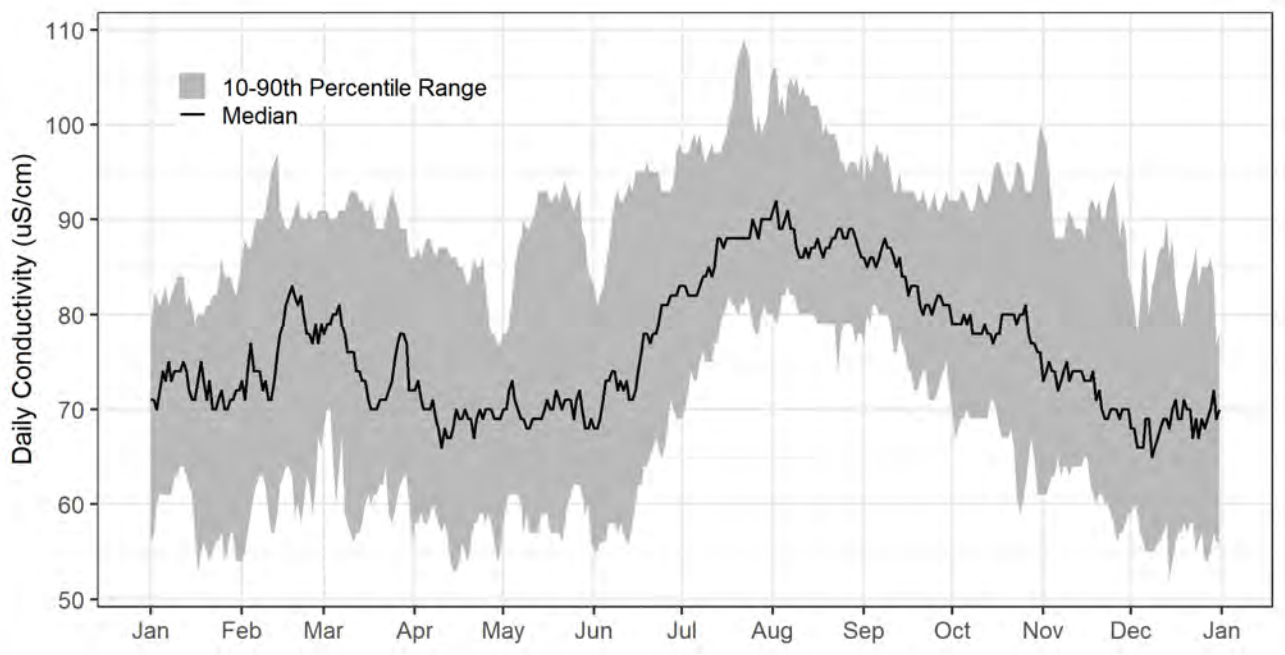
Conductivity, dissolved oxygen, pH, Secchi depth, and temperature are all measured in the field at each monitoring station. Field measures are collected *in situ* at the same time as the grab samples. Where applicable, these readings are used to calculate parameter-dependent water quality criteria, such as ammonia and copper. Additionally, continuous conductivity, dissolved oxygen, and water temperature data are also collected by the USGS at the Morrison Bridge station.

4.3.1.1 Conductivity

Conductivity, or specific conductance, in freshwater systems is a measure of the water's ability to conduct electricity. As the ion content of the water increases, its resistance to electrical current declines. Conductivity is a good measure of the presence of inorganic acids, bases, and salts that readily dissociate in aqueous solutions.

Oregon DEQ has not established water quality criteria for conductivity. The USGS records conductivity at the Morrison Bridge station every 30 minutes, beginning in 2009. Conductivity in the Willamette varies across the year. Conductivity is typically highest in the summer months when discharge in the river is lowest. When flows begin to increase in the fall, conductivity in the Willamette begins to decrease.

Figure 39. Willamette River daily median and 10th - 90th percentile range of conductivity recorded by the USGS at the Morrison Bridge (USGS# 14211720) from 2009 to present.

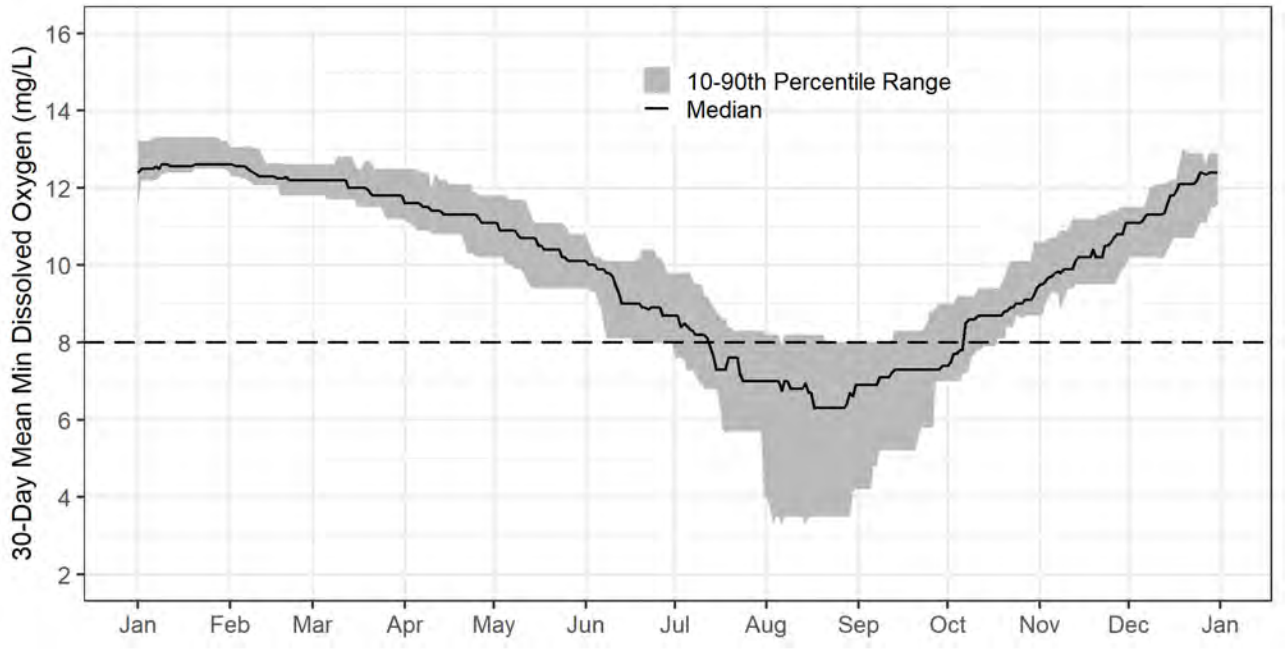


4.3.1.2 Dissolved Oxygen

Dissolved oxygen is essential for fish and other aquatic biota. The concentration of dissolved oxygen in rivers and streams can be affected by instream oxygen demands (biochemical oxygen demand (BOD), chemical oxygen demand (COD), and sediment oxygen demand (SOD)), water temperature, barometric pressure, and stream flow conditions. For water bodies identified by DEQ as supporting cold-water aquatic life, the 30-day mean minimum dissolved oxygen concentration may not be less than 8.0 mg/L and the absolute minimum concentration may not drop below 6.0 mg/L (OAR 340-041-0016 – Table 21).

The USGS records dissolved oxygen concentrations at the Morrison Bridge station every 30 minutes. The data presented below are based on continuous measurements collected by the USGS as they provide a more complete picture of the variability in Willamette River dissolved oxygen concentrations than the *in situ* measurements collected as part of the ambient monitoring program.

Figure 40. Median and 10th-90th percentile range of 30-day mean minimum dissolved oxygen concentrations recorded by the USGS at the Morrison Bridge (USGS# 14211720) from 2009 to present. The dashed line represents the 8 mg/L criterion for cold-water aquatic life.



Over the period of record, the Willamette River did not meet the 30-day mean minimum dissolved oxygen criterion of 8 mg/L approximately 18% of the time—732 days since the beginning of 2009. These excursions occurred during the summer months of July, August, and September. Dissolved oxygen concentrations below the 8 mg/L criterion were observed in every year on the Willamette with the exception of 2010 and 2012.

4.3.1.3 pH

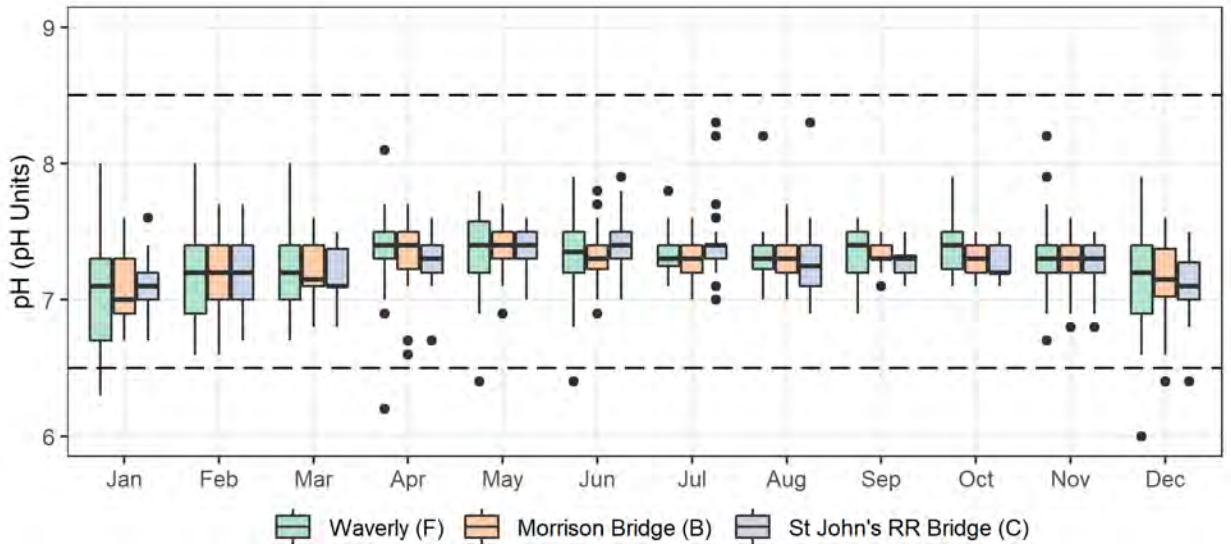
The pH of a water body is a measure of the hydrogen ion concentration or hydrogen ion activity in the water and serves as a measure of the water's acidity. The pH of water determines the solubility and biological availability of many chemical constituents such as nutrients and heavy metals. As such, pH is important in aquatic systems as it is a controlling factor in many chemical reactions.

The Oregon Administrative Rule (OAR 340-041-0345 (1)(b)) specifies the numeric criteria for the pH of freshwater: pH values may not fall outside the range of 6.5 to 8.5 for all basin waters in the Willamette Basin.

Table 3. Summary statistics for pH measured at the three Willamette River sites.

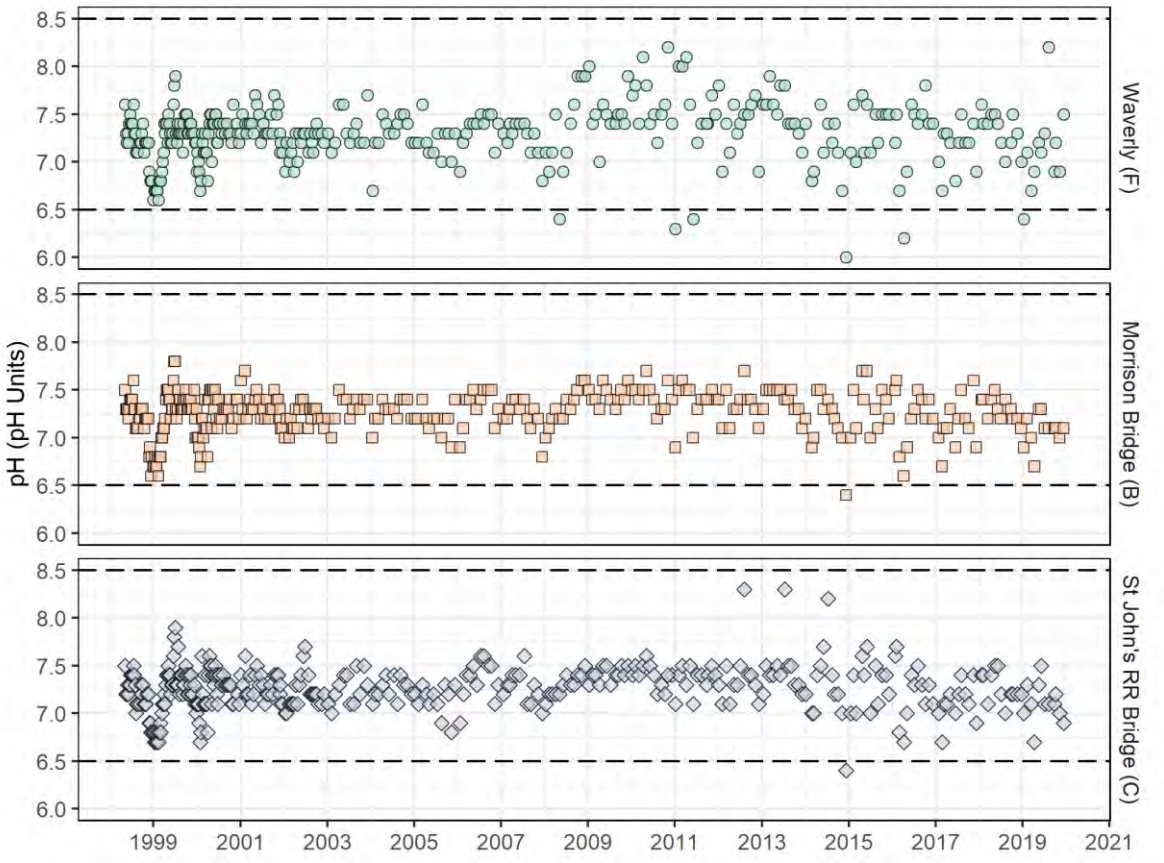
		pH (pH Units)						
Site	**Number of Samples**	**Mean**	**Min**	**10th Percentile**	**50th Percentile**	**90th Percentile**	**Max**	**% Exceedance**
F	368	7.3	6.0	6.9	7.3	7.6	8.2	1.3
B	369	7.3	6.4	7.0	7.3	7.5	7.8	0.2
C	368	7.3	6.4	7.0	7.3	7.5	8.3	0.3

Figure 41. Seasonal pH pattern. The dashed lines represent the upper and lower water quality criteria.



In situ pH measurements at the three Willamette stations rarely fell outside the required range for the basin. There was minimal variability in pH observed between the three stations. Additionally, pH did not change substantially across the year, however, lower pH readings were more frequently observed during the winter months.

Figure 42. pH measured at the three Willamette River sites since 1998. The dashed lines represent the upper and lower water quality criteria.



4.3.1.4 Secchi Depth

Secchi depth is a measure of water clarity and serves as an estimate of how deeply sunlight can penetrate the water column. Water clarity is dependent on the abundance of particles in the water column. A large concentration of algae or sediment particles in the water can reduce the transparency of the water, allowing less light to penetrate the water column. A Secchi disc is black and white disc (8-inch diameter) that is lowered into the water column. The depth at which the disc can no longer be seen from the surface is the Secchi depth.

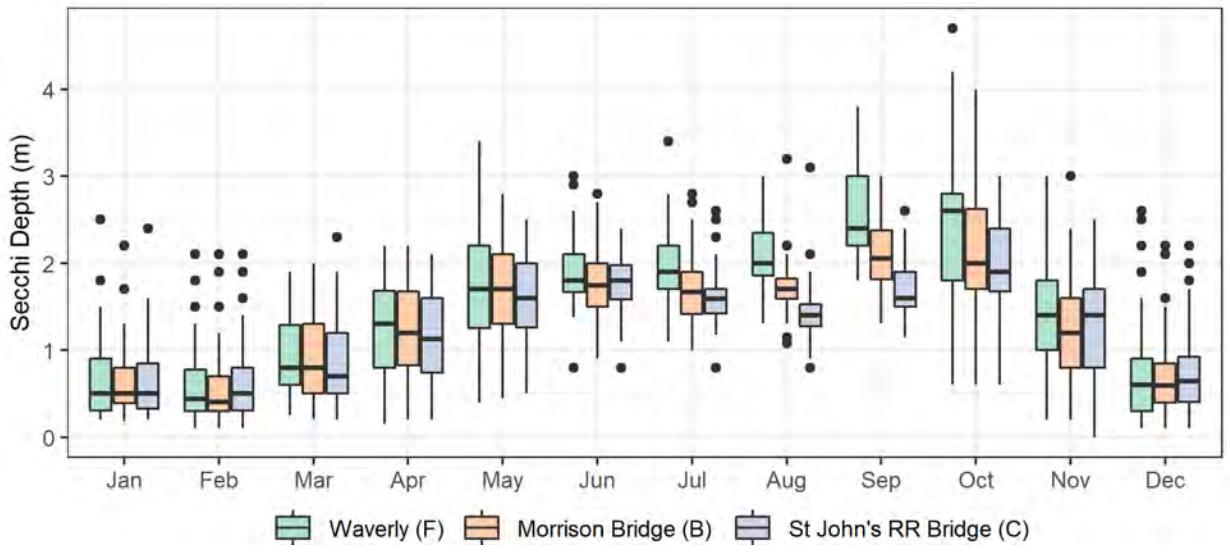
As part of the Willamette River monitoring effort, BES has measured the Secchi depth at all three stations since 1998. Oregon DEQ has not established water quality criteria for water clarity.

Table 4. Secchi depth summary statistics at the three Willamette River sites since 1994. Higher values represent greater water clarity.

Secchi Depth (m)								
Site	**Number of Samples**	**Mean**	**Min**	**10th Percentile**	**50th Percentile**	**90th Percentile**	**Max**	**% Exceedance**
F	437	1.6	0.1	0.4	1.7	2.6	4.7	NA
B	459	1.4	0.1	0.4	1.5	2.2	4.0	NA
C	458	1.3	0.0	0.4	1.4	2.1	3.1	NA

Over the course of the year, Secchi depths at the three stations have varied, with the highest values typically observed in the fall (September and October). For most of the year, water clarity does not differ between the Willamette stations. In the summer months, however, the Secchi depth is typically highest at the upstream Waverly station (F), with water clarity decreasing as you move downstream with the poorest water clarity frequently observed at the St John's Railroad Bridge station (C).

Figure 43. Seasonal distribution of Secchi depth measurements at the three Willamette River sites. Higher values represent greater water clarity.



In addition to the seasonal pattern in water clarity that is evident above, there is also evidence of an increase in summertime Secchi depths, particularly at the upstream Waverly station (F), over the period of record (Figure 44). A more detailed analysis of the observed trend is described in Section 4.4.5.

Figure 44. Recorded Secchi depth measurements at the three Willamette River sites since 1994.

4.3.1.5 Temperature

Water temperature plays an important role in the biological cycles of aquatic organisms, particularly for cold water species, such as salmonids. Water temperature also influences chemical reactions, nutrient cycling, and factors into toxicity calculations for some analytes. Water temperatures in streams are driven by multiple factors, including solar radiation, ambient air temperature, riparian vegetation and shading, channel morphology, groundwater inflows and hyporheic exchange, and stream discharge.

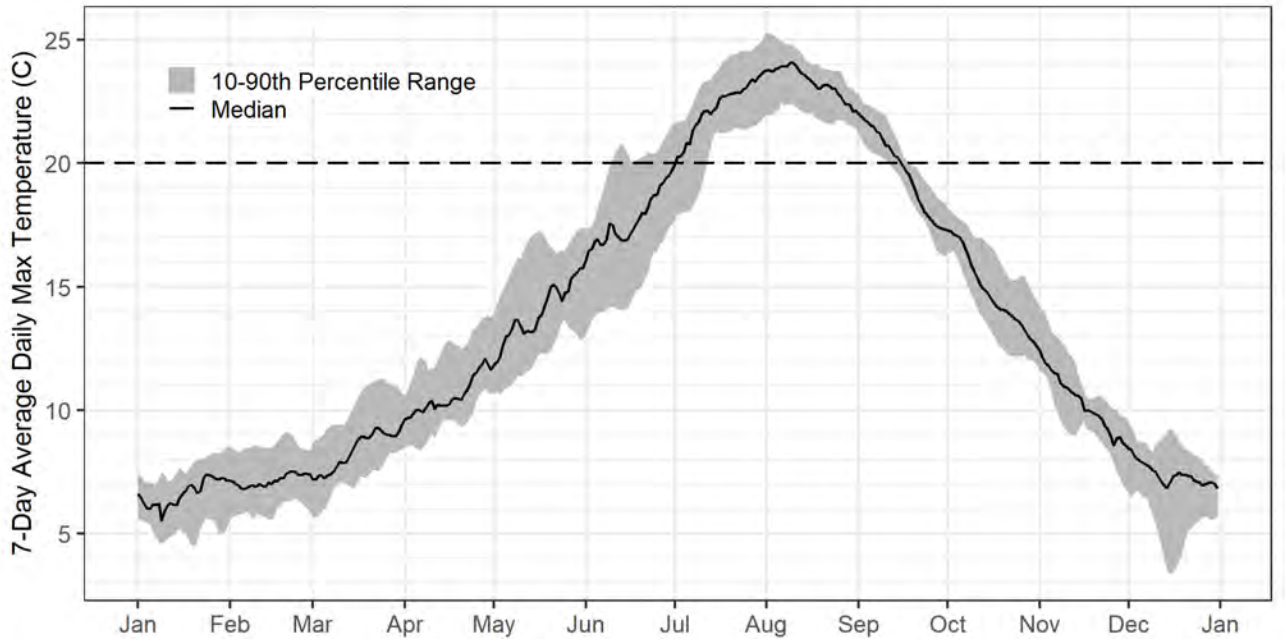
The lower 50 miles of the Willamette River are designated as a salmon and steelhead migration corridor (OAR 340-041-0028 Figure 340A). This area extends from the confluence with the Columbia River to the confluence of Chehalem Creek in the Newberg Pool. The Oregon Administrative Rules (OAR 340-041-0028 (4)(d)) specifies a biologically based numeric criterion for streams identified as salmon and steelhead migration corridors: the seven-day average daily

maximum (7DADM) temperature may not exceed 20°C. In addition to the numeric criterion, a narrative criterion applies to the migration corridor, requiring that "these water bodies must have cold water refugia that are sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher water temperatures elsewhere in the water body."

Water temperature is recorded every 30 minutes by the USGS at the Morrison Bridge station. Continuous measurements at the station began in 2001, however, water temperature was not recorded at the gauge during the period from 2006 to 2008. As part of BES' ambient monitoring program water temperature is recorded at each monitoring station and it is these *in situ* readings that are used in this analysis to calculate variable water quality limits for other parameters. The continuous USGS temperature data are presented below as they provide a more complete view of the conditions in the Willamette and can be used to assess attainment of the water quality criterion.

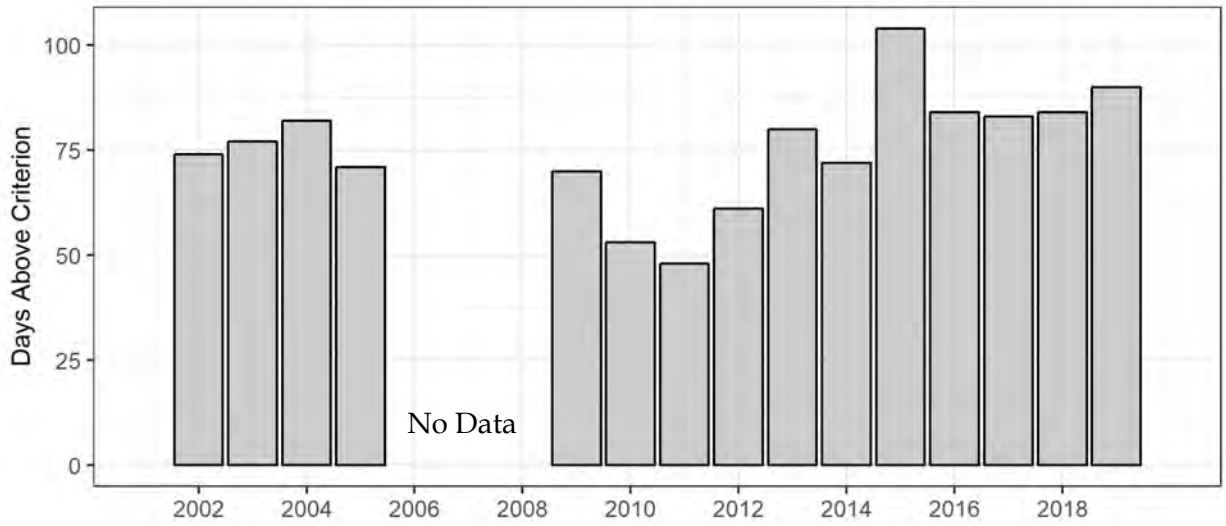
In Portland, water temperatures in the Willamette River typically begin exceeding the 20°C migration criterion in early July and remain above the criterion until mid-September. Since November 2001, the temperatures have exceeded the criterion on 1,133 days (approximately 21% of the period of record). In the recent years, however, earlier exceedances of the criterion have been observed—in the past five years the Willamette River began exceeding the criterion in June. Water temperatures begin cooling in September and no exceedances of the criterion have been observed in October.

Figure 45. Willamette River median and 10th-90th percentile range of the 7-day average daily maximum (7DADM) water temperatures recorded by the USGS at the Morrison Bridge station (USGS# 14211720) from November 2001 to present. The dashed line represents the 20°C criterion for salmon and steelhead migration.



The total number of days that exceed the temperature criterion has varied from year to year. The smallest number of days in a year that exceeded the temperature criterion (48 days) occurred in 2011, and the greatest number of days exceeding the criterion (104 days) occurred in 2015 (Figure 46).

Figure 46. Number of days exceeding the 7DADM temperature criterion. The water temperature was not recorded at the USGS stream gauge from 2006 to 2008.



4.3.2 Conventional Parameters

BES' Willamette River monitoring has included the collection of *E. coli*, hardness, total dissolved solids (TDS), total suspended solids (TSS), and total solids (TS) samples since the inception of each monitoring station. Total organic carbon (TOC), however, was not added to the list of analytes until 2012. The results for these parameters are presented below.

4.3.2.1 E. coli

Escherichia coli (*E. coli*) is a species of fecal coliform bacteria that live in the gastrointestinal tract of warm-blooded animals, including humans. *E. coli* concentrations are used as an indicator of the potential for the presence of human pathogens including bacteria, viruses, and protozoa which are associated with the presence of sewage.

For water bodies identified by DEQ as supporting freshwater contact recreation, no single sample may exceed 406 *E. coli* organisms/100 mL and the monthly geometric mean (based on a minimum of 5 samples) may not exceed 126 *E. coli* organisms/100 mL (OAR 340-041-0009(1)(a)). These numeric criteria apply to the lower Willamette River in Portland. *E. coli* samples collected as part of the ambient monitoring program were not collected at the necessary frequency to assess the Willamette River sites for attainment of the monthly geometric mean water quality criterion; as such, all three sites were evaluated using the 406 *E. coli* organism/100 mL criterion in this assessment.

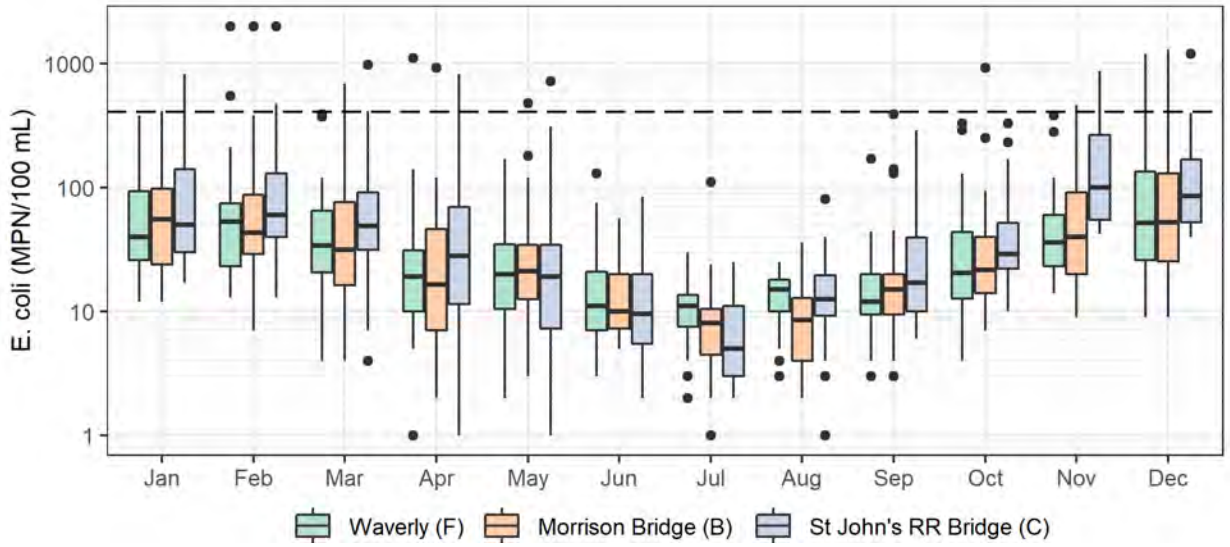
It is important to note that BES' ambient monitoring program is not designed to assess or detect discharges associated with combined sewer overflows. The samples summarized below reflect the overall conditions of the Willamette River.

Table 5. Summary statistics for E. coli samples from the three Willamette River sites.

	E. coli (MPN/100 mL)							
Site	**Number of Samples**	**Mean**	**Min**	**10th Percentile**	**50th Percentile**	**90th Percentile**	**Max**	**% Exceedance**
F	366	58	1	7	20	120	2,000	1.4
B	368	62	1	5	20	120	2,000	3.5
C	367	84	1	5	32	196	2,000	4.3

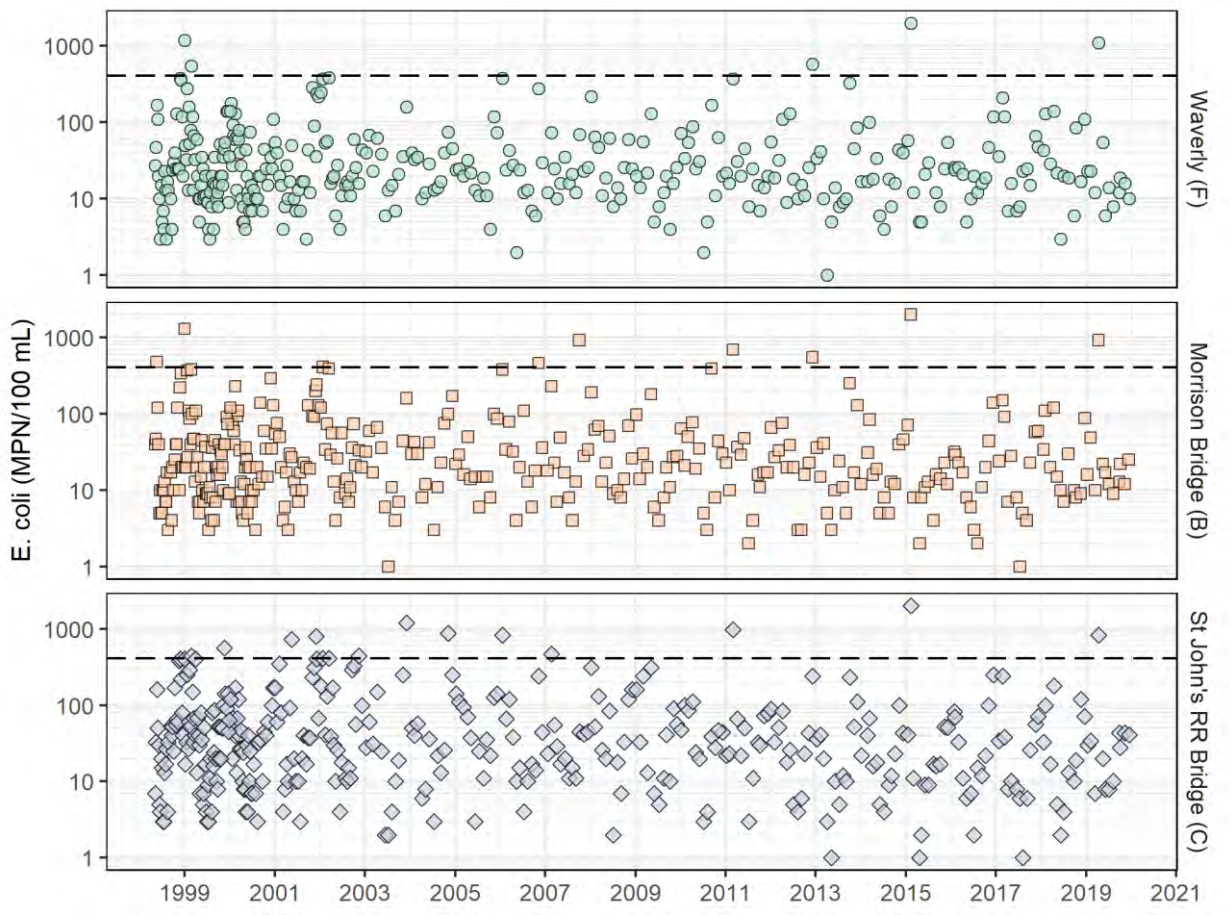
Over the 20-year period of record, *E. coli* concentrations typically did not exceed the single sample maximum limit of 406 *E. coli* organisms/100 mL, with less than 5% of samples exceeding the limit. Generally, the upstream site at Waverly (F) had the lowest *E. coli* concentrations, while the most downstream site at the St John's Railroad Bridge (C) had the highest *E. coli* concentrations.

Figure 47. Seasonal pattern of E. coli concentrations for the three Willamette River sites from 1998 to 2019.



Willamette River *E. coli* concentrations were consistently lower in the summer months and higher during the wet winter months at all three stations. While a seasonal pattern in *E. coli* concentrations is detectable from the sampling, no temporal trend over the 20-year period is evident.

Figure 48. E. coli concentrations at the three Willamette River sites since 1998. The dashed line represents the 406 organisms per 100mL water quality criterion.



4.3.2.2 Hardness

Hardness in rivers and streams is a measure of the abundance of metallic cations, particularly calcium and magnesium, and is expressed as the concentration of calcium carbonate ($CaCO_3$). The hardness in natural systems is largely derived from contact with soils and rock formations. While there are no water quality criteria for hardness, it is used to calculate the water quality criteria for many metals.

Table 6. Summary statistics for hardness samples from the three Willamette River sites.

Hardness (mg CaCO3/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
F	445	25.7	0.0	21.8	25.2	29.4	46.0	*NA*
B	484	25.8	0.0	21.8	25.8	29.5	51.2	*NA*
C	491	26.3	0.0	21.6	26.2	30.4	91.6	*NA*

Hardness in the Willamette River is not highly variable; however, the concentration of calcium carbonate is typically slightly higher and less variable during the summer when flows are lowest. The concentration of calcium carbonate did not differ between the three monitoring stations. Hardness concentrations have changed very little over the 20-year period of record. Samples collected at the three stations have been consistently measured between 20 and 30 mg $CaCO_3$/L.

Figure 49. Seasonal pattern of hardness concentrations for the three Willamette River sites since 1994.

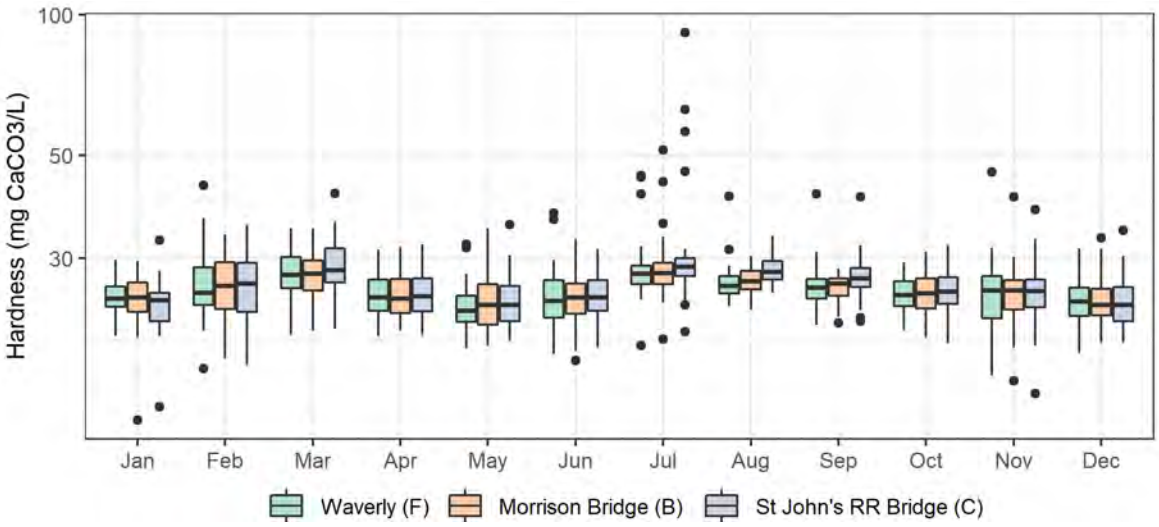
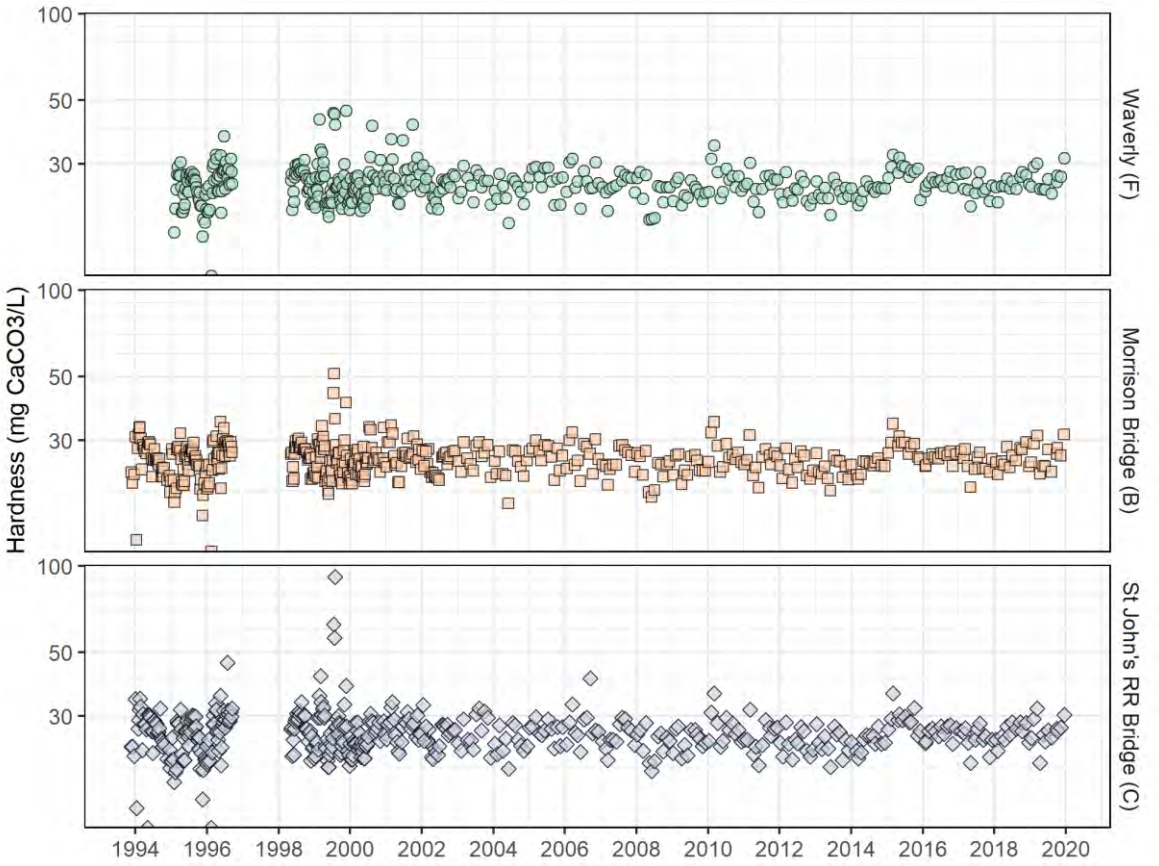


Figure 50. Hardness concentrations at the three Willamette River sites since 1994.



4.3.2.3 Total Organic Carbon

The concentration of total organic carbon (TOC) is a measure of the organically bound carbon in the water column. In surface waters, this may include carbon that is bound in vegetation, algae, or other organic matter. TOC is not a measure of oxygen demand; however, it can serve as an indicator of abundant nutrient sources that promote undesirable algal or aquatic macrophyte growth. TOC is a parameter of concern for drinking water as the organic compounds in the water column may react with disinfectants to produce compounds that are potentially toxic or carcinogenic. Oregon DEQ has not established water quality criteria for TOC.

Table 7. Summary statistics for total organic carbon samples from the three Willamette River sites.

Total Organic Carbon (mg/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
F	97	1.5	1.1	1.2	1.4	2.1	2.8	*NA*
B	97	1.5	1.1	1.2	1.4	2.1	2.8	*NA*
C	97	1.5	1.1	1.2	1.4	2.1	2.8	*NA*

TOC samples were first collected in 2012. Over the eight years of sampling, very little variability in TOC concentrations between the three monitoring stations has been observed. While the variability between the three stations is negligible, Willamette TOC concentrations are typically observed to decrease as flows in the river decrease. Over the period of record, there is no evidence of a temporal trend in TOC concentrations.

Figure 51. Seasonal pattern of total organic carbon concentrations for the three Willamette River sites since 2012.

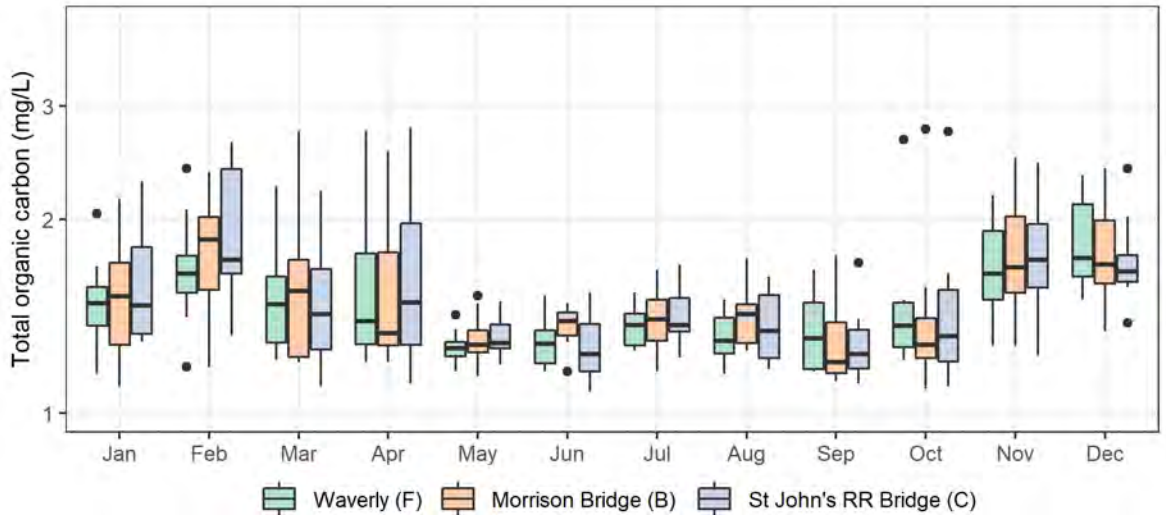
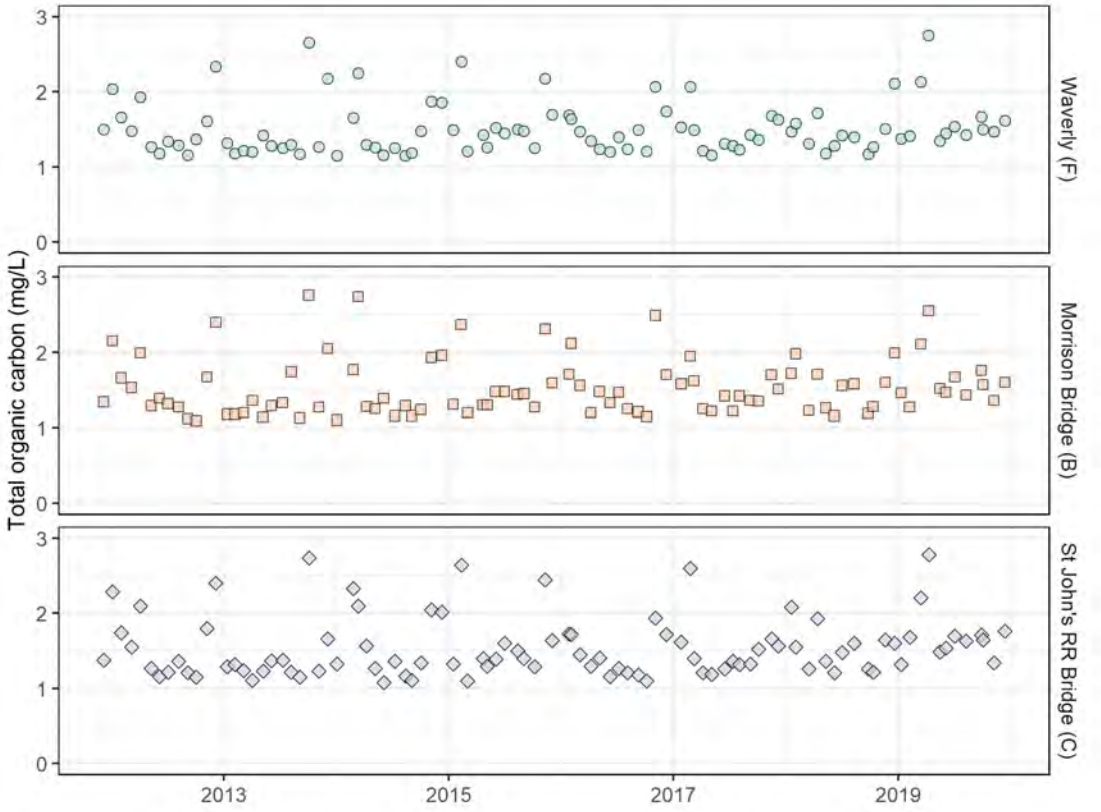


Figure 52. Total organic carbon concentrations at the three Willamette River sites since 2012.



4.3.2.4 Total Suspended Solids

The concentration of total suspended solids (TSS) is a measure of the particulates present in the water column. TSS includes both inorganic and organic particulate matter and can originate from both natural and anthropogenic sources. TSS is important in aquatic systems as elevated concentrations can have a negative impact on instream habitat and aquatic organisms. Additionally, other pollutants, such as metals and organic compounds, can adsorb to sediment particles and be transported to the stream in surface runoff.

Oregon DEQ has not established water quality criteria for TSS that apply to all water bodies. Rather, TSS is frequently used as a surrogate parameter for other pollutants of concern. The Johnson Creek TMDL for pesticides uses TSS as a surrogate and set a guidance value of 20 mg/L for TSS concentrations. In BES' Watershed Health Index (WSHI), a TSS concentration of 43 mg/L or greater corresponds to conditions that are not properly functioning.

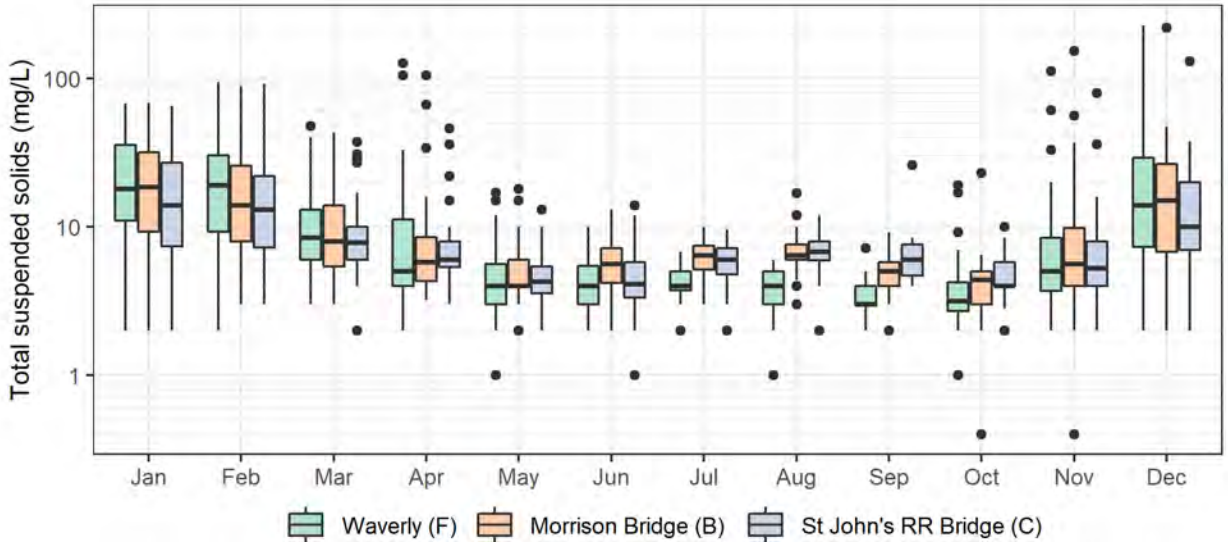
Table 8. Summary statistics for total suspended sediment samples from the three Willamette River sites.

Total Suspended Solids (mg/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
F	445	10.7	1.0	2.8	5.0	23.5	229.0	*NA*
B	485	11.1	0.4	3.3	6.0	24.5	220.0	*NA*
C	491	9.4	1.0	3.2	6.0	18.0	130.0	*NA*

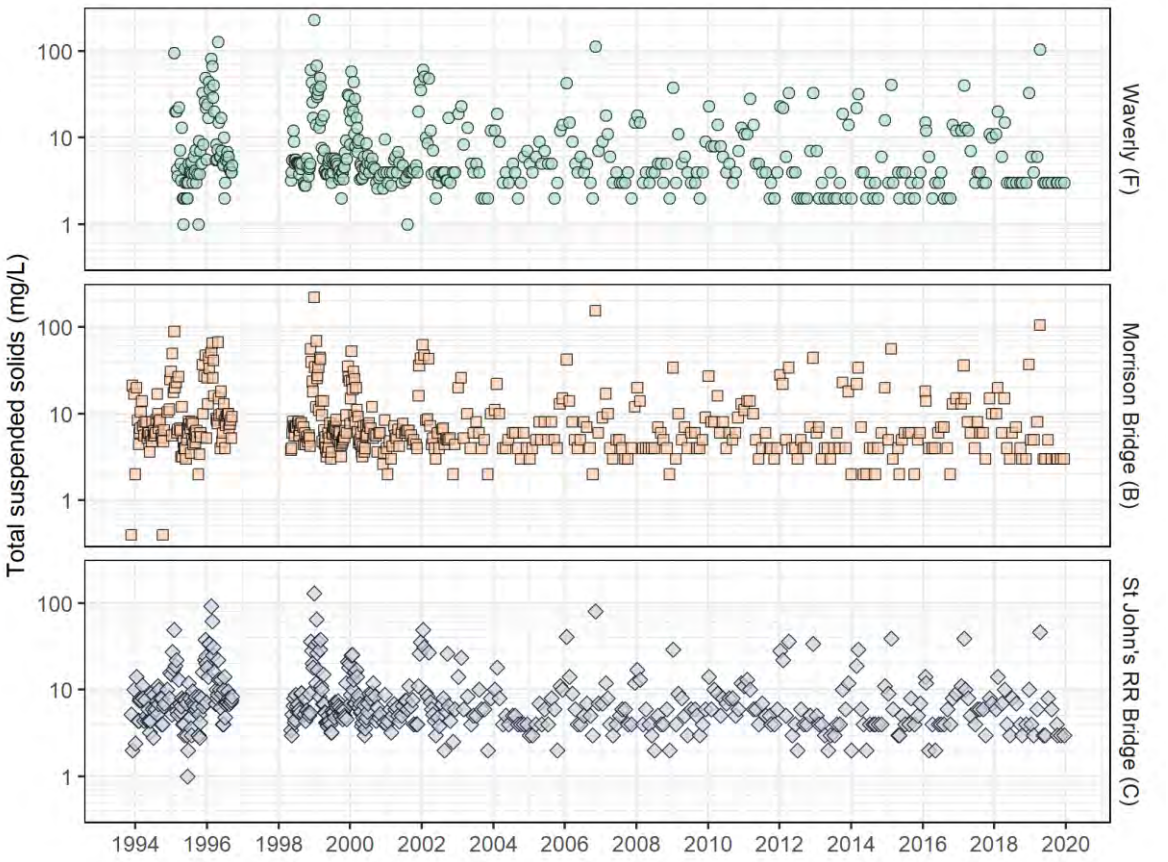
Over the 20-year period of record, mean Willamette River TSS concentrations at the three stations ranged from 9 to 11 mg/L. Throughout most of the year TSS concentrations did not vary between stations; however, during the summer months TSS concentrations were slightly higher at the two downstream stations (Morrison Bridge and St John's RR Bridge).

Figure 53. Seasonal pattern of total suspended solids concentrations for the three Willamette River sites since 1994.



TSS concentrations vary across the year, with the highest concentrations observed during periods of higher river flows. There is no evidence of any temporal trends in TSS concentrations over the 20-year period of record.

Figure 54. Total suspended solids concentrations at the three Willamette River sites since 1994.



4.3.2.5 Total Dissolved Solids

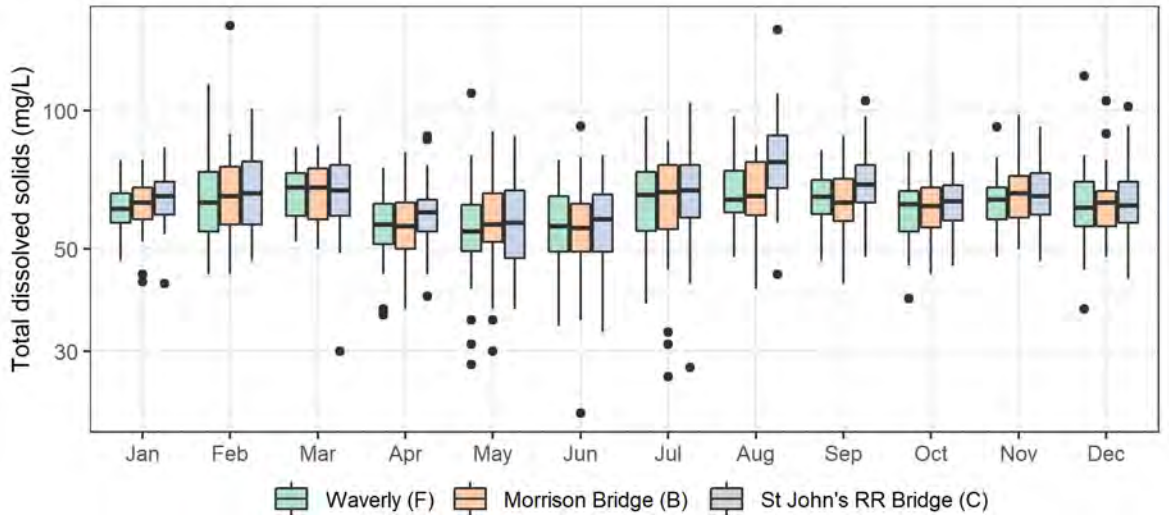
Total dissolved solids (TDS) is a measure of the portion of the solids in the water column that pass through a 2.0 µm filter. These are the very small particles and can include smaller clay particles. These include the particles that are not captured in the measure of TSS. High concentrations of TDS can result in decreased water clarity. Oregon DEQ has not established TDS water quality criteria for surface waterbodies.

Table 9. Summary statistics for total dissolved solids samples from the three Willamette River sites.

Total Dissolved Solids (mg/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
F	445	62.1	28.0	48.0	62.0	75.0	119.0	*NA*
B	483	62.8	22.0	49.0	62.0	78.0	153.0	*NA*
C	489	65.6	27.6	49.0	64.0	84.0	150.0	*NA*

Figure 55. Seasonal pattern of total dissolved solids concentrations for the three Willamette River sites since 1994.



Generally, there was little difference in TDS concentrations between the three stations. TDS concentrations varied little across the year, however, TDS concentrations at all three sites were consistently lowest during the spring. There was no evidence of a change in TDS concentrations over time at any of the three Willamette stations.

Figure 56. Total dissolved solids concentrations at the three Willamette River sites since 1994.

4.3.2.6 Total Solids

Total solids (TS) is a measure of the particulate content in the water column. It includes the dissolved, suspended, and settleable particulate forms. As with TDS and TSS, elevated TS concentrations reduce water clarity and may transport other pollutants that are adsorbed to sediment particles. Oregon DEQ has no established water quality criteria for TS.

Table 10. Summary statistics for total sediment samples from the three Willamette River sites.

Total Solids (mg/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
F	368	71.1	32.0	52.0	68.0	86.9	348.0	*NA*
B	394	72.3	32.8	54.0	71.0	91.0	325.0	*NA*
C	392	73.3	36.4	54.1	71.0	94.0	232.0	*NA*

While TS concentrations do vary over the course of the year, there is little difference in TS concentrations between the three stations. The seasonal TS pattern follows the combined pattern of the TDS and TSS. Increases in TSS during the winter drive the corresponding increase in TS concentrations at the three Willamette stations. As with the TDS and TSS concentrations, there is no evidence that TS concentrations are changing over time.

Figure 57. Seasonal pattern of total solids concentrations for the three Willamette River sites since 1994.

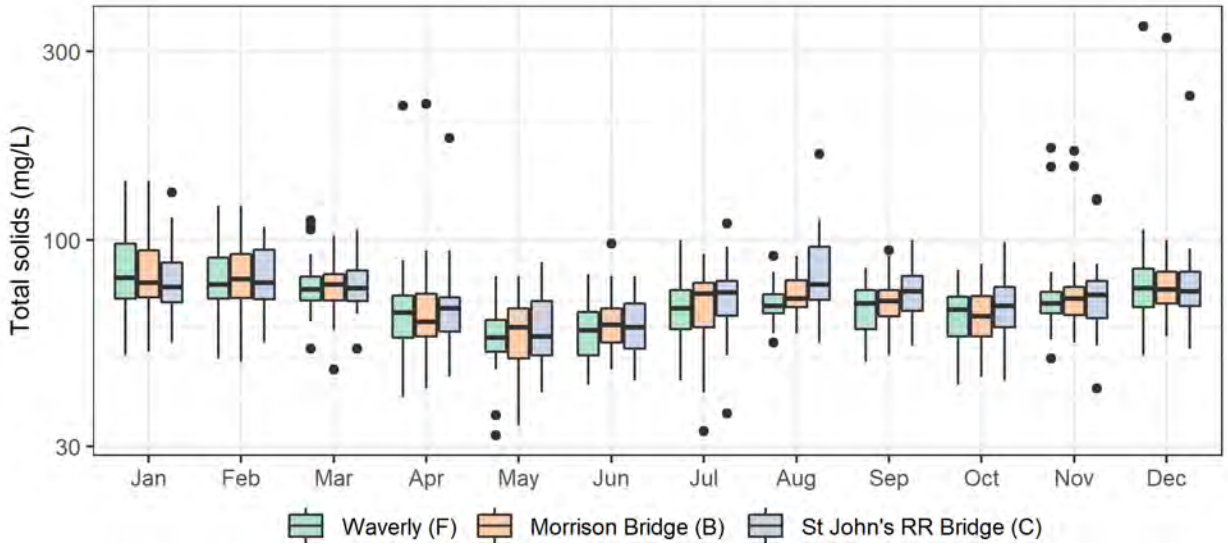
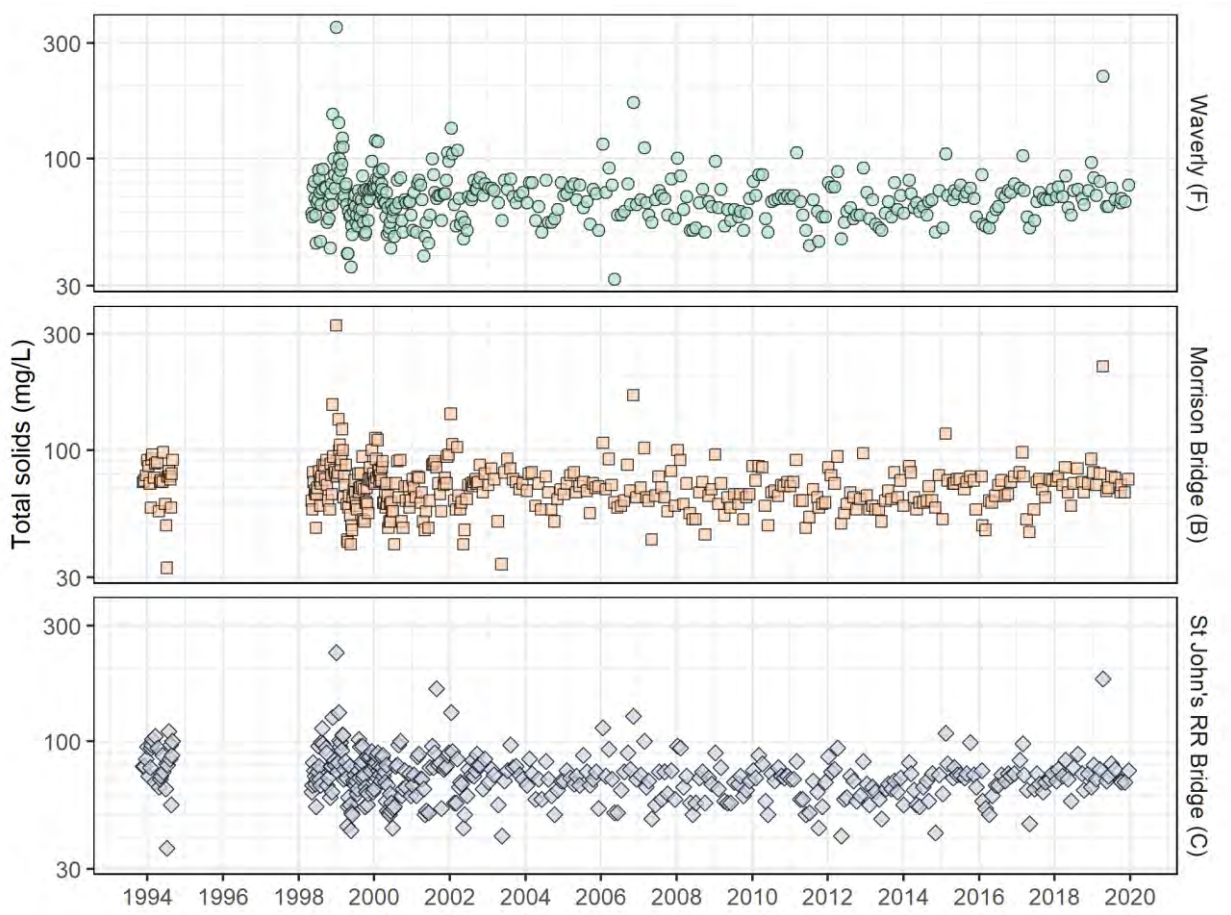
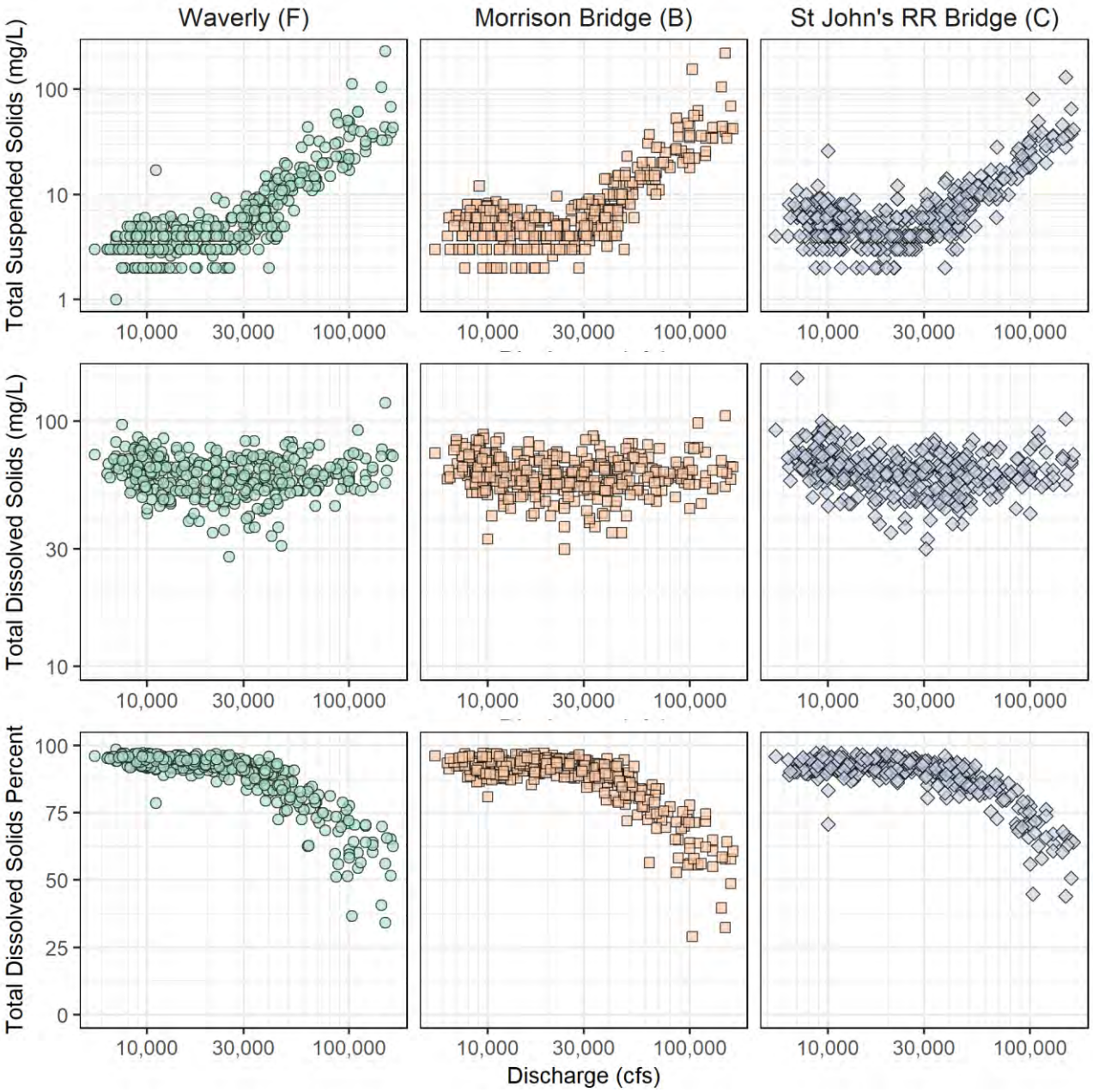


Figure 58. Total solids concentrations at the three Willamette River sites since 1994.



In Portland, Willamette River sediment loads are dominated by fine particulate matter—at all three stations the dissolved concentration represented more than 50% of the measured total solids concentrations for almost the entire period of record. While TDS concentrations did not vary with discharge, TSS concentrations exhibited a different pattern. At lower mean daily flows, TSS concentrations were relative constant and did not vary substantially with discharge. In contrast to TDS, when mean daily Willamette River flows increased over 30,000 cfs, TSS concentrations began increasing with the increase in flow. While TSS concentrations increased with higher flows, the dissolved fraction did not fall below 90% until river flows exceeded 50,000 cfs (Figure 59).

Figure 59. Relationships between discharge and total suspended solids, total dissolved solids, and the dissolved percentage of the total solids measured at the three Willamette River sites since 1998.



4.3.3 Metals

Routine sampling for metals has been conducted since the 1990s at all three stations. Both total and dissolved samples for copper, lead, and zinc are currently collected at all three stations. Arsenic, cadmium, chromium, iron, nickel, and selenium samples (both total and dissolved) were collected from 2000 to 2010. Total and dissolved silver samples were collected for two years, from 2000 to 2002. Mercury samples were first collected in 2003 at all three of the stations. Only total mercury samples are collected.

The sampling frequency for the different metals has varied across the period of record. At the beginning of the sampling period, copper, lead, and zinc samples were collected on a weekly basis. In mid-2000, the sampling frequency for these three metals was reduced to twice per month. As with the other metals, arsenic, cadmium, chromium, iron, and nickel were sampled twice per month until mid-2002, after which the sampling frequency for these metals was reduced to once per quarter. Similarly, mercury samples were collected quarterly until mid-2011 when the sampling frequency for mercury was increased to monthly.

In this report, the analysis of metal samples collected by BES has been restricted to those samples analyzed by BES' Water Pollution Control Laboratory from 2000 onwards. In 2000, the techniques employed in the laboratory were modified to reduce issues associated with sample contamination. As such, metal samples analyzed prior to 2000 are considered suspect and have not been included in this analysis.

The aquatic life water quality criteria for toxic pollutants (OAR 340-041-8033 – Table 30) includes acute and chronic criteria for dissolved arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc. The water criteria for iron and mercury are based on the total fraction of each metal. For each of the metals, the acute criterion is applied as a one-hour average concentration and the chronic criterion is applied as a 96-hour average concentration. Neither the acute nor chronic criteria may be exceeded more than once every three years. The results below present the frequency that the samples exceed the applicable chronic criteria. There is not a sufficient number of samples available to calculate a 96-hour average concentration, as such, the exceedances of the chronic criteria presented below are based on the single sample and represent a conservative assessment of the possible excursion frequency.

4.3.3.1 Arsenic

Arsenic is a chemical element that occurs as part of many minerals. Arsenic is frequently used in alloys of lead used for ammunition and car batteries. Arsenic has also been used as a chemical preservative added to wood to protect it against biological degradation. Prior to the mid-2000s, the primary treatment used in wood preservation was chromated copper arsenate (CCA; Stook et al., 2005). Due to leaching and toxicity concerns, industries began phasing out the use of CCA-treatment in 2004. Even with the gradual decrease in usage, CCA-treated wood still represented more than 75% of the preserved wood used in the U.S. in 1996 (Stook et al., 2005). In Florida alone, Khan et al. (2006) estimated that the existing treated wood in use will release approximately 12,000 tons of arsenic into the environment over its anticipated 40-year lifespan.

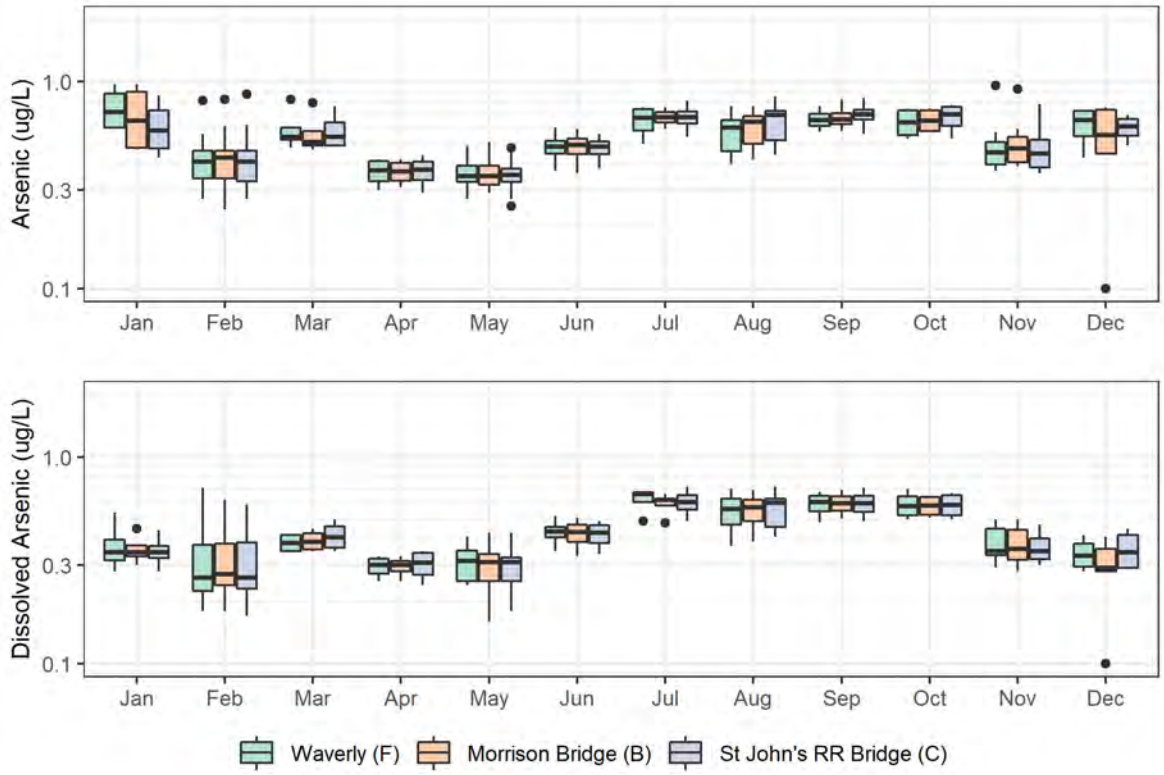
The water quality criteria for arsenic are expressed in terms of the dissolved concentration in the water column. The acute and chronic criteria for dissolved arsenic are 340 µg/L and 150 µg/L respectively. In addition to the freshwater aquatic life criteria, DEQ has established a human health criterion for total inorganic arsenic of 2.1 µg/L.

Table 11. Summary statistics for total and dissolved arsenic samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Arsenic (µg/L)								
F	80	0.52	0.27	0.34	0.49	0.74	0.97	*NA*
B	81	0.52	0.10	0.33	0.50	0.75	0.97	*NA*
C	79	0.53	0.25	0.34	0.49	0.76	0.87	*NA*
Dissolved Arsenic (µg/L)								
F	80	0.42	0.18	0.25	0.38	0.64	0.71	0.0
B	81	0.41	0.10	0.25	0.39	0.62	0.69	0.0
C	79	0.42	0.17	0.25	0.40	0.63	0.72	0.0

Arsenic concentrations at the three Willamette stations remained far below both the acute and chronic water quality criteria throughout the sampling period. Little to no variability in both total and dissolved concentrations were observed between the three stations. Arsenic in the Willamette is primarily observed in a dissolved form, with more than 75% measured as dissolved arsenic.

Figure 60. Seasonal pattern in total and dissolved arsenic concentrations at the three Willamette River sites from 2000 to 2010.



Arsenic concentrations varied somewhat with the season, with higher concentrations seen in the summer and early winter. There is no evidence of a temporal trend in either the total or dissolved arsenic concentrations.

Figure 61. Total arsenic concentrations at the three Willamette River sites since from 2000 to 2010.

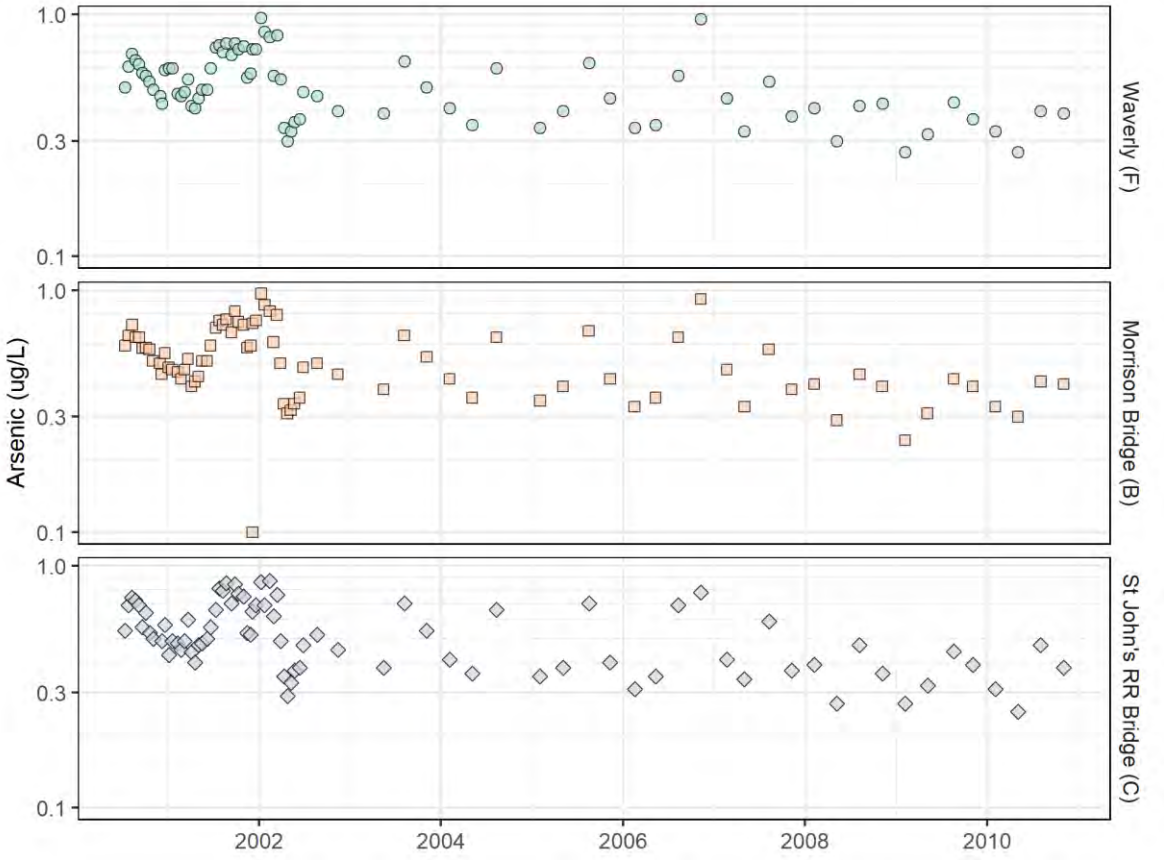
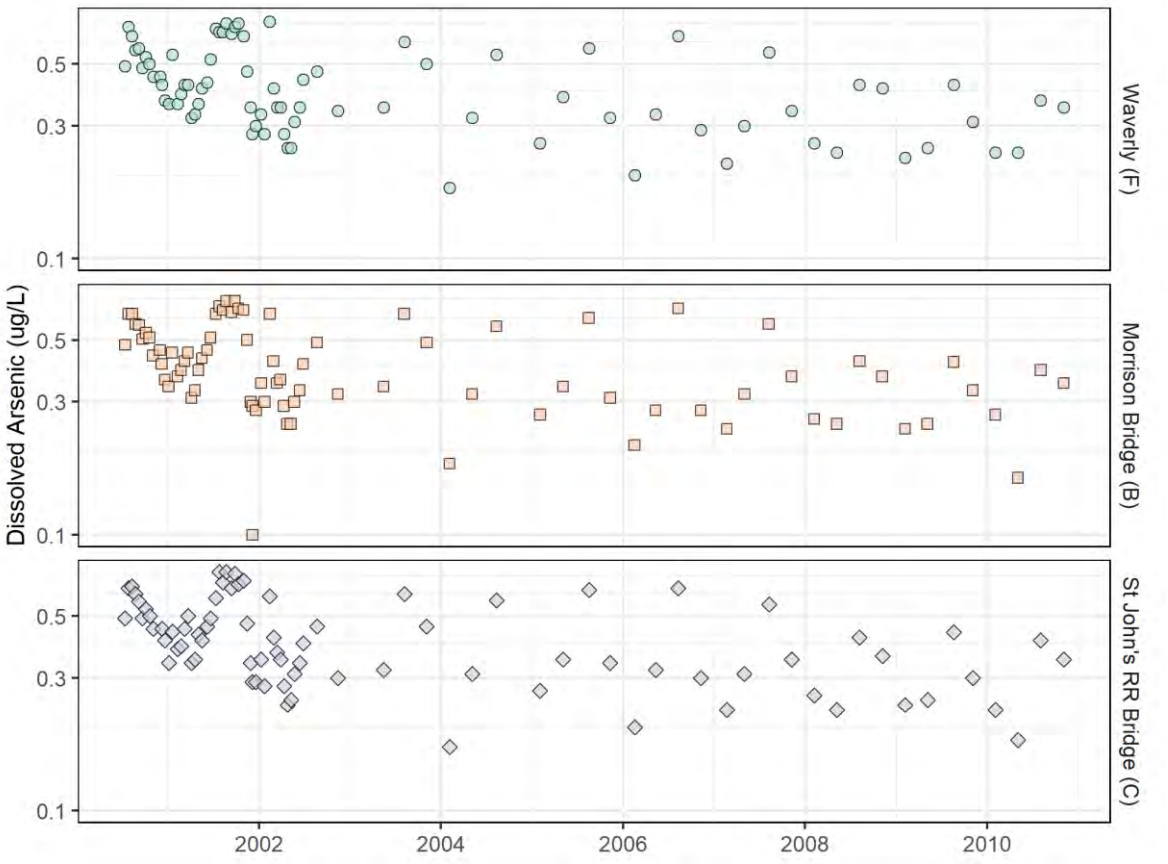


Figure 62. Dissolved arsenic concentrations at the three Willamette River sites from 2000 to 2010.



4.3.3.2 Cadmium

Cadmium is a soft and malleable metal that is resistant to corrosion. Cadmium has been used as protective plating for other metals such as steel to prevent corrosion. Additionally, cadmium is used in paint pigments to create bright and durable colors. Elevated levels of cadmium in the air were recently identified in the Portland area associated with emissions from factories manufacturing stained-glass (Donovan et al., 2016). Cadmium is also found in coal which when burned emits cadmium into the air.

The water quality criteria for cadmium are a function of hardness in the water column. Unlike most other metals, the acute criterion is based on total recoverable cadmium, while the chronic criterion is based on dissolved cadmium.

Cadmium was measured above the detection limit once (0.115 µg/L) and dissolved cadmium was consistently below detection during the period of record. The detection limits for both total and dissolved cadmium were below the calculated acute criteria. The calculated chronic cadmium criterion ranged from 0.08 µg/L to 0.13 µg/L. For many of the samples the calculated criterion was lower than the analytical detection limit.

Table 12. Summary statistics for total and dissolved cadmium samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
Cadmium (µg/L)								
F	80	0.047	0.020	0.020	0.020	0.100	0.100	0.0
B	81	0.047	0.020	0.020	0.020	0.100	0.100	0.0
C	79	0.047	0.020	0.020	0.020	0.100	0.115	0.0
Dissolved Cadmium (µg/L)								
F	80	0.044	0.010	0.010	0.020	0.100	0.100	0.0
B	81	0.043	0.010	0.010	0.020	0.100	0.100	0.0
C	79	0.043	0.010	0.010	0.020	0.100	0.100	0.0

4.3.3.3 Chromium

Chromium is found naturally in the environment. It is used frequently in metal alloys, including stainless steel and chrome plating, due to its anti-corrosive properties and resistance to rusting. Chromium is also used as a pigment in glassmaking.

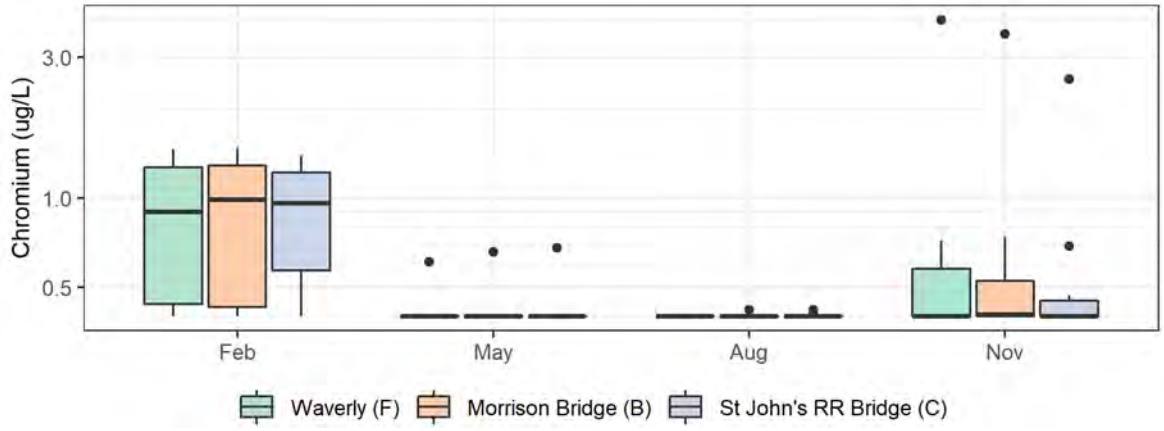
DEQ has established water quality criteria for both trivalent, Cr(III), and hexavalent chromium, Cr(VI). The water quality criteria for chromium are expressed in terms of the dissolved concentration in the water column. For trivalent chromium, the acute and chronic criteria are based on hardness in the water column. The acute and chronic criteria for hexavalent chromium are 16 µg/L and 11 µg/L respectively. Hexavalent chromium is highly toxic and is a known carcinogen.

Table 13. Summary statistics for total and dissolved chromium samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
Chromium (µg/L)								
F	40	0.62	0.40	0.40	0.40	1.08	4.00	*NA*
B	40	0.61	0.40	0.40	0.40	1.04	3.58	*NA*
C	40	0.58	0.40	0.40	0.40	1.08	2.52	*NA*
Dissolved Chromium (µg/L)								
F	40	0.40	0.20	0.40	0.40	0.40	0.41	0.0
B	40	0.40	0.20	0.40	0.40	0.40	0.40	0.0
C	40	0.40	0.20	0.40	0.40	0.40	0.44	0.0

The samples collected as part of the ambient monitoring program are analyzed for total and dissolved chromium, but do not distinguish between the chromium species. Consequently, comparing the Willamette samples to the trivalent or hexavalent criteria represents a conservative assessment by assuming that all of the measured chromium is present entirely in each form when assessing attainment of the two criteria. Chromium was not frequently detected during the sampling period and concentrations did not differ between the three stations. Dissolved chromium was measured above the 0.4 µg/L detection limit only twice over the ten years of sampling. No exceedances of either the trivalent or hexavalent criteria were observed over the sampling period.

Figure 63. Seasonal pattern in total and dissolved chromium concentrations at the three Willamette River sites since 2000.



4.3.3.4 Copper

Copper is a soft, ductile metal with high electrical conductivity. Given its conductive properties, copper is the primary conductor used in electrical wiring. Copper has been used in vehicle brake pads as a friction material to slow or stop the movement of a motor vehicle. As a result of the friction generated when braking, particles from the brake pads erode and are deposited on roadways and carried by stormwater runoff to nearby rivers and streams.

Copper is also biostatic, that is it inhibits the growth of bacteria and other organisms. As such, it is used as a preservative to protect wood from biological degradation and added to roofing materials to prevent the growth of moss and algae (Winters & Graunke, 2014). A significant export of copper in runoff from asphalt singles has be documented (Clark et al., 2008; Mendez et al., 2011; Winters & Graunke, 2014).

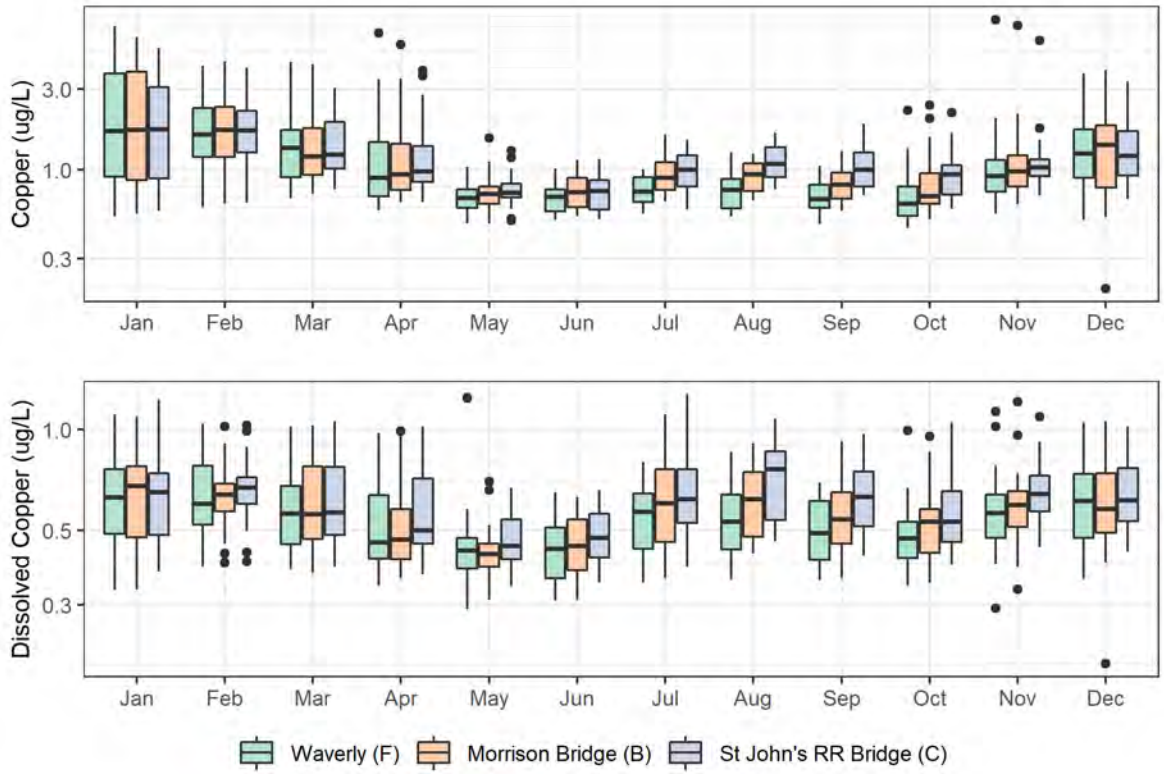
The water quality criteria for copper are expressed in terms of the dissolved concentration in the water column. The acute and chronic criteria for dissolved copper are calculated using the Biotic Ligand Model and are a function of the concentration of ions, alkalinity, organic carbon, pH, and temperature at the time of the sample. At lower concentrations, metals such as copper can negatively affect aquatic life (McIntyre et al., 2012). For example, Sandahl et al. (2007) found that copper concentrations as low as 2 µg/L affected the sensory physiology and predator avoidance behaviors of juvenile coho salmon.

Table 14. Summary statistics for total and dissolved copper samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Copper (µg/L)								
F	290	1.2	0.5	0.6	0.8	2.3	7.7	*NA*
B	291	1.3	0.2	0.6	0.9	2.4	7.1	*NA*
C	289	1.3	0.5	0.7	1.0	2.1	5.8	*NA*
Dissolved Copper (µg/L)								
F	290	0.6	0.3	0.4	0.5	0.8	1.2	2.1
B	291	0.6	0.2	0.4	0.5	0.8	1.2	0.7
C	289	0.6	0.3	0.4	0.6	0.9	1.3	0.3

The calculated acute copper criteria ranged from 0.3 to 15.1 µg/L (mean: 3.5 µg/L) and the calculated chronic criteria ranged from 0.21to 9.4 µg/L (mean: 2.17 µg/L). Both total and dissolved copper concentrations varied little between the three stations. Dissolved copper concentrations rarely exceeded 1 µg/L. Since 2000, only 9 samples across all three stations exceeded the calculated chronic dissolved copper criterion. The majority of these exceedances (6 of 9) were observed at the most upstream site (Waverly; site F).

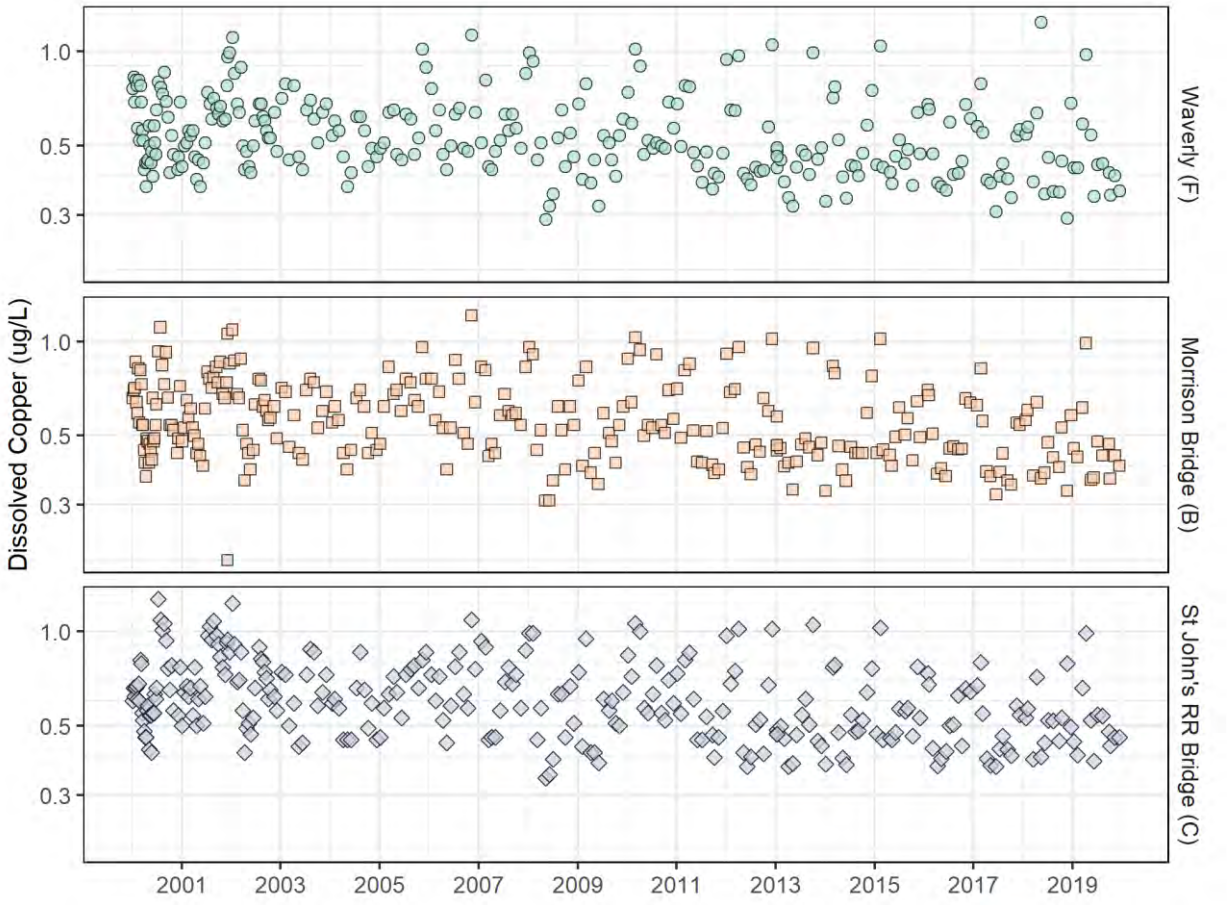
Figure 64. Seasonal pattern in total and dissolved copper concentrations at the three Willamette sites since 2000.



Total copper concentrations exhibited a seasonal pattern, with higher concentrations observed during periods of high flows (Figure 64). Dissolved copper concentrations reflected somewhat of the same pattern, but with smaller seasonal increases during high flows. In addition to the seasonal pattern seen in total copper concentrations, there is also evidence that total copper concentrations have been decreasing, particularly at the upstream Waverly station (F), over the period of record (Figure 65). A more detailed analysis of the observed trend is described in Section 4.4.

Figure 65. Total copper concentrations at the three Willamette River sites since 2000.

Figure 66. Dissolved copper concentrations at the three Willamette River sites since 2000.



4.3.3.5 Iron

Iron is an abundant element in the earth's crust and naturally occurs in aquatic systems. Given its abundance and useful properties it is the most widely used metal. Iron is frequently combined with other elements to make steel as pure iron is quite soft.

While iron is an essential micronutrient, used in proteins such as hemoglobin, excess iron in freshwater systems can be toxic to aquatic life. The water quality criteria for iron are expressed in terms of the total concentration in the water column. The chronic criterion for total iron is 1,000 µg/L. No acute criterion for iron has been established.

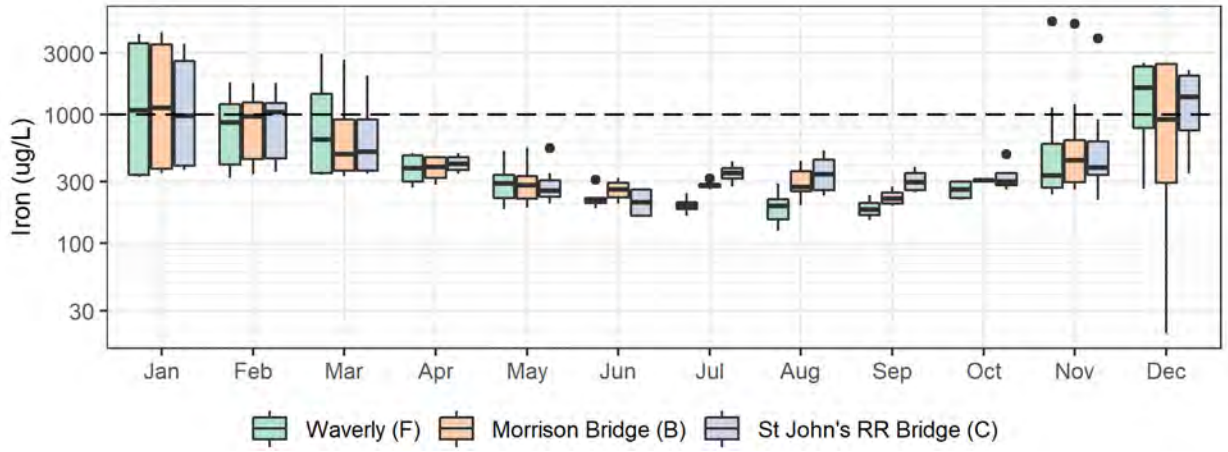
Total iron concentrations exceeded the 1,000 µg/L criterion at all three stations. These exceedances (13-14% of samples; Table 15) were observed only during the fall and winter, with lower concentrations consistently observed during periods of low flow. Over the ten years of sampling, iron was typically observed in particulate form—dissolved iron concentrations were consistently lower by an order of magnitude (Table 15).

Table 15. Summary statistics for total and dissolved iron samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Iron (µg/L)								
F	81	621	125	177	291	1,360	5,300	13.2
B	81	645	20	220	326	1,440	5,040	13.7
C	79	613	158	236	364	1,320	3,890	14.3
Dissolved Iron (µg/L)								
F	81	74	20	28	87	109	190	*NA*
B	81	73	20	26	85	105	179	*NA*
C	79	72	18	25	83	105	188	*NA*

It is important to note that beginning in mid-2002 the frequency of iron sampling was reduced to quarterly sampling and then discontinued entirely in 2010. As such, many of the months illustrated in the graph below include a limited number of samples.

Figure 67. Seasonal pattern in total and dissolved iron concentrations at the three Willamette River sites from 2000 to 2010.



There is no evidence of a temporal trend in iron concentrations over the period of record. In mid-2001, the detection limit for dissolved iron was lowered, allowing for improved characterization of the low dissolved iron concentrations seen in the Willamette River. Prior to mid-2001, all dissolved iron concentrations were below the detection limit (Figure 69).

Figure 68. Total iron concentrations at the three Willamette River sites from 2000 to 2010.

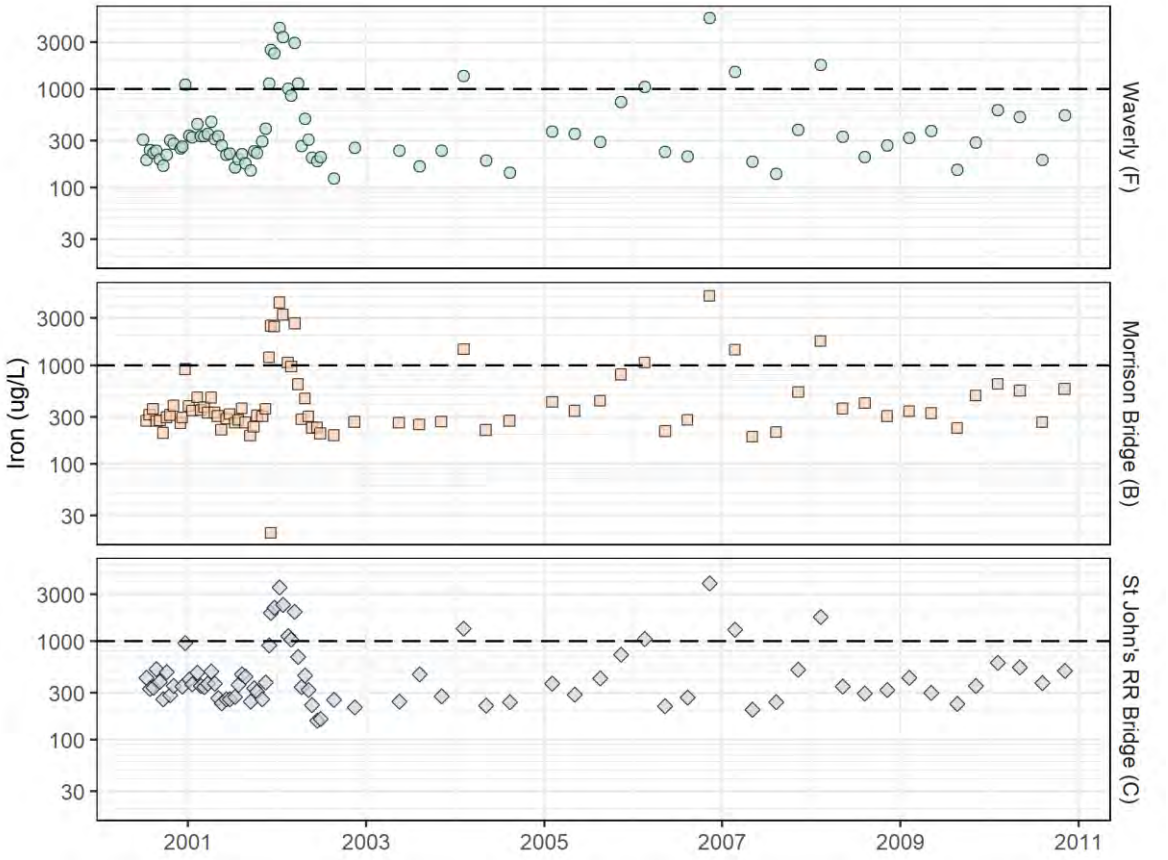
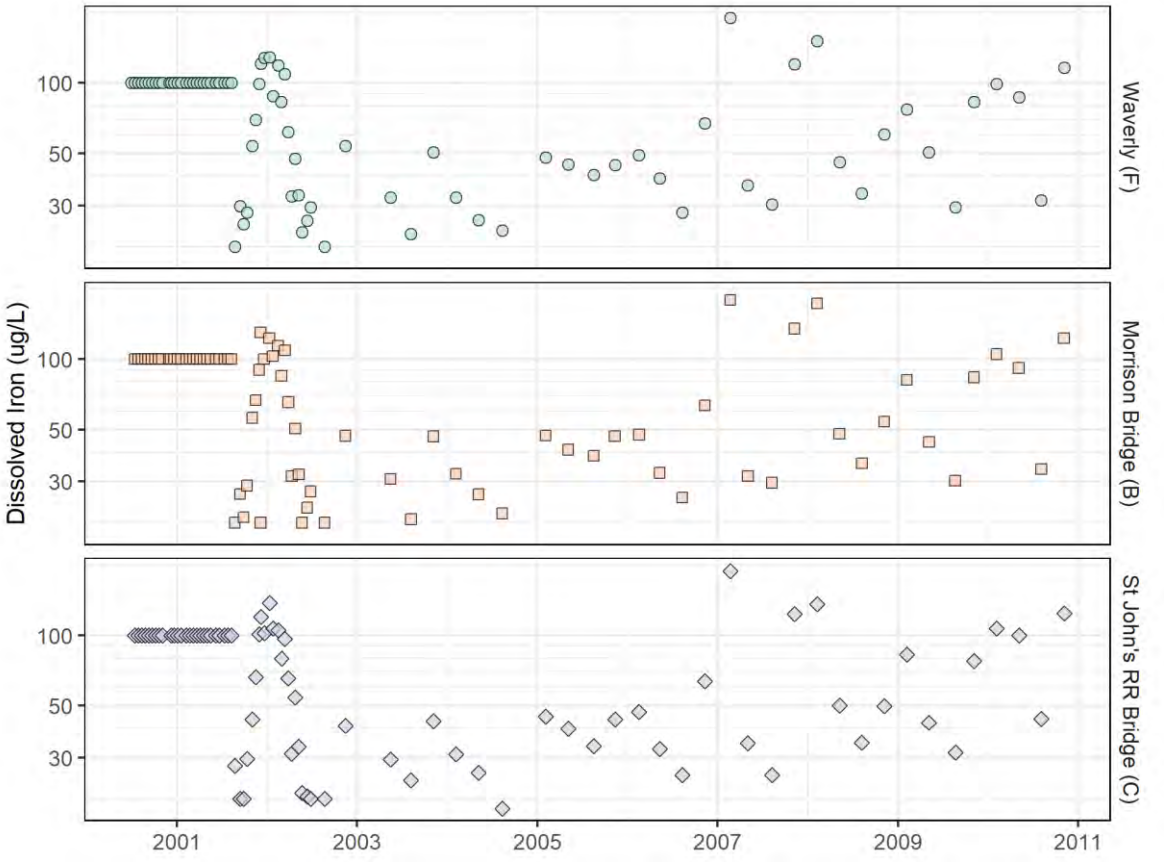


Figure 69. Dissolved iron concentrations at the three Willamette River sites from 2000 to 2010.



4.3.3.6 Lead

Lead is a dense, malleable heavy metal that was widely used until the late 19th century. Lead is currently still used in ammunition and lead-acid car batteries. Past uses of lead have included weights, solder, paint, plumbing, and leaded gasoline. Lead was added to gasoline (in the form of tetraethyl lead) in the 1920s to reduce engine knocking and improve fuel performance. Efforts to phase out leaded gasoline began in the 1970s and by the end of the 20th century, the sale of leaded fuel was banned for use in on-road vehicles in the United States.

Lead is a neurotoxin and can accumulate in bones and soft tissue. The human health impacts associated with lead were first recognized in the late 19th century. With the increased understanding of the harmful human health impacts, the use of lead has been phased out since the late 19th century. The water quality criteria for lead are expressed in terms of the dissolved concentration in the water column. The acute and chronic criteria for dissolved lead are expressed as a function of hardness in the water column.

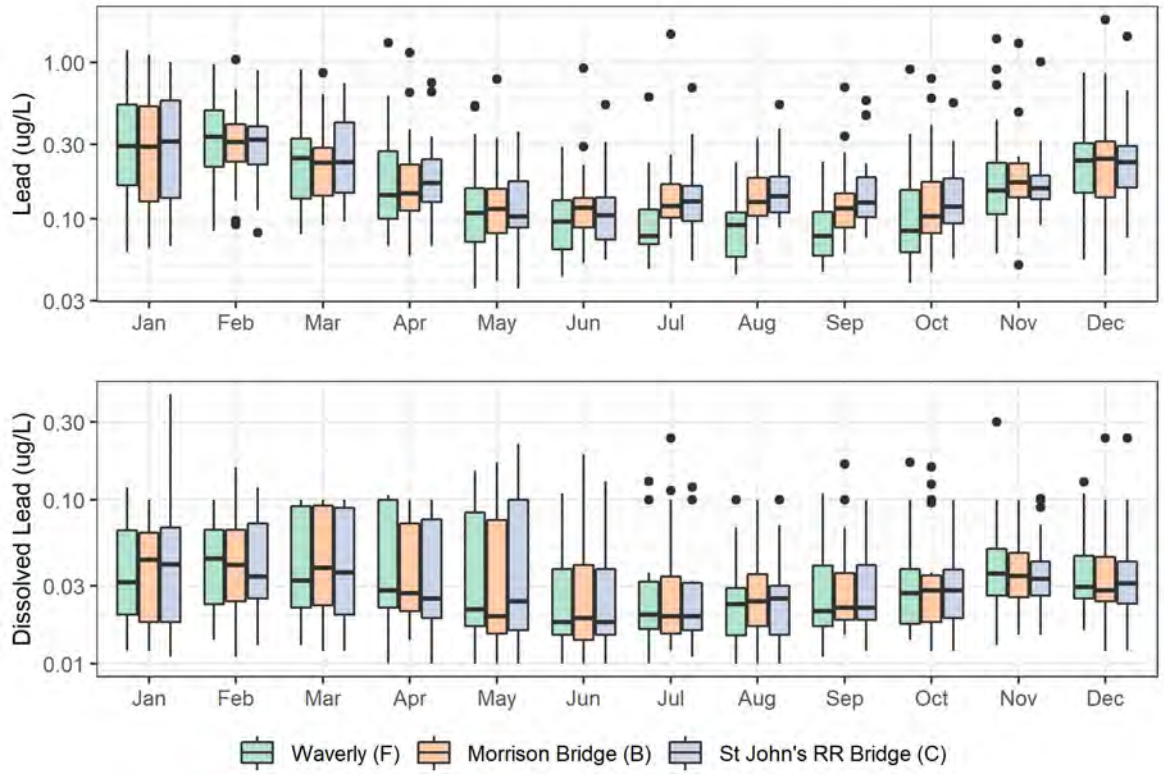
The analytical laboratory method used to analyze the Willamette River mainstem samples for lead was changed in mid-2001. The new method has a lower detection limit. BES uses the low-level analytical method for Willamette River samples as total and dissolved lead concentrations are consistently lower and below the detection limit of the standard procedures.

Table 16. Summary statistics for total and dissolved lead samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Lead (µg/L)								
F	290	0.22	0.04	0.06	0.13	0.53	1.41	*NA*
B	291	0.24	0.04	0.08	0.15	0.51	1.88	*NA*
C	289	0.23	0.04	0.08	0.16	0.47	1.46	*NA*
Dissolved Lead (µg/L)								
F	290	0.04	0.01	0.01	0.03	0.10	0.30	0.0
B	291	0.04	0.01	0.01	0.03	0.10	0.24	0.0
C	289	0.04	0.01	0.01	0.03	0.10	0.44	0.0

The calculated acute dissolved lead criteria ranged from 9.6 to 58.7 µg/L and the chronic criteria ranged from 0.4 to 2.3 µg/L. No exceedances of the acute or chronic dissolved lead criteria were observed during the sampling period, in fact, dissolved lead concentrations were observed far below any of the calculated criteria.

Figure 70. Seasonal pattern in total and dissolved lead concentrations from the three Willamette River sites since 2000. In mid-2001 the dissolved lead detection limit was lowered to better capture the low levels of lead seen in the Willamette River. The 75th percentile value on the dissolved lead boxplots reflect the higher detection limit.



There is little difference in both total and dissolved lead concentrations between the three sites. Generally, higher total lead concentrations are observed during the winter months. In contrast, dissolved lead concentrations vary little across the year.

In addition to the seasonal total lead pattern, there is also evidence that total lead concentrations have been decreasing at all three of the Willamette River stations (Figure 71). There is no indication that dissolved lead concentrations have changed over the sampling period. A more detailed analysis of the observed trend is described in Section 4.4.

Figure 71. Total lead concentrations at the three Willamette River sites since 2000.

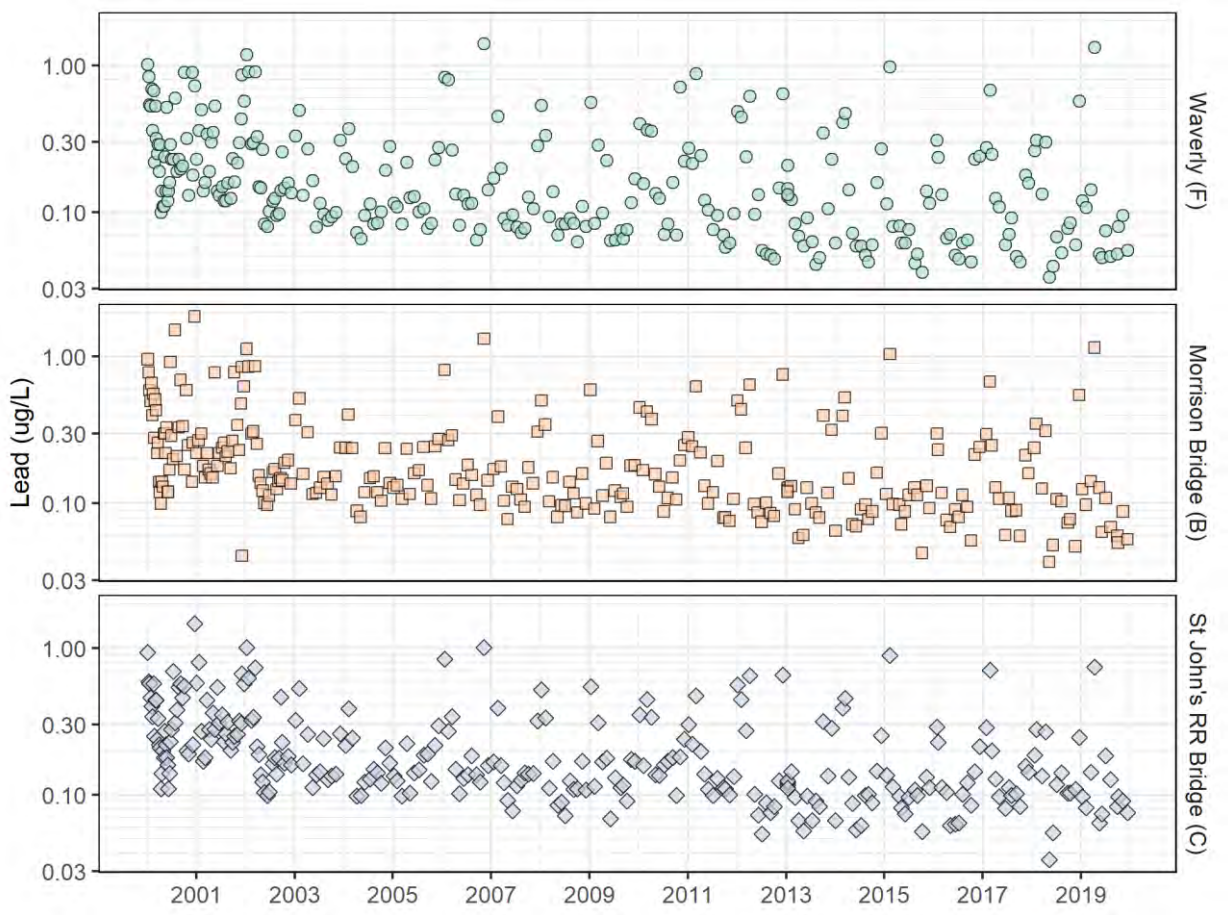


Figure 72. Dissolved lead concentrations at the three Willamette River stations since 2000. The detection limit for dissolved lead changed in 2001 from 0.1 µg/L to 0.01 µg/L when the laboratory began using a low-level analytical method for Willamette River lead samples.

4.3.3.7 Mercury

Mercury is a dense metal that is liquid at room temperature. Due to its unique properties, mercury has been used in many applications, including barometers, thermometers, fluorescent lamps, and hydraulic gold mining. Natural atmospheric mercury emissions include volcanic eruptions, while anthropogenic sources result from coal combustion. Pollutants in the atmosphere (including mercury) can enter stormwater through two mechanisms: dry and wet deposition. Dry deposition occurs when particles in the air settle directly on the land, trees, buildings, or other surfaces. When it rains, these pollutants are washed off the surfaces and are transported by stormwater runoff. Wet deposition occurs when particles in the atmosphere are incorporated into water vapor that subsequently falls as precipitation. In the Willamette basin, the atmosphere represents the primary source of mercury pollution (DEQ, 2019).

Mercury and many mercury compounds are toxic. In humans and other vertebrates, mercury is a potent neurotoxin and can cause damage to the brain, kidneys and lungs. The organic mercury compounds, including methylmercury, are the most toxic forms of mercury. In aquatic systems, mercury accumulation (typically in the form of methylmercury) is observed in fish and other

aquatic organisms. To protect human health, DEQ has established a methylmercury fish tissue criterion of 0.040 mg/kg (OAR 340-041-8033 - Table 40). The aquatic life criteria for mercury include an acute criterion for total mercury of 2.4 µg/L and a chronic criterion of 0.012 µg/L (OAR 340-041-8033 - Table 30). An update to the Willamette basin mercury TMDL was released in November 2019. To meet the methylmercury fish tissue criterion of 0.040 mg/kg, DEQ calculated a water column target of 0.14 ng/L of total mercury for the TMDL based on the modeled bioaccumulation of methylmercury in Willamette River fish. At this time, it is not possible to fully assess attainment of the instream total mercury concentration target identified in the 2019 TMDL. The target instream concentration of 0.14 ng/L is below the current total mercury detection limit of 1 ng/L.

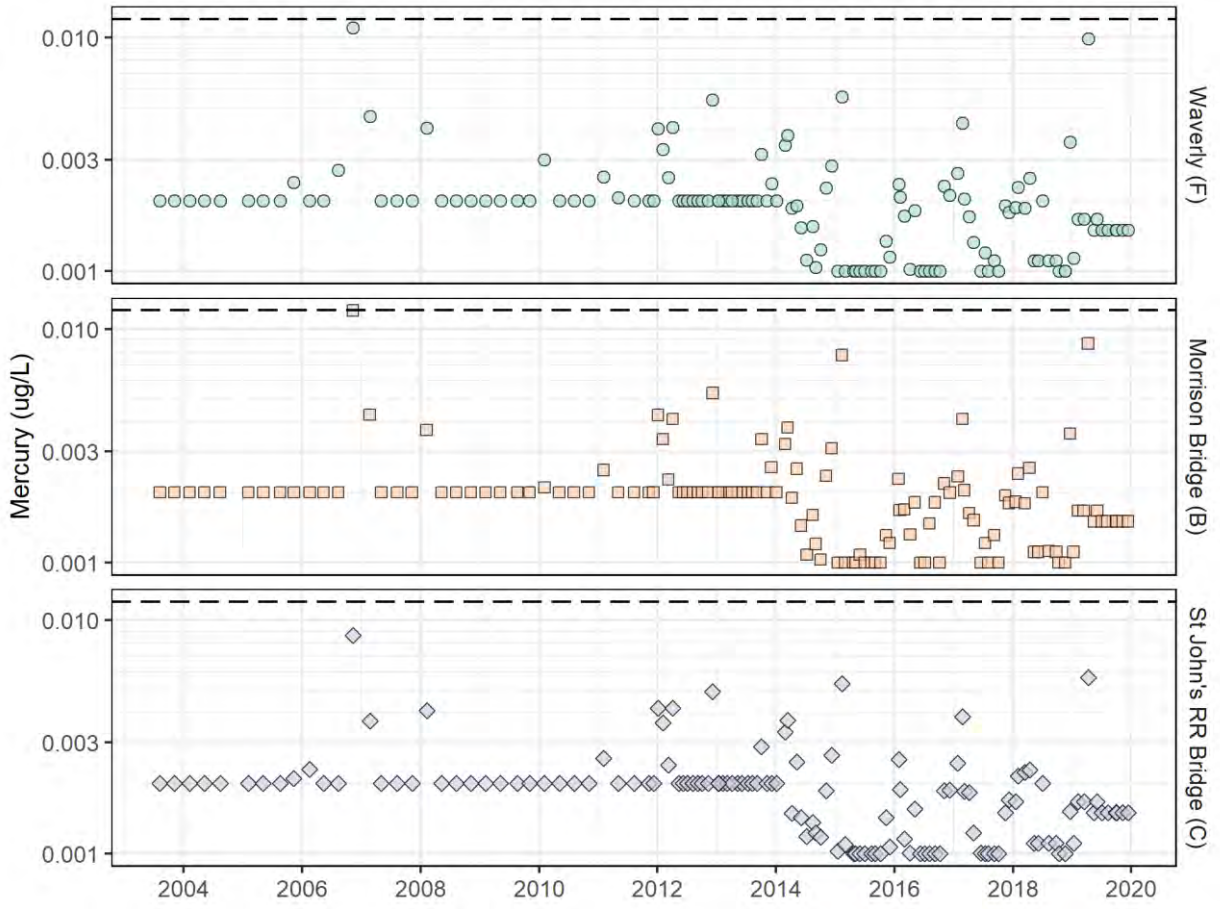
Table 17. Summary statistics for mercury samples from the three Willamette River sites.

	Mercury (ng/L)							
Site	**Number of Samples**	**Mean**	**Min**	**10th Percentile**	**50th Percentile**	**90th Percentile**	**Max**	**% Chronic Exceedance**
F	134	2.1	1.0	1.0	2.0	3.1	11.0	0.0
B	133	2.1	1.0	1.0	2.0	3.2	12.0	0.0
C	133	2.0	1.0	1.0	2.0	2.6	8.6	0.0

No meaningful differences in mercury concentrations was observed between the three sites (Table 17) and concentrations were frequency measured below the detection limit throughout the sampling period. No exceedances of the acute (2.4 µg/L) or chronic total mercury criteria (0.012 µg/L) were observed at any of the stations.

While mercury is frequently measured below the detection limit of 1 ng/L, samples above the detection limit are not uncommon. These samples exceed the TMDL mercury target by an order of magnitude. Given that the current detection limit is higher than the TMDL mercury target, it is not possible to fully assess the extent to which the Willamette River is exceeding the 0.14 ng/L target.

Figure 73. Mercury concentrations at the three Willamette River sites since 2003. The dashed line represents the chronic water quality criterion of 0.012 µg/L. The detection limit was lowered in 2014.



4.3.3.8 Nickel

Nickel is a hard, malleable metal. Today, nickel is often used in alloys, including stainless steel, as well as in batteries, pigments, and metal surface treatments due to its corrosion-resistant properties. Nickel is also used around the world in coins. Environmental sources of nickel include the natural weathering of rocks, but also anthropogenic sources from coal combustion and industrial discharges.

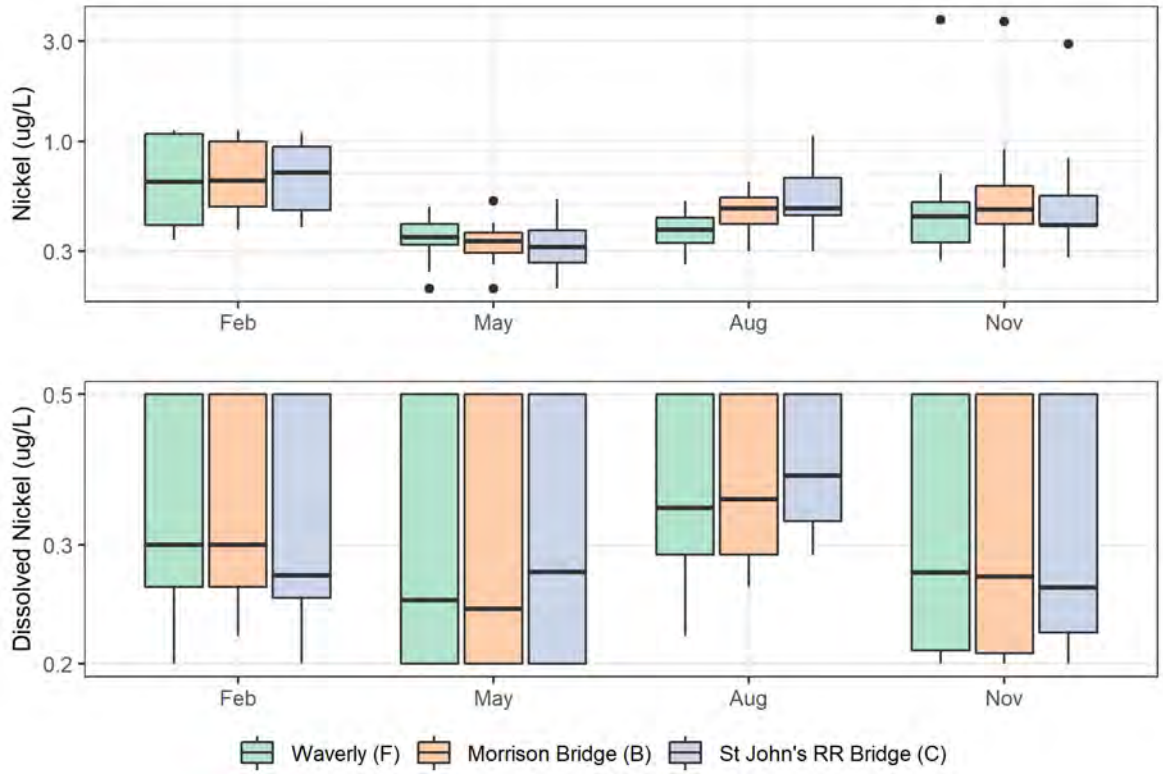
In higher concentrations, nickel can be toxic to aquatic life. The water quality criteria for nickel are expressed in terms of dissolved concentrations in the water column. The acute and chronic criteria for dissolved nickel are expressed as a function of hardness in the water column. The human health criterion for nickel is 140 µg/L.

Table 18. Summary statistics for total and dissolved Nickel samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Nickel (µg/L)								
F	40	0.55	0.20	0.27	0.40	0.94	3.79	*NA*
B	40	0.59	0.20	0.30	0.48	0.95	3.70	*NA*
C	40	0.58	0.20	0.28	0.45	0.95	2.90	*NA*
Dissolved Nickel (µg/L)								
F	40	0.35	0.20	0.20	0.30	0.50	0.50	0.0
B	40	0.35	0.20	0.20	0.30	0.50	0.50	0.0
C	40	0.36	0.20	0.20	0.32	0.50	0.50	0.0

No exceedances of the dissolved nickel criteria were observed during the sampling period and the dissolved nickel concentrations at the three Willamette sites were consistently far lower than the applicable criteria. The calculated acute dissolved nickel criteria ranged from 115.9 to 200.1 µg/L and the chronic criteria ranged from 12.9 to 22.2 µg/L.

Figure 74. Seasonal pattern in total and dissolved nickel concentrations at the three Willamette River sites since 2000. The detection limit for dissolved nickel was increased to 0.5 µg/L in 2007, resulting in more non-detects.



Total and dissolved nickel concentrations did not vary substantially between the three stations and the seasonal variability was also small. Generally, higher nickel concentrations were observed during periods with higher instream flows. There is no evidence of a temporal trend in nickel concentrations at any of the three sites.

Figure 75. Total Nickel concentrations at the three Willamette River sites since 2000.

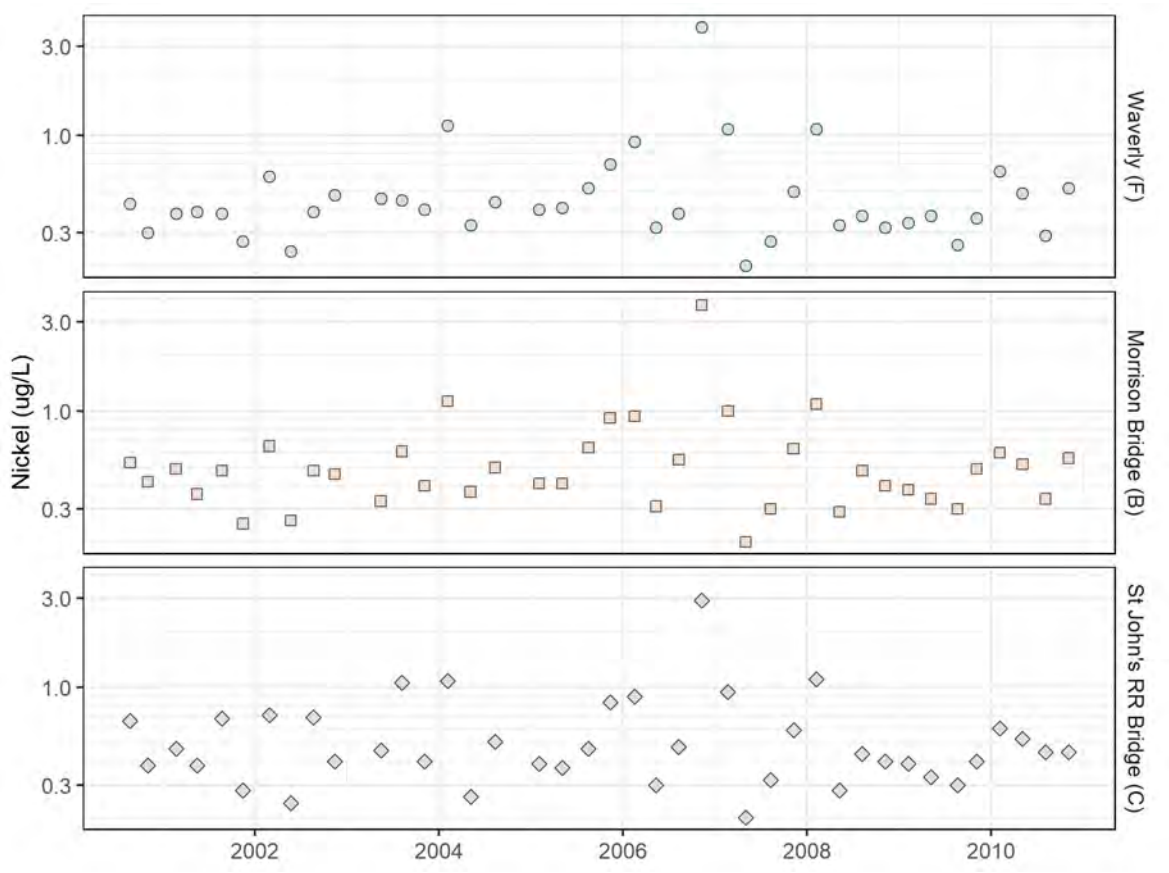
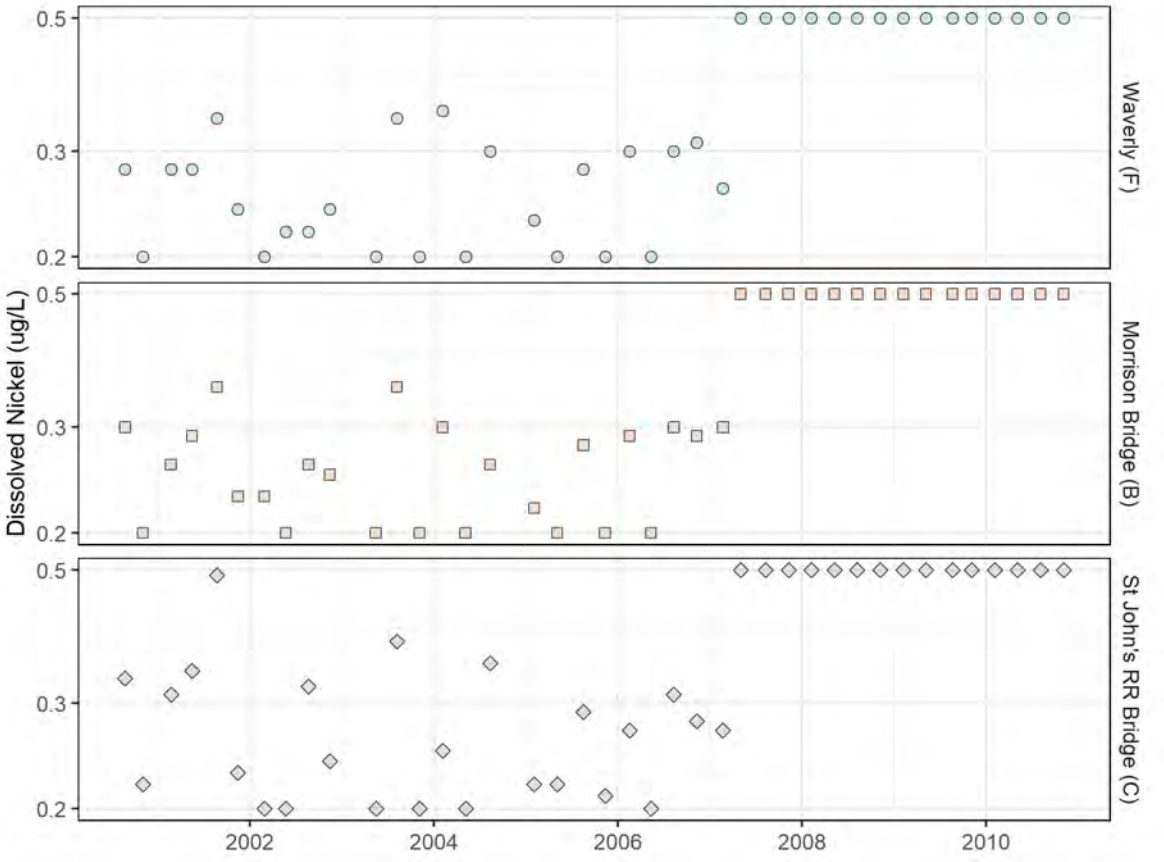


Figure 76. Dissolved nickel concentrations at the three Willamette River sites since 2000. The detection limit was increased to 0.5 µg/L in 2007.



4.3.3.9 Selenium

Selenium is a nonmetal often found in metal sulfide ores. Refining these ores produces selenium as a byproduct. Today, selenium's main commercial use is in pigments and glassmaking. In the past, selenium has also been used in electronics as part of semiconductor devices, however, most of these uses have now been replaces silicon devices.

In higher concentrations, selenium can be toxic to aquatic life. The water quality criteria for selenium are expressed in terms of dissolved concentrations in the water column. The acute criterion for dissolved selenium is calculated based on fractions of total selenium that are treated as selenite and selenite. A single chronic criterion of 4.6 µg/L applies to dissolved selenium.

No total and dissolved selenium samples were measured above the detection limit for the entire period of record. No exceedances of the dissolved selenium criteria were observed during the sampling period and applicable criteria are substantially higher than the detection limit.

Table 19. Summary statistics for total and dissolved Selenium samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Selenium (µg/L)								
F	40	0.62	0.50	0.50	0.50	1.00	1.00	*NA*
B	40	0.62	0.50	0.50	0.50	1.00	1.00	*NA*
C	40	0.62	0.50	0.50	0.50	1.00	1.00	*NA*
Dissolved Selenium (µg/L)								
F	40	0.62	0.50	0.50	0.50	1.00	1.00	0.0
B	40	0.62	0.50	0.50	0.50	1.00	1.00	0.0
C	40	0.62	0.50	0.50	0.50	1.00	1.00	0.0

4.3.3.10 Zinc

Zinc is a commonly used metal. The earliest known used of zinc by humans was the use of brass (a zinc–copper alloy). Today, zinc is widely used for its corrosion-resistant properties as a plating for iron or steel (galvanization) to prevent rusting. Zinc is also used in electrical batteries, pigments, and as a wood preservative and fungicide.

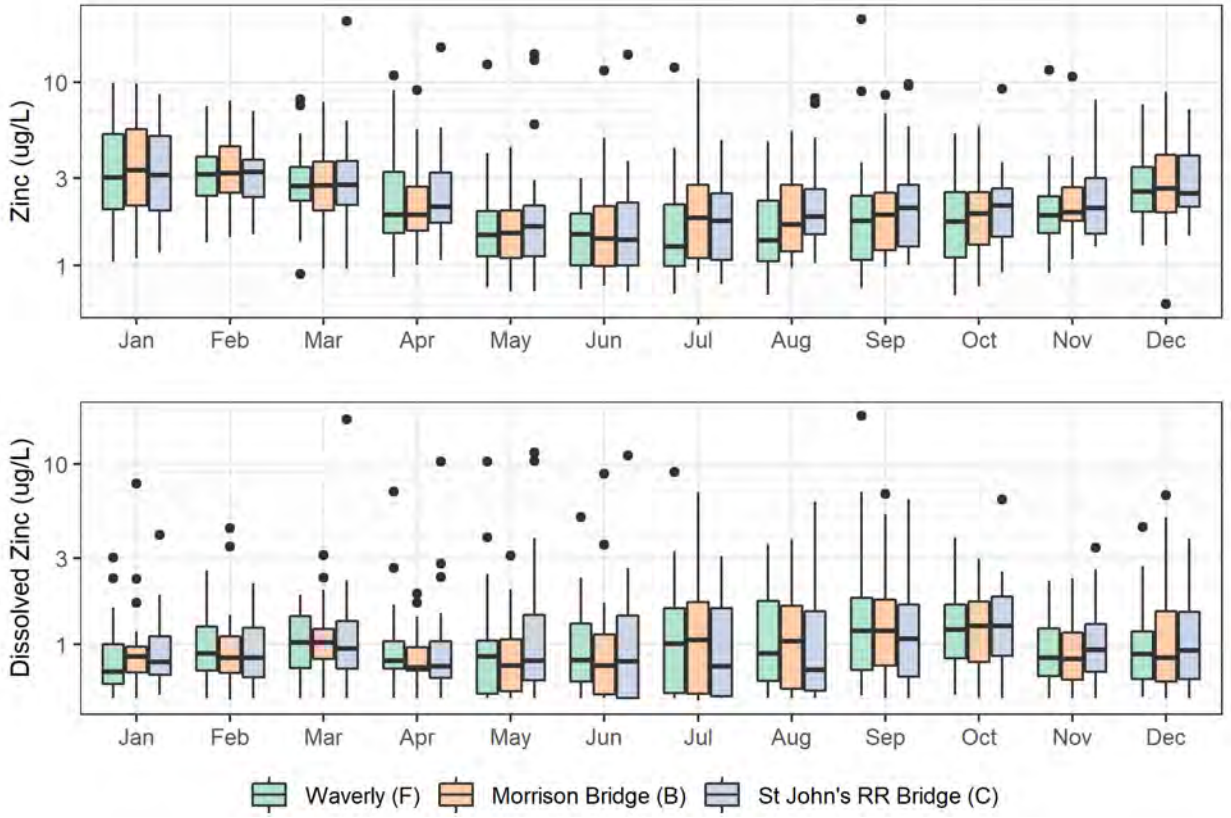
In higher concentrations, zinc can be toxic to aquatic life. The water quality criteria for zinc are expressed in terms of dissolved concentrations in the water column. The acute and chronic criteria for dissolved zinc are expressed as a function of hardness in the water column. The human health criterion for zinc is 2,100 µg/L.

Table 20. Summary statistics for total and dissolved zinc samples from the three Willamette River sites.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Zinc (µg/L)								
F	290	2.6	0.7	0.9	2.0	4.9	22.1	*NA*
B	291	2.7	0.6	1.1	2.1	5.2	11.6	*NA*
C	289	2.9	0.7	1.1	2.2	5.1	21.6	*NA*
Dissolved Zinc (µg/L)								
F	290	1.3	0.5	0.5	0.9	2.1	18.5	0.0
B	291	1.2	0.5	0.5	0.9	2.0	8.8	0.0
C	289	1.4	0.5	0.5	0.9	2.4	17.6	0.0

No exceedances of the dissolved zinc criteria were observed during the sampling period (Table 20). The calculated acute dissolved zinc criteria ranged from 27.5 to 108.8 µg/L and the chronic criteria ranged from 27.7 to 109.7 µg/L. There was little difference in zinc concentrations between the three stations. Generally, the total zinc concentrations were highest during the winter months. Conversely, dissolved zinc concentrations were lower during the winter months and more variability in concentrations seen during periods of low flow (Figure 77).

Figure 77. Seasonal pattern in total and dissolved zinc concentrations at the three Willamette River sites since 2000.



There is evidence that both total and dissolved zinc concentrations have decreased over the period of record. The higher concentrations of zinc seen during times of high flow are seen throughout the period, but the lower zinc concentrations appear to be declining. This is evident in the dissolved zinc concentrations where a larger number of non-detects were observed the latter half of the of the period. A more detailed analysis of zinc trends is included in Section 4.4.4.

Figure 78. Total zinc concentrations at the three Willamette River sites since 2000.

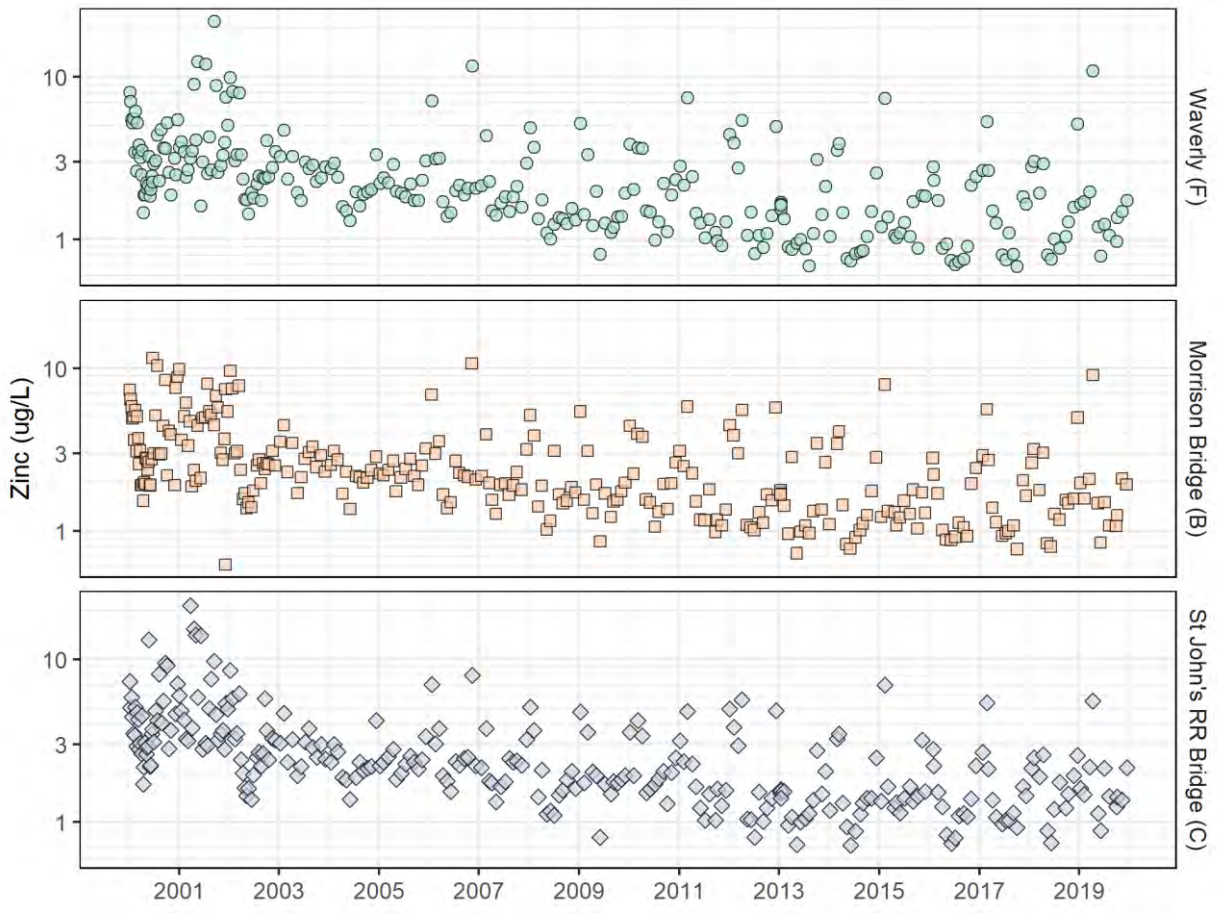
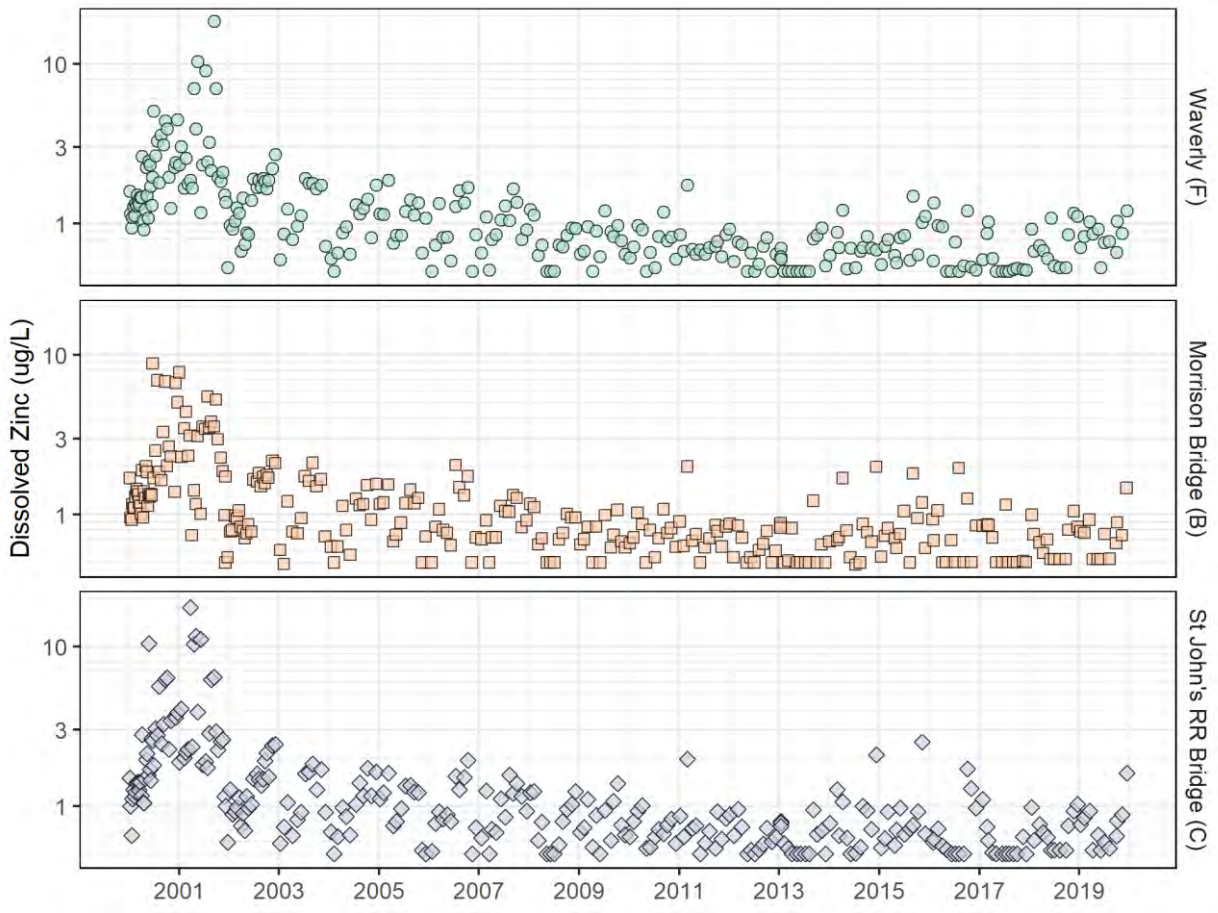


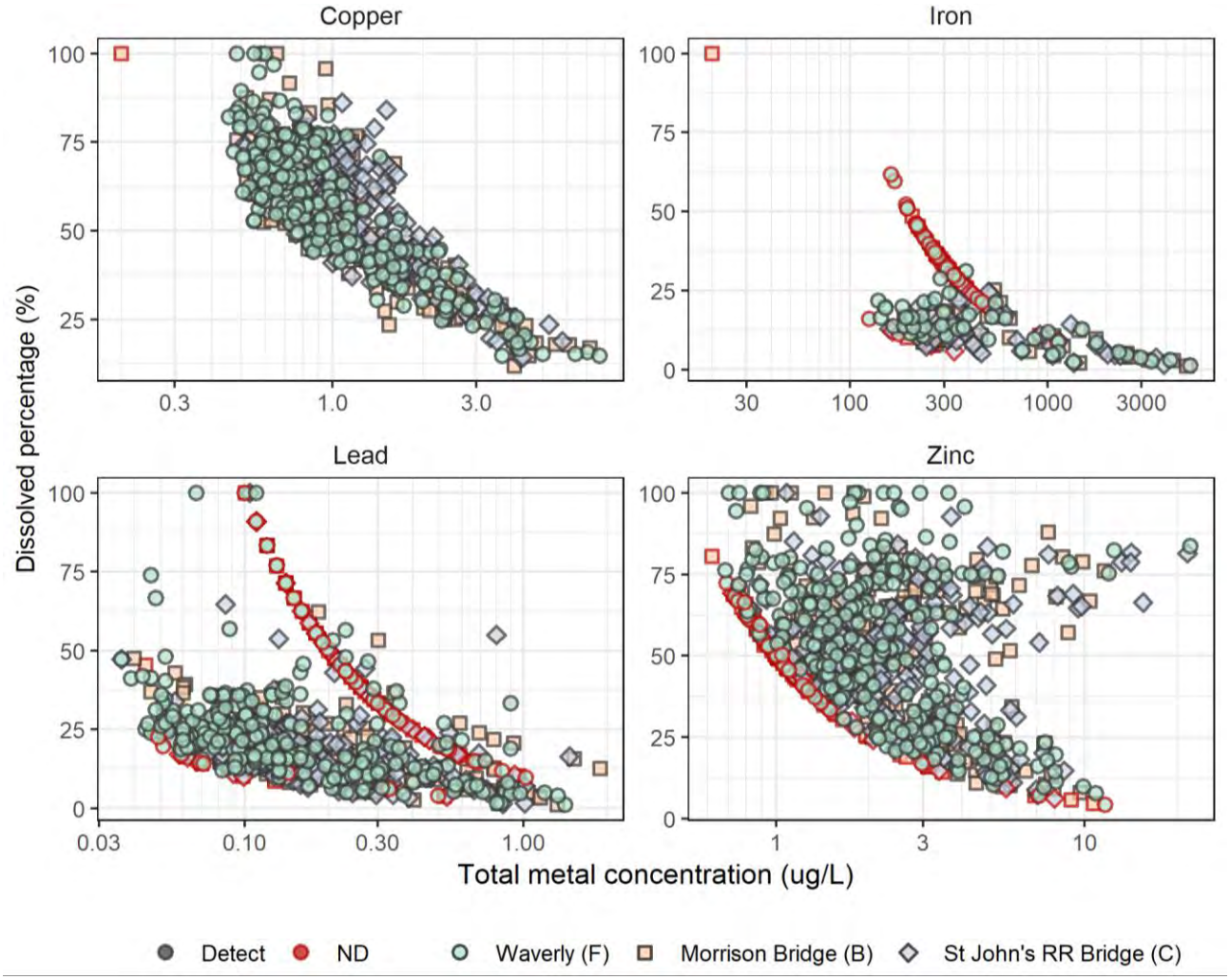
Figure 79. Dissolved zinc concentrations at the three Willamette River sites since 2000.



4.3.3.11 Dissolved Metals Fractions

The Willamette River ambient monitoring program analyzes both total dissolved metals (with the exception of mercury). Dissolved metals are the portion that passes through a 0.45 µm filter. In the case of most metals, the toxicity of dissolved metals to aquatic organisms is substantially higher than the particulate form. Since the primary mechanisms for toxicity for aquatic organisms is through adsorption to or uptake across the gills, the dissolved fraction of a metal is small enough to interact with this physiological process.

Figure 80. Dissolved fraction of each metal analyzed at the three Willamette River sites since 2000. The points outlined in red represent non-detects for the dissolved metal.



At the three Willamette sites, dissolved copper concentrations were found to decrease as total copper concentrations increased (Figure 80). As described above, these higher total copper concentrations were consistently seen during periods of higher flows, while the lower total copper concentrations were observed when flows were lower. Under these low flow conditions, a greater proportion of the copper in the Willamette is found in its dissolved form.

Unlike copper, a very small proportion of the iron in the Willamette was observed in a dissolved form Figure 80). As noted above, the dissolved iron detection limit decreased substantially in 2001. With the change in the dissolved iron detection limit, almost none of the samples were found to be composed of more than 25% dissolved iron. That is, most of the iron in the Willamette is seen in particulate form.

The proportion of dissolved lead in the Willamette decreases as total lead concentrations increase (Figure 80). As described above, there was a change in the laboratory method used to analyze lead samples. As a result, the lead detection limit decreased. While the dissolved lead percentage does

decrease with increasing total lead concentrations, less than half of the measured lead is dissolved. As with iron, most of the lead measured in the Willamette is seen in particulate form.

As with copper, iron, and lead, the proportion of dissolved zinc tends to decrease as total zinc concentrations increase, however, the relationship is more variable than with the other three metals (Figure 80). Unlike the other metals, at higher total zinc concentrations, more than 50% may be dissolved. In contrast to the other metals, zinc is more frequently observed in a dissolved form.

4.3.4 Nutrients

4.3.4.1 Nitrogen

In rivers and streams, nitrogen is typically observed in the form of nitrate (NO_3), which is highly water soluble. High concentrations of nitrogen can promote primary production, potentially leading to eutrophication.

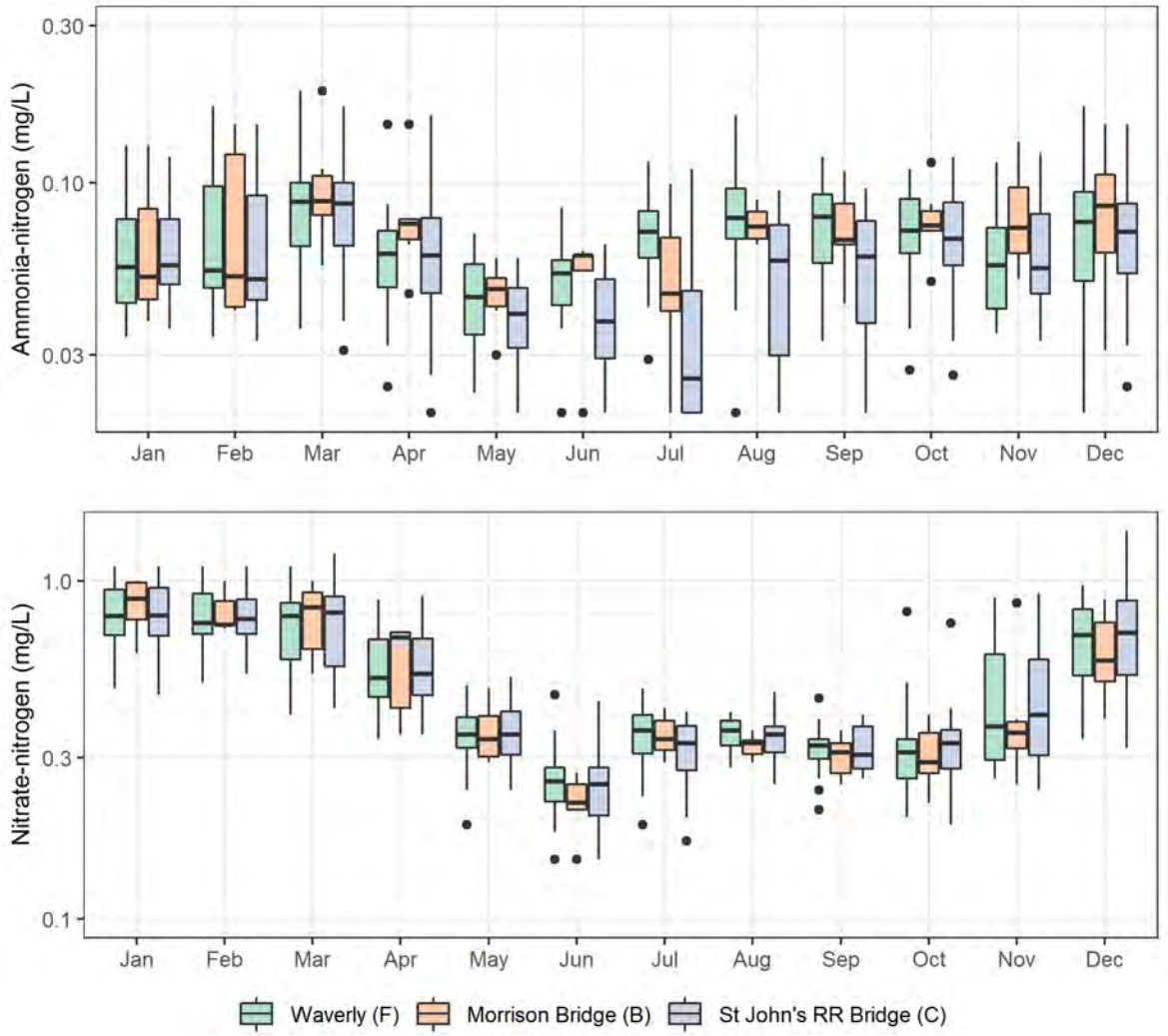
Under certain water quality conditions and concentrations, ammonia can be toxic to aquatic life. Additionally, the metabolic oxidation of ammonia (nitrification) results in an oxygen demand which can reduce concentrations of dissolved oxygen in the water column. The toxicity of ammonia to aquatic organisms and the corresponding water quality criteria are dependent on the pH and temperature of the water body, as well as the life stage of the organism (OAR 340-041-8033 Table 30). The chronic ammonia criterion is expressed as a 30-day rolling average. No water quality criteria for nitrate apply to the Willamette River.

Table 21. Summary statistics for ammonia and nitrate samples from the three Willamette River sites. Note: ammonia and nitrate were not sampled at the Morrison Bridge site (B) between 2005 and 2017.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
Ammonia-Nitrogen (mg/L)								
F	227	0.07	0.02	0.04	0.06	0.10	0.19	0.0
B	76	0.07	0.02	0.04	0.07	0.12	0.19	0.0
C	227	0.06	0.02	0.02	0.05	0.10	0.17	0.0
Nitrate-Nitrogen (mg/L)								
F	227	0.50	0.15	0.26	0.40	0.86	1.10	*NA*
B	76	0.50	0.15	0.26	0.38	0.88	1.00	*NA*
C	227	0.50	0.15	0.26	0.39	0.88	1.40	*NA*

No exceedances of the ammonia criteria were observed at any of the sites throughout the entire sampling period. Nitrogen samples were not collected at the Morrison Bridge station (B) between 2005 and 2017.

Figure 81. Seasonal pattern in ammonia and nitrate concentrations at the three Willamette River sites since 2000. Note: ammonia and nitrate were not sampled at the Morrison Bridge site (B) between 2005 and 2017.



There is little difference in ammonia and nitrate concentrations between the three stations. Ammonia concentrations do not vary substantially across the year, while nitrate concentrations during the wet season are substantially higher than those measured in the summer and early fall. There is no evidence of a temporal trend in nitrogen concentrations.

Figure 82. Ammonia concentrations at the three Willamette River sites since 2000. Note: ammonia was not sampled at the Morrison Bridge site (B) between 2005 and 2017.

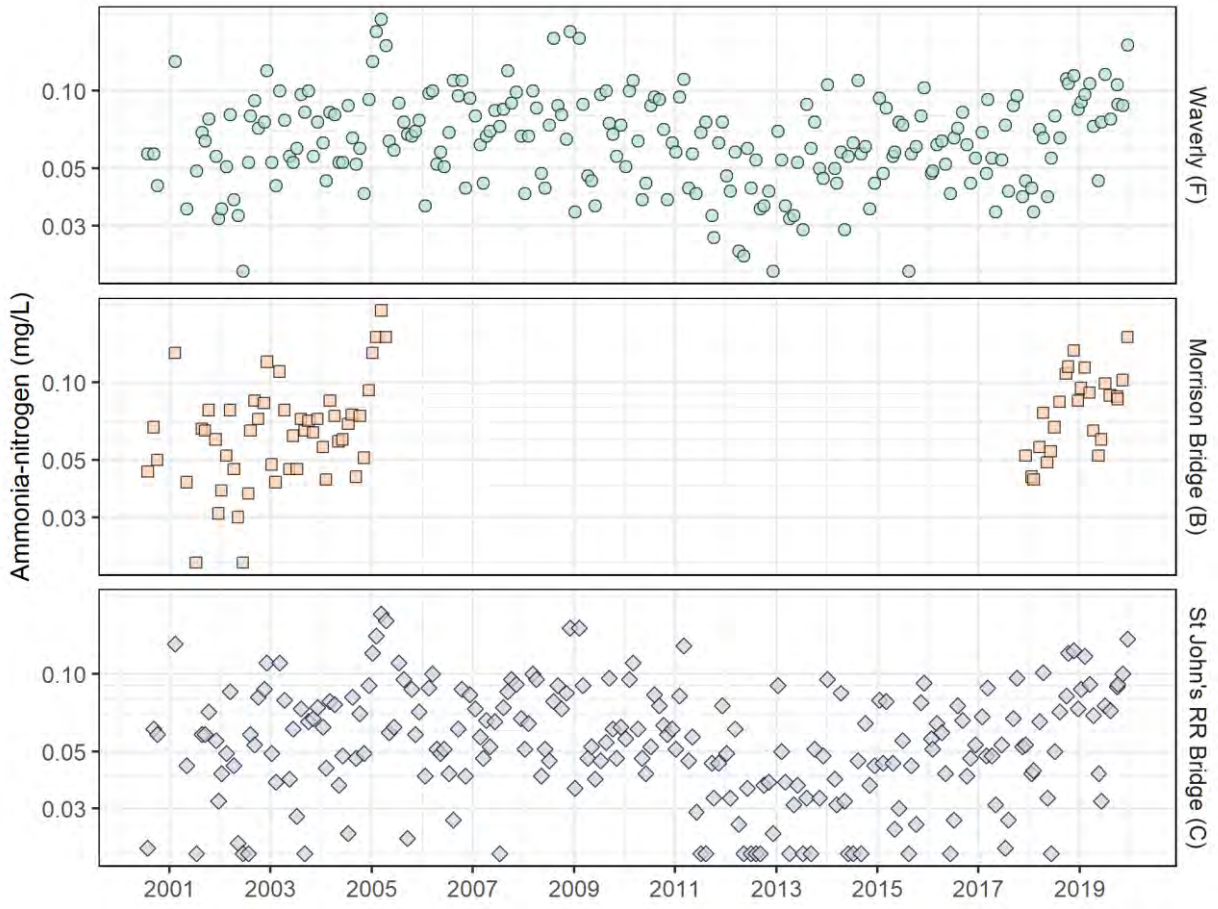


Figure 83. Nitrate concentrations at the three Willamette River sites since 2000. Note: nitrate was not sampled at the Morrison Bridge site (B) between 2005 and 2017.

4.3.4.2 Phosphorus

Like nitrogen, phosphorus is an essential nutrient for plant growth. In many water bodies phosphorus is important as it is often the limiting nutrient for the growth of algae in freshwater systems. Algal blooms can result in exceedances of the state water quality standards for aesthetics, pH, and dissolved oxygen. Soluble orthophosphate represents the fraction of phosphorus that can be filtered through a 0.45-micron filter. The concentration of soluble orthophosphate is generally used as a measure of the readily available phosphorus present in natural waters for utilization by biota.

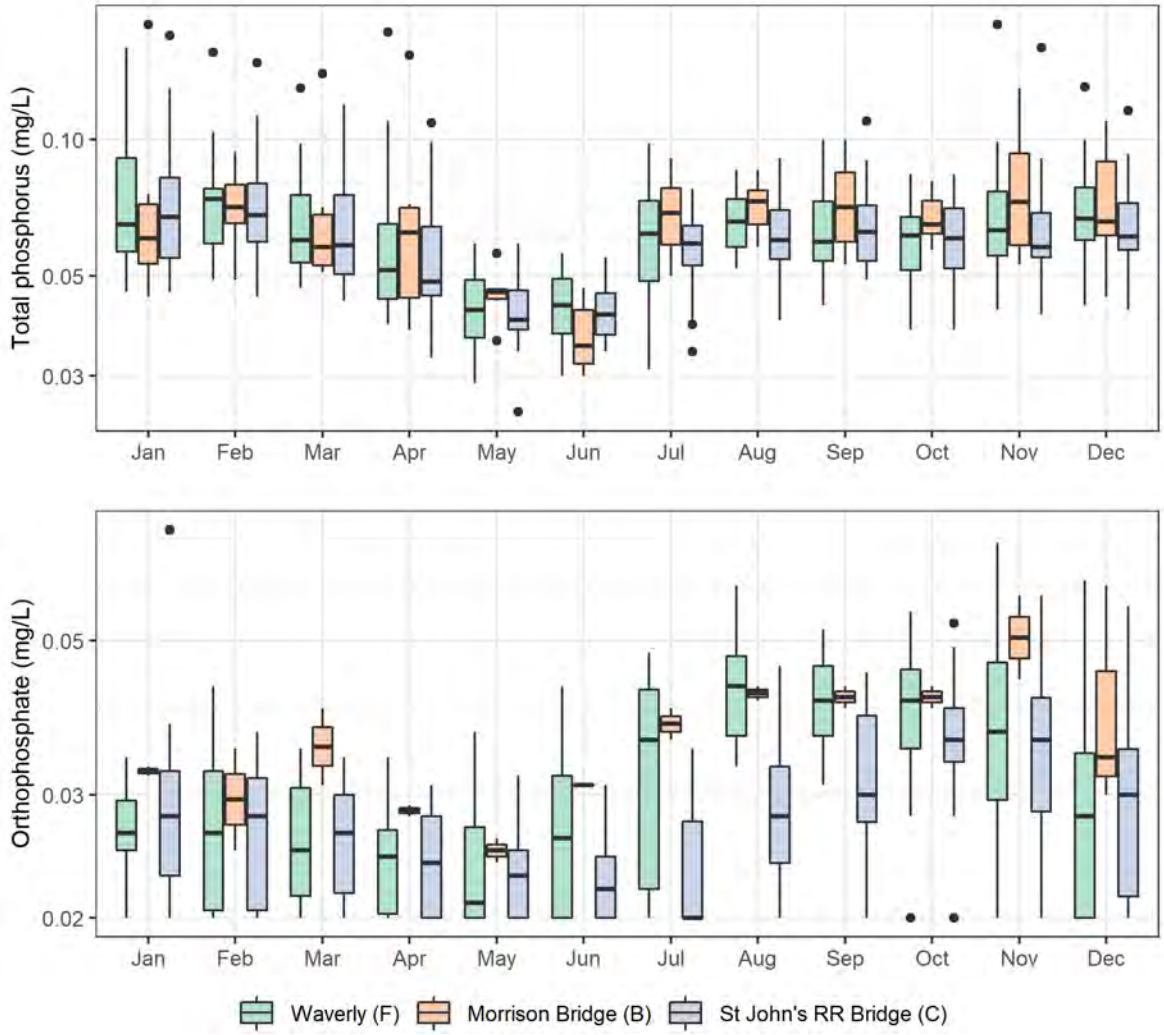
No state-wide water quality criteria have been established for phosphorus, however, DEQ has established TMDLs for total phosphorus in the Columbia Slough (0.155 mg/L) and Tualatin (0.13 mg/L for Fanno Creek) basins.

Table 22. Summary statistics for total phosphorus and orthophosphate samples from the three Willamette River sites. Note: total phosphorus and orthophosphate were not sampled at the Morrison Bridge site (B) between 2005 and 2017.

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Exceedance
Orthophosphate (mg/L)								
F	176	0.032	0.020	0.020	0.030	0.047	0.069	*NA*
B	25	0.037	0.024	0.027	0.035	0.044	0.060	*NA*
C	176	0.029	0.020	0.020	0.027	0.039	0.072	*NA*
Total Phosphorus (mg/L)								
F	227	0.064	0.029	0.042	0.059	0.089	0.180	*NA*
B	76	0.069	0.030	0.044	0.064	0.096	0.180	*NA*
C	227	0.061	0.025	0.040	0.058	0.084	0.170	*NA*

Little variability in total phosphorus and orthophosphate concentrations was observed between the three sites. As with nitrogen, total phosphorus samples were not collected at the Morrison Bridge station (B) between 2005 and 2017. Orthophosphate samples were first collected at the Morrison Bridge station in 2018.

Figure 84. Seasonal pattern in total phosphorus and orthophosphate concentrations at the three Willamette River sites since 2000. Note: total phosphorus was not sampled at the Morrison Bridge site (B) between 2005 and 2017, and orthophosphate was first sampled at the Morrison Bridge site in 2018.



Total phosphorus concentrations varied over the course of the year, with the lowest concentrations observed in the spring. Orthophosphate concentrations did not vary substantially over time or from month to month. There is no evidence of a temporal trend in either total phosphorus or orthophosphate concentrations.

Figure 85. Total phosphorus concentrations at the three Willamette River sites since 2000. Note: total phosphorus was not sampled at the Morrison Bridge site (B) between 2005 and 2017.

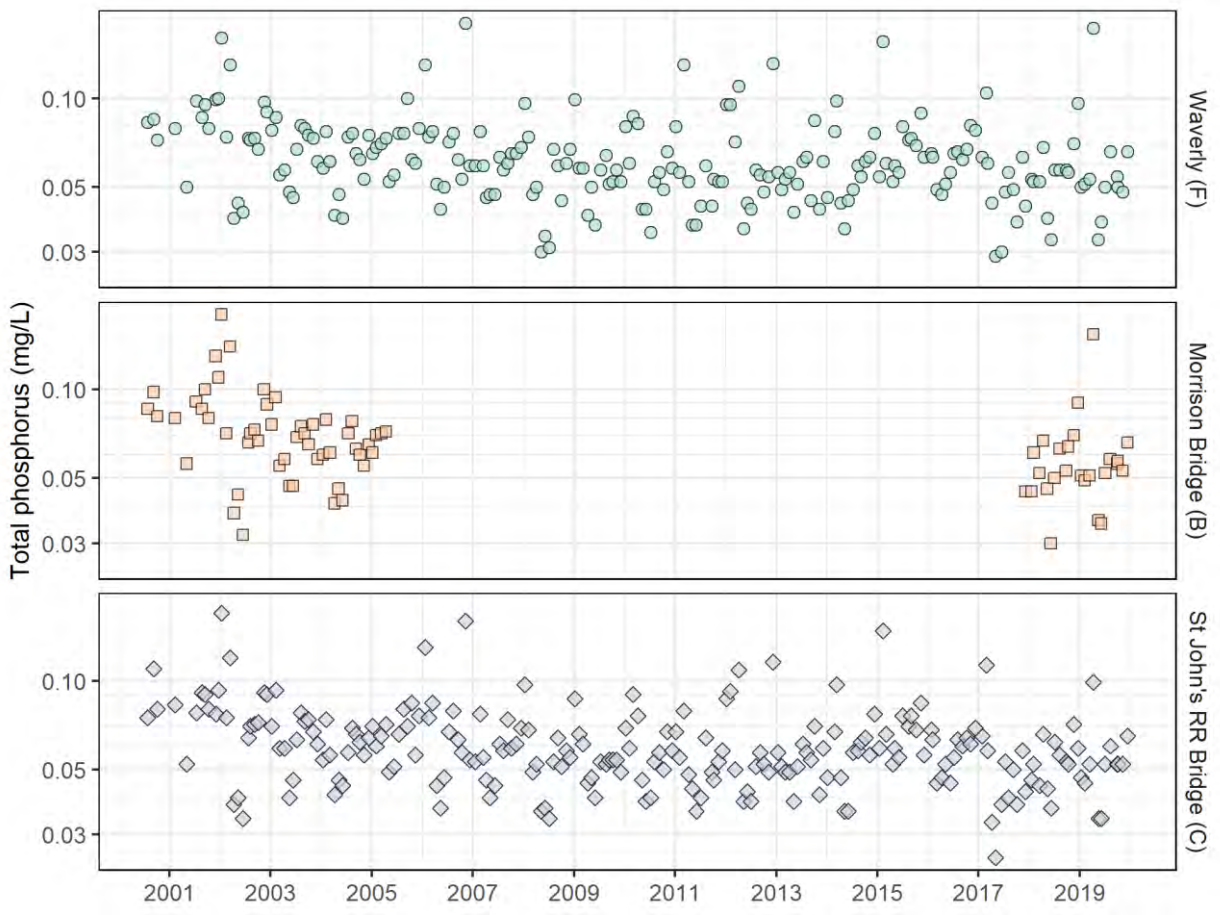


Figure 86. Orthophosphate concentrations at the three Willamette River sites since 2000. Note: orthophosphate was not sampled at the Morrison Bridge site (B) between 2005 and 2017.

4.3.4.3 Chlorophyll-*a*

Chlorophyll is a green pigment found in algae and plants that is essential for photosynthesis. Chlorophyll-*a* is the dominant pigment found in algae and is often used to estimate algal biomass. DEQ uses chlorophyll-*a* concentrations to determine whether a waterbody's beneficial use is impaired by nuisance phytoplankton growth (OAR 340-041-0019(1)(b)). Chlorophyll-*a* concentrations may not exceed 15 µg/L in rivers.

Chlorophyll-*a* samples are collected during the summer months (July, August, and September) at the three Willamette River sites. As with nitrogen and phosphorus samples, no chlorophyll-*a* samples were collected at the Morrison Bridge site (B) from 2003 to 2017. Sampling resumed in July 2018 at the Morrison Bridge site.

Table 23. Summary statistics for chlorophyll-a samples from the three Willamette River sites. No samples were collected at the Morrison Bridge site (B) from 2003 to 2017.

Chlorophyll-*a* (µg/L)

Site	Number of Samples	Mean	Min	10th Percentile	50th Percentile	90th Percentile	Max	% Chronic Exceedance
F	60	3.0	1.0	2.0	2.5	5.0	8.0	0.0
B	11	3.7	1.9	2.0	3.6	5.0	5.6	0.0
C	60	6.7	1.8	2.0	4.8	14.0	34.4	6.7

Exceedances of the chlorophyll-*a* criterion were only observed at the St. John's RR Bridge site—the most downstream site. Generally, more variability in chlorophyll-*a* concentrations were observed at the St. John's RR Bridge site, with higher concentration typically seen in the early summer. There is no evidence of a temporal trend in chlorophyll-*a* concentrations at any of the sites.

Figure 87. Seasonal pattern in chlorophyll-a concentrations at the three Willamette River sites since 2001. The dashed line represents the water quality criterion for rivers and streams. Note: chlorophyll-a samples were not collected at the Morrison Bridge site (B) between 2003 and 2017.

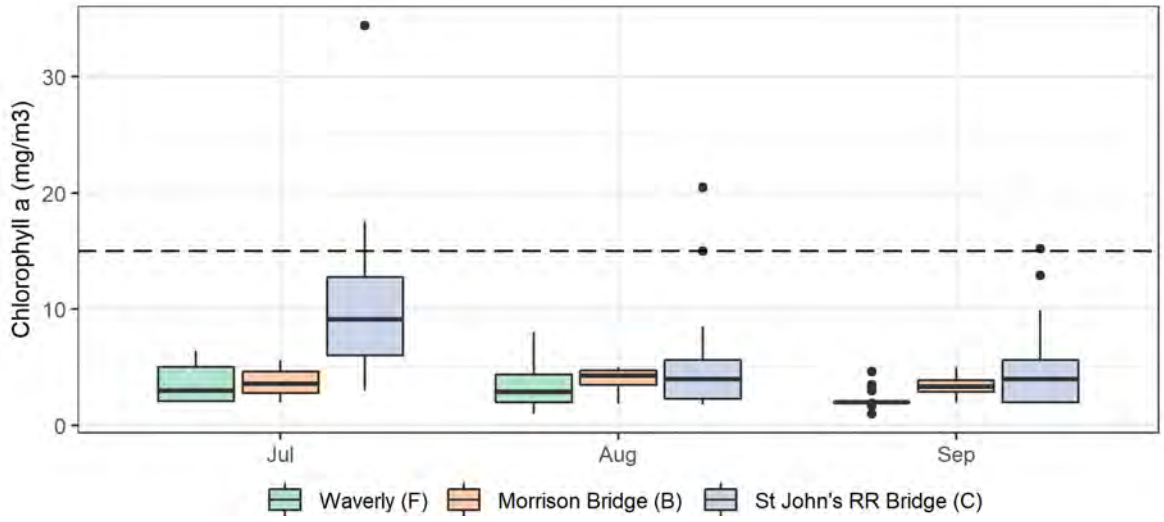
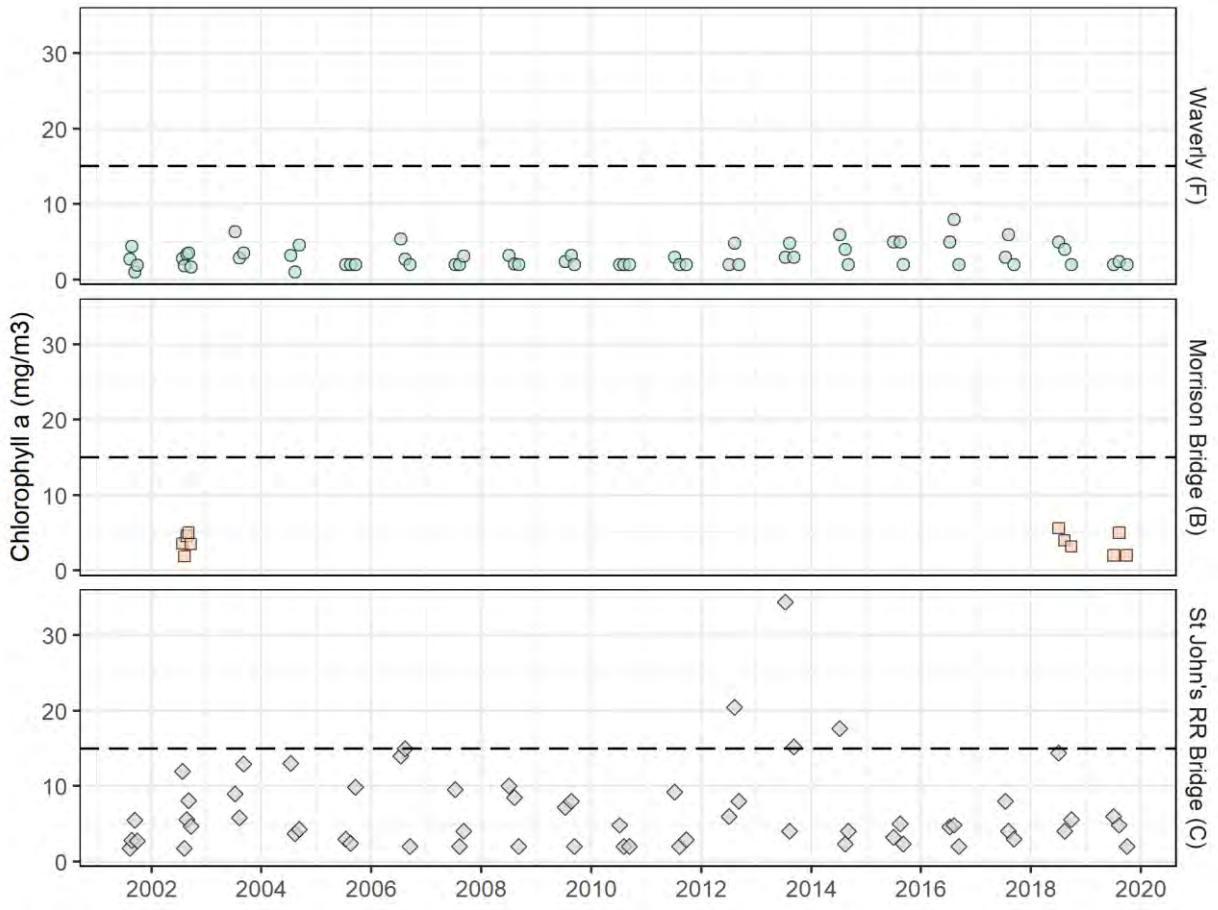


Figure 88. chlorophyll-a concentrations at the three Willamette River sites since 2001. The dashed lines represent the water quality criterion of 0.15 µg/L for rivers and streams. Note: chlorophyll-a samples were not collected at the Morrison Bridge site (B) between 2003 and 2017.



4.4 Analysis of Water Quality Trends

The long-term monitoring of the three Willamette River stations provides a unique opportunity to evaluate possible trends in water quality and to evaluate whether there have been changes over time. As described above, the three stations have been sampled since the mid-1990s, however, not all of the analytes have been monitored continuously at the stations. Consequently, the analysis of possible trends is focused on analytes with long-term records and only those with a statistically significant temporal trend are presented here.

4.4.1 Analysis Approach

Instream concentrations of different water quality parameters are highly variable and are typically dependent on instream flows, weather conditions, and also the time of year. As such, only looking at how the concentration of a pollutant has changed over time does not account for the expected variability in concentration based on the time of the year, nor does it account for the ambient conditions present at the time each sample was collected. The analysis approach employed in this report to assess the Willamette River samples for temporal trends fits a generalized additive model

to the water quality data. This method allows for an additive modeling approach in which the predictive variables can be incorporated using smoothing functions. These smoothing functions match the underlying pattern of the data and do not have to be linear.

Models were fit for each water quality parameters at each of the three sampling stations using the R Statistical Software (version 3.5.1; R Core Team, 2018) to assess for changes over time. The mgcv package (Wood, 2011) was used to fit the models where the independent variable is a function of smooth functions of predictor variables.

In the Willamette River, the distribution of analyte concentrations is consistently skewed—there are typically more low concentration samples than high concentration samples—as such, all of the models were fit using the log of the analyte concentration, with the except of Secchi depth. All of the models include a temporal trend term (included as a decimal date) to assess whether concentrations are changing over time. A seasonal term is included in each model to reflect the time of year (represented as decimal value to reflect the day of the year). The mean daily discharge recorded at the USGS Morrison Bridge stream gauge and the concentration of TSS are included in the models using a tensor interaction term.

Smoothing splines are incorporated into the model for both the temporal and seasonal variables to reflect the underlying pattern of the data. With the temporal trend term, there is a lack of independence between the observations. To address this, a time covariate was added to the temporal smoothing function to account for the lack of independence in observations over the time series. The smoothing function for the seasonal term was set so that the function would connect at the end points (January 1 and December 31). Mean daily discharge and TSS concentrations are combined in the models using as tensor product smooths to capture the interaction between these two related variables. The models were constructed as follows:

$$\log(\text{analyte}) \sim s(\text{temporal}) + s(\text{seasonal}) + te(\text{discharge, TSS})$$

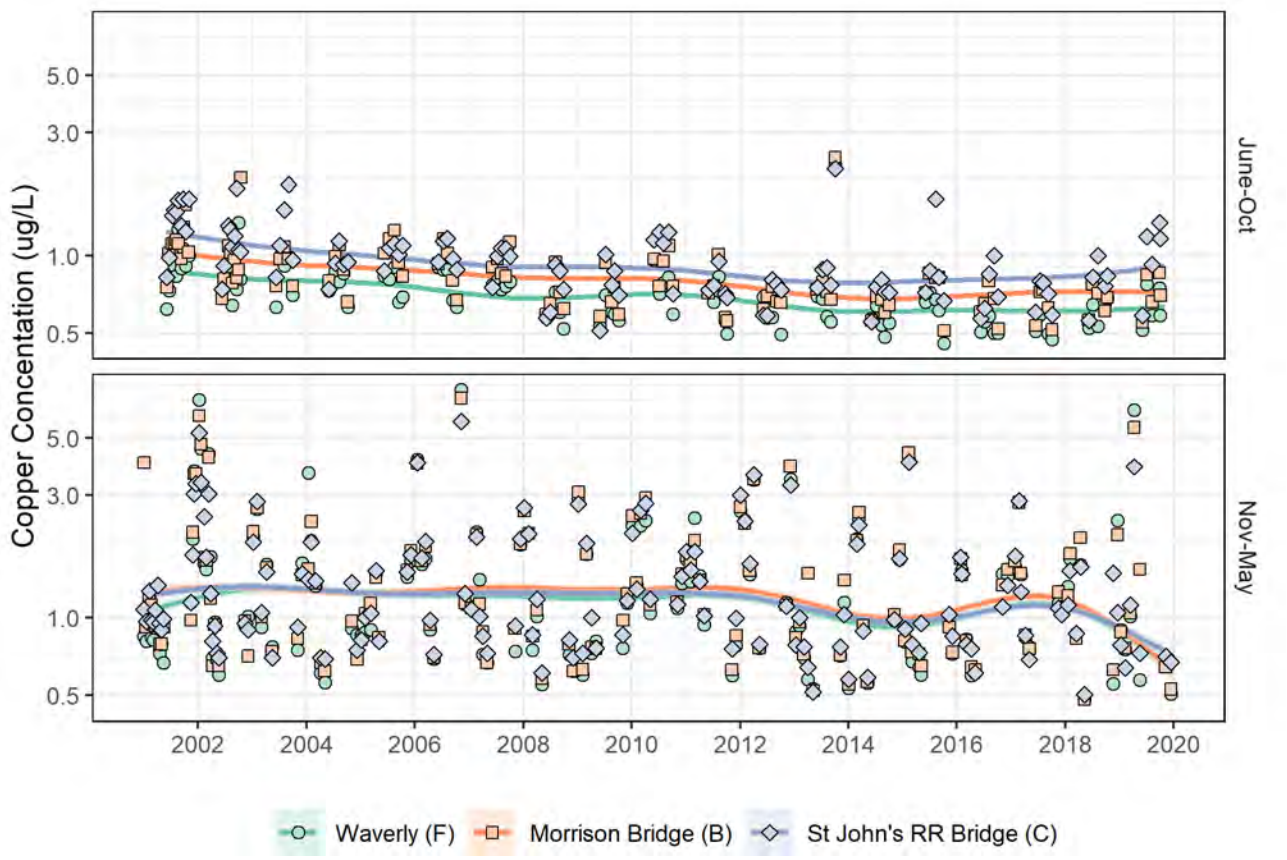
Where $s()$ represents a smoothing spline function for each variable and $te()$ represent a smoothing tensor product function of the two variables.

Separate models were developed for each analyte at each sampling station, however, only the models with an observed temporal trend are presented in the following sections. Where possible, the historic flow data have been combined with the water quality model to estimate annual pollutant loads over the period of record.

4.4.2 Copper Trends

Since 2000, total copper concentrations at all three sites have decreased over time (Figure 89). The decreasing trend in copper concentrations is not seen across all river conditions, rather it is more pronounced during periods of low flow (June-October; Figure 89). As noted above, TSS was used in the model to predict copper concentrations; however, there was no evidence of a decrease in TSS concentrations during this same period that would explain the trend in copper concentrations.

Figure 89. Temporal trends in copper concentrations over the period of record split into low-flow (June-October; first panel) and high-flow (November-May; second panel) periods. The points represent the observed copper concentrations.



While the changes in copper concentrations reflect improvements in water quality, the improvements are primarily limited to improved ambient conditions during the summer and early fall. Reduced copper concentrations during low flow periods does not necessarily translate into a substantial reduction in the annual copper loads (Figure 90). The majority of the annual Willamette copper load is transported during periods of high flow. Consequently, since copper concentrations have changed little during periods of higher flows, the decreases observed in summer and fall concentrations do not result in large decreases in annual copper loads. While the concentration changes do not result in a substantial load reduction, the reduction in low flow copper concentrations does improve conditions for the organisms in the river at those times.

Figure 90. Estimated annual copper load at the three Willamette River stations. The shaded area represents the 95% confidence interval.

4.4.3 Lead Trends

Lead concentrations at all three sites have decreased over time (Figure 91). The decreasing trend in lead is most evident during periods of low river flows (June-October), with some evidence of decreasing concentrations during high flow. While lead concentrations are driven in part by TSS concentrations, the reduction in lead concentrations cannot be fully explained by changes in TSS, nor is there a corresponding trend in TSS concentrations during this same period. As such, the decrease in lead concentrations cannot simply be attributed to a reduction of particulates in the water column, but rather a reduction in lead inputs from the watershed.

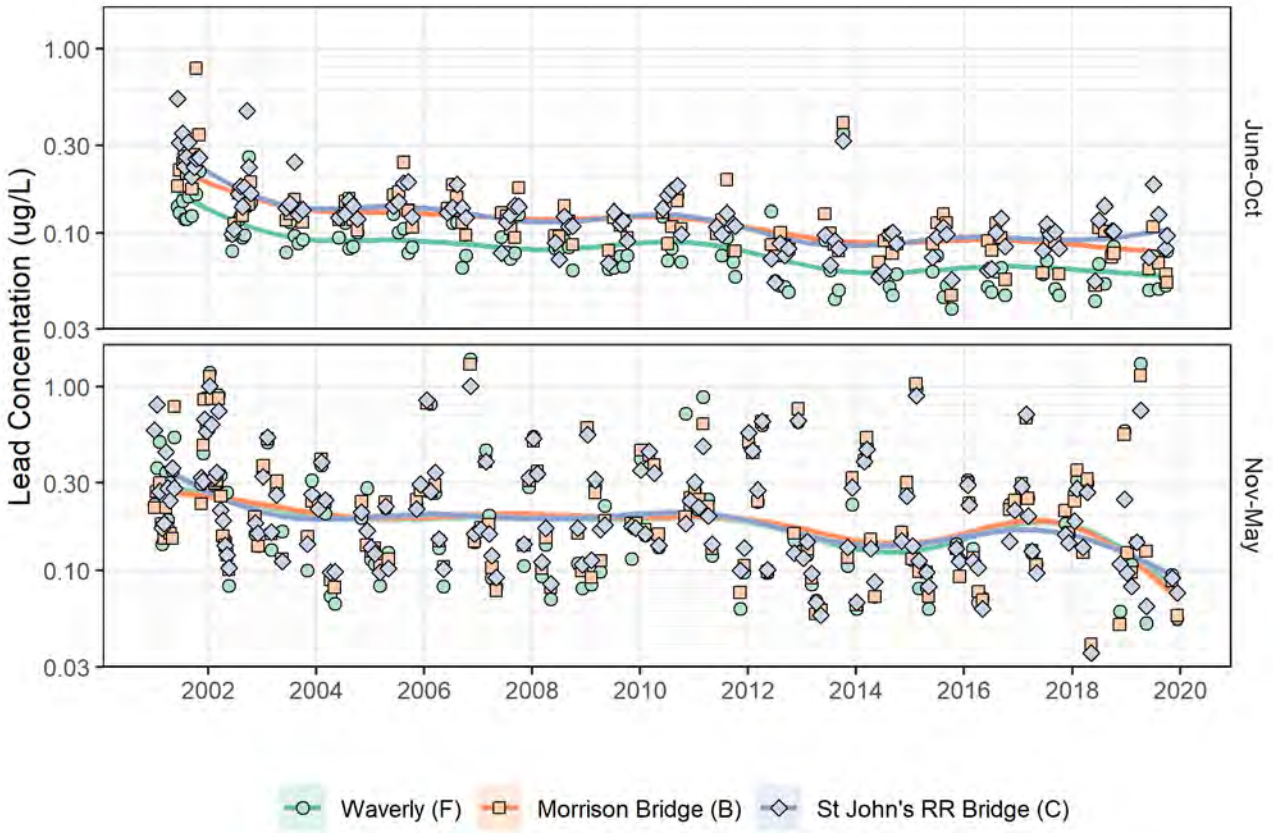


Figure 91. Temporal trend in lead concentrations over the period of record split into low-flow (June-October; first panel) and high-flow (November-May; second panel) periods. The points represent the observed lead concentrations.

The changes in lead concentrations are reflective of improvements in water quality. These improvements are mostly seen during period of low flow, but there is evidence that lead concentrations have decreased somewhat during high flow periods as well. The reduction in lead concentrations has resulted in small reductions in annual Willamette lead loads (Figure 92). Since less of the improvement has been observed during periods of high flow when the majority of the lead load is transported, the reduction in concentrations has not resulted in a substantially large reduction in annual lead loads. As with copper, the reduction in low flow lead concentrations does improve conditions for the organisms in the river at those times.

Figure 92. Estimated annual lead load at the three Willamette River stations. The shaded area represents the 95% confidence interval.

4.4.4 Zinc Trends

As noted above, there is evidence of a temporal trend in zinc concentrations at all three stations, with zinc decreasing over the 20-year period. Zinc concentrations have decreased consistently over the entire period; however, the greatest change can be seen during periods of low river flows (June-October). As with other metals, zinc concentrations are driven in part by the concentration of TSS in the water column, but no corresponding change in TSS was observed over the same time period to explain the change in zinc.

Figure 93. Temporal trend in zinc concentrations over the period of record split into low-flow (June-October; first panel) and high-flow (November-May; second panel) periods. The points represent the observed zinc concentrations.

The changes in zinc concentrations over time reflect improvements in water quality and a corresponding reduction in annual loading (Figure 94). Over the 20-year period, a greater frequency of lower zinc concentrations during both low and high flow periods has been observed. While lower concentrations during periods of low flow do contribute to lower annual loads, it is the reduced zinc concentrations during the periods of high flow that have had a greater impact on reducing annual zinc loads. As with copper and lead, lower water column concentrations are beneficial to aquatic organisms.

Figure 94. Estimated annual zinc load at the three Willamette River stations. The shaded area represents the 95% confidence interval.

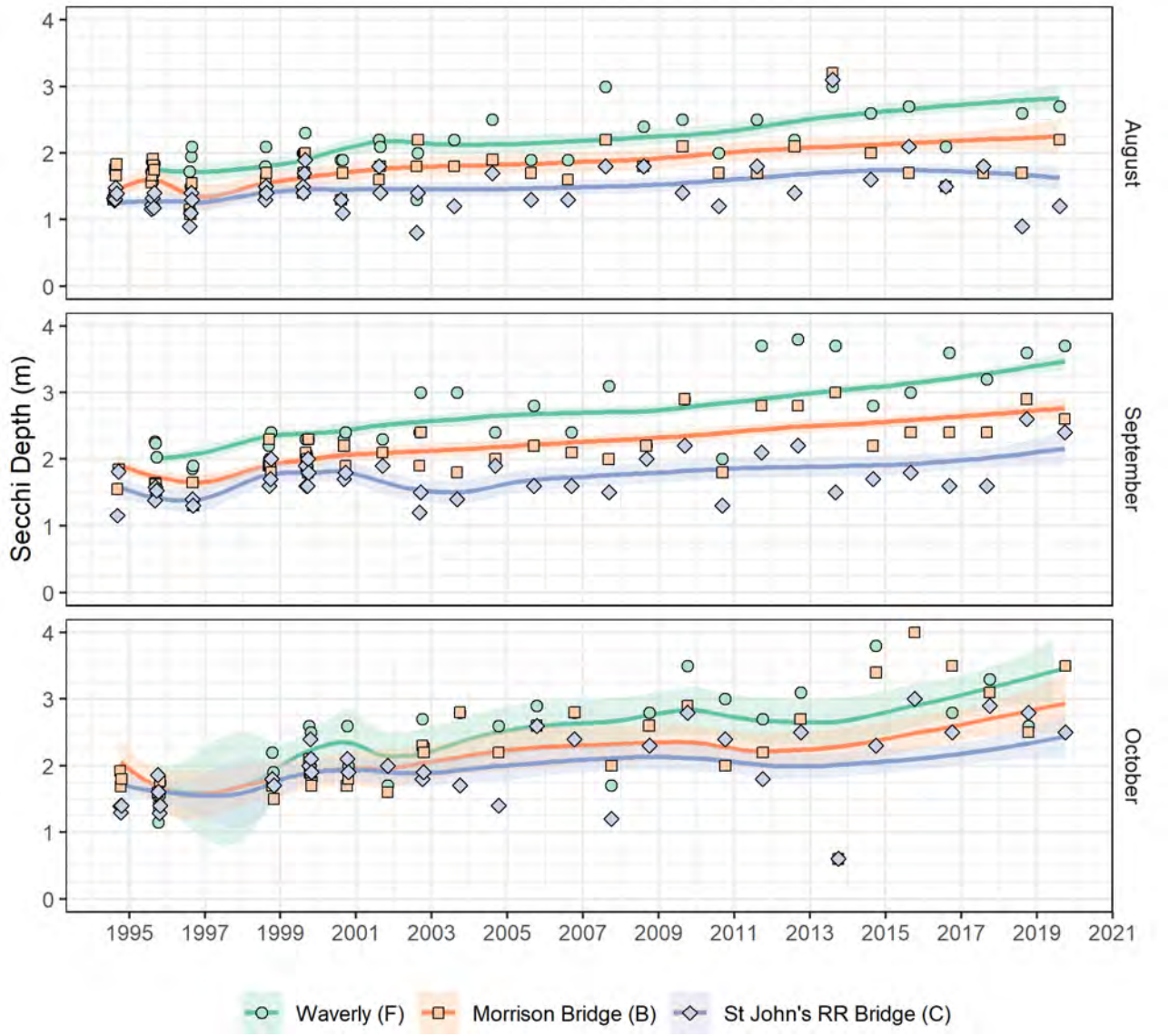
4.4.5 Secchi Depth Trends

Since the mid-1990s, summer water clarity has improved at all three Willamette River sites (Figure 95). While improvements in water clarity have been observed at all three of the sites, these improvements have been most pronounced at the upstream site (Waverly; F) and become less pronounced as you progress downstream.

Across all three sites, water clarity in October show the largest change, with Secchi depths increasing by approximately 1-2 meters and only small difference seen between the three sites (Figure 95). In contrast, there was a greater difference in water clarity between the three sites during August and September. In September, Secchi depths at Waverly (F) increased from 2 meters in 1996 to 3.5 meters in 2019, while at the most downstream site (St John's RR Bridge; C) September Secchi depths increased by less than one meter (from 1.5 m to 2.25 m; Figure 95).

While the improvements in water clarity were substantial, these improvements were not observed outside of the summer and early fall. Low water clarity was consistently observed during periods of higher flows, with no detectible trend over the 25-year period of record.

Figure 95. Temporal trends in Secchi depth during the summer and fall months. The shaded area represents the 95% confidence interval around the predicted Secchi depth trend. The points represent the observed Secchi depths.



4.4.6 Other Parameters

It is important to note that while the trends presented in the sections above are limited to three metals and measures of water clarity, other parameter trends were evaluated as part of this assessment. For many of the other metals (including arsenic, cadmium, chromium, iron, nickel, and selenium), an insufficient number of samples have been collected to assess for temporal trends. In the case of nutrients and the conventional parameters, the sample sizes were large enough to assess for possible trends, but no temporal trends were detected.

4.5 Willamette River Impairment Status

Section 305(b) of the Clean Water Act requires states to assess the state's waterbodies every two years to determine whether they are meeting water quality standards. Section 303(d) requires that a list of assessed waterbodies that do not meet water quality standards is submitted to Congress. This list is often referred to as the 303(d) List. Oregon DEQ compiles the water quality assessments and list of impaired waterbodies in Oregon in their Integrated Report .

In September 2019, Oregon DEQ released its draft 2018/2020 Integrated Report. This report includes a statewide of assessment of water quality data collected between January 1, 2008 through December 31, 2017. The assessment combines ambient water quality data from across multiple agencies to evaluate attainment of water quality standards. To assist DEQ with their assessment, BES submitted all of the Willamette River ambient water quality data.

Oregon DEQ's most recent assessment of the Willamette River in Portland found that the waterbody is not meeting all of the applicable water quality standards (Table 24). Many of these water quality impairments were noted in this report. Herbicides, pesticides, and toxic organic compounds are not sampled as part of BES' ambient monitoring program, but DEQ found that they exceed the state water quality standards in the Willamette River.

Table 24. Summary of the parameters from the draft 2018/2020 Integrated Report with Category 4 or 5 listings on the Willamette River (assessment unit #OR_SR_1709001202_88_104175).

Parameter Category	Parameter	Assessed in 2018	Category
General Chemistry & Biological Conditions	Aquatic weeds	Yes	Category 5
	BioCriteria	No	Category 5
	Chlorophyll-*a*	Yes	Category 5
	Cyanide	No	Category 5
	Dissolved oxygen	Yes	Category 5
	E. coli	Yes	Category 4A
	Temperature	Yes	Category 5*
Metals	Iron	Yes	Category 5
Herbicides & Pesticides	Aldrin (human health)	Yes	Category 5
	Chlordane (human health)	Yes	Category 5
	DDD 4,4' (human health	Yes	Category 5
	DDT 4,4' (human health)	Yes	Category 5
	Dieldrin (human health)	Yes	Category 4A
	Dioxin (human health)	No	Category 4A
Toxic Organic Compounds	Ethylbenzene (human health)	Yes	Category 5
	Hexachlorobenzene	Yes	Category 5
	Pentachlorophenol (human health)	Yes	Category 4B
	Polychlorinated Biphenyls (PCBs)	Yes	Category 5
	PAHs	No	Category 5

* Oregon's temperature TMDLs were legally challenged and vacated by the court

Water bodies listed as 'Category 4' are those where the assessed data indicate that at least one designated use is not supported, but a TMDL is not needed to address the pollutant. In the case of 'Category 4A' waterbodies, this is because a TMDL has already been developed. For 'Category 4B' waterbodies, other pollution control requirements are expected to address the pollutant of concern which will result in attainment of water quality standards. Waterbodies listed as 'Category 5' are those where the available data indicate a designated use is not supported or a water quality standard is not attained and that a TMDL is needed.

4.6 Water Quality Summary

BES' ambient Willamette River monitoring program provides a unique opportunity to comprehensively assess water quality conditions in Portland and whether river conditions have changed over time. Samples collected over the past 25 years highlight that river conditions vary substantially over the course of a year. Many of these changes are driven by the variability of river discharge over each year, with often the highest analyte concentrations observed under high flow conditions.

An evaluation of potential temporal trends found that the concentration of most water quality parameters has not changed over time. The temporal trends that were identified in this report all reflect improvements in water quality—decreases in metals (copper, lead, and zinc) and an increase in summer water clarity. The decrease in the concentration of metals is most pronounced in the concentrations seen under low flow river conditions. Since the majority of metal loads are transported under high flows in the Willamette, these reduced concentrations do not translate into large reductions in annual metal loading; however, they do represent an improvement in ambient river conditions that are beneficial to aquatic organisms.

Elevated water temperatures during the summer represents one of the largest exceedances of water quality standards in the Willamette. With climate change, we can expect to see increasing air temperatures and decreasing stream flows. These changes will continue to exacerbate the temperature issues in the lower Willamette River. Proactive measures to restore and protect coldwater inputs will be essential to buffer against future negative impacts of climate change and address the elevated water temperatures.

4.7 Portland Harbor Water Quality and Sediment Contamination

4.7.1 Portland Harbor Investigations

In 2014, GSI summarized the available information on known upland and in-river sediment and water quality contamination issues for the North Reach (GSI 2014). Information sources were used to identify preliminary asset areas and watershed health problems within the context of the Portland Watershed Management Plan (PWMP; City of Portland 2005) objectives. Asset areas are those geographic locations that provide important or unique watershed health characteristics. Problems are issues that need to be resolved to a measured extent in order to achieve PWMP watershed health objectives. Watershed health problems, as summarized in this report, principally affect attainment of the Pollutants objective[24] in the PWMP. Since the completion of this summary report, several key documents have been updated and are discussed below, with some background information provided.

The Lower Willamette River draft Remedial Investigation Report and draft Feasibility Study (RI/FS) findings identified watershed health problems, specifically:

- Preliminary areas of sediment contamination that pose unacceptable risk to human health and the environment
- Key sources of these pollutants (from land uses in the upland area and from within the river)
- Pathways, or mechanisms, by which pollutant sources were mobilized and deposited in the sediment (such as overwater activities or eroding soil)

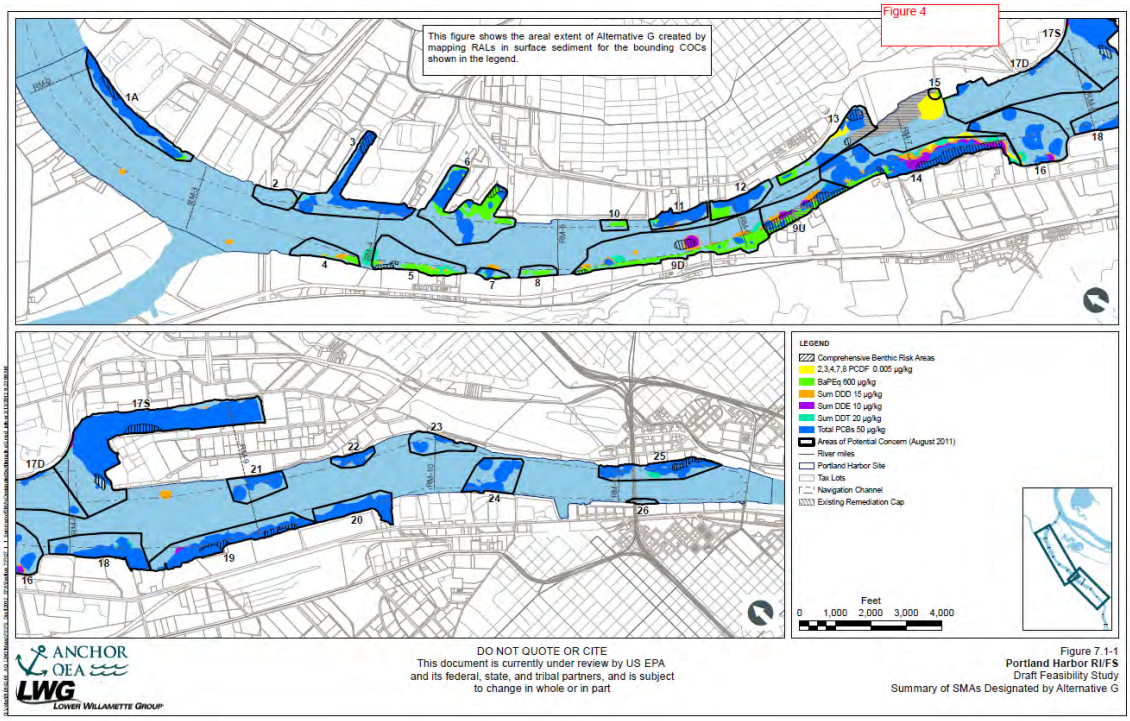
The draft RI reports over one million sample results for multiple media for the time period between 1969 and 2008 (summarized in RI Report Table 2.1-1, not incorporated into this document). Indicator Chemicals (IC) were identified from the initial extensive list of Contaminants of Interest (COIs) to represent the nature and extent of the range of contaminants that potentially pose risk to human health and the environment in sediment, surface water, transition zone water/porewater, and biota. The ICs are: total PCBs, dioxins/furans (noted as PCDD/F), total DDx (i.e., the sum of DDT, DDD and DDE), and total PAHs. The Baseline Ecological Risk Assessment [BERA; Appendix G (not included in this review)] and Human Health Risk Assessment [HHRA; Appendix F (not included in this review)] were used in the FS to identify contaminants, receptors, and areas of concern to assess the protectiveness of the potential remedial alternatives.

The risk assessments found that potential risks from PAHs and DDx are largely to benthic invertebrates and other sediment-associated receptors. Potential risks from PCBs and dioxin/furan are to receptors higher in the food chain who consume fish (birds, mammals and humans). The remaining contaminants potentially posing unacceptable risks account for less than 2 percent of the cumulative cancer risk on a Study Area-wide basis. The contribution of contaminants to the cumulative cancer risks varies on a localized basis (Integral 2011, page 87). Other contaminants pose potential risk to specific areas, media, or receptors.

[24] The intent of this objective is to "manage the sources and transport of stormwater and industrial pollutants and nutrients to limit surface water, groundwater, soil, and sediment contamination to levels that protect ecological and human health and achieve applicable water quality standards".

The draft FS report uses the data to develop Area of Potential Concern (AOPC) and Sediment Management Area (SMA) to describe the spatial extents where primary potentially unacceptable risks exist from exposure to all media sampled (i.e., sediment, transition zone water, etc.). These areas are the focus for developing the remedial alternatives, though some risk may be outside of these areas.[25] Twenty eight (28) AOPCs were identified [Figure 96: AOPCs and SMAs designated by Remedial Alternative F (FS Figure 7.1-1)]. SMAs are a refinement of the AOPCs, developed by looking at benthic risk areas, surface and subsurface sediment concentrations, and short term RALs for sediment cleanup. SMA boundaries and cleanup levels will be refined further in the remedial design stage (after the Record of Decision).

Figure 96: Portland Harbor Superfund site AOPCs as identified in the draft Feasibility Study



The FS also develops remedial alternatives by modeling the physical system and chemical data to project future contaminant levels in water, sediment and fish, and then these future contaminant levels are evaluated for risk reduction. As a result, the FS set forth twelve remedial alternatives, generally identified as Alternative A through Alternative G, as protective of human health and the environment over the long term. Alternatives B through F each have one variation that is "removal focused" (r) and one that integrates (i) different technologies (DAR Figure 4). The alternatives were evaluated for a number of "remedy selection criteria", including but not limited to protectiveness, effectiveness, implementability, and cost.

Since submittal of the draft RI/FS to U.S. Environmental Protection Agency (EPA), (and the preparation of the 2014 GSI summary), EPA has revised the FS and issued its draft proposed plan for remediation on June 8, 2016. EPA selected Alternative I as its preferred alternative, which will

[25] Areas outside of the SMAs are included in the "Site-wide AOPC". The Site-Wide AOPC represents lower levels of contaminant concentrations that will not be the focus of active remedies.

involve dredging and capping approximately 290 acres of sediments (purple areas in Figure 97) and approximately 19,500 lineal feet of river bank (blue areas in Figure 97). Over time, "natural recovery" is assumed to reduce remaining concentrations to acceptable levels.

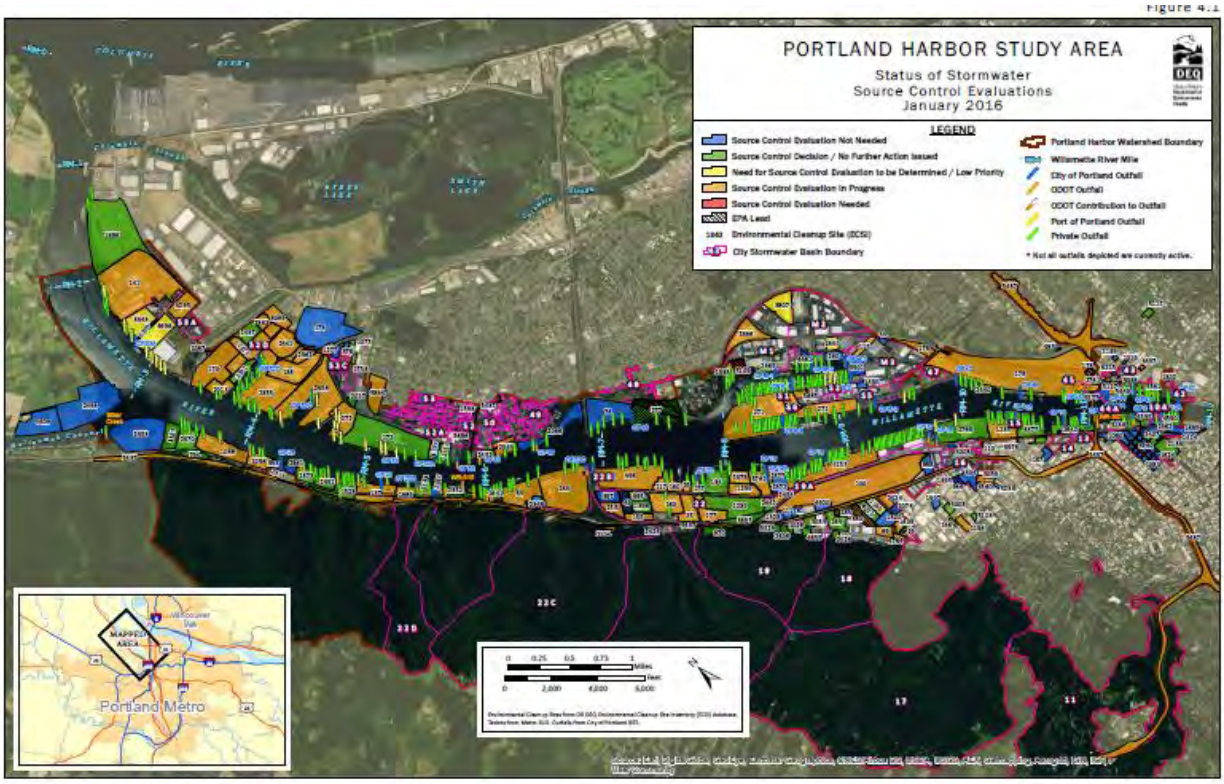
Figure 97. Sediment management areas in Alternative I from the EPA Feasibility Study.

After a 60-day public review of the plan, EPA will issue the ROD identifying the final cleanup goals and the sediment management areas (SMAs) within the river. After the ROD, additional sampling will be conducted to design the remedy (i.e., a specific cleanup method, or combination of methods such as dredging and capping) for each SMA. Only after approval of the remedial design, will implementation of the cleanup begin.

Also, since preparation of the GSI 2014 summary, Oregon DEQ has released an updated *Portland Harbor Upland Source Control Summary Report* (March 25, 2016). This report provides the most recent DEQ work to identify and assess potential upland sources of contamination to Portland Harbor. This report concludes that DEQ has completed its determinations of the need for source control measures at all upland sites within the study area; and is on track to implement needed measures prior to implementation of the final in-water remedy, in order to prevent likely future adverse effects on water or sediment quality (i.e., recontamination). DEQ indicates "As of the date of this report, final actions, demonstration of effectiveness and decisions for 60% of upland sites have been completed. Controls are in place for all pathways and effectiveness demonstration is underway for 26 of the remaining 57 sites[26], with source control decisions anticipated by 2016 and 2017, which will confirm control of 75% of the sites evaluated. Plans are in place or under development to complete implementation of controls at the remaining 23% of sites evaluated by DEQ prior to or in conjunction with the in-water remedy. The three upland sites with uncontrolled

[26] More detail about each of these sites is provided in Table 5.1 of the DEQ document.

pathways that EPA is leading make up the final 2% of sites and also need completed investigation and implementation of any needed controls." Furthermore, "when viewed on a Harbor-wide basis, these conclusions strongly support a low potential for recontamination of remediated sediment and represent acceptable risk to Willamette River receptors, provided that all planned source control measures and bank remediation to be integrated with the in-water remedy are completed and demonstrated to be effective."



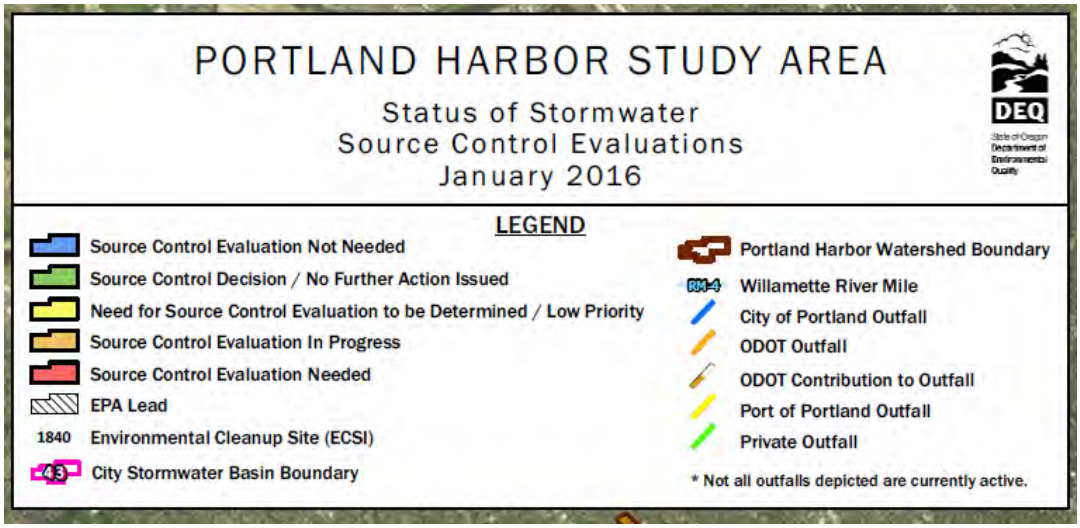
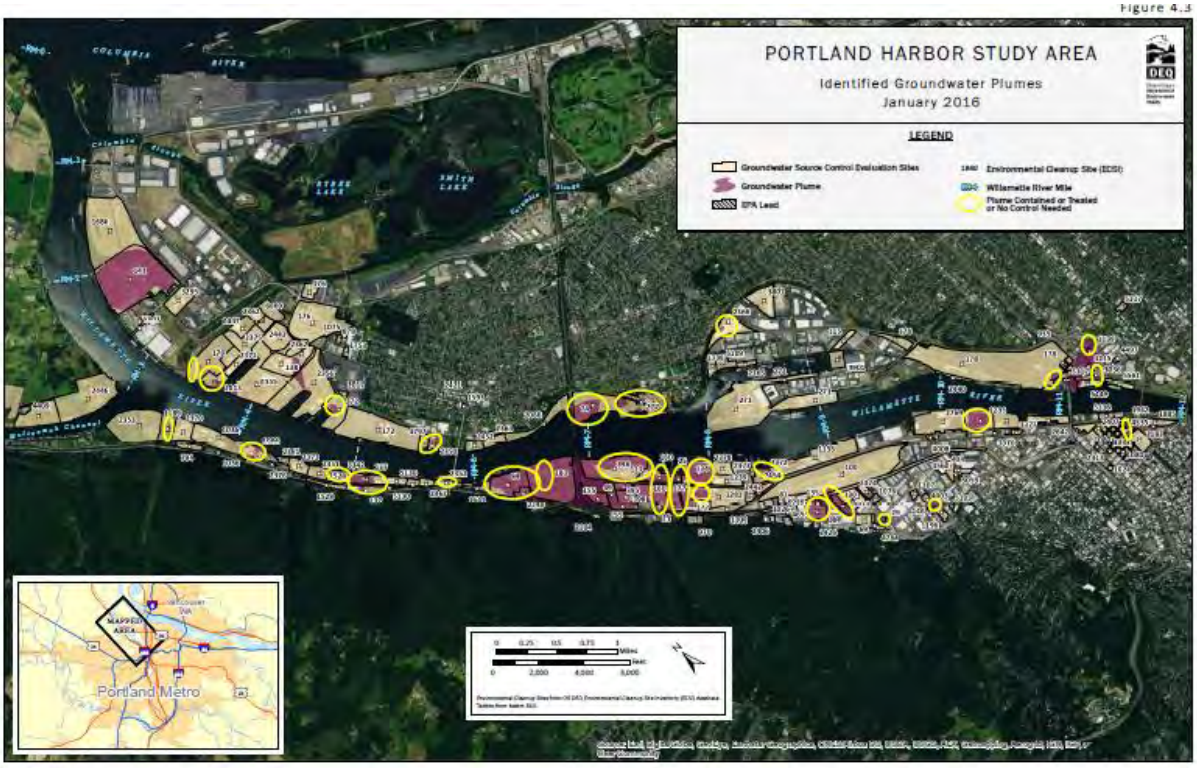
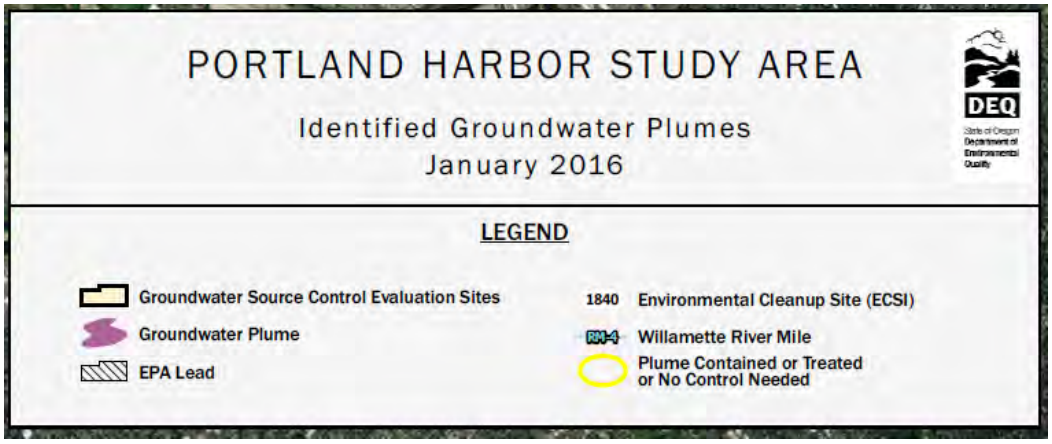


Figure 4.5





4.7.2 Downtown Reach Study

GSI 2014: "DEQ compared the Downtown Reach data to the Portland Harbor Superfund Project Area data, and found that, with the exception of mercury and lead, “surface sediment data shows that concentrations of contaminants of concern are significantly lower than those found in the Portland Harbor”. As a result, DEQ concluded that the Downtown Reach is unlikely to be a significant, ongoing source of contamination to the Superfund Project Area." (pg. 1-12).

5 Biological Communities

Several studies have focused on fish or wildlife communities specific to the lower Willamette River (i.e., north, central, and south reaches). Fish communities have been documented through the Willamette River Fish Study (ODFW 2001; 2002), and through a series of Lower Willamette River studies over the years (e.g., EPA 2016). Aquatic communities and their habitats from the lower river through Portland are described reach-by reach in the *Willamette River Inventory* (Bureau of Planning, 2000). This document also provides a detailed description of wildlife communities along the Lower Willamette River.

5.1 Fish Communities

Altman et al. (1997)[27] report that ODFW (1988) identified 54 species as being present within the Willamette Basin, and identified 7 additional species from other sources (see Table 3, pp. 22-23 in Altman et al. 1997). Forty-eight percent of these were introduced species. Within the Lower Willamette, Farr and Ward (1993) found a total of 39 fish species from 17 families, with 19 of the species from seven families being exotic species introduced. Ward and Nigro (1991) and Farr and Ward (1993) characterized fish communities from the Lower Willamette River through Portland. They found that the native northern pikeminnow was the most abundant species, followed by a number of non-native species including black crappie, white crappie, largemouth bass, smallmouth bass, and walleye.

The listings of many native populations under the Endangered Species Act (ESA), and the large numbers of exotic species present, are indicators of the poor health of fish populations in the Lower Willamette River. In March 1998 and March 1999, NOAA Fisheries issued final rules to list four evolutionarily significant units (ESUs) of steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*O. tshawytscha*) as threatened under the federal ESA (Table 25).

This represented one of the first listings of an aquatic species in an urban area under the ESA, and because the Willamette River flows through the heart of the downtown and industrial cores, the first application of the ESA in a densely developed and industrialized landscape. Since then, nine additional ESUs that spawn, rear or migrate through Portland streams and rivers, for a total of 13 Columbia River salmon stocks (ESUs), have been listed that use the Lower Willamette River (Table 25). In addition, aquatic species such as lamprey, sturgeon and eulachon; and terrestrial species including the streak-horned lark and the yellow-billed cuckoo, have been listed as federal species of concern or threatened species.

[27]Although not discussed at length in this document, Altman et al. provide an extensive description of aquatic communities throughout the Willamette Basin. This is an important background document for understanding regional scale patterns in Willamette River biological communities and the factors that affect them. It is, a comprehensive analysis of existing studies summarizing specific information on algae, macroinvertebrates, fish, amphibians, reptiles and mammals in the basin.

Table 25: ESA-listed fish species found in Portland streams and rivers.

Portland, Oregon: ESA-Listed Species

ESU/DPS	Race	Species		Listing	Year Listed
Upper Willamette	Spring	Chinook Salmon	*Oncorhynchus tshawytscha*	FT	1999
Upper Willamette	Winter	Steelhead Trout	*Oncorhynchus mykiss*	FT	1999
Upper Columbia	Spring	Chinook Salmon	*Oncorhynchus tshawytscha*	**FE**	1999
Lower Columbia	Sp,Fa	Chinook Salmon	*Oncorhynchus tshawytscha*	FT	1999
Upper Columbia		Steelhead Trout	*Oncorhynchus mykiss*	FT	1997
Middle Columbia		Steelhead Trout	*Oncorhynchus mykiss*	FT	1999
Lower Columbia	Su,Win	Steelhead Trout	*Oncorhynchus mykiss*	FT	1998
Columbia River		Chum Salmon	*Oncorhynchus keta*	FT	1999
Lower Columbia		Coho Salmon	*Oncorhynchus kisutch*	FT	2005
Columbia River		Bull Trout	*Salvelinus confluentus*	FT	1998
Snake River		Sockeye Salmon	*Oncorhynchus nerka*	**FE**	1991
Snake River	Fall	Chinook Salmon	*Oncorhynchus tshawytscha*	FT	1992
Snake River	Sp-Sum	Chinook Salmon	*Oncorhynchus tshawytscha*	FT	1992
Snake River		Steelhead Trout	*Oncorhynchus mykiss*	FT	1997
Southern DPS		Pacific Eulachon	*Thaleichthys pacificus*	FT	2011
Southern DPS		Green Sturgeon	*Acipenser medirostris*	FT	2006
Northern DPS		Green Sturgeon	*Acipenser medirostris*	FSoC	2004
		White Sturgeon	*Acipenser transmontanus*	SoC	
		Pacific Lamprey	*Entosphenus tridentatus*	SoC	
		W. Brook Lamprey	*Lampetra richardsoni*	SoC	
		River Lamprey	*Lampetra ayresii*		

5.1.1 ODFW Fish Study

ODFW conducted the most extensive fish study of the Lower Willamette through Portland in 2000 - 2004. Using electrofishing, beach seines and radio telemetry, biologists documented nearshore habitat use, outmigration, timing, size structure, growth, migration rate, and residence time. Results indicated extensive use of the lower river by juveniles. Most (87%) of the juvenile salmonids captured were Chinook salmon, 13% were steelhead, and nine percent were coho salmon. Occasionally observed were mountain whitefish, sockeye salmon, and cutthroat trout.

Hatchery-produced salmon dominated the catch, composing more than half of the Chinook salmon (54%), coho salmon (66%), and steelhead (91%). Large (>100 mm fork length) hatchery Chinook salmon dominated the electrofishing catch; Small (<100 mm fork length) unclipped Chinook salmon dominated the beach seine catch.

Juvenile salmonids were present in every month sampled from May 2000 to July 2003. Outmigrating juvenile Chinook, both hatchery and unmarked, often increased in late autumn and

persisted into the next summer. Coho salmon and steelhead were generally present only during winter and spring.

Fish feed and grow as they move through the lower river. ODFW found that median fork lengths and weights of hatchery and unmarked Chinook salmon were often significantly greater at downstream sampling sites than at upstream sites, suggesting that they are feeding to sustain growth as they outmigrate.

Regarding migration rate, ODFW found small juvenile salmonids move relatively quickly through the lower river. However, of 186 juveniles, the median migration rates for steelhead (12.5 km/d) and Chinook salmon (11.3 km/d) were significantly faster than for coho salmon (4.6 km/d). Median residence times in the study area were 8.7 days for coho salmon, 3.4 days for Chinook salmon, and 2.5 days for steelhead. ODFW concluded that river flow and fish size explained much of the variation in Chinook and coho migration rates. Release day and river flow explained much of the variation in coho salmon migration rates. No significant relationships were observed for steelhead.

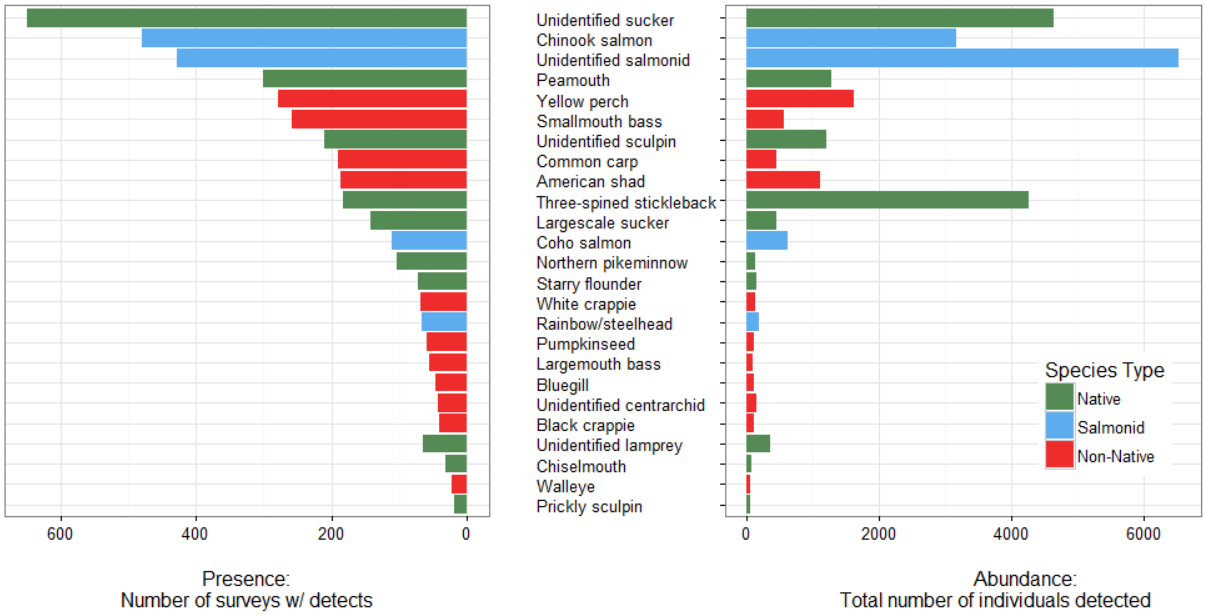
Regarding near-shore habitat use, radio-tagged juvenile Chinook salmon were not highly associated with nearshore areas; about 76% of the recoveries occurred offshore (>10% of the channel width). Steelhead were rarely (25%) associated with nearshore areas. Most fish that were recovered near shore generally did not show clear selection for (or avoidance of) particular habitats. However, coho salmon were found near shore more often (43%), appeared to prefer beaches, and avoided riprap and artificial fill.

ODFW also evaluated fish presence across generalized habitat categories (e.g., beach, riprap, rock outcrop) and into clustered groups based on similarities in physical and chemical parameters. Results for large juvenile salmonids indicated presence varied significantly among habitat types, but differences were almost always associated with low catches of fish at seawall sites (possibly due to sampling at depth only in these areas). ODFW also found no indication that yearling salmonids were associated with specific habitats or groups of habitats, with one exception. The presence of coho salmon in spring at rock outcrops was significantly higher than at other habitats, suggesting these areas have a particular value. High catches sometimes occurred more frequently in off-channel areas (alcoves, backwaters, side channels), but were not significantly different from those in the main river channel. Juvenile Chinook salmon catches were lowest at sites with low (0-10%) vegetative cover, and higher with sand substrates, shallow water, and moderate amounts of bank vegetation during winter.

Data collected to evaluate diet indicated that Chinook and coho salmon have specialized, selective feeding behaviors. Daphnia were the most important prey item for these two species, occurring in 65% of the samples and composing >80% of their diets by weight. The amphipod *Corophium* spp. and insects (both aquatic and terrestrial) were also common prey. Conversely, fish and crayfish composed nearly all (97%) of smallmouth bass diet by weight. Yellow perch, bass, and sunfish generally had more diverse diets than juvenile salmonids, and unlike salmonids, did not specialize on particular taxa. Diets of unmarked and hatchery Chinook salmon overlapped significantly, though unmarked fish exhibited a more selective feeding behavior and consumed larger amounts of prey.

For the overall species composition, ODFW found in electrofishing surveys that suckers, Chinook (and unidentified) salmonids, and peamouth were the most commonly present native species; yellow perch and smallmouth bass were the most commonly present non-native species (Figure 14). Native three-spine stickleback were not encountered in as many surveys as other species, but were present in large numbers at the sites where they occurred, and had more total number of individuals captured than all other species except unidentified suckers and salmonids.

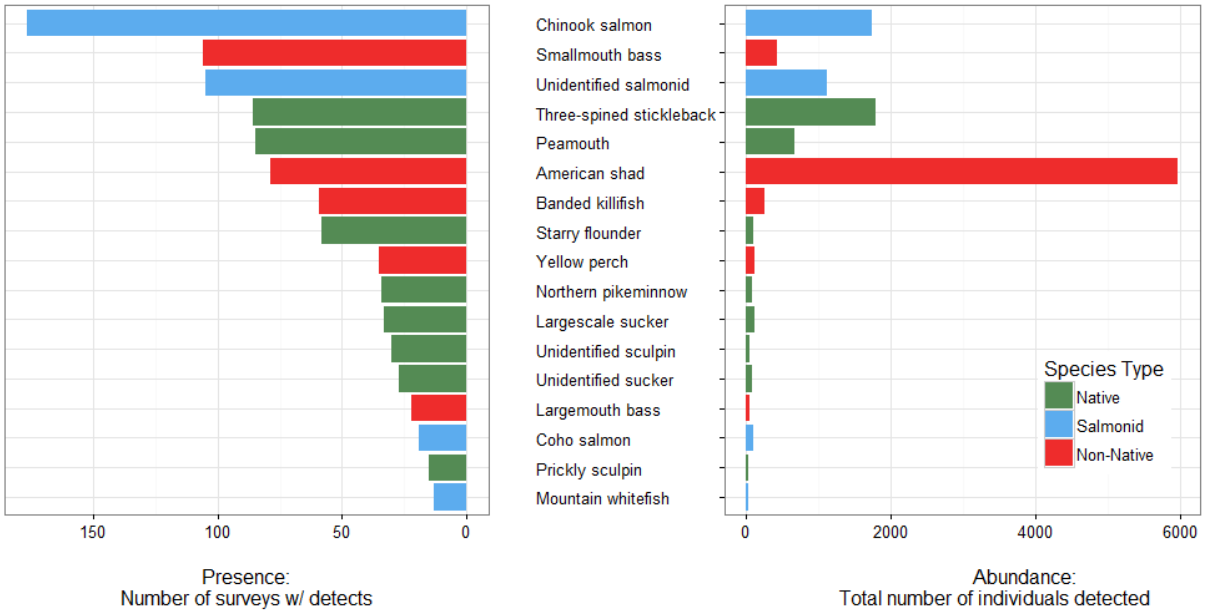
Figure 98: Species composition from the ODFW Willamette Fish Study (ODFW 2005) electrofishing surveys.



ODFW also conducted beach seine surveys (Figure 15). Beach seines can only be conducted on wadeable beach shorelines, and are ineffective in sampling habitats such as riprap, seawalls or rocky or deep shorelines. They therefore cannot be used to compare fish communities in these different habitat types, but they provide other valuable insights, such as on the value of beach habitats, and are often effective at capturing smaller fish.

In the beach seines, Chinook were by far the most commonly captured species, collected in a third more surveys than any other species. The non-native American shad was captured in fewer surveys, but was highly abundant where present (with over three times the total numbers of any other species). Smallmouth bass was the most commonly encountered non-native species, but was far less numerous than shad.

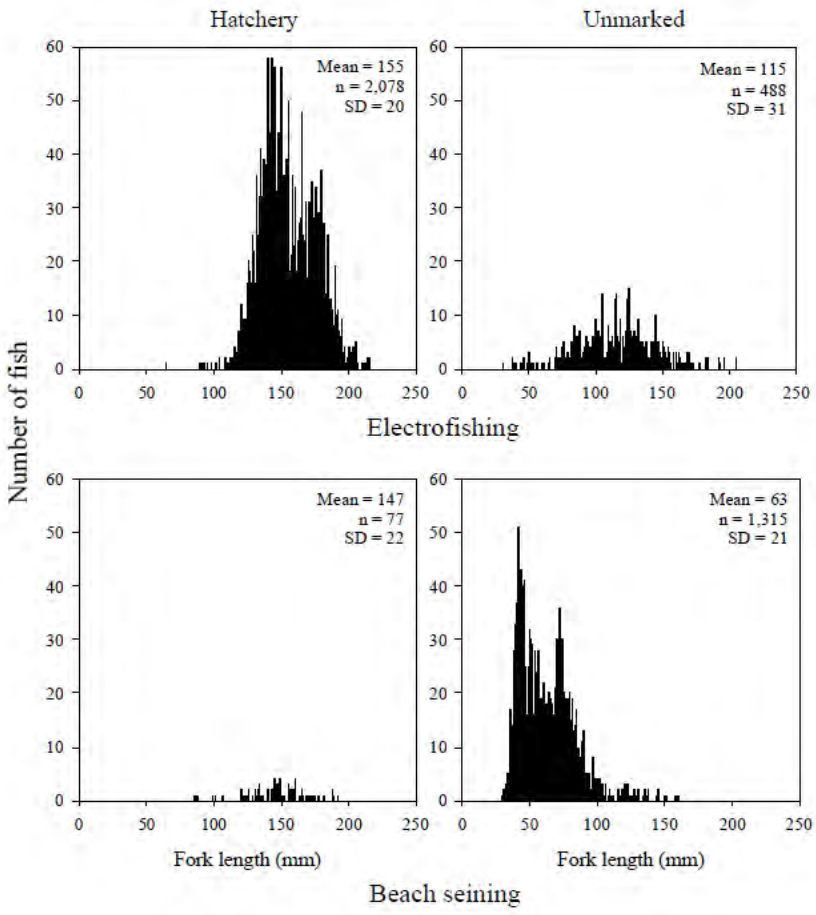
Figure 99: Species composition from the ODFW Willamette Fish Study (ODFW 2005) beach seining surveys.



ODFW found a distinct difference in the size and type of Chinook salmon captured by electrofishing and beach seining. The electrofishing typically captured larger, hatchery fish, whereas the beach seines typically captured smaller, wild fish (Figure 16)[28]. The results also show that subyearling Chinook life stages are common in the lower Willamette through Portland. Although the extent to which they are present in other habitat types is not known, they clearly make extensive use of available beach habitats.

[28] Electrofishing typically caught juvenile Chinook larger than 100 mm – suggesting that they were yearling fish, and were mostly fin-clipped - indicating they were of hatchery origin. In contrast, the beach seined Chinook were predominantly less than 100 mm and unclipped suggesting that they were wild-origin subyearlings.

Figure 100: Figure 4 from Friesen and others (2005). Fork length distributions for hatchery and unmarked juvenile Chinook salmon captured by electrofishing (top panels) and beach seining (lower panels) in the lower Willamette River, 2000-2003. SD = standard deviation.

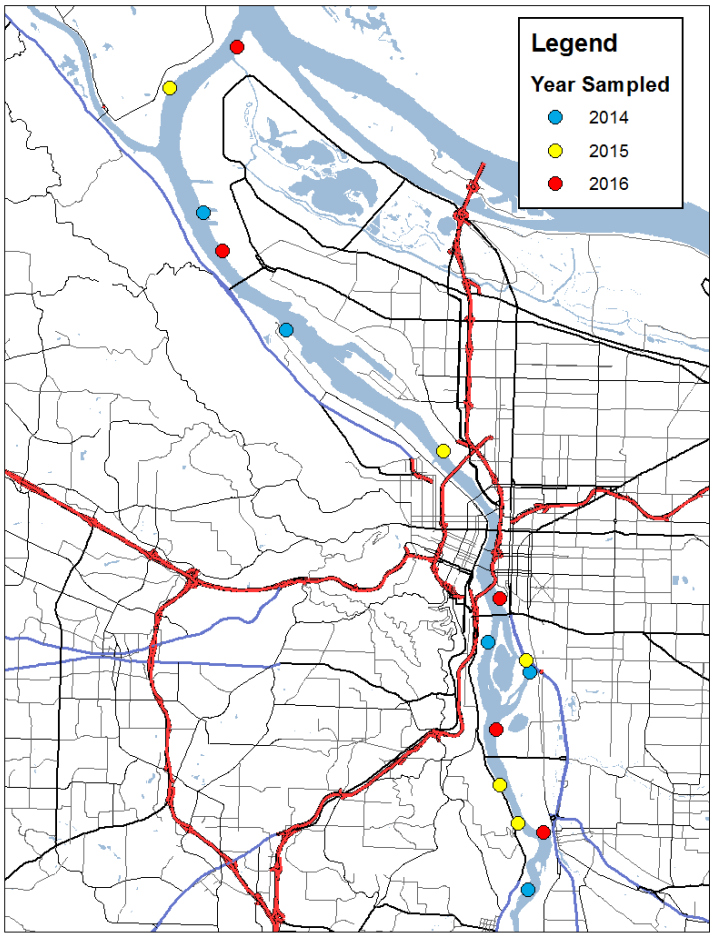


5.1.2 PAWMAP fish data

The City of Portland evaluates watershed health through the Portland Area Watershed Monitoring and Assessment Program (PAWMAP), which is based on the Environmental Protection Agency's Environmental Monitoring and Assessment Program (EMAP)[29]. PAWMAP monitoring efforts are primarily focused on the tributaries to the Willamette River since the mainstem has been thoroughly characterized by a wide range of studies, including the Portland Harbor Remedial Investigation (EPA 2016), the Willamette Fish Study (ODFW 2005), and city water quality monitoring efforts. In order to complement but not duplicate these existing efforts and data on the mainstem, PAWMAP only samples fish communities in the Willamette. The city samples five sites along the Willamette mainstem quarterly for fish species composition. Stations are rotated – with new stations each year for four years, at which point the stations are repeated.

[29] PAWMAP and its design are described here: https://www.portlandoregon.gov/bes/article/489038. EMAP's Field Protocols are described here: https://www.epa.gov/sites/production/files/2013-11/documents/nrsa_field_manual_4_21_09.pdf

Figure 101: PAWMAP Stations sampled for fish communities along the lower Willamette River.

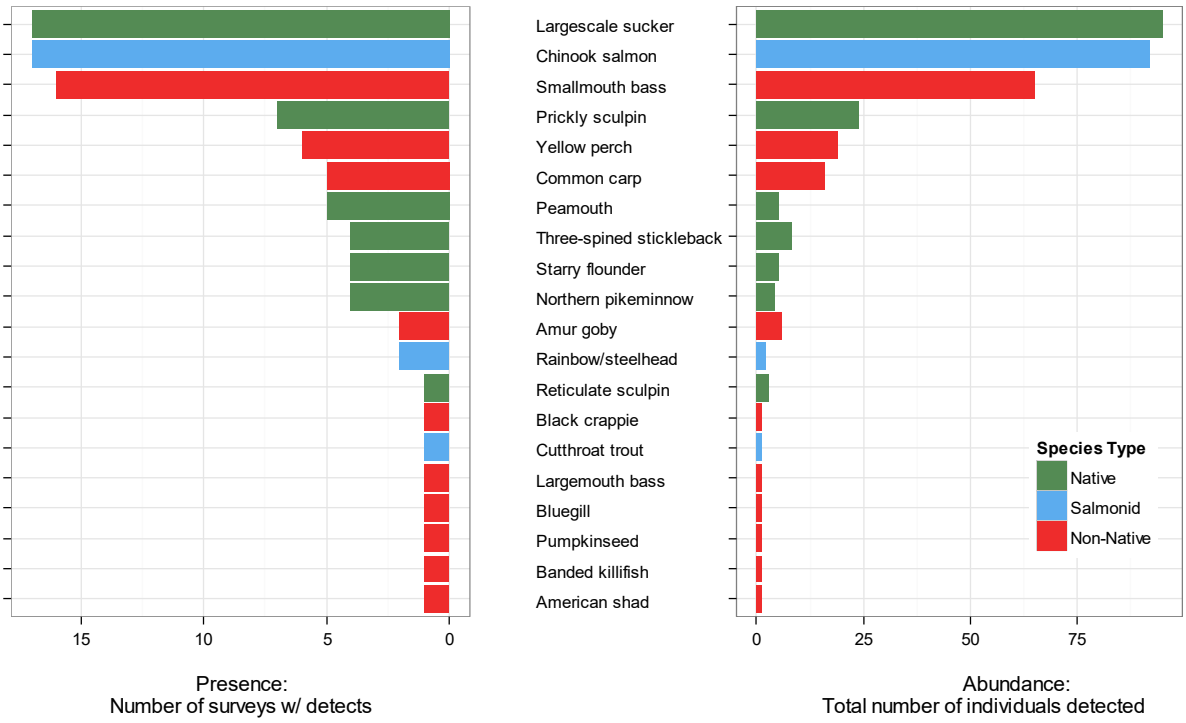


Results indicated that largescale sucker and Chinook salmon were the most commonly detected species from 2014 – 2016 (Figure 102). Prickly sculpin (a native species) was more commonly found than in the ODFW surveys. Consistent with the ODFW study, smallmouth bass, yellow perch and carp were the most commonly encountered and abundant non-native species. Overall, slightly more than half of the ten most commonly encountered species are native.

The PAWMAP fish data in the lower Willamette mainstem have a higher prevalence of non-native fish than the PAWMAP tributary surveys. In the tributaries flowing to the lower Willamette (excluding the Columbia Slough), the ten most commonly captured species were all native, and two of the five most commonly encountered species were salmonids.[30]

[30] Bureau of Environmental Services. In preparation. Portland Area Watershed Monitoring and Assessment Program (PAWMAP): Report on the First Four Years of Data (FY 2010-11 to FY 2013-14).

Figure 102: Species composition from PAWMAP surveys from 2014–16.



5.1.3 NPCC Willamette Subbasin Plan

The Northwest Power and Conservation Council (NPCC) conducts subbasin planning to support Columbia River salmon recovery efforts. Using Ecosystem Diagnosis and Treatment modeling, NPCC conducted as assessment that indicated that conditions in the Portland area of the Lower Willamette are an important bottleneck for upriver populations, and that restoration of these conditions had the potential to contribute to tributary populations such as those from the Clackamas. For all six Clackamas populations combined, the Portland area was the second-ranked restoration priority. It had a moderate overall restoration ranking and relatively high rankings for Clackamas Spring Chinook (restoration rank 2 out of 13), Fall Chinook (restoration rank 3 out of 7), and upper Clackamas steelhead (restoration rank 3 out of 8).

The assessment found that salmon and steelhead currently use the area almost entirely as a migration corridor because of the lack of habitat to support rearing. (This is consistent with other studies that found that most juvenile salmonids move through the area in less than two weeks (Friesen and others, 2002). However, under a restored condition, the lower Willamette adds considerable rearing habitat that would be used by juvenile fall Chinook as they move toward the estuary (pg. 3-441). This rearing habitat would be particularly important for Clackamas fall Chinook, as well as for Clackamas spring Chinook adult and juvenile migration.

Restoration of water quality and shallow water habitat in the Portland area would greatly increase the rearing capacity for Clackamas coho and steelhead as well. However, chemicals (pollutants), and lack of habitat diversity and quantity continue to limit production of upper river coho. (3-445).

Restoration of the lower Willamette would add considerable capacity to all Clackamas populations (3-448, 9).

Overall, the NPPC found that "Conditions in the lower Willamette River affect the performance of all six populations in the Clackamas River. This assessment showed that conditions in the lower Willamette can contribute significantly to the potential biological performance of fish in the Clackamas River. In fact, it is apparent that the Clackamas River and the lower Willamette River form a contiguous habitat unit. This expanded view of the Clackamas can form a useful focus for restoration and management of coho, Chinook, and steelhead in the Clackamas River." (3-454 – 455):

Current habitat conditions in the Portland (lower Willamette) area are highly degraded, so the area had almost no protection value for the six Clackamas populations. Limiting conditions included: chemical pollutants, loss of habitat diversity, pathogens, predation (the result of large numbers of introduced fish species), and loss of key habitat.

5.1.4 Teel et al. (2009) study

Teel et al (2009) conducted genetic analyses of 280 subyearling fish collected in winter and spring 2005–2006 from wetland and main-stem Lower Willamette River sites. One site (Ramsey Refugia) was a City of Portland restoration project that restored new off-channel habitat.

The study found that fish from throughout the Columbia Basin were using lower Willamette habitats. Genetic stock identification analysis indicated that Willamette River spring Chinook made up a substantial proportion of the samples overall but that Lower Columbia fall Chinook, Lower Columbia spring Chinook, and subyearlings from the middle and upper Columbia River summer–fall-run populations were present in river and wetland samples over the study. "The results suggest that floodplain restoration projects intended to improve fish habitats during winter and spring periods in the lower Willamette River may benefit Chinook salmon populations from the upper Willamette River, lower Columbia River, and upper Columbia River summer–fall evolutionarily significant units." (pg. 211)

5.2 Wildlife

Lewis and Clark noted the abundant wildlife in the lower Willamette area:

> "I [s]lept but verry little last night for the noise Kept [up] during the whole of the night by the Swans, Geese, white & Grey Brant Ducks &c… they were emensely noumerous, and their noise horid." (*The Journals of Lewis and Clark* p. 277).

The *Willamette River Inventory* (Adolfson 2003) provides a comprehensive assessment of wildlife across the lower Willamette. It inventories existing resources and sites and characterizes habitat types and their use by wildlife. Since then, the city's 2011 Oregon Terrestrial Ecology Enhancement Strategy (TEES) completed a more updated assessment of special status wildlife, plants, and habitats.

The bottomland forests of the river offer wintering and/or breeding habitat for waterfowl, shorebirds, and Neotropical avian migrants and are part of a large lower Columbia River lowland ecosystem. Wetlands associated with bottomland forest (cottonwood riparian forest) are preserved

on Sauvie Island and in the Smith and Bybee Lakes area. Kelley Point Park and Smith and Bybee Lakes provide critical breeding and nesting habitat for declining populations of neotropical birds. Fish and amphibians are also strongly associated with aquatic, wetland, and riparian habitats. At least seven native amphibian species inhabit Forest Park, including five salamanders and two frog species. Bald eagle, blue heron, osprey, and other raptor species depend on the upland forest, bottomland riparian forest, and emergent wetlands. The Harborton wetland area presents viable habitat for amphibians, reptiles, birds, and mammals, and off-channel fish habitat during high water conditions. Miller Creek provides a partial passageway between these wetlands and the upland forest for salmonids, amphibians, reptiles, and small mammals.

The travel corridors along Columbia Slough are important for dispersion of mammalian species such as deer, coyote, fox, and beaver, as well as reptilian (e.g., turtles, snakes) species. Bobcat, coyote, deer, and occasional bear are known to make use of the proximity of shelter in the upland forests and forage along the river. Between the Linnton area and the St. Johns Bridge, the dominant large scale habitat context is the looming presence of the Tualatin Mountains (Forest Park section) immediately adjacent to the river. The linkage for terrestrial species is largely blocked by Hwy 30, a four- to five-lane roadway. There are few broadscale terrestrial habitat linkages on the eastern river shore in this reach.

In-water habitat is used by salmonids primarily for passage (upstream and downstream) and rearing, although the Columbia Slough channel and other embayments provides refuge areas. In the Linnton area, the Multnomah Channel provides an important linkage and resting area for salmonid species. Miller Creek, the Tualatin Mountains, Harborton wetlands, Burlington Bottoms, and Sauvie Island are part of a diverse habitat complex linked to the Channel. The open water habitat also provides feeding areas for birds such as ducks, cormorants, gulls, herons; and mammals such as river otter and mink. Kelley Point Park and the Harborton wetlands increase the importance of the reach as a corridor for terrestrial species migrating from wildlife refuges in Southern Washington and Sauvie Island. Insectivores such as swallows and bats also forage over the water.

At the north end of the lower river, water birds include double-crested cormorant, great blue heron, herring gull, mallard, hooded and common mergansers, and gadwall. Raptors detected include northern harrier, merlin, red-tailed hawk, osprey, bald eagle, and peregrine falcon. A wide variety of song birds use the reach, including black-capped chickadee, bushtit, Bewick's and winter wrens, American robin, starling, Hutton’s vireo, song sparrow, dark-eyed junco, purple finch, golden-crowned kinglet, and various other sparrows (i.e., house, white-crowned, golden-crowned, and fox sparrows). Other birds identified are downy woodpecker, northern flicker, mourning dove and rock dove (domestic pigeon), western scrub-jay, and American crow. Painted turtle, northwestern garter snake, common garter snake, long toed salamander, western red-backed salamander, red-legged frogs, Pacific chorus (tree) frog, and bull frog are present. Mammal species noted include mink, deer, beaver, river otter, and raccoon (Adolfson 2003).

The Tualatin Mountains form a topographic constraint that defines the western limit of the lower Willamette floodplain. The Tualatin Mountains are a different level III ecoregion from the rest of the lower river (Figure 1). The *Forest Park Wildlife Report* (Deshler 2012) provides a comprehensive

inventory of wildlife use of this area, and documents habitat characteristics, threats and information gaps important to managing its unique resources.

In the Central Reach, a number of raptor species (red-tailed hawks, peregrine falcons, etc.) have adapted to the urban setting and limited habitat, such as are provided by riverside park/promenade. Habitat diversifies again in the South Reach. Complexes around River View Cemetery, Ross Island and Oaks Bottom are frequent stopover and forage sites for many wildlife species. In this area, numerous large and small holes at or above the ordinary high water mark indicate the presence of river otter, bank swallows, and/or kingfishers. Barn swallows and violet-green swallows feed and collect nesting materials, and kingfishers were observed foraging. Other river bird species detected include cormorant, widgeon, bufflehead, Canada goose, and numerous pairs of mallards. Passerine and other bird species observed include golden crowned kinglet, song sparrow, winter wren, American goldfinch, bushtit, black-capped chickadee, and American crow. Purple martins are seasonal visitors.

To identify plant and animal species and terrestrial habitats needing protection, conservation, and/or restoration, TEES listed Special Status Species[31] to help land managers and planners identify actions for implementation. As of 2011, TEES has identified 76 wildlife Special Status Species in Portland: 2 amphibians, 2 reptiles, 58 birds, and 14 mammals (https://www.portlandoregon.gov/bes/article/354986, pages 4-6) (Table 26).

Table 26. Wildlife - Special Status Species in Portland

	Federal Status	State Status	NWPCC Focal Spp.[32]
Amphibians			
Northern red-legged frog	Species of Concern	Sensitive-Vulnerable	X
Clouded salamander		Sensitive-Vulnerable	
Reptiles			
Northwestern pond turtle	Species of Concern	Sensitive-Critical	X
Western painted turtle		Sensitive-Critical	
Birds			
American bittern			
American kestrel			X
American white pelican		Sensitive-Vulnerable	
Bald eagle	Delisted[33]	Delisted[34]	X
Band tailed pigeon	Species of Concern		
Black throated gray warbler			

[31] Special Status Species were identified as those wildlife species whose range includes Portland and that are officially listed or identified by various named entities.

[32] Identified in the Northwest Power and Conservation Council Willamette Basin Subbasin Plan as Focal Species. These include species that are: listed or that are current candidates for listing as threatened or endangered by federal agencies; listed as threatened, endangered, sensitive—critical, or sensitive—vulnerable by ODFW; declining in the basin or region as indicated by Breeding Bird Survey (BBS) data; endemic to the Willamette Basin; or perform ecological functions quite different from those performed by other species that regularly occur in the same habitat type.

[33] http://www.fws.gov/pacific/ecoservices/BaldEagleDelisting.htm

[34] http://www.dfw.state.or.us/conservationstrategy/news/2012/2012_may.asp

	Federal Status	State Status	NWPCC Focal Spp.[32]
Brown creeper			
Bufflehead			
Bullock's oriole			
Bushtit			
Chipping sparrow		Strategy Species	X
Common nighthawk		Sensitive-Critical	
Common yellowthroat			X
Downy woodpecker			
Dunlin			X
Great blue heron			
Green heron			X
Hammond's flycatcher			
Hermit warbler			
Hooded merganser			
House wren			
Hutton's vireo			
Loggerhead shrike		Sensitive-Vulnerable	
Long-billed curlew		Sensitive-Vulnerable	
Merlin			
Nashville warbler			
Northern harrier			X
Olive-sided flycatcher	Species of Concern	Sensitive-Vulnerable	X
Orange crowned warbler			
Pacific slope flycatcher			
Peregrine falcon	Delisted[27]	Delisted[35]	
Pileated woodpecker		Sensitive-Vulnerable	X
Purple finch			
Purple martin	Species of Concern	Sensitive-Critical	X
Red crossbill			
Red-eyed vireo			X
Red-necked grebe		Sensitive-Critical	
Rufous hummingbird			
Short-eared owl		Strategy Species	
Sora			X
Streaked horned lark	Candidate	Sensitive-Critical	X
Swainson's thrush			
Swainson's hawk		Sensitive-Vulnerable	
Thayer's gull			
Varied thrush			
Vaux's swift			X
Vesper sparrow	Species of Concern	Sensitive-Critical	X
Western meadowlark		Sensitive-Critical	X

[35] http://www.dfw.state.or.us/conservationstrategy/news/2010/2010_april.asp

	Federal Status	State Status	NWPCC Focal Spp.[32]
Western sandpiper			
Western wood pewee			X
White-breasted nuthatch		Sensitive-Vulnerable	X
White-tailed kite			
Willow flycatcher - Little	Species of Concern	Sensitive-Vulnerable	X
Wilson's warbler			
Winter wren			
Wood duck			X
Yellow warbler			X
Yellow-breasted Chat	Species of Concern	Sensitive-Critical	
Mammals			
American Beaver			X
California myotis		Sensitive-Vulnerable	
Camas pocket gopher	Species of Concern		
Fringed myotis	Species of Concern	Sensitive-Vulnerable	
Hoary bat		Sensitive-Vulnerable	
Long-eared myotis	Species of Concern		
Long-legged myotis	Species of Concern	Sensitive-Vulnerable	
Northern river otter			X
Red tree vole	Species of Concern	Sensitive-Vulnerable	X
Silver-haired bat	Species of Concern	Sensitive-Vulnerable	
Townshend's big eared bat	Species of Concern	Sensitive-Critical	X
Western gray squirrel		Sensitive-Vulnerable	X
White-footed vole	Species of Concern		
Yuma myotis	Species of Concern		

Other criteria used to identify Special Status Species (and not included in the table) include: Oregon Natural Heritage Information Center (ORNHIC) data, the *Conservation Strategy for Landbirds in Lowlands and Valleys of Western Oregon and Washington* (2000) or *Conservation Strategy for Landbirds in Coniferous Forests of Western Oregon and Washington* (1999), Oregon Watershed Enhancement Board priorities, and the Audubon watchlist.

A searchable TEES database provides information about their habitats, life histories, and limiting factors, where known. The database also lists 32 Special Status plant species (page 7). Habitat types considered as having special significance were identified as Special Status Habitats, and were discussed in Section B.5 of the TEES document.

Environmental elements that limit the growth, abundance, or distribution of a population are known as limiting factors. For example, the absence of old, hollow trees is a limiting factor for some bat species. TEES developed a list of limiting factors, grouped by major categories and numbered (Attachment G of the TEES document), that are linked to species and habitat tables, matrices, and databases. The main categories of limiting factors are:

- Biological Stressors

- Climate Change
- Disruption of Natural Disturbance Regimes
- Habitat Change
- Degradation and Loss
- Habitat Fragmentation and Access
- Human Disturbance
- Pollution

Each factor has a list of more detailed factors. For example, biological stressors include 13 subfactors, such as competition for nesting cavities, and invasive aquatic animal species.[36]

5.3 Macroinvertebrates

There has been very limited evaluation of benthic macroinvertebrates in the Lower Willamette River. Tetra Tech (1994) found no families of Ephemeroptera, Plecoptera, Trichoptera (EPT)[37] present in the lower reaches of the river. However, this is true for most of the middle and upper river also, and the lack of these families may not be unusual in large low gradient rivers dominated by fine-grained substrate. Altman et al. (1997) concurs, finding that macro-invertebrate assemblages in the lower mainstem are dominated by pollution tolerant organisms and those adapted to low dissolved oxygen levels. Typical invertebrates in the lower river are oligochaetes (segmented worms), cladocerans (water fleas), amphipods (scuds), odonates (dragonflies and damselflies), and chironomid midges (Ward and others, 1988)." (pp. 18-19).

Windward Environmental (2003) collected some initial baseline information on benthic invertebrates settling on artificial substrates as part of the Portland Harbor study. They found that chironomids (midges) were the most abundant and diverse taxa. Oligochaete worms were the second most diverse taxa, while amphipods were the second most abundant taxa. Other taxa included isopods, ostracods, caddisflies, mites, and flatworms. Interestingly, they found the highest abundance of organisms in a backwater section of the Swan Island Lagoon, while the least abundant site was nearby at the mouth of the lagoon. These data fill an important data gap and will be helpful in evaluating changes in the community through the lower river.

However, the challenge with evaluating the health of macroinvertebrate communities in the Lower Willamette River is the lack of information on reference conditions for which to compare unimpacted macroinvertebrate populations in large low-gradient rivers. For example, it will be hard to utilize the Windward data to define the health of the impacted Lower Willamette until information is obtained for invertebrate communities on artificial substrates in comparatively unimpacted reference reaches.

5.3.1 ODFW Macroinvertebrate study

ODFW also sampled macroinvertebrates in the Lower Willamette as part of the Willamette Fish Study (ODFW 2005). They sampled macroinvertebrates and zooplankton at 26 different habitat sites during spring 2003 using drift nets, Hester-Dendy multiple-plate samplers, and ponar

[36] All of the limiting factors (Attachment G) are here: http://www.portlandoregon.gov/bes/article/354993.

[37] Aquatic insects that are sensitive to degraded water quality and habitat. They are typically found in healthy tributary watersheds.

dredges. ODFW "… identified approximately 38,000 organisms from 44 taxa. Cladocerans (bosminids and daphnia), copepods, and aquatic insects dominated the water column "drifting" taxa." Daphnia and chironomids dominated the taxa that attach to substrates (95% of all organisms); and oligochaetes and chironomids dominated the sediment dwelling taxa.

ODFW noted few differences in the distribution of major taxa groups among habitats, suggesting a generally homogenous macroinvertebrate community structure: "Density and community metrics varied among gear and habitat types. Beaches tended to have relatively high species diversity, taxa richness, and sensitive taxa richness; seawalls had comparatively low densities and taxa richness. Rock outcrops and floating structures appeared to be preferred habitats for adult aquatic insects. Riprapped sites had very high densities of aquatic organisms and, except for multiple-plate samples, relatively high taxa richness."

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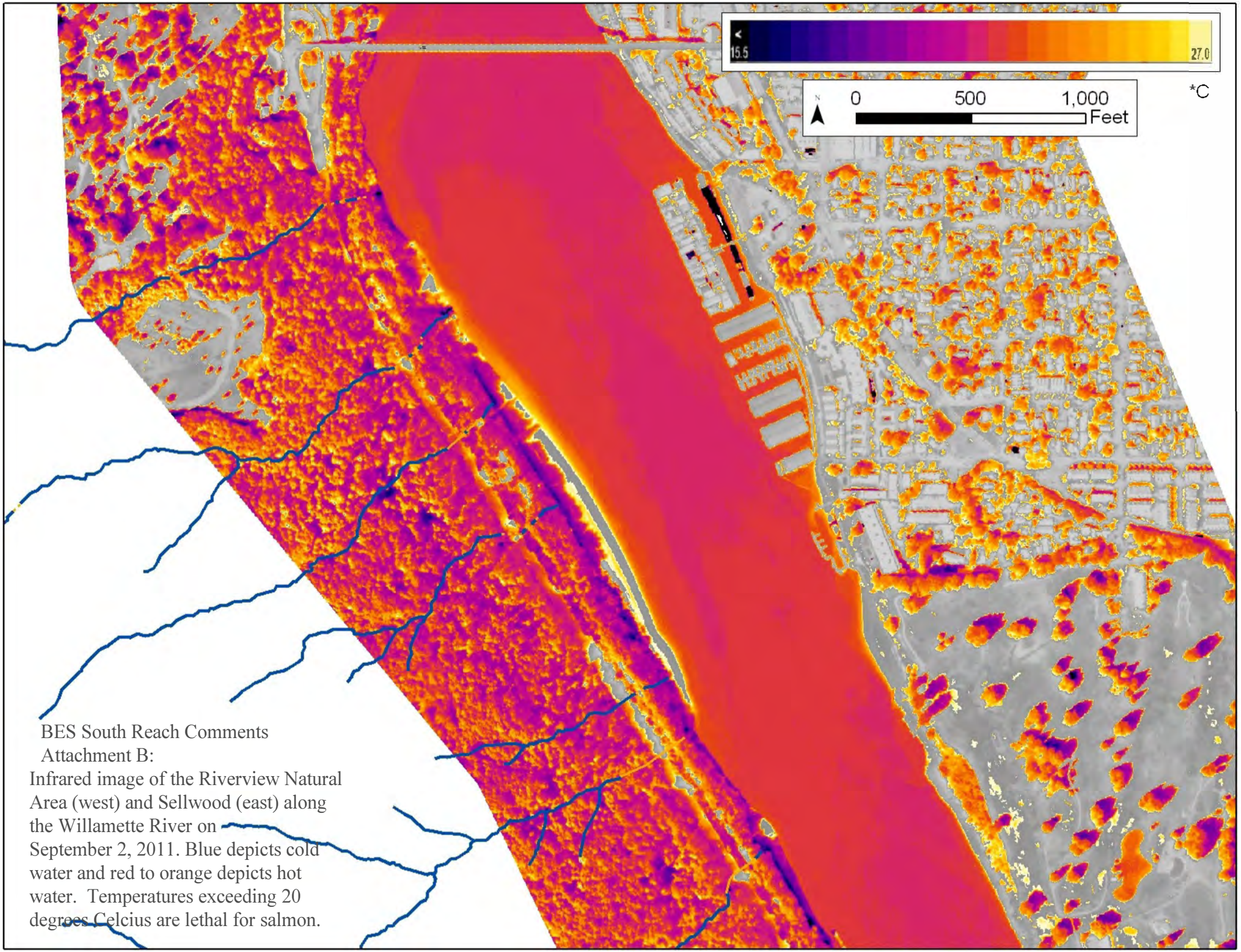


BES South Reach Comments
Attachment B:
Infrared image of the Riverview Natural Area (west) and Sellwood (east) along the Willamette River on September 2, 2011. Blue depicts cold water and red to orange depicts hot water. Temperatures exceeding 20 degrees Celcius are lethal for salmon.

— CITY OF PORTLAND —
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Ted Wheeler, Mayor ▪ Michael Jordan, Director

February 26, 2020

Planning and Sustainability Commission
1900 SW Fourth Avenue, Suite 7100
Portland, Oregon 97201

Dear Planning and Sustainability Commissioners:

Thank you for your thoughtful consideration of the South Reach River Plan and please extend our appreciation to the Bureau of Planning and Sustainability (BPS) staff for their exceptional work. They have done an excellent job of developing a sophisticated set of policies, codes, and investments to support the betterment of the South Reach as the region's hub of urban ecology and urban living, where Portlanders can learn about our natural environment and recreate along the river. Throughout the process, Planning and Sustainability staff have been open, responsive, and collaborative in identifying and resolving issues. As a result, this letter expresses our overall support for the South Reach River Plan, with a few key items identified for additional consideration.

The South Reach of the Willamette River represents the best contiguous stretch of habitat along the Willamette River. It provides critical resting, feeding, and breeding habitat to a broad array of wildlife including otters, mink, ESA-listed salmon species, eagles, osprey, peregrine falcon, and Great Blue Heron. The interface of urban and natural environments is a rich part of Portland's character and urban form. It is what makes the city a distinctive and sought-after destination for business and recreation, and it reflects deeply held values of our communities.

The Bureau of Environmental Services (BES) recently completed a Willamette River Characterization Report ("Report", submitted as Attachment A to these comments) which indicates that the last 30 years of Greenway protection have been relatively effective at stopping further environmental degradation. The South Reach Plan provides the roadmap and tools to prepare Portland for the next 30 years and challenges associated with climate change, population growth, and economic changes in a way that shifts the trajectory for the better. The following elements of the plan merit special attention:

1. **Climate Resilience and Flood Risk**: BES strongly supports the advancements in the South Reach plan to protect all floodplains and develop new rules to protect and enhance floodplain functions while protecting people and property. While the 1996 flood was a historic event, we need to prepare our waterfront for more frequent and potentially more damaging floods in the future. The South Reach of the Willamette River includes critical, intact floodplains that provide flood storage and refuge for salmon.

Strictly limiting development in the floodplain is the most important first step to protecting people, property, fish and wildlife. The protection and enhancement of vegetation within the floodplain is important not only for water quality and stormwater purposes, but it also serves to attenuate floods and provide refuge for fish and wildlife during high flows. We strongly support the vegetation requirements included in the South Reach Plan.

2. **Strengthen the setback requirements to a minimum of 100' from top of bank:** As show in Attachment B, in 2011 BES commissioned a Forward Looking Infrared (FLiR) study on the entire Willamette River to identify cold water sources into the river. The results could not have been more stark than in the South Reach. In areas where there are surface streams entering the Willamette, and areas where there are deep, heavily canopied riparian areas, the cold water inputs hug the shoreline for quite a distance downstream and create critical areas of microhabitat for threatened and endangered salmon, steelhead, and culturally significant lamprey. BES, Portland Parks and Recreation (Parks), and Metro jointly purchased some of these areas, such as Riverview Natural Area, to protect them from development. By contrast, the eastside of the Willamette River with the South Reach shows a denuded, developed bank and elevated river temperatures that can be lethal to salmon. This is the most visible representation of the importance of wide, vegetated setbacks.

   Unfortunately, Attachment B shows the status quo. As noted in the Willamette River Characterization Report, the status quo has only been good enough to prevent further declines in water quality. As the report notes, future climate changes are likely to exacerbate temperature problems and vegetation stress, with the risk of creating a self-reinforcing cycle of degrading ecological conditions. In contrast to the proposed South Reach setback, the scientifically supported recommendations from Metro, Oregon Department of Fish and Wildlife (ODFW), and other regulators call for 300' setbacks on rivers the size of the Willamette and Columbia Rivers. While that is difficult to achieve in urban conditions, Portland should set a high standard along the riverfront in order to support our ecological goals.

   The South Reach Plan establishes a new set of restrictions in the Riparian Buffer Area (RBA), as measured 170' from top of bank, to be responsive to the National Marine Fisheries Services' (NMFS) Biological Opinion (BiOp) to the Federal Emergency Management Agency (FEMA) in order to protect floodplain functions for ESA listed salmon and steelhead. BES strongly supports the inclusion of additional mitigation measures in the RBA. However, the inclusion of mitigation requirements within the RBA does not offer the same protections as a 100' setback that would strictly limit development. The River-E zone will limit development to river-dependent and river-related development and will require stronger mitigation for any environmental impacts. We strongly recommend that BPS adopt a 100' setback in addition to the RBA to support climate resilience, protect people and property from more intense floods, protect federally listed salmon and steelhead, and prevent or reduce future water quality impacts.

3. **Regulatory Flexibility:** BES appreciates the inclusion of new allowances for mitigation banks. Motivated by the BiOp, this tool is long overdue. It will allow for better environmental improvements in areas that are otherwise constrained, ecologically or geographically, and it will allow for greater flexibility for development. BES supports the limits on mitigation banks to the Lower Willamette River. We recognize that there is a substantial barrier to establishing mitigation banks, and therefore request that the code be changed to read, "until such time as a mitigation bank is established and available to issue credits within the same reach as the impact." This change will keep the mitigation as close to the impact as possible and ensures that environmental equity considerations are addressed.

   Similarly, we support many of the standards being proposed including the dock standard, which will minimize impacts. However, we have reservations about the seawall standard that would allow for the reinforcement of existing seawalls that permanently disconnect the river from the floodplain, displace floodwaters upstream and downstream, and exacerbate the damage caused by flooding. Our long-term goal should be to reconnect the river to the floodplain, wherever possible. To ensure that we are working toward that goal, all changes to seawalls should go through River Review.

4. **Resilient Building Design**: BES supports the expansion of the bird safe building requirements to the South Reach. The South Reach is rich in bird habitat, including breeding, nesting and foraging areas. These requirements will continue to protect resident and migratory avian species from inadvertent impacts of development and design. Additionally, as the South Waterfront development has demonstrated, the prevalence of ecoroofs on developments near the waterfront offer additional benefits beyond stormwater management, including bird habitats. We encourage BPS to consider expanding the ecoroof requirement to key developments in the South Reach.

5. **Enforcement:** On a boat tour of the South Reach, the City's Tribal partners identified many code violations involving riparian vegetation removal, illegal docks, and other setback encroachments. As a result of that tour, the Bureau of Development Services (BDS) initiated a number of enforcement actions, many of which were for repeat offenders. We would like to work with BPS and BDS to identify a more sustainable and consistent enforcement mechanism and adequate penalties ensure the protection of river resources.

Again, thank you for your consideration. Your deliberations mark a key milestone in preparing for a healthier and more resilient future for Portlanders and the river we love.

Michael Jordan,
Director

jeanne galick

#103444 | February 26, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see attached pdf which include additional photos. Unable to paste into this box

Testimony is presented without formatting.

Handout on South Reach/Landscape Violations along the greenway (33.475.450)
submitted by Jeanne Galick

A mile stretch of a nearly unrelentingly barren riverbank exists from Heron Pointe Wetlands to Willamette Park. In this section of the River Environmental Zone, there is little habitat value for fish or wildlife. With climate change and ever-increasing summer heat, lack of shade becomes a problem for trail users.

Adjacent properties feel that they, too, should be allowed to remove all vegetation. It is the wrong precedent if the city wants to cultivate a healthy riverine habitat.

Removal of invasives like blackberry, while encouraged, should require revegetation with native species. Otherwise, it is an oft-repeated loophole/cycle – let blackberries grow so they can then be mown down.

Before "pruning"

After "pruning"

Severe pruning should be considered removal and require replacement.



These native trees have been topped multiple times. Because of constant cutting, it is impossible to show a tree at 1.5" at dbh (4 feet high) – though looking at these diameters at 1' height, it's hard to dispute that the trees would have been far larger than that. Such practices should be considered illegal removal.




Despite neighborhood association and citizen complaints about such management practices over the years, it wasn't until 2016 that an official violation notice was issued. It has yet to be resolved and the cutting continues to this day.

Trees can frame and enhance views. This example is along south waterfront's greenway

Heron Pointe Wetlands/Heron Pointe condos provides welcome shade, habitat and a resting and viewing area-- a small oasis in a pretty sparse stretch of the greenway

The Sanctuary building is too close to the trail.

33.475.250 Nonconforming uses and development. Within the setback, limit the height and FAR of any existing properties to their 2018 size. If a property wants to increase, it needs to move *outside* the new setback.

Limit grandfathering: when only a foundation remains, replacement structures should be considered new development and moved outside the setback.

Rubber Plantation on Rio Negro Near Manaus, Brazil
(Tributary of Amazon)

Feb 21, 2020

Dear Jeff,

Thank you and the City staff for the work on the So Reach project. I greatly appreciate the detailed langugе for the complex project. Please continue the trajectory as you plan for the Recommended Draft.

I am enclosing two news articles in support for a Healthier Willamette River.

Excellent presentation and responses at PSC work session on 11th.

Respectfully,
Dixie Johnston

Metro & Northwest

The Willamette River flows through Portland. American Rivers named the Willamette to its annual list of "America's Most Endangered Rivers," out Tuesday, *Associated Press, file*

ENVIRONMENT

Group urges federal action to protect Willamette fish

Associated Press

CORVALLIS— The federal government should take action to protect fish runs in the Willamette River, according to a national conservation group.

American Rivers named the Willamette in northwest Oregon to its annual list of "America's Most Endangered Rivers," released Tuesday, The Corvallis Gazette-Times reported Tuesday.

The Army Corps of Engineers should act to protect imperiled spring chinook salmon and winter steelhead runs by improving operations at its 13 Willamette Basin dams, American Rivers said, adding that Congress should secure funding for the work.

An estimated 300,000 spring chinook and 200,000 winter steelhead once came back from the ocean each year to spawn in the Willamette Basin, But those numbers have plummeted since the dams' construction, with fewer than 5,000 spring chinook and 1,000 winter steelhead making the return trip last year, the report said.

Without functioning fish ladders, salmon and steelhead swimming upstream to spawn must be collected and trucked to the tops of the dams, while juveniles migrating downstream cannot get past dams without being forced through power turbines, the report said.

The Corps should follow the terms of a federal biological opinion issued in 2008 following a lawsuit by nonprofit watchdog Willamette Riverkeeper, which called on the Corps to make significant improvements to fish passage and water quality at its Willamette Basin dams, the report said.

"The threat is inaction, to sum it up in a word," said David Moryc, senior director of American Rivers. "We have to do something to make sure Willamette River winter steelhead and spring chinook don't go extinct."

Cities Eye Gizmos to Clean Waterways

By Scott Calvert

Karima Cherif has seen the future of litter reduction in San Francisco Bay, and it is a drag queen decked out in long eyelashes, boa, rainbow colors and lights. She even has a possible name in mind: Trasharella.

"It's very in the spirit of San Francisco," Ms. Cherif said of her vision for an exuberantly adorned machine that would pull floating trash from the water and plop it into a dumpster.

Ms. Cherif, project lead of San Francisco Bay Trash Wheel, draws inspiration from across the country, in Baltimore Harbor's murky waters. There, Mr. Trash Wheel and two other googly-eyed garbage munchers in recent years have scarfed up tons of plastic bottles and other flotsam that had been headed for the harbor from tributaries such as the Jones Falls.

Trash wheels—floating, stationary gizmos that use water current and solar energy to power a conveyor belt—are on a roll in the U.S. at a time of growing public awareness about the environmental toll of trash on rivers, harbors, bays and oceans.

Clearwater Mills LLC, the Maryland company that built the three Baltimore wheels, has a fourth on the way for the harbor. It has done assessments for Ms. Cherif's group and others in Atlanta, Milwaukee and Jamaica Bay, N.Y. The city of Newport Beach, Calif., said it expects to install one in Upper Newport Bay by late 2021 using a $1.7 million grant.

In Los Angeles County, a Dutch environmental group called the Ocean Cleanup will test a similar machine it calls the Interceptor for two years in Ballona Creek. The Ocean Cleanup says two of its Interceptors are operating in Asia, with more planned. Clearwater Mills also works outside the U.S. and says it has a Panama project in the pipeline.

"There's plenty of trash to go around," said Clearwater Mills founder John Kellett, who came up with the idea for a trash wheel in 2007.

The idea is to trap trash before it flows from a river or stream into open bay or harbor waters. Booms guide debris to the trash wheel's mouth, where rakes nudge it onto a conveyor belt. The belt is powered by an old-fashioned water wheel spun by the current and augmented by energy from solar panels. The dumpster floats on a separate platform and is taken away when full.

When Mr. Trash Wheel made its debut in 2014, it had zero personality or human features. Days later, a YouTube video of it in action went viral, and a marketing firm advised the Waterfront Partnership to capitalize with a cartoonish makeover. "I went home and built the first set of googly eyes in my basement," said Adam Lindquist, who directs the partnership's Healthy Harbor Initiative.

The partnership has since added Professor Trash Wheel, and the Maryland Port Administration operates Captain Trash Wheel. Today the machines all have separate social-media accounts.

The machines vary in size and cost between $400,000 and $800,000, including design modifications, permitting, transport, assembly and installation, said Mr. Kellett. In Baltimore, the money has come from grants and fundraising.

Baltimore needs "anything and everything that works to get trash out of the waterways," said city public works spokesman Kurt Kocher.

Newport Beach officials heard about the trash wheel on social media, said John Kappeler, a city engineer. He said the trash wheel will help cut down on trash in the pristine upper bay and give visiting schoolchildren a tangible lesson on littering.

> The idea is to trap trash before it flows into open bay or harbor waters.

"We're trying to make the connection between the Starbucks coffee cup 10 miles inland from Newport Bay that ends up in the bay," Mr. Kappeler said, adding that officials are still angling for a "cool, catchy name."

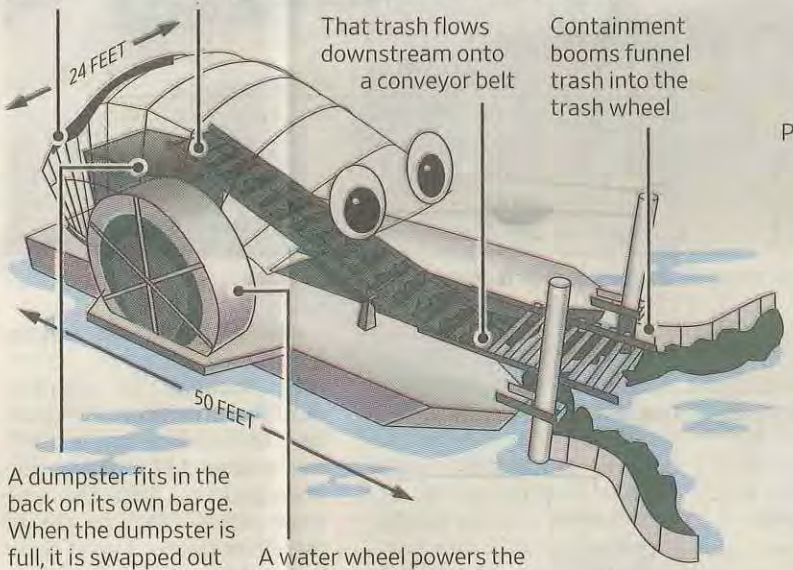
If Milwaukee gets a trash wheel, its name will probably riff on Lynyrd Skymmr, the garbage skimmer boat operated by the local sewer authority, said Lilith Fowler, executive director of Harbor District Inc., an organization formed to revitalize the city's harbor and surroundings. She said her group is about ready to embark on a fundraising campaign.

"After every spring rain, you see this kind of flotilla of trash moving through the city and headed toward Lake Michigan," Ms. Fowler said.

In New York City, a feasibility study identified the outfall of Fresh Creek in Brooklyn as a good location for a wheel to stem the tide of trash entering Jamaica Bay, said Alex Zablocki, executive director of the Jamaica Bay-Rockaway Parks Conservancy. As in Milwaukee, funding is the key hurdle, he said.

Baltimore's experience shows the trash wheels are no cure-all. The city also uses four skimmer boats that cruise around the harbor scooping up trash. They collected 503 tons of garbage last year, the most in five years, but officials note that 2018 was unusually rainy.

How the Trash Wheel Works



Estimated trash collected by Baltimore's three trash wheels since 2014

1,335,807
Plastic Bottles

12,478,576
Cigarette Butts

673,218
Plastic Bags

Note: Dimensions are for the largest trash wheel, Mr. Trash Wheel
Source: Waterfront Partnership of Baltimore
Dylan Moriarty/THE WALL STREET JOURNAL

Mary Vogel

#113584 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

Testimony is presented without formatting.

Robert Bernstein

#113583 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

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Ronald Ragen

#113582 | February 25, 2020

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See video

Testimony is presented without formatting.

Ted Labbe

#113581 | February 25, 2020

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See video

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Mo Dindral

#113580 | February 25, 2020

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See video

Testimony is presented without formatting.

Ed Newbegin

#113579 | February 25, 2020

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Micah Meskel

#113578 | February 25, 2020

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Louis Lustenberger

#113577 | February 25, 2020

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Jeanne Galick

#113576 | February 25, 2020

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See video

Testimony is presented without formatting.

Tom Gornick

#113575 | February 25, 2020

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See video

Testimony is presented without formatting.

Ruth Spetter

#113574 | February 25, 2020

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See video

Testimony is presented without formatting.

Josh Hetrick

#113573 | February 25, 2020

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See video

Testimony is presented without formatting.

Michael Kaplan

#113572 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

Testimony is presented without formatting.

Megan Van de Mark

#113571 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

Testimony is presented without formatting.

Paddy Tillett

#113570 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

Testimony is presented without formatting.

Jim Owens

#113569 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

See video

Testimony is presented without formatting.

Laura Webb

#103443 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I think that enforcement will be key..whether you talk about 'no wake zones', off leash areas for dogs, which i am against due to concerns over harm to wildlife. Illegal tree cutting or removal of shrubs. Tree plantings should be above dbh level to trigger stiffer penalties for removal. Riparian setbacks need to be at least 100 ft. for upland habitat for frogs, salamanders, turtles etc.... Favor large form trees over the quest for views of the river. Trees for habitat and shade, limiting erosion. Permeable alternatives to concrete. Limit light pollution as it harms birds and insects. Bird safe windows and height limitations on b'ldgs....birds have used river corridors long before our arrival. Seek to add add'l area like Waverly Country Club ...

Testimony is presented without formatting.

Renee Morgan

#103440 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Portland City Council, I am a Portland Rowing Club floating home resident in Sellwood and also a coordinating member of Calm Water Coalition, a grassroots organization of nearly 4,000 South Reach Willamette River users who are interested in access and safety for all in the Portland Willamette. I have been following the South Reach Plan for about a year, going to public meetings and learning about the new ideas for the Willamette Greenway. The Objectives and Action Items of the Planning and Sustainability Commission's Proposed Draft support the goals of both the floating home communities and the CWC members in sustaining a healthy river and recreational uses suited to the Willamette River. The following Objectives are particularly advantageous to that end. Sellwood Object #2: Enhance the Sellwood Bridgehead area C2A For Portland Rowing Club, C2C Rezoning sliver of property so all will be Commercial Use CM1 (with and extension of the height limit from 45 to 35 is good. In River Recreation Obj. 9 R9E Seek opportunities to provide boat storage for nonmotorized watercraft at parks and open spaces with boat launches R9G Explore potential location(s) for motor boat fuel station. SO NEEDED! I would like to see a River Patrol Station and fuel station at the old Staff Jennings property, along with the ideas to develop that for public access. R11C l- Advocate for Multnomah County to fund and reinstate the Multnomah Count Sheriff's River Patrol in the Lower Willamette /South Reach in 2020. Calm Water Coalition is currently working on that and will request this at the Thursday, Feb. 27 Commissioner's Meeting. R1F Funding to make public access and site improvements to the Powers Marine Park and Staff Jennigs sites for bikes, walking and human powered boating. Thank you for all your work to make a sustainability plan for Portlanders. Renee Morgan Portland Rowing Club 100 SE Harney St. Slip 6 Portland, OR 97202 Calm Water Coalition

Testimony is presented without formatting.

Sharon Meieran

#103439 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Portland Planning and Sustainability Commission, Staff recently provided me with an update on the city's proposed Draft River Plan for the South Reach project. I believe this Plan offers a unique opportunity to define a renewed vision for protecting, conserving, enhancing and maintaining the unique qualities of the Willamette River. I applaud the team's efforts to update the existing policies, regulations and implementation actions to help turn this vision into reality. The project area stretches from the Ross Island Bridge upstream to the Multnomah County boundary and is popular with a range of recreational users. This can lead to conflicts with motorized boaters, particularly during summer months. Draft Plan Chapter III C. (Recreation) discusses a desire to address safety issues and help reduce river-user conflicts. One approach listed in the Plan is to "reinstate Multnomah County Sheriff's River Patrol in the Lower Willamette. This patrol can enforce safety rules and monitor boating activities during peak times for different boat users." "Reinstating" the River Patrol in 2020 is specifically called out as an action item to meet Objective #11 [Develop and expand partnerships that promote and address boater education and safety and reduce conflicts between different watercraft and minimize the impacts of watercraft on shallow water habitat, riverbank erosion and floating structures (e.g. floating homes)]. I strongly support promoting public safety efforts around river usage. However, I am concerned that the language in the draft does not accurately reflect the history and context for River Patrol funding. While the Multnomah County Sheriff's Office (MCSO) River Patrol budget was reduced two years ago, it was not eliminated. Last year the Board of County Commissioners approved a final Fiscal Year 2020 budget that maintained the remaining positions (12.5 FTE) within MCSO's River Patrol Unit. In addition, the River Patrol Unit serves 110 miles of waterways along the Columbia River, Willamette River, Sandy River and Multnomah Channel, and the Sheriff's Office applies any addition or reduction of River Patrol Unit positions system-wide, not in a geographically specific area. Suggesting a "reinstatement" specific to the Lower Willamette is not an accurate characterization of the original reduction, nor does it describe the realistic impact of a funding restoration. I recommend that you consider changing the language in the plan to recognize this context. The Plan could reference exploring other enforcement options with the County Sheriff's Office as well as funding strategies with the Oregon State Marine Board. Finally, I want to note that securing increased funding from Multnomah County for the River Patrol Unit as described in the Plan may be challenging given Multnomah County's ongoing budget constraints and other competing public safety-related priorities. Thank you for this very important work.

Testimony is presented without formatting.

Multnomah County

Sharon Meieran

Multnomah County Commissioner, District 1

City of Portland Planning & Sustainability Commission
1900 SW 4th Avenue, Room 2500
Portland, Oregon 97201

Dear Portland Planning and Sustainability Commission,

Staff recently provided me with an update on the city's proposed Draft River Plan for the South Reach project. I believe this Plan offers a unique opportunity to define a renewed vision for protecting, conserving, enhancing and maintaining the unique qualities of the Willamette River. I applaud the team's efforts to update the existing policies, regulations and implementation actions to help turn this vision into reality.

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One approach listed in the Plan is to "reinstate Multnomah County Sheriff's River Patrol in the Lower Willamette. This patrol can enforce safety rules and monitor boating activities during peak times for different boat users." "Reinstating" the River Patrol in 2020 is specifically called out as an action item to meet Objective #11 [Develop and expand partnerships that promote and address boater education and safety and reduce conflicts between different watercraft and minimize the impacts of watercraft on shallow water habitat, riverbank erosion and floating structures (e.g. floating homes)].

I strongly support promoting public safety efforts around river usage. However, I am concerned that the language in the draft does not accurately reflect the history and context for River Patrol funding. While the Multnomah County Sheriff's Office (MCSO) River Patrol budget was reduced two years ago, it was not eliminated. Last year the Board of County Commissioners approved a final Fiscal Year 2020 budget that maintained the remaining positions (12.5 FTE) within MCSO's River Patrol Unit. In addition, the River Patrol Unit serves 110 miles of waterways along the Columbia River, Willamette River, Sandy River and Multnomah Channel, and the Sheriff's Office applies any addition or reduction of River Patrol Unit positions system-wide, not in a geographically specific area. Suggesting a "reinstatement" specific to the Lower Willamette is not an accurate characterization of the original reduction, nor does it

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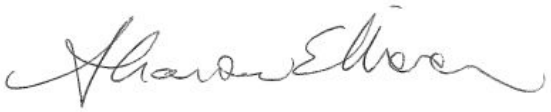
Finally, I want to note that securing increased funding from Multnomah County for the River Patrol Unit as described in the Plan may be challenging given Multnomah County's ongoing budget constraints and other competing public safety-related priorities.

Thank you for this very important work.

Best Regards,



Sharon Meieran, MD, JD
Multnomah County Commissioner, District 1

Elisabeth Minthorn

#103438 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

To: Portland Planning and Sustainability Commission for South Reach River Plan It seems prudent to suggest that the Commission expand the habitat buffers along the Willamette, to benefit riparian habitat and add more protection for native plants and trees. Trees are most vital being the most effective carbon processors on the planet. We need to think Now for our children's Future.

Testimony is presented without formatting.

Willie Levenson

#103437 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

HAP strongly supports the inclusion of swimming in the Southreach plan. Swimming continues to gain popularity every summer. It rightly should. The City of Portland spent $1.4 billion on The Big Pipe. The dividend to our city is that we now have a swimmable river. The more people see other people doing it, the more others are attracted to get in. Over 9,000 people participated in the last two years of The Big Float, 300 individuals swam with the River Huggers in 2019 - a 50% increase from 2018. Rather than having sewage overflows happen 50-100 times every year, sewage overflows are now exceedingly rare. Currently as of 2/25 we are closing in on 200 consecutive days of no sewage overflows in our river. In 2019 there was a grand total of one, in 2018 there were a total of two. Over the last two years that equates to 1.5 per year or 0.41% of the year on average - CSO's are now a statistical anomaly. It is the moral responsibility of our city to direct people to the least risky places to get into the river and to engineer these places to be a safe as possible. Now virtually every agency in Portland from Planning to Fire to PBOT to Parks to BES and the Mayors Office as well as Oregon Health Authority, DEQ and many others have communicated to our citizens that it is safe to swim in our river. But where do we do it? The current overarching practice of PPR seems to be to pretend swimming is not occurring. This practice is a very thin line between irresponsible and negligent. All living creatures, humans included, are drawn to rivers and water. It is or moral responsibility to direct people to the least risky places to recreate in our river. The Willamette River is 4,000 acres. It is our city's blue space. We will not stop people from recreating in our city's second largest public space and natural area. Kelly Point Park has proven DO NOT SWIM signs do not work. We can not promote abstinence, rather, like skate parks we need socially engineer places humans are attracted to. Human habitats that create human spaces that are comparable with habitat that are fun, socially engineering the behavior of our humans to swim and recreate where we want them to go. HAP does not feel like swim studies are necessary for proposed swim areas that have had documented use over the last 10 years such as Sellwood Riverfront Park. There has not been a documented drowning at Sellwood Riverfront park in over 10 years. That can act as the city's swim study - real life. The sooner we can give direction through the PPR website that Sellwood is a place we want people to swim the less likely people, particularly kids, will pioneer their own spots that may or may not be safe. Directing people to the least risky places to recreate has the potential to save lives. The most pressing problem facing the Willamette River in HAP's opinion is the Harmful Algae Bloom at Ross Island. This must be solved because it is a solvable problem. Ross Island Lagoon is harmful to fish and wildlife when it occurs and it is now a regular occurrence. Any habitat goals with Ross Island

Lagoon start with mitigating the bloom otherwise why bother any further investment. It is just as important to mitigate the harmful algae bloom for the health of people and wildlife as it is psychological. If our river routinely turns green in the summertime it will be like the broken window theory applied to nature. People will be afraid to get close to it, people will not bring their pets near the river. Whatever cause you are working on if the public loses hope the battle is over. We will lose the public if our river turns green in the summer. People will give up on our river. It will make work on the superfund harder, people will see less value in investing in habitat. Resolving the HAB's in the RI Lagoon is the number one top priority for HAP.

Testimony is presented without formatting.

Willie Levenson

#103436 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

• Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience (currently proposed at only 50 feet wide) • Require rather then encourage bird-safe building and environmentally friendly lighting practices in the South Reach Area to reduce bird collisions with windows and reduce light pollution • Strengthen regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones • The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential

Testimony is presented without formatting.

Kelly Holtz

#103435 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see attached comments from the Oregon Yacht Club.

Testimony is presented without formatting.

From: The Oregon Yacht Club Board of Directors

To: Debbie Bischoff, Senior Planner, debbie.bischoff@portlandoregon.gov, 503-823-6946
Jeff Caudill, City Planner II, jeff.caudill@portlandoregon.gov, 503-823-4572

Dear Debbie and Jeff:

Thank you for the attention to the comments from the Oregon Yacht Club on the last version of the South Reach Plan.

In particular, we are pleased to see:

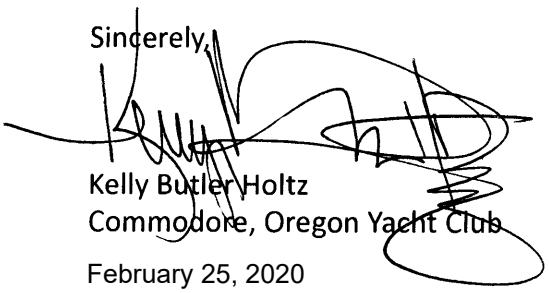
- The revised route of a proposed trail connection from the Springwater Corridor Trail at Oaks Bottom to the river that takes advantage of access through the Oaks Amusement Park.
- The addition to Action Plan W5A (regarding "strategies to reduce or curtail harmful algal blooms (HABs) in the Ross Island Lagoon") that includes new language ("Evaluation of strategies should assess the potential for indirect effects on the surrounding area, including the Holgate Channel, its riverbanks and nearby floating homes.") We certainly endorse this recognition of the potential effects on our floating homes. We look forward to engaging in discussions of strategies to address this serious environmental health issue.
- The call for Multnomah County to fund and reinstate the Multnomah County Sheriff's River Patrol in the Lower Willamette/South Reach area. There is a vast disparity between law enforcement resources devoted to the river compared to those considered necessary for nearby neighborhoods on land. Calls to 911 about disturbances and other issues that would get an immediate response from Portland Police are typically not acted on when the incident occurs on the water, simply because no one is available to respond. This unreasonable and indefensible failure to provide comparable public safety responses must be addressed.

As we noted in previous comments, we strongly support actions to address transportation safety and access concerns in the Sellwood riverfront area, including Oaks Amusement Park and the intersection of Spokane Street/SE Oaks Park Way and Springwater Corridor Trail. However, we cannot wait six to 20 years to begin taking the actions outlined in items C3A and C3B. The situation is a crisis now. There are already many summer weekends during which Oaks Park Way becomes impassable, even to emergency response vehicles, creating a clear and present threat in the event of a life-threatening illness or incident. The time to act on the hazardous congestion and other transportation conflicts here is now, not several years from now.

Finally, we wish to again endorse the plan to create standards for environmental zone management decisions and responses to violations. We hope such standards will streamline the cooperation between the city and riverfront property owners as we work together to enhance the vital and valuable river.

Thank you for all of the outreach and public information and involvement efforts during this process, which along with countless hours of staff work, will help guide the future of the South Reach.

Sincerely,



Kelly Butler Holtz
Commodore, Oregon Yacht Club
February 25, 2020

Desirae Wood

#103434 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

The Green Roof info Think-tank (GRiT) is a network of businesses, government agencies, non-profit organizations, researchers and community members joining together to grow the knowledge and use of green roofs in the Pacific NW. GRiT is a registered 501c-3 non-profit organization. GRiT wants to support the comment by Portland Audubon on the South Reach Plan (for the Willamette River): #6) Green Roofs: We would urge the City to apply the same green roof standard to the South Reach Plan as were applied in the Central City Plan. Stewardship for the environment and human health does not get bestowed upon us from the top-down. For a new paradigm to take root, communities must unite toward a goal, and then stick together throughout all of the challenges and objections that arise. It is our own responsibility to keep our municipal, state, and national leaders on track and informed to protect our resources and enhance our livelihoods. Portland has spoken, adding our voice to the swelling tidal wave of cities incorporating green roofs into their long-term plans for urban resiliency. It is imperative that the same green roof standard as was applied to the Central City Plan, is continued to be applied to the South Reach Plan too!

Testimony is presented without formatting.

Dana Mozer

#103433 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Hello The day that I first swam in the Willamette River in downtown Portland was not just memorable, it was a lifechanging day for me. The river, once at most a pretty view for me, became a living force and one that I wanted to fight to preserve, as industry grows and surrounds it's waters and tributaries. I join the Portland Audubon Society in asking for the following protections for the Willamette River- Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you, Dana Mozer FNP

Testimony is presented without formatting.

Kaj Jensen

#103432 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

As an avid birder and regular visitor of the Oaks Bottom Wildlife Refuge, Springwater Corridor, and other areas in this area, I strongly encourage the commission to ensure that protections are in place to preserve and expand wildlife habitat in this area. The Portland Audubon Society has recommended the following improvements to the current plan, which I fully support: 1. Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. 2. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. 3. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. 4. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you for all the work that you do!

Testimony is presented without formatting.

Kaitlin Lovell

#103431 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Type or paste your testimony in this box...

Testimony is presented without formatting.

— CITY OF PORTLAND —
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Ted Wheeler, Mayor ▪ Michael Jordan, Director

February 25, 2020

Planning and Sustainability Commission
1900 SW Fourth Avenue, Suite 7100
Portland, Oregon 97201

Dear Planning and Sustainability Commissioners:

BES respectfully requests that the record for public comment remain open until tomorrow, Wednesday February 26th to allow our bureau the opportunity to provide comments on the record for consideration. Our bureau has been collaborating with staff at BPS for over a year on various elements of the South Reach Plan, and we wish to convey our appreciation and support for areas of agreement and offer suggestions for improvement but are unable to provide written comments before tomorrow.

Thank you for your consideration,

Kaitlin Lovell
Science Division Manager

Mary Vogel

#103430 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see attached. . .

Testimony is presented without formatting.

PlanGreen: Regenerating Communities
Portland, OR 97205 * 503-245-7858 * mary@plangreen.net * http://plangreen.net * WBE: 5001

Feb. 25, 2020

Esteemed Commissioners:
I am writing in support of the testimony submitted by **Micah Meskal** with Bob Salinger for Pourtland Audubon (15 pages). They have made your job easier by suggesting line-by-line changes to the hefty document. I wholeheartedly urge you to adopt those suggestions.

I support, and have asked the Green Roof Info Thinktank to also support, Audubon's suggestion to have the same green roof requirement as the City requires in the Central City Plan. GRIT and PlanGreen worked hard on that requirement then and I expect that we will continue to do so.

Please give a great deal of attention to **Ted Labbe's** testimony for Urban Greenspaces Institute (12 pages)—which I also strongly support. As an urban planner, I especially like his statement:

> *The SRP has a good focus on parks, natural areas, recreation, and development regulations. However, there is scant attention to how urban design in the adjacent developed areas could reduce or enhance the resiliency of natural or built systems, and human communities. How might a more aggressive urban design framework around ecoroofs, street trees, green streets, water conservation, and green building design help alleviate the impacts of drought, extreme heat events, flooding, and wildfires in the South Reach? This deserves to be explored more, especially in the context of the integration of the South Reach plan with DOZA.*

I am indebted to **Tammi Harper** for her excellent testimony and I agree with her recommendations:
1) A minimum 100' setback
2) Strengthen revegetation regulations by adding to 33.475.450:
   - Require review and remedial planting to be done within a specific time window (suggest 1 year)
   - Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive
   - Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards * Require existing properties to come into landscape compliance within the next 5 years

Finally, I do hope that you will take into account the City's own Hazard Mitigation Action Plan—although it is not clear whether there is an adopted version yet: https://www.portlandoregon.gov/pbem/67583. Thanks for your attention to my recommendations. I am greatly indebted to all who testified on MapApp—and to you!

Mary Vogel, CNU-A
PlanGreen Founder and Principal

Dianne Ensign

#103429 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thank you for the opportunity to comment on the South Reach River Plan. The fate of the environment is the defining issue of our time. Riparian areas offer highest value habitat, and the proposed draft of the South Reach River Plan takes some important steps towards prioritizing natural resource protection, but it falls short in ensuring adequate habitat buffers along the river. This stretch of the Willamette contains some of the best remaining river habitat in Portland as well as some of the best potential for restoration opportunities. As someone who cares deeply about protecting Portland's remaining high value habitat, I want to see this stretch of river better protected and restored. Please consider the following improvements: Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Please ensure the health of the South Reach of the Willamette River.

Testimony is presented without formatting.

David Caslick

#103428 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I would like to provide input, for Tuesday's 5:00 meeting. Other than several statements cut from the proposal and pasted below, my written comments will be brief. I could address the issue and talk for hours, however, on this topic. First BRAVO (applause) for the work that has gone into this. The committee has done an extremly good job, and shows great knowledge of the opportunities and problems ahead. I have lived in Portland for 36 years. Needless to say, the city has changed, and that the acceleration of that change in recent years has been huge. Planning for 2040 South Reach is wonderful, but unfortunately enforcement of the current law is nearly non-existent. My statement applies to automotive vehicular speed and increasing pedestrian fatalities. It applies to homelessness on land along the river and upon the river. It applies to recreational on river boating and failure to enforce current laws governing safety, noise and public behavior. Nearly all the issues covered in your proposal. Nearly every goal/objective in the South Reach Proposal is to maximize the numbers of people finding recreational relaxation within the city, while simultaneously making strides to protect and strengthen environmental factors. IMO, the single biggest detriment to those goals is the noise and unsafe conduct of powered watercraft, most notably the rise in popularity of wake-dependent "sports." By restricting or even eliminating the source of damage (to shoreline, property, unpowered craft) caused by excessive wakes, the river would recover environmentally and most conflict on river and on shore would be defused. The task above falls to many parties, including specifically the state marine board. However, the City controls access to Willamette park, and its boat launch. Hours of operation are reasonable, and posted for both. There are closable gates in place. But, the boat launch is now used pretty much as a 24 hour operation. It is the single biggest source of powerboat access, and simply enforcing its operation to the currently established law, would greatly decrease conflict on the river. As realized and stated in the South Reach Proposal, this section of river should be available to all to enjoy, quietly, peacefully, lawfully and with minimal environmental impact. Elimination of all wakes would provide a safe environment for the MANY while negatively impacting only the FEW. David Caslick 4434 SW Cullen Blvd Portland 97221

SNIPPED AND PASTED BELOW, FROM YOUR OWN PROPOSAL are words that I would like to emphasize: 1. This plan envisions the South Reach of the Willamette River as a habitat for fish, wildlife and native plants and people; a safe place to walk, run, swim, paddle, view wildlife, ride and roll; and a destination for riverfront neighborhoods and visitors alike. 2. Natural areas offer places for quiet reflection and observing nature. People recreate safely on the river operating a variety of watercraft from numerous riverside locations, and river swimming is a popular sport in the summer. 3. Efforts to minimize conflicts between different recreational users in the river and on land are needed so that everyone has safe and enjoyable experiences. 4. Wake boats create different waves than other motor boats, using wake enhancing devices (WEDs). At slow speeds, the wakes generated can disrupt and cause damage to other boats including incidences of crew boats being swamped or capsized, and can cause significant damage to floating homes and, potentially, shallow water habitat and riverbank areas. 5. The Oregon State Marine Board convened a rule making committee in late 2019, made up of motorized and nonmotorized river recreationalists to address boater conflicts and improve safety for all in the Lower Willamette River, including the South Reach area. The Marine Board hopes that the recommendations will be in place for the summer recreation in 2020. The Multnomah County Sheriff's office is aware of the community's desire to increase river boating enforcement. One solution is to reinstate Multnomah County Sheriff's River Patrol in the Lower Willamette. 6. In recent years, South Reach floating home communities are dealing with the physical, structural and other impacts posed by motor boats with wake enhancement devices that use the river in summer months. This issue is addressed in the Recreation section. 7. Actions ? Identify funding to work with Oregon State Marine Board, local boating organizations, commercial boating sales and rental companies and others to promote boater education and safety. Implement programs at State and local levels that target boater education and safety. ? Advocate for the Oregon State Marine Board and others to continue to work to identify and minimize the impacts of watercraft on shallow water habitat, riverbank erosion and floating structures. ? Advocate for Multnomah County to fund and reinstate the Multnomah County Sheriff's River Patrol in the Lower Willamette/South Reach area in 2020.

Mike Houck

#103427 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I have submitted my testimony in the attached pdf file

Testimony is presented without formatting.

Mike Houck Comments

Volume 1: Policies, Objectives and Recommendations

Chapter II The Future Of South Reach

The Future of South Reach lays out several future desired conditions, including:

- *Land use and development are climate-resilient. Floodplains are protected and restored to avoid impacts on imperiled species and adjacent development. Residents are safe from floods, wildfires and other climate change-related impacts*.

- *The habitat areas are productive. The river and its banks support an abundance of fish and wildlife. Salmon habitat restoration efforts provide cold waters and safe and nurturing shallow water for juvenile fish on their journey out to sea and return home for spawning.*

- *Connections between the river and its surrounding natural areas, including Ross Island, Oaks Bottom Wildlife Refuge, River View Natural Area and Willamette Park, have been strengthened to create upland habitat corridors and increase community appreciation of these natural features.*

If these desired futures are to be realized the city will have to make significant changes to how the city addresses protection, restoration and long-term management of the Willamette, it's riparian resource areas and adjacent uplands. Recommended changes are noted in bold, Change with deletes noted as ~~strikethroughs~~ and added language as **underlined** and bold.

P 26, Figure 3, **Change**: The Ross Island Lagoon is labeled ~~Harmful Algal Blooms Addressed~~. That reference is too narrow. There are numerous issues related to Ross Island and the Ross Island Lagoon. The label should read the same as Figure 2, page 23, **Restoration of Ross Island and Lagoon Complete**

CHAPTER III. POLICIES, OBJECTIVES, AND RECOMMENDATIONS

P 28, Overview
Change: The Oaks Bottom Wildlife Refuge and Ross Island Natural Area, among others, are **both regionally significant** and are unique features within the city….."

Change: However, there are many areas within the South Reach, including Oaks Bottom **Wildlife Refuge** ~~wetland~~, Sellwood Riverfront Park and Powers Marine Park, that still provide valuable ecosystem functions and flood protection for areas downstream.

Change: Aggregate mining and related industrial activities on Ross Island from the 1920s until recent years has severely modified Ross and Hardtack islands ~~island~~ associated habitat **and altered the course of the main channe**l.

Page 29, **Change**: In addition to new development, building and site improvements and ongoing maintenance, including **removal** ~~replacement~~ or pruning of vegetation **and wholesale cutting of trees has** ~~can~~ significantly impacted existing riverbank and upland habitat. A key purpose of the River Plan / South Reach project is to provide direction on where and how development activities can be conducted in the study area, **while providing for improvement of fish and wildlife habitat throughout the South Reach**.

Photo: **Change**: **Red-tailed** Hawk. I believe the photo is mine. Check for photo credit and credit whoever did take the photo.

Page 30: **Proposed Setback**: This is the single most substantive issue at hand. The current 25-foot setback is insufficient to protect the river's natural resources. So too is the proposed 50-foot setback. Throughout the Central Reach planning process it was made clear that the 50-foot setback would not be the default from top of bank setback in the South Reach. The significant natural resources in the South Reach demands a larger setback throughout the plan area. The reference on page 13 of the South Reach plan that "the River Plan/South Reach must comply with Metro's UGMFP related to water quality (Title 3) and fish and wildlife habitat conservation (Title 13)" appears to be the basis for the proposed 50-foot setback is woefully inadequate.

Having participated throughout Metro's Title 13 Nature in Neighborhoods Program process I question the validity of the statement on page 27, "*Metro's Title 13…determined that the absolute minimum width of a protected riparian corridor around rivers, streams, and wetlands should be 50 feet*." Throughout Metro's Title 3 and Title 13 processes, both of which I participated in as a member of Metro's Technical Advisory Committee and Water Resources Protection Advisory Committee, it was demonstrated that to protect the full range of ecological functions the setback on a resource the size and significance of the Willamette would be a minimum of 150 to 300 feet.

Throughout the South Waterfront greenway planning process a 100-foot setback and a 150-foot "aspirational" setback was arrived at using similar science-based ecological data. During that planning process a ODFW fish biologist strongly urged up to a 300-foot setback. Today, as a direct result of the 100-foot setback at South Waterfront there is a an enhanced riparian corridor which was formerly riprap, depauperate of fish and wildlife habitat. The profusion of native willow, red-osier dogwood and black cottonwood habitat was made possible by extending the setback sufficiently to allow for the bank to be laid back from its former verticality, allowing for intensive planting of riparian vegetation. There is also a recreational greenway between the riparian area and South Waterfront

development. All of this was possible only by increasing the setback to a minimum of100 feet.

The proposed, so-called “bare minimum” 50-foot in the South Reach is not defensible given the significance of natural resources. In fact, city scientists in the Bureau of Environmental Services have continued “to advocate strongly for the scientifically supported 100’ minimum setback, especially to achieve the visions detailed in this plan” In their comments to BPS.

The South Reach plan offers no science-based reasons for rejecting these recommendations. At a minimum staff should consider applying a 100-foot minimum setback in the Johns Landing and other developed areas, exempting existing development beyond the first 50 feet from the same regulations until future re-development occurs. This would also allow for improved fish and wildlife habitat over time and address what surely will be increased setbacks for floodplain protection when the city eventually responds to federally mandated floodplain protection mandates.

Finally, the recent National Marine Fisheries Service (NMFS) Biological Opinion (Biop), in their “Reasonable and Prudent Alternative” section, mandates “ “identification” of a riparian buffer zone (RBZ) measured 170 feet horizontally from the ordinary high water mark of perennial or intermittent streams, and limit the types of development allowed to: (1) water-dependent uses; (2) habitat restoration activities; (3) activities that result in a beneficial gainfor the species or habitat. i. e. activities that will not degrade or limit natural floodplain functions in any way.”

Accordingly, based on all of the science-based work by Metro and BES and NMPS’s requirement for a 170 foot Riparian Buffer Zone, I urge the establishment of a <u>minimum</u> 100-foot setback from top of bank (either existing top of bank or top of bank post laying back of the bank) throughout the South Reach where development has already occurred and 250-300-foot setbacks in areas of the highest ecological value where locally and regionally significant resources have been inventoried and/or where development has yet to occur. This recommendation is based on the assumption there is a genuine desire to achieve the vision detailed in *Chapter II. The Future Of South Reach* in which staff describes the river as “…*a defining feature of the City of Portland and State of Oregon” with a future in which*, “*The natural beauty of the revitalized river and its surrounding banks abound with healthy plants and wildlife as well as recreational opportunities for people of all ages and abilities….where the habitat areas are productive…the river and its banks support and abundance of fish and wildlife…floodplains are protected and restored to avoid impacts on adjacent development*.”

Page 30, Photo **Change**: **<u>Photo credit, Mike Houck</u>**.

Page 31, Docks: It should be noted that the farthest upstream dock has been virtually unused over the past few years. Before any new docks are considered under-utilization of existing docks should be addressed.

Tree, Shrub and Ground Cover Removal: **Change:** "*Another issue that is often brought to the City's attention is the extensive pruning and removal of* ***trees and*** *other vegetation within the river setback in front of existing development. Even though the removal of native trees and plants is not allowed in the existing Greenway Overlay zones, native vegetation is ~~often~~* ***frequently*** *damaged or removed as a part of this pruning or removal.* **Comment**: I am recommending calling out trees specifically owing to their importance and continued cutting, particularly on the west bank.

Pruning and removal is frequently done annually by adjacent property owners to keep riverbank vegetation from blocking views along the Greenway Trail and from adjacent ***development. Removing and severe pruning and*** *frequent topping of trees which is also illegal does not allow riverbank vegetation to grow to its full potential, limiting the habitat function and ecological benefits the vegetation can provide (described above). Removal of ~~These efforts are often aim to remove or reduce the prominence of~~* ***invasive species along the riverfront is often cited as a rationale for vegetation removal*** *but ~~in many cases~~ native species are never ~~not~~ planted in their place and existing native plants are frequently removed as a part of the maintenance.*

Comment: It's important to mention tree topping as frequent and ongoing occurrence. Some have insisted that "pruning" trees to within a few inches of the ground does not constitute "removal" and, therefore, is not illegal. This type of "topping" or "pruning" has resulted in total elimination of trees throughout the South Reach's west bank from the River Forum building in the north to Willamette Park in the south or more than 1 mile of river front denuded of trees and for the most park shrubs as well.

On page 31 the report goes on to say*," A number of these instances have resulted in violation citations for South Reach property owners. Currently, all environmental violations must be addressed through Greenway Review, which is a costly process when not associated with new development. Other environmental overlays in the City of Portland allow for environmental violations to be resolved through established standards or, if those standards cannot be met, review.* ***Providing for the use of standards within the South Reach would expedite the resolution of environmental violations****.* **Comment**: I strongly support this language since enforcement continues to be a major issue in the South Reach.

Before Photo Mike Houck, summer 2019

After: Cutting has continued here up to the present time, with cuttings coming at intervals, each time the trees cut closer and closer to the ground Photo Mike Houck, February 2020

Trees have been cut year after year, which are much larger than the 1 ½' proposed limit and not replaced. As the trees begin to sprout another cutting occurs Photo Mike Houck, February 2020

There is one mature black cottonwood tree left on over ½ mile reach of the so-called "Greenway", Photo Mike Houck, February 2020

Establishing an improved process for ensuring that vegetation within the river setback is preserved, replaced with native species if removed and allowed to grow fully to provide habitat for birds, pollinators, and mammal species is an important consideration in the South Reach. This should be achieved while also providing ***city-designated*** *public viewpoints so that everyone can enjoy scenic views throughout the South Reach*."

Comment: I strongly support the foregoing description of the ongoing, long-term removal of trees, shrubs and ground cover. The entire length of the South Reach from River Forum to Willamette Park on the west side of the river suffers from vegetation removal to provide private, not public views. Any language related to views must apply solely to **city-designated public** views.

Page 32, OBJECTIVE #1: Ensure that new development provides adequate protection for South Reach natural resources, while also protecting other important attributes, including scenic, historic and recreational resources.

Actions:

Apply the River General (g*) overlay zone to all properties in the established Willamette River Greenway. The River General overlay zone requires the following for development and redevelopment projects:

Change setback to 100 feet from 50 feet: If not river-dependent or river-related, development must be located at least ~~50~~ **100** feet from the top of bank.

Add: Landscaping within the river setback to provide a diversity of native vegetation, **including trees common to riparian zones on the Willamette River**, that stabilizes the riverbank and meets a variety of habitat objectives**.** **Comment**: It is important to draw specific attention to trees.

Add: Exterior lighting is designed to limit impacts on fish and birds and other wildlife and their habitats by avoiding or minimize light glare via light fixtures that are shielded and meet specific specifications.

Page 33:
Add: Apply the River Environmental (e) overlay zone to all high- medium **and low**-ranked natural resources (in developed floodplains) and floodplains, as well as the 100-year floodplain and 1996 Flood Inundation Area (see Map B-1, Draft River Environmental Overlay Zone, for proposed River Environmental overlay zone areas in the South Reach). **Comment:** If the city is serious about creating significant ecological lift in the South Reach what is currently designated low value habitat must be restored. Applying the (e) overlay to only high and medium habitat will not promote environmental improvement in areas that today have been degraded by riprapping, cutting, and topping trees.

Low ranked habitat is a result of continual cutting of native trees, including black cottonwood and willow, and shrubs. It is low ranked because of repeated removal of vegetation. Hence, the recommendation to include low ranked areas in the e Overlay. Photo, Mike Houck, February 2020

Add: The River Environmental overlay zone ensures development impacts are avoided to the **maximum** extent possible in these important natural areas and, when impacts can't be avoided, mitigation is required. Any loss of features and/or function must be mitigated in the River Environmental overlay zone, **with priority given to sites in the South Reach**. **Comment**: The normal city, regional, state and federal mitigation hierarchy is: on-site, in-kind; on-site out of kind; and off-site, in-kind. In other words mitigation with similar habitat and on or as close to the impact as practicable is required. Loss of natural resource value should be mitigated within the South Reach.

OBJECTIVE #2: **Change**: Removal of existing non-nuisance trees and vegetation on the riverbank should be **avoided** ~~minimized~~ **and where not possible to avoid minimized and mitigated** to provide habitat and other ecosystem benefits at and adjacent to the river, while also creating connections to upland habitat areas. **Comment**: First priority is avoidance, then minimization if and only if avoidance is not possible, followed by mitigation.

Actions

Change: Apply the River Environmental (e) overlay zone to all land within ~~50~~ 100 feet of top of bank (i.e., the river setback), which is defined as high-value riparian resources. The River Environmental overlay zone requires replacement of all trees greater than 1.5 inches diameter at breast height (DBH) removed within the river setback. **Add**: **Replacement trees must be at least 1.5 inches DBH and native species and replacement trees must be monitored and maintained to ensure survival for a minimum of five years to ensure survival**. **Change**: Landward of the setback, removal of all trees greater than **three** ~~six~~ inches DBH must be replaced. **Add**: **Trees shall not be cut during nesting season for birds** as per recommendation from the Urban Forestry Commission.

COMMENT: It is imperative that replacement trees be **at least** 1.5 inches DBH. Planting trees below that threshold will simply allow their being cut before reaching 1.5 inches DBH. This is a serious loophole that must be closed. It is also critical that you add a **five year minimum** to demonstrate the trees actually survive and are not cut again.

Clarify and expedite the environmental violations process by allowing for the use of standards when specific criteria are met. Allowing the use of standards aims to expedite the resolution of these violations so that impacts can be reversed more quickly. Additionally, standards options reduce the cost of resolving environmental violations for applicants and the City by allowing for violations to be addressed without a land use review. The most recent violation was cited in 2016 and four years later there has been no resolution or restoration. **Add**: **This will also allow the public to track violations and follow the remediation process**.

COMMENT: In almost every instance after issuance of a public complaint those who report violations are left in the dark as to the resolution of the enforcement of environmental regulations.

Page 35: Key Issues and Opportunities: **Add**: **Smaller habitat areas, particularly on the river's west bank, are also important local resources that should be protected and where necessary restored. Examples include Cottonwood Bay, Heron Pointe Wetland, the mouth of Stephen's Creek and the former Butterfly Park near Cottonwood Bay**.

Heron Pointe Wetlands at Heron Pointe Condominiums was set aside as a permanently preserved wetland in the early 1980s as a condition of development. Where the HOA was once an active partner with Portland Bureau of Environmental Services in removal of non-native species and replanting of native species in the 1980s and 1990s, the HOA now routinely "trims" or "prunes" trees and removes native and non-native shrubs. Photo Mike Houck, February 2020.

Heron Pointe Wetlands a productive native dominated wetland in front of the Heron Pointe condominiums. Photo Mike Houck, February 2020.

A close look Heron Pointe wetlands demonstrates that even this so-called "protected" wetland has been subjected to cutting of mature native trees and shrubs. Photo, Mike Houck, February 2020

COMMENT: There is no mention of Hardtack Island in the Ross Island discussion. While RIS&G still operates a processing plant on Hardtack Island, much of Hardtack, which is joined to Ross Island at the upstream tip by a U S Army Corps of Engineers installed berm (1926), retains significant fish and wildlife habitat as well. Additionally, while there is no date set for RIS&G departure from Hardtack Island and future public ownership remains an open question, the island should be included in any discussions regarding the future of the Ross-Toe-East-Hardtack archipelago**. Add**: When discussing Oaks Bottom Wildlife Refuge, Ross Island, **Hardtack Island**, and **Change**: ~~its two~~ **nearby East and Toe Islands** ~~(East Island and Toe Island)~~ and the Holgate Channel, it is best to address them as a complex due to their close proximity and ecological interactions.

Page 36: **Add**: The Holgate Channel links Oaks Bottom Wildlife Refuge to the Ross Island habitat areas and its shorelines are preserved in a natural or semi-natural condition. In recent years, the banks of the slough have experienced significant **motorized boat wake-related** erosion and there have been many landslides in the past decade. Still, this area provides excellent refuge for wildlife.

Page 37: **COMMENT**: **Houseless Camping and Transient Boats**: I am pleased that staff has addressed the numerous issues related to houseless camping and transient (actually not so transient at all) boats. While I agree that

these issues are in many respects outside the purview of the South Reach Plan it's imperative that the issues be addressed. I would add another impact that houseless camping has, and has had for three decades. Many people, women in particular, are hesitant to utilize Oaks Bottom Wildlife Refuge out of concerns for their safety. This is not a new phenomenon but has increased dramatically over the past decade. I have observed transient boaters, many of whom have anchored off Hardtack and Ross Islands for a year or more, with dogs and fires on the islands which pose wildfire hazards and additional impacts on wildlife.

Page 38: Add: OBJECTIVE #3: Protect existing natural areas and open spaces to minimize user impacts and the effects of adjacent development, including introduction of invasive species, off-trail impacts, erosion, houseless camping and live-aboard boaters and other issues. Ensure no loss of resources and ecological functions in these areas over time. **Where degradation has occurred implement restoration to return these areas to full ecological function**. **Comment**: Maintaining the status quo of areas that have been degraded by ensuring no future loss of resources and ecological function is not good enough. These areas are seriously in need of restoration.

Actions:
Prepare a coordinated management plan for the Ross Island Natural Area/Holgate Channel/Oaks Bottom Wildlife Refuge/Oaks Crossing Natural Area complex to identify ways to support ecological functions throughout the complex, improve habitat for fish and wildlife species – including a large number of resident and migrant bird species – that utilize the complex. Minimize **and where necessary mitigate** impacts of users in this popular area.

Add: Ensure adequate signage is provided along trails that direct users to stay on the trail to prevent erosion and other impacts. **Provide interpretive signage as a means to educate the public regarding the ecological significance of the area and add to their nature-based recreational experience**.

Add: Support the work of the Joint Office of Homeless Services (JOHS) and strengthen coordination between JOHS, City bureaus and State agencies (e.g., DSL and OSMB) to minimize the impacts of live-aboard boaters and houseless camping on the Willamette River and adjacent natural areas and parks. **Continue to explore avenues for public ownership of areas of the Willamette River currently owned by Ross Island Sand and Gravel which would allow enforcement of existing live-aboard boat regulations**.

Watershed and Natural Areas Restoration:

Page 39: **Add**: Areas of shallow water habitat include Ross, **Hardtack, East and Toe Islands** ~~Island~~, Holgate Channel, the Stephens Creek confluence, Powers

Marine Park (discussed in the previous section) and the mudflat north of the Willamette Park boat ramp.

Change: ~~To the extent possible~~, **N**~~n~~ew shallow water habitat areas should be established on public and private lands. Increasing shallow water habitat along the mostly-private Riverdale/Dunthorpe riverbanks would add valuable "rest stops" for fish continuing further upstream.

Pages 39/40: **Add**: Reclamation of the banks of Ross Island and the lagoon has been ongoing since the early 1980s to address the impacts of dredging conducted by Ross Island Sand and Gravel throughout most of the 20th Century…… The completion of this reclamation plan represents another important South Reach restoration opportunity. **Additional restoration of city-owned area of Ross Island and restoration opportunities beyond those required of RIS&G should be pursued to continue improvements to fish and wildlife habitat throughout the four-island archipelago. Public ownership of Hardtack and East Island would aid in those efforts**.

Page 40: **Add**: Policy 7.9 Habitat and biological communities. Improve, or support efforts to improve, fish and wildlife habitat and biological communities. Use plans and investments, **including additional acquisitions** to enhance the diversity, quantity, and quality of habitats habitat corridors, and especially habitats that…"

Page 41: **Add**: OBJECTIVE #4: Restore the Willamette River and its riverbanks to improve and increase habitat for Threatened and Endangered salmon and steelhead **and other fish and wildlife species**, as well as upland areas to strengthen connections to surrounding habitat corridors. **COMMENT**: While I support the goal of improving salmonid in-water habitat, the effort should not be exclusively salmonid-oriented.

Actions
Add: Implement restoration projects to expand shallow water habitat within the South Reach, including along the shorelines of Ross, **Hardtack, East and Toe Island**s (including the lagoon), Willamette Park and in Holgate Slough.

Add: Fund the continued implementation of the Willamette Park Redevelopment and Phasing Plan (2012), including the laying back of the bank south of the boat ramp to create more shallow water habitat and beach area. **Replace native trees impacted by this action with native trees to provide important upland habitat**. **Comment**: While I support this action, replacement of riparian tree habitat should be included given the importance of urban forest canopy.

Add: Continue to support efforts to obtain Water Resources Development Act (WRDA) funding for identified restoration projects in the South Reach. **Seek to**

add the Ross Island complex and Lagoon as an identified restoration project. WRDA reauthorization is currently pending congressional approval.

Objective 5:
Identify strategies to reduce or curtail harmful algal blooms (HABs) in the Ross Isl and Lagoon to address risks to human, fish and animal health created by the HA Bs. **Commen**t: I strongly support the following language: Strategies should be informed and *consistent with the Ross Island Natural Area/Holgate Channel/Oaks Bottom Wildlife Refuge/Oaks Crossing* Natural Area coordinated management plan (see Objective #3), once it is in place. Any solution to or reduction of HABs must be consistent with and complementary to the broader ecological restoration and management of this area.

Page 42: **5. FLOODPLAIN MANAGEMENT AND CLIMATE RESILIENCE**
Comment: The following quote is of interest with regard to issues related to trees in the South Reach: *In the Biological Opinion, NMFS directed FEMA to implement changes to the NFIP to stop the loss of natural floodplain functions and salmon and steelhead habitat in Oregon floodplains. Changes to the program will be both regulatory and map-based. Recommended regulatory changes focus on updating requirements to ensure adequate flood capacity associated with new development, **establishing minimum tree replacement standards**, managing stormwater more effectively and other strategies*.

Page 44: Potential for Wildfires: **Comment**: It is helpful that the increased risk of wildfire as a function of illegal camping and live-aboard boats is highlighted. I have observed numerous fires on Hardtack and Ross Island since live-aboard boats have increased in number in the Holgate Channel and the Willamette's main channel. There are frequent fires at Oaks Bottom Wildlife Refuge as well.

Page 45: OBJECTIVE #6: Strengthen development regulations within South Reach floodplains to ensure that new development is designed to minimize flood risk by improving stormwater management, increasing habitat and identifying opportunities to remove existing development out of the floodplain, when feasible.

Actions
Change: Apply the River Environmental (e) to all land within the FEMA 100-year floodplain and 1996 Flood Inundation Area, whether the land is undeveloped or developed, to ensure that new development is designed to minimize flood risk and expand floodplain habitat. The River Environmental requires the replacement of all trees greater than 1.5 inches diameter at breast height (dbh) removed within the river setback **with native trees at least 1.5 inches diameter at breast height (dbh**). Landward of the setback, all trees greater than **three** ~~six~~ inches dbh that are removed must be replaced **with native trees at least 1.5**

inches diameter at breast height (dbh). **Change**: The River Environmental requires that any impacts within the floodplain also be mitigated within the floodplain. Mitigation can be completed either on the project site or off site **within the South Reach.**

Change: **Develop** ~~Consider~~ incentives for reduction of existing impervious parking lots and other surfaces in the River Environmental overlay zone to improve stormwater management during flood events.

Change: ~~Investigate the development of~~ **Develop** a program similar to the Bureau of Environmental Services Johnson Creek Willing Seller Program for properties along the Willamette River, including he South Reach.

Page 46:
OBJECTIVE #7: Analyze and assess the extent of potential flood risk along the Willamette River under future climate scenarios to better prepare for climate change-related effects on precipitation patterns and sea level rise on the Willamette River.

Actions
Work with FEMA and/or other organizations to conduct modeling and analyses using existing data and trends to estimate potential changes in flood risk within the South Reach. Based on this estimate of future flood risk, update City flood maps and apply floodplain development regulations to the expanded floodplain.

Comment: 100-Foot Setback: Significant areas of the developed portions of the South Reach were inundated in the flood of 1996. While the recommended research is certainly called for we know enough about potential devastating floods to take proactive action now by expanding the setback to a minimum of 100 feet as recommended earlier.

Page 50: Actions.
Add: **Assess and develop strategies to eliminate negative** impacts on parks and natural areas from live-aboard boats and illegal camping.

Add: **Secure funds from the city and Metro's Parks and Nature acquisition programs to acquire additional lands within the Ross Island complex to add to existing city-owned land on Ross Island**.

Add: **Bring into public ownership areas of the Willamette River adjacent to Ross, Hardtack and East Islands currently owned by Ross Island Sand and Gravel that would allow for better enforcement of live-aboard boats that are not adhering to state regulations**.

Scenic Resources

Comment: While I agree with the overall goal of protecting and providing scenic views this can be problematic with regard to protecting riparian vegetation and significant fish and wildlife habitat.

Page 62, Add: Objective #12, Identify new Willamette River Greenway viewpoints to increase the community's visual connection to and appreciation of the Willamette River, **while ensuring protection and management of the river's riparian habitat and natural resources**.

Page 87, Objective #8; Add an **action**: **Bring into public ownership areas of the Willamette River adjacent to Ross, Hardtack and East Islands currently owned by Ross Island Sand and Gravel that would allow for better enforcement of live-aboard boats that are not adhering to state regulations**.

Part 2. Implementation Tools

Page 30: In **33.475.A.3** River Environmental Commentary it's stated, "The River Environmental overlay zone is applied to protect important high-, medium- and some low-ranked natural resources along the Willamette River."

Page 32, Commentary:, **33.475.030** Where These Regulations Apply: I strongly support removing the exemption from the interior of Ross and Hardtack Islands from the regulations of the Greenway Overlay Zones and support all future development being subject to the regulations.

Page 33, As I noted previously, I am strongly supportive of applying River (e) to all low ranking sites. **Add**: Apply the River Environmental (e) overlay zone to all high- medium and **low-ranked** natural resources (*in developed floodplains*) and floodplains, as well as the 100-year floodplain and 1996 Flood Inundation Area. **Comment**: If the city is serious about creating significant ecological lift in the South Reach what is currently designated low value habitat must be restored. Applying the (e) overlay to only high and medium habitat will not promote environmental improvement in areas that today have been degraded by riprapping, cutting, and topping trees. Habitat improvement over time is spelled out in the Commentary, "*Additionally, the description of the River Environmental overlay zone is being amended to clearly identify the goal of **improving** natural resources over time as a result of mitigation requirements*."

Page 42, **33.475.200.B** Use Regulations: **Comment**: My understanding from discussions with ecologists at PP&R is that the former Staff Jennings site is seen as a very low key, passive park with only human powered craft (kayaks, canoes, etc). Retail space at this site seems inconsistent with that proposed use.

Page 45, C. The river setback. **Change** ~~50~~ feet to **100** feet as per earlier commentary. **Comment**: Is there a limit to how much the bank can be laid back? The statement, "*In all cases the river setback line must be at least 5 feed landward of the new top of bank line*" would seem to say that the Greenway setback would essentially be eliminated. This is another argument for expanding the setback to at least 100 feet.

Page 47, **Figure 475-2**: **Comment**. I strongly oppose allowing any building footprint within the setback, as depicted in this figure. ~~E. Encroachment into the setback.~~

Page 53, (5). I assume that the revegetation fee-in-lieu is, by definition within the South Reach, within the River Environmental Zone?

Page 54, Commentary: Resistance to planting of trees within the setback is a long-standing issue. I support the concept outlined in the commentary, "*Allowing for clustering will enable property owners to meet landscaping requirements while also preserving views along the riverbank*."

Page 55, **Table 475-1**, Landscaping Planting Density. **Comment**: I question whether these planting densities are appropriate for the South Reach given the significant natural resources present. I suggest a re-look at these densities in light of that fact. The desired future condition where, *The habitat areas are productive. The river and its banks support an abundance of fish and wildlife* warrants consideration of more robust landscaping planting densities.

C. Landscaped are site preparations: **Comment**: I strongly support all of this language. It is imperative that site conditions must be improved to ensure success of landscaping.

Page 59, D. Plant requirements. The ½ inch minimum caliper for replacement trees is highly problematic. As noted earlier, if the standard is requiring replacement of trees 1 ½ inch or greater then re-planting a ½ inch tree will, without question, result in that tree been cut down in subsequent years before it can attain the protected 1 ½ inch stature. As suggested on Page 3, Objective #2, Change: Replacement trees must be at least **1 1/2** inches DBH and native species and replacement trees must be monitored and maintained to ensure survival for a minimum of five years to ensure survival. **Change**: Landward of the setback, removal of all trees greater than **three** ~~six~~ inches DBH must be replaced.

E. Exception for sites with existing nonconforming use….: **Comment**: These provisions will mean ecological uplift will not occur over time. The threshold value is far too high.

Pages 76-77 33.475.250.D, Nonconforming Uses and Development: **Comment**: Again, allowing grandfathering of existing footprints for redevelopment will ensure there will be no ecological lift over time and is contrary to what is projected to be future floodplain expansion over time due to climate change. Grandfathering of development in the 1996 flood inundation zone and in light of future floodplain expansion is no consistent with the desire for resilience in the face of climate change.

The Sanctuary redevelopment is a classic example of "grandfathering" development that encroached into the Greenway setback. This apartment building was allowed to redevelop on a remnant pad left from deconstruction of the former building. It continues to encroach into the setback. So long as this type of redevelopment is promoted there will be no opportunity for floodplain restoration or "ecological lift" or "beneficial gains" described in the NMFS Biop directives to the City of Portland. Photo Mike Houck, February 2020.

Page 83, Exemption L.1. a. **Comment**: I strongly support the following language: "*Temporary disturbance must be replanted to meet the relevant subarea standards of Table 475-1*." However, the on-the-ground reality is non-native removal never results in revegetation within the South Reach. I have observed the west bank of the South Reach for decades and property owners have continually removed both native and non-native trees with impunity. I

recommend the following change to this language to make it crystal clear that revegetation is required to replace all vegetation removed, which is more specific than “disturbance area.” **Change**: Temporary disturbance area must be replanted **and non-native trees must be replaced with native species common to the Willamette River riparian and upland areas in a 3:1 ratio (three trees planted for each tree removed)** to meet the relevant subarea standards of Table 475-1.

L.1.b. Similarly, I recommend the following change: Temporary disturbance area must be replanted and **non-native shrubs and ground cover must be replaced with native shrubs and ground cover species common to the Willamette River riparian and upland areas in a 3:1 ratio (three shrubs planted for each shrub removed)** to meet the relevant subarea standards of Table 475-1.

Himalayan blackberry dominates much of the South Reach on the west side of the Willamette precisely because HOA’s have been allowed to cut, year after year, the non-native species and have not been required to replant with native species. Photo Mike Houck, February 2020

A classic example of Himalayan blackberry removal without replanting of native species. Photo Mike Houck, February 2020.

L.2.a. Change: Removal or pruning of non-native trees and trees on the Nuisance Plants List that are not more than **3** ~~6~~ inches…..

Page 115, 33.475.450, Corrections to Violations of the River Environmental Overlay Zone Regulations, A. Purpose: **Change**: The purpose of the correction regulations is to ensure **immediate** ~~the timely~~ restoration of natural resources and functional values that have been degraded due to a violation of the River Environmental overlay zone. **Comment**: "timely" is too vague and my experience has been delay after delay in restoration. There is currently a violation that has been awaiting restoration for four years.

Page 117, B. Correction Options. 1. a.1. **Comment**: I assume that the intent is to require correction if more than 12 inches cumulative are removed; e. g. six stems of 2 inches each for. **Change**: (1) No more than 12 **cumulative** diameter inches were removed.

The <u>cumulative</u> diameter of native trees and shrubs in this reach of the Greenway would total many feet of required replacement trees if <u>cumulative</u> inches removed were the standard. Even considered one tree at a time the DBH of most trees "pruned" are far greater than the proposed 1 ½" standard. Using the cumulative standard as well as the 1 ½' standard is preferred as a deterrent to tree removal. Photo Mike Houck, February 2020.

b. (1). Change: More than 12 diameter **cumulative** inches were removed;

Page 119, 2. c. (7) Change: For violations involving trees**, <u>five</u>** ~~two~~ times the number of diameter inches removed must be planted on the site…….Planted trees must be a minimum of **<u>1 ½</u>** inch in diameter….

Page 120, 33.475.450 B.3.c., Commentary: **Comment**: I have talked with horticulturalists and arborists and have found no one who agrees that trees more

than ½ inch are unavailable. They may be more costly and perhaps more difficult to re-establish without watering and other kinds of maintenance but they are available.

Page 121, 3. Option Two, b. **Change**: (5) Trees must be a minimum of **1 ½ inch** in diameter….

Change: c. For violations involving the removal of trees, ~~two~~ **five** times the number of cumulative diameter inches removed must be planted on the site….Planted trees must be a minimum of **1 ½ inch** ~~½~~ in in diameter….

Page 157, Map 475-5, **Comment**: My understanding was the Multnomah County site is intended to be a passive park with access by human powered craft only. Why would retail sales be necessary at this site?

Page 169, Map 490-1, Designated Viewpoints. **Comment**: I urge that you add a Designate Viewpoint at what was formerly the Willamette Butterfly Park which has been relocated in Willamette Park. This is one of the premier viewpoints in the city and should be indicated as such on this map and established as a formal Designated Viewpoint.

Pages 345 to 369, Action Items: Changes will need to be made to items if changes are made within the codes. E. g. replacement tree diameters, setbacks, etc.

Performance Measures

Central City 2035 Volume 5A, Implementation: Performance Targets and Action Plans, Effective July 19, 2018 lists a number of performance measures that should be applicable to the South Reach. I could find no comparable specific performance targets in the South Reach action items.

Riverbank Enhancement: For example, under Riverbank Enhancement the performance target is, "*By 2035 12,600 linear feet of new riverbank enhancement (32% of the Central City riverfront) and the restoration of at least five riverbank restoration sites will be completed in the Central City*" The performance measures are then listed site by site.

Tree Canopy: Central City established two scenarios with regard to increased tree canopy by subdistrict of the Central City. Tree canopy targets for the South Reach should be established, with an emphasis on increased tree canopy on the west side of the Willamette which virtually devoid of tree canopy.

Mike Houck

Planning and Sustainability Commissioner

Josh Hetrick

#103426 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Planning and Sustainability Commission, The Brooklyn Action Corps neighborhood association is excited to see continued progress in the Willamette River Plan for our neighborhood. There are many elements of the Plan which we support, some of which are detailed below. However, we recommend that the Commission does ?not? refer the proposed draft to City Council unless amendments are made. We believe that the Plan's commitments to restoring Brooklyn's river access are not sufficient or timely enough to fulfill the vision of the Plan. Neighborhood river access for Brooklyn: As the Plan details, ?Brooklyn is the only neighborhood in the project area which lacks direct neighborhood access to the river. ?We believe that river access must be re-established in a way that will: provide safe and direct access for all ages and abilities; minimize out of direction travel; connect easily to key bike, pedestrian, and transit routes; and improve access to and from neighborhood commercial corridors. We strongly support the intent of Actions R4A, R4B, C1A, C1B, and any others related to re-establishing Brooklyn's historic access to the river. However, we do not support the current "6 to 20 Years" timeline for these Actions and recommend "Next 5 Years" instead. Given that even these actions — important as they may be — do not directly fund or build river access, we do not believe that further delays are justified. These Actions represent unfulfilled commitments stretching back for decades. As the Plan states [Chapter 3, Section C, Riverfront Trails and Connections, Key Issues and Opportunities]: The Brooklyn Neighborhood Plan (1991) identifies an objective and actions that seek to “re-establish Brooklyn’s access and historic link to the Willamette River.” This objective is still an unmet priority to the community almost 30 years after completion of this Plan. For a detailed history of Brooklyn's river access — and current lack thereof — please see the enclosed historical perspective from Brooklyn Action Corps board member and historian Don Stephens. We believe that the Plan should direct bureaus to prioritize long-standing unfulfilled objectives when implementing the Plan. Following only tribal collaboration, which is by far the longest outstanding need, neighborhood river access for Brooklyn is long overdue. Establishing a Brooklyn neighborhood waterfront park: Developing waterfront park space in our neighborhood (referred to in the Plan as "Haig Park") is an essential complement to river access. We support Actions R1E and R4B, but strongly recommend moving their timeline up to "Next 5 Years" to be concurrent with related Actions R4A and others. This space will provide an anchor to the neighborhood's river access, and even if developed ahead of neighborhood river access, will demonstrate the potential of the connection. Services along Springwater Corridor: Beyond simple access to the river, additional services and amenities are needed to make it truly accessible for all

ages and abilities. We support Actions R3C and R3D and the addition of restrooms, benches, wayfinding, and other services that will help make the waterfront somewhere that everyone can enjoy. Swim beaches and access to water: River access needs to include a safe and accessible connection to the water itself, for swimming and other in-river recreation. We support Action R7A to study and implement direct river access. Improve public transportation access?: We support Actions C2A (Sellwood) and C5B (SW Portland) to improve public transportation access to the river. While there are no Brooklyn-specific Actions in the Plan today, we encourage the inclusion of Brooklyn-specific plans for quality transit access as part of re-establishing river access. Better neighborhood bike and pedestrian options?: Willamette Greenway trails on both sides of the river are great facilities for commuting, neighborhood travel, and recreation. We believe that to create a more resilient network, reduce trail conflicts, and provide safe and direct river access, parallel and complementary bike and pedestrian routes are necessary for the Plan to realize its full potential. The Plan does not currently include any Actions which specifically address these neighborhood bike and pedestrian routes. While the majority of adjacent neighborhoods' streets fall outside the Plan area, we believe the Plan should include Actions which explicitly instruct for partners to study and implement improvements. Climate action: All Actions in the Plan must be viewed through a lense of climate action and climate justice. We support Actions that explicitly consider climate change, such as Action W7A, but encourage the adoption of climate criteria for all Actions. Actions that reduce carbon emissions, such as better bike and pedestrian connections, should be prioritized. Support tribal nations and the urban native community: We welcome and encourage guidance on culturally-important locations, access needs?, and programming. We support all Actions in the plan to that end. 2040 Vision: There is much to be excited about in the 2040 vision outlined in this draft. However, for that vision to be fulfilled, there must be commitment to concrete, timely actions that will work steadily towards it?. We again underscore that this Plan includes unmet objectives that pre-date even the previous 20-year plan. This time, let's get it right and make the commitments necessary to fully realize the Plan's vision. We thank the Bureau of Planning and Sustainability and all partner agencies for the effort and vision presented here, and look forward to seeing it realized as soon as possible. Sincerely, Brooklyn Action Corps

Testimony is presented without formatting.

Brooklyn Action Corps

Neighborhood Association

Restoration of Brooklyn's river access, a historical perspective

Due to its close proximity to the Willamette, Brooklyn had, at one time, nearly unlimited access to the river. There are historical accounts, as well as recollections of elderly current residents of Brooklyn, describing their past enjoyment of fishing and swimming in the river. This access was diminished by the construction of McLoughlin Blvd in 1937. After that, only brave and agile souls (sorry no seniors) could still dash across the new four-lane "99E Super-Highway" to get to the river. Subsequent widening of McLoughlin to six lanes in 1971 eliminated even that access.

In 1967, having just purchased Riverside Park on the river below SE Haig Street, the city began planning to provide access to that park,to the river and to the "Greenway Trail", which was then still only a future concept. However, progress in making that implicit promise to restore Brooklyn's access a reality was slow.

The city, and therefore Brooklyn, had an access easement to the river derived from the SE Center Street right-of-way extension to the river.In 1979, at the request of Ross Island Sand and Gravel, City Council vacated that right-of-way, relying on a potential alternative access three blocks north at SE Haig Street. This was at the recommendation of the Planning Commission, who cited the setting aside of sufficient funds from the cancelled Mt. Hood Freeway project for the alternative access development. Based primarily on that recommendation, but perhaps influenced by a simultaneous offer from Ross Island Sand and Gravel of a gift to the city of adjacent property, City Council unanimously voted in favor of the abandonment of the Center street right-of-way.

During discussions prior to that vote, it is clear that Council was concerned with retaining access to the river for the neighborhoods.Commissioner Connie McCready stated "I am very concerned about access"and spent considerable time and staff on the issue. In addition, there was unanimous opposition to the vacation expressed by the Brooklyn Action Corp, the Inner SE Neighborhoods Coalition, and SE Uplift. The neighborhood testimony recommended waiting until the alternative access was assured so as to not risk losing all access. However, City Council voted in favor of vacation, based on the "trade"' for the potential SE Haig street site.

Progress on this new site was delayed and postponed, in spite of inclusion in sequential city budgets. One postponement was requested by Council to determine potential usage of the site and the park. The survey found strong support expressed by Brooklyn and surrounding neighborhood residents with a projection of 5-7000 users per month.After another delay, and in spite of strong support by

Commissioners Mike Lindberg and Charles Jordan, City Council, lead by Mayor Frank Ivancie, voted to cancel the project in 1981.

With this cancellation, the inner-city SE neighborhoods lost their hope for access to the river and their new park. In essence, after promising to restore Brooklyn's historic access, which had been sacrificed primarily for development to benefit suburban commuters,City Council traded existing access at SE Center Street for an alternative access project, which it then cancelled.

Present day Brooklyn is a thriving, revitalized neighborhood.Characterized by a large proportion of industrialized areas and with a relatively high housing density, the neighborhood has only two small city parks. Access to the beautiful natural area of Riverside Park, in combination with access to the new Springwater Trail, is important to continue that revitalization. It will enhance the livability of Brooklyn and provide family recreation to our inner-city neighborhood.Restoration of our historic access to the river will honor commitments, both implicit and explicit, that have been made to our neighborhood in the past and it will demonstrate active commitment by City Council to the intent of the River Renaissance Program.

Don Stephens
Board member,
Brooklyn Action Corps

Brooklyn Action Corps

Neighborhood Association

February 25, 2020

RE: River Plan / South Reach proposed draft

Dear Planning and Sustainability Commission,

The Brooklyn Action Corps neighborhood association is excited to see continued progress in the Willamette River Plan for our neighborhood. There are many elements of the Plan which we support, some of which are detailed below.

However, we recommend that the Commission does **not** refer the proposed draft to City Council unless amendments are made. We believe that the Plan's commitments to restoring Brooklyn's river access are not sufficient or timely enough to fulfill the vision of the Plan.

Neighborhood river access for Brooklyn

As the Plan details, **Brooklyn is the only neighborhood in the project area which lacks direct neighborhood access to the river.** We believe that river access must be re-established in a way that will: provide safe and direct access for all ages and abilities; minimize out of direction travel; connect easily to key bike, pedestrian, and transit routes; and improve access to and from neighborhood commercial corridors.

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These Actions represent unfulfilled commitments stretching back for decades. As the Plan states [Chapter 3, Section C, Riverfront Trails and Connections, Key Issues and Opportunities]:

The Brooklyn Neighborhood Plan (1991) identifies an objective and actions that seek to "re-establish Brooklyn's access and historic link to the Willamette River." This objective is still an unmet priority to the community almost 30 years after completion of this Plan.

For a detailed history of Brooklyn's river access — and current lack thereof — please see the enclosed historical perspective from Brooklyn Action Corps board member and historian Don Stephens.

We believe that the Plan should direct bureaus to prioritize long-standing unfulfilled objectives when implementing the Plan. Following only tribal collaboration, which is by far the longest outstanding need, neighborhood river access for Brooklyn is long overdue.

Establishing a Brooklyn neighborhood waterfront park

Developing waterfront park space in our neighborhood (referred to in the Plan as "Haig Park") is an essential complement to river access. We support Actions R1E and R4B, but strongly recommend moving their timeline up to "Next 5 Years" to be concurrent with related Actions R4A and others. This space will provide an anchor to the neighborhood's river access, and even if developed ahead of neighborhood river access, will demonstrate the potential of the connection.

Services along Springwater Corridor

Beyond simple access to the river, additional services and amenities are needed to make it truly accessible for all ages and abilities. We support Actions R3C and R3D and the addition of restrooms, benches, wayfinding, and other services that will help make the waterfront somewhere that everyone can enjoy.

Swim beaches and access to water

River access needs to include a safe and accessible connection to the water itself, for swimming and other in-river recreation. We support Action R7A to study and implement direct river access.

Improve public transportation access

We support Actions C2A (Sellwood) and C5B (SW Portland) to improve public transportation access to the river. While there are no Brooklyn-specific Actions in the Plan today, we encourage the inclusion of Brooklyn-specific plans for quality transit access as part of re-establishing river access.

Better neighborhood bike and pedestrian options

Willamette Greenway trails on both sides of the river are great facilities for commuting, neighborhood travel, and recreation. We believe that to create a more resilient network, reduce trail conflicts, and provide safe and direct river access, parallel and complementary bike and pedestrian routes are necessary for the Plan to realize its full potential.

The Plan does not currently include any Actions which specifically address these neighborhood bike and pedestrian routes. While the majority of adjacent neighborhoods' streets fall outside the Plan area, we believe the Plan should include Actions which explicitly instruct for partners to study and implement improvements.

Climate action

All Actions in the Plan must be viewed through a lense of climate action and climate justice. We support Actions that explicitly consider climate change, such as Action W7A, but encourage the adoption of climate criteria for all Actions. Actions that reduce carbon emissions, such as better bike and pedestrian connections, should be prioritized.

Support tribal nations and the urban native community

We welcome and encourage guidance on culturally-important locations, access needs , and programming. We support all Actions in the plan to that end.

2040 Vision

There is much to be excited about in the 2040 vision outlined in this draft. However, for that vision to be fulfilled, there must be commitment to concrete, timely actions that will work steadily towards it .

We again underscore that this Plan includes unmet objectives that pre-date even the previous 20-year plan. This time, let's get it right and make the commitments necessary to fully realize the Plan's vision.

We thank the Bureau of Planning and Sustainability and all partner agencies for the effort and vision presented here, and look forward to seeing it realized as soon as possible.

Sincerely,

Brooklyn Action Corps
board@brooklyn-neighborhood.org

Cc: Andrea Durbin, BPS Director
Debbie Bischoff, BPS
Jeff Caudill, BPS
Chloe Eudaly, City Commissioner and PBOT Commissioner
Adena Long, Parks & Recreation Bureau Director
Chris Warner, PBOT Director
Ted Wheeler, Mayor and Parks & Recreation Bureau Commissioner

Morgan Steele

#103425 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please find attached the Bureau of Development Services' testimony for the Proposed Draft of the River Plan/South Reach. Thank you

Testimony is presented without formatting.

City of
Portland, Oregon
Bureau of Development Services
FROM CONCEPT TO CONSTRUCTION

Ted Wheeler, Mayor
Rebecca Esau, Director
Phone: (503) 823-7300
Fax: (503) 823-6983
TTY: (503) 823-6868
www.portlandoregon.gov/bds

MEMO

Date: **February 25, 2020**

To: **Planning and Sustainability Commission**

From: **Kimberly Tallant, Land Use Services Division Manager**
Bureau of Development Services

CC: **Andrea Durbin, Director**
Bureau of Planning and Sustainability

Rebecca Esau, Director
Bureau of Development Services

Re: **BDS Comments on River Plan / South Reach Proposed Draft**

Thank you for the opportunity to review and comment on the River Plan / South Reach Proposed Draft. This project will reestablish connections between neighborhoods and the river, reexamine recreation and viewpoint opportunities, fish and wildlife habitat, zoning and setbacks and floodplain management and provide more robust protection for resources located in the South Reach of the Willamette River, especially the floodplain.

Specifically, BDS would like to acknowledge the following proposed regulations that will assist in efficient and informed implementation: (1) the expansion of the River overlay zones to the South Reach offers a two-track system of Standards and River Review in this area, ensuring development is only subject to a discretionary land use review when warranted due to encroachment into environmentally sensitive areas; (2) the proposed standards for residential docks provide parameters for the appropriate size and location of docks which is not provided in the code today. This will improve implementation in the South Reach where applications for docks are common; and (3) focusing the language in the Non-Conforming Uses and Development section helps provide clear guidance for redevelopment of non-river dependent/river-related situations within the Greenway Setback, which are likely to become more common with the proposed expansion of the river setback.

The comments below provide detailed comments on the proposal. For ease of review, comments have been broken into two categories: Substantive and Technical Comments. The substantive comments address larger issues, while the technical comments address minor issues, clarifications and typographical errors.

Substantive Comments

Item No.	Page	Code Section	Comment
1	61	33.475.225	Since the applicant will be addressing the Residential Dock purpose statement as part of the modification review if dock size is exceeded, can the purpose statement be revised to include more robust language? ODFW's 2016 Residential Dock Guidelines provides information on impacts to fish, wildlife, and habitat causes by docks that could be used as such: A. Purpose. Limiting the size, coverage, and location of residential docks on the Willamette River will reduce the impact of these over-water structures on riparian and upland wildlife and their habitats. The Residential Dock Standards serve several purposes: ▪ Prevent harmful shading that invasive fish species use to prey on endangered and threatened fish species; ▪ Allow waterfowl access to important foraging areas; ▪ Minimize disruption to waterflow patterns and natural sediment transport along the shoreline; and ▪ Etc.
2	87	33.475.405.W	There are approval criteria for PLAs in 33.865, but no River Environmental standards in 33.475. This means that any PLA on a site with a River 'e' overlay will be subject to River Review unless it meets this exemption. Please consider adding standards.
3	99	33.475.440.P.10	The River 'e' land division standards address tree removal. As written, 33.630 tree preservation standards and criteria will also apply resulting in two layers of regulation for the same trees. Trees in Environmental overlay zones are exempt from 33.630. Consider a similar exemption in 33.630 for trees in River 'e' zones.
4	113	33.475.440.P	As written it is not clear whether an outfall associated with a land division can use the standards for outfalls. Consider including a reference to the stormwater outfall standards in 440.C or providing an allowance for stormwater outfalls for land divisions that includes one, 6-inch outfall per land division site. This is similar to what was suggested for the minor updates to 33.430 through the E-Zone Map Correction Project.

5	113	33.475.440.P	Consider providing language that addresses existing or proposed docks in resource tracts created as part of a land division. For example, can a gangway for a shared dock be placed in the resource tract? Or can an existing dock remain and be used as a shared dock in the newly created resource tract?
6	113	33.475.440.P	Consider a land division standard allowing building setbacks to be reduced to zero, if moving development further from river resources. If the new lots aren't partially in the River Environmental zone, the allowance of 33.475.440.O.5 won't apply.
7	195	33.865.100.A.1.a	This land division criterion requires that uses and development be located outside of the floodplain, except for ROW, driveways, walkways, outfalls and utilities meeting certain criteria, and requires all other areas in the floodplain to be placed in an environmental resource tract. There does not appear to be an allowance for river-dependent/related development or uses to be located within the floodplain adjacent to the river on newly created lots even through review. Please keep in mind that this code will also apply to the Central Reach.
8	195	33.865.100.A.1.c	This criterion implies that the number of **required** units or lots can be reduced through the River Review, which is not the case. Recommend revising to "reduction in the number of proposed ~~or required~~ units or lots". We realize this is existing language from 33.430, but it is misleading. Also, Environmental overlay zones are subtracted from site area to calculate minimum density in residential zones. Consider adding the River Environmental Overlay to these provisions.
9	195	33.865.100 A.1 e	Please add an approval criterion for **mitigation of impacts** to identified resources and functional values associated with land divisions, PLAs and PDs.
10	195-197	33.865.100 A.1.d and A.3	Certain criteria apply to ROW, driveways, walkways, outfalls, and utilities associated with a land division, but not in other situations. Was holding these features to a higher standard when part of a land division intended?
11	199	33.865.100 A.3.d (3) &	Please provide detailed commentary language that gives insight into what the approval criteria are looking for in terms of mitigation. Some of the "factors to consider" bullets seem open-

		33.865.100 A.3.d (4)	ended. As do words such as “uniqueness” and “relative condition.”
12	203	33.865.120.C	Consider adding a criterion that directs the applicant to mitigate for the violation, in addition to required remediation. This could reflect what is required under the Option 1 and 2 correction options, such as 33.475.450.B.2.c (3) requiring a “second area, equal in size to the area disturbed by the violation activity.”

Technical Comments

Item No.	Page	Code Section	Comment
1	15	33.430.190	The second “major” should be deleted from the description.
2	31	33.475.010	Should “historical” be added as a quality in the purpose statement?
3	31	33.475.020.A.3	Add “river” in front of “environmental” in the third sentence.
4	43	33.475.210.A	In the first sentence, should river-dependent and river-related “uses” be replaced with “purposes” or “development”, since this section is about development not uses?
5	59	33.475.220.E.1	Update to match new NCU threshold, $300,000.
6	61	33.475.225	Please indicate, in an introductory paragraph, that docks are still subject to River Review even if the dock standards are met.
7	77-79	33.475.250.D.2.b	For alterations to existing seawalls, add “ and the length along the river frontage” to things that “cannot be increased.”
8	81	33.475.405.D	Alterations, repair and replacement is not exempt whenever total square footage, building coverage or utility size is increased Is “total square footage” intended to apply to exterior improvements or building floor area? Should it specify replacement in the same location?
9	83	33.475.405.H	Add “or structures” to things that can be altered if the footprint is not changed.

10	83	33.475.405.L	Consider expanding the allowances for pruning trees in, riverward, and landward of the river setback. There have been instances where trees needed to be pruned to keep warning signage clear for utility crossings, or because trees were encroaching into public trails. These requests have usually come from Urban Forestry, perhaps an exemption could be written to allow the City Forester to approve pruning without River Review.
11	85	33.475.405.S.2	Consider adding "the perimeter of" before stormwater facility to this exemption.
12	87	33.475.405.W	Either remove this exemption for land divisions or make it clear it applies to development within already approved and recorded plats. We realize this language is used in 33.430, but it causes confusion for applicants and staff.
13	89	33.475.420 and 33.475.420.A & .B	Add Property Line Adjustments to the list of activities that may trigger review.
14	93	33.475.440.D.2	Removal may include cutting piles or dolphins down to the river bottom, rather than removing them completely More clarity about removal of piles would be useful. Is removing piles completely exempt? What about cutting piles below river bottom? Or extracting them completely?
15	99	33.475.440.K.5.b	Make this language regarding removal and pruning of vegetation match the updated code in 33.430.080.D.7.a (1) of the E-Zone Map Correction project. BDS staff spent considerable time working with BPS to fine-tune that language.
16	111-113	33.475.440.O.4	Mitigation is required as specified in Subsection L for increases in building coverage and exterior improvement area for alterations to existing development. The mitigation ratio refers to "project disturbance area." Please clarify that the required amount of mitigation area for alterations is based on the increased building coverage and exterior improvement area (not overall disturbance area on the site). Also, the 1.5:1 mitigation ratio may be hard to meet for alterations to existing development. 33.430.140.D requires a .5:1 ratio.
17	113	33.475.440.P.4	Should this subsection reference Paragraph P.3 and not Q.3?

18	115	33.475.440.P.8	Clarify that the ROW and roadway width standards for land divisions apply to new streets (not existing streets that the site fronts on). "New right-of-way and roadway widths do not exceed…"
19	181	33.865.030.B	An applicant reading only 33.865.030 will not realize that Type III River violation review is required for violations within a wetland, stream channel, drainageway, or water body. Please add this to 33.865.030.
20	195	33.865.100 A.1.d.1	Heading in d. refers to ROW, driveways, walkways, outfalls and utilities, but only outfall and utility are listed in the criterion d.1 Change "environmental protection zone" to River Environmental overlay zone.
21	197	33.865.100.A.3.b	Add "other" between 'than' and 'practicable'.
22	197	33.865.100.A.3.d	Add "as described in the resource inventory" after "resource". (end of 1st sentence).
23		Maps	Please ensure all maps are printed at a high resolution. Some maps are clear and crisp while others are fuzzy. This will help clearly identify boundary lines in the maps.

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8	81	33.475.405.D	Alterations, repair and replacement is not exempt whenever total square footage, building coverage or utility size is increased Is “total square footage” intended to apply to exterior improvements or building floor area? Should it specify replacement in the same location?
9	83	33.475.405.H	Add “or structures” to things that can be altered if the footprint is not changed.

10	83	33.475.405.L	Consider expanding the allowances for pruning trees in, riverward, and landward of the river setback. There have been instances where trees needed to be pruned to keep warning signage clear for utility crossings, or because trees were encroaching into public trails. These requests have usually come from Urban Forestry, perhaps an exemption could be written to allow the City Forester to approve pruning without River Review.
11	85	33.475.405.S.2	Consider adding "the perimeter of" before stormwater facility to this exemption.
12	87	33.475.405.W	Either remove this exemption for land divisions or make it clear it applies to development within already approved and recorded plats. We realize this language is used in 33.430, but it causes confusion for applicants and staff.
13	89	33.475.420 and 33.475.420.A & .B	Add Property Line Adjustments to the list of activities that may trigger review.
14	93	33.475.440.D.2	<u>Removal may include cutting piles or dolphins down to the river bottom, rather than removing them completely</u> More clarity about removal of piles would be useful. Is removing piles completely exempt? What about cutting piles below river bottom? Or extracting them completely?
15	99	33.475.440.K.5.b	Make this language regarding removal and pruning of vegetation match the updated code in 33.430.080.D.7.a (1) of the E-Zone Map Correction project. BDS staff spent considerable time working with BPS to fine-tune that language.
16	111-113	33.475.440.O.4	Mitigation is required as specified in Subsection L for increases in building coverage and exterior improvement area for alterations to existing development. The mitigation ratio refers to "project disturbance area." Please clarify that the required amount of mitigation area for alterations is based on the increased building coverage and exterior improvement area (not overall disturbance area on the site). Also, the 1.5:1 mitigation ratio may be hard to meet for alterations to existing development. 33.430.140.D requires a .5:1 ratio.
17	113	33.475.440.P.4	Should this subsection reference Paragraph P.3 and not Q.3?

18	115	33.475.440.P.8	Clarify that the ROW and roadway width standards for land divisions apply to new streets (not existing streets that the site fronts on). "New right-of-way and roadway widths do not exceed…"
19	181	33.865.030.B	An applicant reading only 33.865.030 will not realize that Type III River violation review is required for violations within a wetland, stream channel, drainageway, or water body. Please add this to 33.865.030.
20	195	33.865.100 A.1.d.1	Heading in d. refers to ROW, driveways, walkways, outfalls and utilities, but only outfall and utility are listed in the criterion d.1 Change "environmental protection zone" to River Environmental overlay zone.
21	197	33.865.100.A.3.b	Add "other" between 'than' and 'practicable'.
22	197	33.865.100.A.3.d	Add "as described in the resource inventory" after "resource". (end of 1st sentence).
23		Maps	Please ensure all maps are printed at a high resolution. Some maps are clear and crisp while others are fuzzy. This will help clearly identify boundary lines in the maps.

City of
Portland, Oregon
Bureau of Development Services
FROM CONCEPT TO CONSTRUCTION

Ted Wheeler, Mayor
Rebecca Esau, Director
Phone: (503) 823-7300
Fax: (503) 823-6983
TTY: (503) 823-6868
www.portlandoregon.gov/bds

MEMO

Date: **February 25, 2020**

To: **Planning and Sustainability Commission**

From: **Kimberly Tallant, Land Use Services Division Manager**
Bureau of Development Services

CC: **Andrea Durbin, Director**
Bureau of Planning and Sustainability

Rebecca Esau, Director
Bureau of Development Services

Re: **BDS Comments on Macadam Character Statement**

Thank you for the opportunity to review and comment on the Macadam District Character Statement. The Bureau of Development Services supports repealing of the Macadam Design Guidelines in conjunction with the adoption of a new Macadam District Character Statement (to be included in the DOZA Citywide Design Guidelines). The existing Macadam Design Guidelines have limited utility and do not provide sufficient guidance to ensure quality design outcomes. They lack many of the objectives desired by the neighborhood, and reinforce an auto-oriented typology that is incongruent with City goals.

With the goal of creating a concise, useful document that provides clarity to development teams and staff about the desired goals of this neighborhood, the following recommendations are intended to clarify document structure and provide specific guidance on how citywide design guidelines can be tailored to this unique neighborhood.

Structure + Purpose

1. Rework structure of each character paragraph to clearly speak to history; existing conditions, and emerging conditions/necessary repair – or put History, Existing Conditions on page 1, and Emerging Conditions on page two.
2. Be concise and direct in character sections – clearly highlight the specific characteristics and qualities development should achieve.
3. Add headings, language or graphic cues that clearly tie this character statement back to the guideline (terminology such as cultural values; desired character; reflecting and enhancing local natural resources – taken from the language under Design Approaches in Guideline 2).

4. Add a heading on the first page to clarify that this is background/history.

Background: History and Existing Conditions

5. Background could be edited for brevity, with a focus on land use history that can inform future development and land use review.
6. Add language in the introduction that speaks to the transition from predominantly industrial uses to suburban mixed-use and the Boulevard treatment of Macadam which emphasized vehicular traffic rather than pedestrian use, and how this informed the existing patterns of development.

Emerging Conditions

7. Steer clear of using sweeping terms like "welcoming urban environment" and instead describe the existing conditions and where the district should 'aspire to go'. Be clear that existing conditions require repair. Example: large lot sizes; historic zoning standards, and past planning projects have resulted in a suburban typology characterized by large, street-level parking areas; main entrances that face parking areas, and deep, unused street setbacks. This discourages walking, and blocks views and access to the river. To remedy these conditions, new development should emphasize the pedestrian environment and orient toward Macadam Boulevard. Building orientation should also facilitate east-west connections to the river.
8. Eliminate sentence within the last paragraph of the introduction: *Development along the northern end has a boulevard character with larger setbacks, taller buildings and large floorplates as it transitions to Central City's South Waterfront district. In contrast, development along the southern end reflects a main street character with development built up to street lot lines, and has lower heights and smaller buildings.* Describing existing conditions without commentary doesn't provide useful guidance on how future development should respond to the context.

Macadam Treatment

9. Add language that recognizes the limitations on Macadam due to the Special Street setback, while describing what the aspirations, or goals are for these parts of the Avenue (vegetation, canopies, extended hardscaping, active use spill-out, glazing, etc.). This would aid staff in supporting Modification requests to the 33.288 Special Street Setback standards that limit canopy depth, etc. in the street setback, and could allow for more pedestrian-oriented spaces along Macadam prior to re-writing the Plan District and/or eliminating the special street setback.
10. Add language that speaks to the need to improve the current public realm environment along Macadam – prioritizing the pedestrians over traffic/transit. Emphasize importance of sites at or across Macadam from street corners in helping reduce the barrier-effect of Macadam Avenue. Desired development at these sites includes: emphasizing treatment of buildings at street intersections and crosswalks across Macadam to encourage pedestrian movement across Macadam and through to the river, with entrances, active uses, canopy coverage, pedestrian paths to river, etc.
    Be more explicit about the need/desire for large trees along Macadam as a buffer between traffic and commercial spill-out spaces for pedestrians.

Riverfront Treatment

11. Current description is lacking in expectations for river and building interfaces. Provide more guidance on how development abutting the riverfront and greenway trails should respond to this frontage. For example: lighting, location of loud/active private outdoor spaces in relation to trail, planting, entrances, transitions, etc.
12. Emphasize need for east west connections, particularly on longer north/south sites along the waterfront.
13. Encourage lush vegetation along east/west streets and pedestrian connections to improve public realm conditions and strengthen the connection between the river and Macadam. This could work towards creating a series of "green fingers" which would permeate the area between Macadam and the waterfront.
14. Add reference to Portland's typical 200' block structure when discussing desired frequency of physical and/or visual connections between Macadam and the river. Note: in the Macadam Plan District, many blocks are longer than 200', so if we want more frequent connections, we should be specific about a 200' maximum width (frontage along Macadam), and not just say 'block'. It is also not as important to have a maximum 200' depth (east/west direction) since long buildings in this direction do not impede connections with the river.

In addition, the Bureau of Development Services recommends the following additional changes to better ensure that all City code standards, guidelines and character statements work in tandem to achieve consistent outcomes:

New Design Standard

Add a standard to the DOZA context design standards which currently speaks to facade articulation on riverfront sites, to create a maximum building length for walls that are parallel to the river. This would encourage long buildings to orient their longest sides perpendicular to the river, and would allow more frequent visual and physical east west connections across around new development to the river.

Update Macadam Plan District

An update to the plan district is needed to better align the goals of the guidelines and character statement with current city code. Specifically, the goal of providing more permeability within the district with physical and visual access will be hard to implement without prescriptive code standards. Future plan district re-write should explore repealing/reducing the special street ordinance and the varied street setbacks in 33.550 that create a "campus-like character". This would significantly increase the developable area along Macadam, and could facilitate a more pedestrian-oriented environment.

Nancy McKimens

#103424 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I would encourage the city to take in Waverly Country Club because of all its natural resources Please increase the set back to at least 100' PROTECT the trees and native vegetation thanks for considering these additions...you have an important role in protecting our water, our views, our animals and birds and air!

Testimony is presented without formatting.

Jillian Detweiller

#103423 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

THE STREET TRUST February 24, 2020 Portland Planning and Sustainability Commission River Plan/South Reach Testimony 1900 SW4,h Avenue, Suite 7100 Portland, OR 97201 Subject: River Plan/South Reach Dear Planning and Sustainability Commission: The Street Trust was recently contacted by a representative of the Board of Directors of the Riverpoint Homeowners' Association (Riverpoint) seeking our support to assure the continuance of the "Greenway Trail West," as described in the draft South Reach Plan, by making it a "Scenic Corridor" in the final South Reach Plan. The Street Trust supports this designation. The Greenway Trail West is a prized trail for public access along the Willamette River. We understand that if designated as a Scenic Corridor in the final plan it will permanently provide the Portland residents and visitors with an extended path, where they can enjoy the panoramic views of the city, the river and wildlife on it, the boats on the river, Mt Hood, and the natural east side of the river on Ross Island and Oaks Bottom. The Street Trust urges the Commission to recommend adoption of a plan that makes every effort to preserve this scenic treasure for future generations. Sincerely, Jillian Detweiler Executive Director

Testimony is presented without formatting.

Mary Coolidge

#103421 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thank you for the opportunity to submit comments on the South Reach River Plan. I am proud to live in Portland, a biophilic city, an Urban Bird Treaty City, and one of the greenest cities in the nation. I appreciate the Planning and Sustainability Commission's strong leadership role in helping to ensure that Portland continues to earn and enjoy this green reputation. I support Portland Audubon's recommendations to strengthen the plan, specifically: 1. To expand the Willamette River setback to 100 feet and to develop a plan to remove development from the setback over time; 2. To strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and to reduce light pollution; 3. To expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones; and 4. The plan should call for the City to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you for your consideration of these comments.

Testimony is presented without formatting.

John Marshall

#103420 | February 25, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Oaks Bottom Wildlife Refuge south landfill (aka the Sellwood Dump) has been leaking contaminants into the surrounding wetlands for over 50-years. While recent actions have been taken to plug the leaks, the contaminants that have already been released require follow-up tracking and reporting with focus on their risk of exposure to fish and wildlife and human visitors to the Refuge. A comprehensive management plan for the Refuge may be a step in the right direction if it were to adequately address this issue.

Testimony is presented without formatting.

Oaks Bottom Wildlife Refuge Potential Toxic and Hazardous Materials at Risk of Exposure to Fish and Wildlife

Sellwood Dump has likely been leaking toxins into the surrounding wetlands since the 1960s, over 50-years before the improved fish passage culvert was placed in 2018.

Lower Willamette River Mile 16 303d List

POLLUTANT
pH
Fish tissue, DDT
Mercury
DDT 4,4
E. Coli
Polynuclear Aromatic Hydrocarbons
Aquatic Weeds (Harmful Algal Blooms)
Biological Criteria
Iron
Pentachlorophenol
Dieldrin
Dioxin (2,3,7,8-TCDD)
Lead
Biological Criteria
Chlorophyll a
Temperature
Copper
DDE 4,4
Hexachlorobenzene
Chlordane
Cyanide
Aldrin
Polychlorinated Biphenyls (PCBs)
Ethylbenzene
DDT 4,4

Sellwood Dump Detectected Leachate List

Pollutants
Total PCB Congeners
Barium
Chromium
Copper
Iron
Lead
Manganese
Nickel
Silver
Benzo(a)pyrene
Fluorathene
Naphthalene
Phthalates
DDD
Total DDT

Map and Data Compilation by John Marshall, Volunteer Naturalist

Map Date: October 19, 2019

Map Data Sources: Oregon DEQ 2012 303d List and Cascadia Associates LLC 2018 Removal Action Assessment Report Oaks Bottom Landfill (Sellwood Dump) Seeps prepared for City of Portland Bureau of Environmental Services.

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
Polychlorinated Biphenyls (PCBs) are a group of man-made organic chemicals. PCBs have no known taste or smell, and range in consistency from an oil to a waxy solid. They are often found in electronic equipment such as transformers. They do not readily break down once in the environment. They can remain for long periods cycling between air, water and soil. PCBs can be carried long distances.	Carcinogen with documented impairment of immune systems, reproductive systems, nervous systems, and endocrine systems.	Carcinogen with documented impairment of immune systems, reproductive systems, nervous systems, and endocrine systems.
Barium is a silvery-white metal often used in barium-nickel alloys for spark-plug electrodes an in vacuum tubes as drying and oxygen-removing agent. It is also used in fluorescent lamps. It is used by the oil and gas industries to make drilling mud for lubricating the drill. It is also used to make paint, bricks, tiles, glass, and rubber. Barium nitrate and chlorate give fireworks a green color.	Because of their water-solubility, barium compounds can spread over great distances. When fish and other aquatic organisms absorb them, barium will accumulate in their bodies. Dissolved barium in aquatic environments may represent a risk to aquatic organisms such as daphnids. Daphnia are a preferred prey source by juvenile Coho salmon. But barium is apparently of lesser direct risk to fish and aquatic plants, although data are limited. No adverse effects have been reported in ecological assessments of terrestrial plants or wildlife, although some plants are known to bioaccumulate barium from the soil.	The health effects of barium depend upon the water-solubility of the compounds. Barium compounds that dissolve in water can be harmful to human health. Small amounts of water-soluble barium may cause a person to experience breathing difficulties, increased blood pressures, heart rhythm changes, stomach irritation, muscle weakness, changes in nerve reflexes, swelling of brains and liver, kidney and heart damage. The uptake of very large amounts of barium that are water-soluble may cause paralyses and in some cases even death.
Chromium can enter the environment from a variety of sources including but not necessarily limited to discarded cement, asbestos linings, antifreeze, and certain textiles often found in landfills. Chromium can change from one form to another in water and soil, depending on the conditions present.	Chromium destabilizes ecosystems due to toxic impacts on biota and bioaccumulation in certain organisms. Occurrence of chromium varies in fishes, depending upon their age, development as well as other physiological variables. It can be toxic to cells with detrimental impact on behavior of fish indirectly leading to organ dysfunction and paralysis around the gills. Other affects include anemia (inadequate oxygen to cells), thrombocytopenia (excessive bleeding), decrease in hemoglobin and total red blood cell count (inhibited respiration). At bio-	There are three valences of Chromium: 1) Chromium—safe to humans, 2) Trivalent Chromium—safe and an essential element in humans and 3) Hexavalent Chromium—highly carcinogenic to humans. Hexavalent Chromium has caused a mired amount of suffering and deadly diseases that range from asthma, liver disease, lung cancer, stomach cancer, skin cancer, cardio-vascular disease, as well as many other deadly cancerous effects to external and internal human organs. Hexavalent Chromium

[1] This information was obtained from a variety of sources and no claim is made for or against its validity or relevance to the site conditions present at the Oaks Bottom Wildlife Refuge.

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
	chemical level, mostly decline in the contents of glycogen (carbohydrates), lipids and proteins (reduction in energy and nutrition).	cancer clusters can be isolated and identified to specific areas of our environment, such as former Chromium manufacturing sites and unlined dumping sites.
Copper pollution can enter into the environment from discarded products by manufacturing companies dealing with copper in the production of metal, electrical appliances, pesticides, fungicides and other products that contain copper, including but not necessarily limited to used motor oil, paint, and brake pads.	An excess of copper in the water has adverse effects on aquatic life, with damage to freshwater organisms such as fish. Copper damages the kidneys, nervous systems, and livers of most aquatic species. The most sensitive latent effect of exposure to sublethal levels of copper was the failure of copper exposed Coho smolts to migrate successfully following release into a natural stream.	High levels of copper may cause nausea, diarrhea, chest pains, and irritation of the respiratory tract. Very high copper doses can damage the kidneys and liver and may lead to death. There is also a correlation of some aging effects and excess copper.
Iron in leachates from municipal landfills have been detected in concentrations above standards, regardless of site age.	The toxicity of iron depend on the species of the fish, and the size of the fish. The gills of the fish are in effect acting as a mechanical filter, and small particles of iron with dimensions of a few microns are becoming trapped in the gill lamella. The presence of the small iron particles cause irritation of the gill tissues leading to gill damage and secondary bacterial and fungal infections. Iron also will promote the dissociation of oxygen molecules in water to form free radicals. On the surface of the gills, the free radicals formed by the iron can cause oxidation of the surrounding tissue, leading to destruction of gill tissue and anemia.	Iron is not hazardous to health, but it is considered a secondary or aesthetic contaminant. Essential for good health, iron helps transport oxygen in the blood. Most tap water in the United States supplies approximately 5 percent of the dietary requirement for iron. Human exposure to toxic levels of iron are rare and most commonly associated with direct ingestion of high doses of vitamin supplements, especially problematic for children. Skin reactions to exposure from iron laden surface water can moderately damage healthy skin cells.
Lead in leachates from municipal landfills have been detected in concentrations above standards, regardless of site age. House paint and gasoline were once manufactured with lead. Fishing sinkers and jigs are often made from lead. Most fire-arms ammunition contain lead including pellets, shot, slugs, round balls, and bullets.	Lead is a potentially deadly toxin that damages internal organs of the body and can impact all animals, including humans. For both birds and people, lead must be eaten (ingested) or lead particles or fumes inhaled to elevate lead levels to cause poisoning. High blood lead levels (BLL) in birds (from loons, doves, cranes, swans, to vultures, eagles, crows, and other scavenging birds)	Examples of how people can ingest lead include eating paint chips, inhaling paint fumes and paint dust, eating wildlife harvested with lead shot or lead slugs. Stomach acid breaks down lead and then lead is absorbed into the blood stream. Fine particles and fumes that are inhaled are absorbed into the bloodstream through the lungs. Young children and

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
	impacts the nervous and circulatory systems and the kidneys. The weakened bird has trouble flying, hunting/feeding, is much more susceptible to infection, and often starves. In female birds with low BLL, reproduction is impacted.	pregnant women absorb more lead than do adult males. In children, even a small amount of lead can cause learning delays, decreased intelligence, shortened attention span, and very high lead levels may cause brain damage or even death. Lead exposure in children may also result in expression of antisocial behaviors. Very low lead levels increase an adult males' risk of stroke and heart attack and can decrease sperm count. Later in life, lead can re-emerge from bone tissue causing high blood pressure, kidney failure, and Parkinson's Disease.
Manganese in a dissolved state can leach through solid waste landfills at concentrations that may be an order of magnitude (or more) greater than concentrations present in natural groundwater systems.	While lower organisms (e.g., plankton, aquatic plants, and some fish) can significantly bioconcentrate manganese, concentrations do not increase with ascending trophic levels of food chains and that predatory animals do not have higher concentrations as they are capable of regulating the manganese content of their tissues by controlled uptake and increased excretion. High manganese ingestion by laboratory animals resulted in an interference with intestinal iron absorption and a subsequent reduction in hemoglobin. This observation is consistent with the anemia seen in other animals including humans. Depending on doses, chemical compositions, and developmental stages of test animals, a host of other disorders were recorded ranging from neurological and behavioral (e.g.., inhibited danger avoidance).	The symptoms of manganese toxicity (usually associated with direct ingestion or inhaled dust) may appear slowly over months and years. Manganese toxicity can result in a permanent neurological disorder known as manganism with symptoms that include tremors, difficulty walking, and facial muscle spasms. These symptoms are often preceded by other lesser symptoms, including irritability, aggressiveness, and hallucinations. Some studies suggest that manganese inhalation can also result in adverse cognitive effects, including difficulty with concentration and memory problems.
Nickel is used to manufacture stainless steel and other nickel alloys with high corrosion and temperature resistance. These alloys are used in ship building, jet turbines and heat elements, cryogenic installations, magnets, coins, welding	Signs of nickel poisoning in fishes include surfacing, rapid mouth and opercular movements and, prior to death, convulsions and loss of equilibrium. Destruction of the gill	Symptoms in rare cases of extreme direct ingestion of sublethal concentrations included nausea, vomiting, abdominal discomfort, diarrhea, giddiness, lassitude,

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
rods, electrodes, kitchenware, electronics, and surgical implants; other nickel compounds are used in electroplating, battery production, inks, varnishes, pigments, catalysts, and ceramics. Nickel containing demolished solid wastes are disposed in landfills and to a significant extent are where nickel migrates from out into the food chain through surface water as well as groundwater. Consequently, lethal and sublethal nickel exposure risks to aquatic organisms and humans are increased.	lamellae decreases the ventilation rate and may cause blood hypoxia. Other signs of nickel poisoning in fishes contractions of muscles, signs similar to those associated with hypertension in mammals. Chronic impairment of such a dynamically active and critical organ as the gill may depress the overall fitness of a fish by impairing predator avoidance, prey capture and migration success with obvious environmental implications.	headache, cough, and shortness of breath. Lethal concentrations of ingested nickel have resulted in cardiac arrest and death. Nickel may possibly be carcinogenic to humans.
Silver containing demolished solid wastes are disposed in landfills and to a significant extent are where silver migrates from out into the food chain. Like other metals, silver concentrates in aquatic food chains and may exert toxicity. Surveys show that one-tenth to one third of samples taken from drinking water supplies (both groundwater and surface water) contain silver at levels greater than 30 ppb. The most common way that silver may enter the body of a person near a hazardous waste site is by drinking water that contains silver or eating food grown near the site in soil that contains silver. Silver can also enter the body when soil that has silver in it is eaten. Most of the silver that is eaten or breathed in leaves the body in the feces within about a week. Very little passes through the urine. It is not known how much of the silver that enters the body through the skin leaves the body. Some of the silver that is eaten, inhaled, or passes through the skin may build up in many places in the body.	Silver at specific water concentrations is toxic to zooplankton, marine copepods, and freshwater cladocerans. However if Silver is accumulated from algal food, reproductive success of these organisms is significantly compromised at much lower water column concentrations. Following dietary exposure, decreased egg production and viability occur when tissue silver concentrations increase three- to four- fold. Assimilated silver depresses egg production by reducing yolk protein deposition and ovarian development.	Since at least the early part of this century, doctors have known that silver compounds can cause some areas of the skin and other body tissues to turn gray or blue-gray. Doctors call this condition "argyria." Argyria occurs in people who eat or breathe in silver compounds over a long period (several months to many years). It is likely that many exposures to silver are necessary to develop argyria. Once you have argyria, it is permanent. However, the condition is thought to be only a "cosmetic" problem. Most doctors and scientists believe that the discoloration of the skin seen in argyria is the most likely health effect of silver. But it is not known what level of silver causes breathing problems, lung and throat irritation, or stomach pain in people. Studies in rats show that drinking water containing very large amounts of silver is likely to be life-threatening.
Benzo[*a*]pyrene is a polycyclic aromatic hydrocarbon and the result of incomplete combustion of organic matter. The ubiquitous compound can be found in coal tar, tobacco smoke and many foods. It may also be found in water and soil at landfill sites.	Sediments heavily contaminated m with industrial PAH wastes have directly caused elevated PAH body burdens and increased fish liver neoplasia. Experiments revealed fertilization success but not egg production was significantly decreased in some species	Benzo[a]pyrene metabolites are mutagenic and highly carcinogenic. Numerous studies since the 1970s have documented links to cancers. A 1996 study provided molecular evidence linking components in tobacco smoke to lung

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
	of fish, thereby suggesting potential male sensitivity. Specifically, male gonad weight and plasma testosterone concentrations were decreased by 38 and 86%, respectively.	cancer. Exposure to Benzo(a)pyrene can also cause a skin rash, a burning feeling, skin color changes, warts, and bronchitis.
Fluoranthene is a chemical substance formed during the incomplete burning of fossil fuel, landfill garbage, in cigarette smoke, or any organic matter and is found in smoke in general; it is carried into the air, where it condenses onto dust particles and is distributed into water and soil and on plants.	Polycyclic aromatic hydrocarbons, such as fluoranthene are of environmental concern because of their persistence, toxicity, and mutagenic properties. Exposure to approximately 30 ug Flu/g dry-weight sediment or 50 ug Flu/L seawater resulted in significant DNA damage. The degree of DNA damage was time dependent during both exposure and depuration, and although exposure route had no effect on the maximum degree of DNA damage occurring, it did influence the time course of damage. Levels of damage declined despite continued exposure to Flu, providing evidence for the induction of one or more DNA repair mechanisms.	Fluoranthene is reported to alter trophoblast (the placental layer helping to supply nourishment to the fetus) prolifer-ation in placenta, in addition to disturbing its endocrine functions, which may be able to increase the risk of preterm delivery in pregnant women. It is reported to be a human carcinogen. Coal tar pitch volatiles are defatting agents and can cause dermatitis on prolonged exposure. Persons with existing skin disorders may be more susceptible to the effects of these agents.
Naphthalene is used as a fumigant to repel animals and insects in closets, attics, soils (including gardens), and other applications, and also as a deodorizer in diaper pails and toilets. Outdoors, it is used to control nuisance vertebrate pests (snakes, squirrels, rats, rabbits, bats, *etc.*) around garden and building peripheries. Many building materials emit naphthalene. It is a commonly used material in carpet pads and other flooring materials. These materials are all commonly found in municipal landfills. The detection of naphthalene in groundwater in the vicinity of industrial facilities and indicates that these chemicals are released to water from these sources.	It is likely that loss of naphthalene from ambient water occurs by volatilization. It is expected to be slightly mobile to immobile in soils Methylnaphthalene in are also excreted rapidly by fish and shellfish when they are removed from polluted waters. Reported biodegradation half-lives range from 3 to 1,700 days in various water systems. It can persist in anaerobic soil for much longer time frames.	Naphthalene is a possible human carcinogen but available data are inadequate to establish a causal association Existing exposure data are limited, and monitoring surveillance should be improved. Naphthalene was also detected in six of eight samples of human milk.
Phthalates are used as plasticizer additives to make materials more flexible and malleable. They are bonded physically, not chemically, to the polymeric matrix and can migrate to and leach from the product surface, posing a serious danger to the	Early investigations on annelids and mollusks focused on bioaccumulation (phthalates bioconcentrate in fish) and acute toxicity of phthalates, but more recently, wider biological effects have been shown,	The main concerns of human and wildlife exposure to Phthalate are the potential adverse effects on reproduction, including problems with fertility, the development of newborns, and carcinogenicity. It can

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
environment and human health. There have been a number of studies on Phthalate concentrations in landfill leachate.	including mitotic inhibition, induction of chromosomal aberrations and effects on larval development. Exposures to phthalates alter behavior in fish such as alterations in shoaling and feeding behavior in three-spined stickleback and common carp.	enter the human body through inhalation, ingestion and dermal absorption and can potentially affect human testicular dysgenesis syndrome, reproductive development and sex reversal. Phthalates acting as endocrine disruptors may contribute to many health problems such as hepatomegaly, osteoporosis, feminization of boys, weight loss, and skin and breast cancer. Because it can bioaccumulate over long term exposure, humans are at higher risk following continued consumption of contaminated water or food.
DDT (dichlorodiphenyltrichloroethane) is a pesticide once widely used to control insects in agriculture and insects that carry diseases such as malaria. DDT is a white, crystalline solid with no odor or taste. Its use in the U.S. was banned in 1972 because of damage to wildlife. DDE dichlorodiphenyl-dichloroethylene) and DDD (dichlorodiphenyldichloroethane) are chemicals similar to DDT and are also major metab-olites and environmental breakdown products of DDT. DDT and its derivatives are persistent organic pollutants that are readily adsorbed to soils and sediments and which can act both as sinks and as long-term sources of exposure to organisms.	In animals, short-term exposure to large amounts of DDT in food affected the nervous system, while long-term exposure to smaller amounts affected the liver. Also in animals, short-term oral exposure to small amounts of DDT or its breakdown products may also have harmful effects on reproduction. Historically, The chemical and its breakdown products DDE and DDD caused eggshell thinning and population declines in multiple North bird of prey species. DDE-related eggshell thinning was once considered a major reason for declines of the bald eagle, brown pelican, peregrine falcon and osprey. These species are now recovering since the chemicals were made illegal to use.	DDT affects the nervous system. People who accidentally swallowed large amounts of DDT became excitable and had tremors and seizures. These effects went away after the exposure stopped. Women who had low amounts of a form of DDE in their breast milk were unable to breast feed their babies for as long as women who had high amounts of DDE in their breast milk. Women who had high amounts of DDE in the blood had an increased chance of having premature babies. Mothers with high levels of DDT circulating in their blood during pregnancy were found to be more likely to give birth to children who would go on to develop autism.
The physicochemical properties of **DDT** and its metabolites **(Total DDT**) enable these compounds to be taken up readily by organisms. High lipid solubility and low water solubility lead to the retention of DDT and its stable metabolites in fatty tissue. The rates of accumulation into organisms vary with the species, with the duration and concentration of exposure, and with environmental conditions. The high retention of DDT metabolites means that toxic effects	Both the acute and long-term toxicities of DDT vary between species of aquatic invertebrates. Early developmental stages are more sensitive than adults to DDT. Long-term effects occur after exposure to concentrations ten to a hundred times lower than those causing short-term	Women who had high amounts of DDE in the blood had an increased chance of having premature babies. Mothers with high levels of DDT circulating in their blood during pregnancy were found to be more likely to give birth to children who would go on to develop autism.

Oaks Bottom Wildlife Refuge Sellwood Dump Detected
Potential Pollutant Risks to Fish and Wildlife and Humans

Pollutant[1]	Fish and Wildlife Risks	Human Risks
can occur in organisms remote in time and geographical area from the point of exposure..	effects. DDT is highly toxic, in acute exposure, to aquatic invertebrate, at low concentrations. Toxic effects include impairment of reproduction and development, cardiovascular modifications, and neurological changes. Daphnia (a primary prey of juvenile Coho) reproduction is adversely affected by DDT at 0.5 µg DDT/litre.	

I HAVE BEEN A PORTLAND RESIDENT FOR 25 YEARS. AS I LIVE IN THE PEARL, ONE OF THE HIGHEST DENSITY NEIGHBORHOODS IN THE CITY, THE GREENWAY HAS BEEN A REFUGE FOR ME ALL THESE MANY YEARS. I WALK THE GREENWAY PATH SEVERAL TIMES A WEEK (WEATHER PERMITTING) AND HAVE DONE SO ALL THESE MANY YEARS. THE GREENWAY IS NEAR AND DEAR TO MY HEART - TO BE ABLE TO ENJOY THE DEEP PEACE AND QUIET IN THE EARLY MORNING HOURS - TO BE IN THE COMPANY OF OSPREY, RED-TAILED HAWKS, BALD EAGLES - HAS BEEN SUCH A COMFORT. I AM WRITING TO YOU TODAY IN THE HOPE THAT YOU WILL REMEMBER THAT THE GREENWAY PATH WAS INTENDED FOR ALL THE CITIZENS OF PORTLAND. PLEASE MAINTAIN THE INTEGRITY OF THE PATH AS IT IS A REMINDER TO US ALL THAT WE SHARE IT WITH WILDLIFE, NATIVE PLANTS - IT IS SO MUCH MORE THAN A WALKWAY - IT IS THE VERY HEARTBEAT OF THE CITY. PLEASE PROTECT THIS BEAUTIFUL GREENWAY PATH AND ALL THE MANY LIFEFORMS IT NURTURES:

- THE NATURAL RESOURCES EXISTING IN SOUTH REACH DESERVE A 100-150' SETBACK
- ANY DEVELOPMENT SHOULD MOVE OUTSIDE

THE SETBACK

- STRENGTHEN THE LANDSCAPING REQUIREMENTS TO INCLUDE REVEGETATION EVEN WHEN REMOVING INVASIVE SPECIES WITH NATIVE PLANTS.

THANK YOU FOR YOUR TIME - AND PLEASE CONSIDER - WHAT I HAVE TO SAY.

WE ARE SO VERY FORTUNATE TO HAVE THIS WONDERFUL PARK. WE ARE SO VERY FORTUNATE TO LIVE IN SUCH A VIBRANT, BEAUTIFUL CITY.

SINCERELY,

SUSANNAH MARRINER
1230 NW 12TH AVE APT 334
PORTLAND, OR 97209

South Portland Neighborhood Association
7688 SW Capitol Hiighway, Portland, OR 97219 (503) 823-4592
www.southportlandna.org

February 18, 2020

Planning and Sustainability Commission
1900 SW Fourth, Suite 7100
Portland, OR 97201

Re: River Plan/South Reach

Thank you for the opportunity to comment on the draft River Plan/South Reach. The South Portland neighborhood has the longest and most accessible river frontage in the city so we are very concerned about how the natural, scenic and recreational resources are managed.

At our February SPNA meeting, the board approved the following:

1) Increase the Greenway Setback to 100 feet (33.475.210 C)
The South Reach contains significant ecological values including critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is an Important floodplain. Over 80% of the South Reach watershed is ranked as high or medium natural resource and 75% of the land and water is designated as Special Habitat Area. Because of its high resource value, the South Reach merits far more than the proposed 50 foot setback to preserve and protect it now and for the future. We strongly recommend a minimum 100' setback.

2) Strengthen revegetation regulations. Suggest adding to 33.475.450:
- Replacement trees should be larger than 1.5" dbh
- Require review and remedial planting to be done within a specific time window (suggest 1 year)
- Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive
- Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards

3) Move Greenway Review to the Planning and Sustainability Commission

4) **Development and Urban Design**
a) Limit the height and FAR of any properties that are within the setback to 2018 size. If a property wants to redevelop, the structure will need to move *outside* the greenway setback to increase in either FAR or height.
b) Limit building height immediately adjacent to the setback to 35'. Encourage step-backs

5) Do not allow the use of Community Design Standards within the River Overly Zone
It is of utmost importance that development integrates sensitively with the river. The Community Standards are formulaic and do not reflect or enhance unique environments or natural amenities. They are generic urban design standards not intended for, or responsive to, the city's premier natural resource. Development along the Willamette River should be held to higher requirements for compatibility and context. Our neighborhood experience is that ***Community Standards are often used to avoid stricter guidelines that reflect the river's unique values, and also to avoid any design review process.***

6) View Streets (Vol 2., Map 2.2)
SPNA is very pleased to see Pendleton, Vermont, Nevada, California, Nebraska and Carolina as view streets. These streets provide important physical breaks along the Macadam thoroughfare, allowing views to and from the river and lessening the sense of an enclosed highway.

7) Edits to the Macadam Character Statement
After the expected implementation of the DOZA zoning code amendments, the Macadam District Character Statement will be the only instrument available to influence the design characteristics of development in this unique corridor. Given its importance, please seriously consider incorporating our suggested additions (**in red/bold**) to the draft Character Statement We feel the additions more fully capture our district, what makes it special and what design and landscape treatments will keep it that way.

MACADAM DISTRICT CHARACTER
Located between Portland's west hills and the Willamette River, South Portland's Southwest -Macadam area is a unique district whose history and development have been shaped by its close proximity to the river, abundant natural resources and its proximity to Central City. For centuries prior to European American settlement, native people lived and thrived in the natural environment of this region. Some camped in the area. They often traveled by river to hunt, gather, fish and trade with others, including at nearby Willamette Falls. These cultural practices are central to native peoples' lifeways today and for the future and minimizing the impacts of development on the natural environment is important.

European Americans settled this district around the north-south Macadam Avenue Corridor and a parallel railroad line located between Macadam Avenue and the river. During the City's early growth period in the mid to late-1800s and into the 1900s, lands between the Willamette River and Macadam Avenue developed, in part, as an industrial area where firms took advantage of both river and land transportation modes. At the same time the area west of the Avenue formed with supportive commercial businesses. Further west from Macadam, housing was constructed to meet the needs of those employed in the industries along this stretch of the river. This developmental evolution meant that the Macadam Avenue Corridor has historically separated the Willamette River from the residential neighborhoods west of the Avenue.

Over the decades, particularly after World War II, much of the industry in the Corridor relocated due to a shift in technology and demand. Changes in development patterns and uses in the flatter lands between Macadam Avenue and the Willamette River built off of a resurgence of development in the downtown and other inner city residential neighborhoods. In the 1970s, Johns Landing, a groundbreaking multi-dwelling residential project developed between Macadam Avenue and the Willamette River. Later, several city-adopted plans placed emphasis on introducing commercial and residential uses to the neighborhood and creating public access to and along the river. Other goals for the area included visual connections to the river, neighborhood serving development along the Macadam corridor with landscaping to enhance its boulevard character, and riverfront development that is compatible with public use and enjoyment of the riverfront. This led to the creation of several residential developments, the greenway trail and Willamette Park.

More recently, the 2035 Comprehensive Plan (2018) identifies Macadam as a Neighborhood Center and SW Macadam Avenue as a Civic Corridor, a prominent multi-modal city street that connects the central city to major destinations in SW Portland and beyond. These plans, along with a unique geographic and topographic landscape, helped shape the diverse development character along SW Macadam. Development along the northern end has more of a boulevard character due with higher densities and larger setbacks as it transitions to Central City's South Waterfront district. In contrast, development along the southern end reflects more of a main street character with lower densities and development built up to street lot lines. **It is because of the unique topography of the south section, wedged between hills and highway (Macadam), that maximum heights of development are limited, protecting neighborhood livability and a healthy airshed.** Despite these differences, Macadam Avenue's designation as a Neighborhood Center and Civic Corridor recognizes its' importance as a place to accommodate some growth and development, provide a safe and attractive pedestrian environment, and abundant riverfront access.

Community Character

South Portland's Macadam area is a close-knit community that places substantial value on its proximity to the nearly two miles of accessible Willamette River shoreline with a publicly accessible greenway trail, Willamette Park, Heron Pointe Wetlands and the Cottonwood Bay natural area. The area's topography and proximity to the river has created three very distinct parts: northern SW Macadam Avenue, Southern SW Macadam Avenue **(south of SW Boundary)** and the Willamette River Greenway. These places are distinct in their topography, density, heights, uses, and development.

Future development within all three areas should work together to improve both the quality and quantity of physical and visual access to the river. This connection to the river makes it an exceptionally livable community and a regional destination for active and passive recreation. **Safety and ease of moving around the district without a car is also a high priority for residents and workers. Future development needs to consider how to incorporate measures for comfort and safety of pedestrians, cyclists and transit users such as more trees along the streets and trail, wider pathways, bus shelters, and more frequent crossings – particularly on and around Macadam).** The riverfront also holds significance for the regions' tribal nations, urban native community and others who carry out cultural practices near and on the river, such as launching canoes. It is therefore important to recognize the social and cultural values of the riverfront through onsite features and river-responsive design.

Architectural Character

The European American settlement in the Macadam District created an eclectic mix of architecture, both past and present. For the future, the district needs architecture that is responsive to its context and the environment, along Macadam Avenue and the Willamette River. While City plans envisioned SW Macadam as a tree lined boulevard, its designation as a state highway has focused on efficient movement of vehicles rather creating a pedestrian friendly or welcoming urban environment. A few remnants from the area's industrial past can be found along the avenue. They have been renovated to feature high quality, durable materials such as masonry or stucco, and utilize ample glazing, covered entries, integrated landscaping or **inviting** pedestrian pathways to soften the harsh environment along

this busy corridor, allowing for a more interactive, pedestrian oriented public realm. **Use landscaping to reinforce the boulevard character of Macadam and to provide visual connections with private property. Trees interspersed with low-growing vegetation or grass should visually predominate over impervious surfaces. Awnings, street furniture, plazas, sculpture courts or other amenities ...reinforce a boulevard design. Keep signage consistent with and supportive of Macadam's role as a scenic boulevard.** Future development should incorporate these features to create a more welcoming and comfortable streetscape environment. Development along Macadam Avenue, and throughout the district, should be permeable, allowing residents, workers and visitors to physically and visually access the riverfront, particularly on many of the large north-south sites along the riverfront. Additionally, buildings should step back from the riverfront and provide "eyes" on the trail with balconies, terraces or a communal open space. Finally, future development needs to capitalize on the unique geographic location of this district by incorporating environmentally-friendly building practices and techniques to help preserve and protect the riverfront environment that defines this district. **This includes thoughtful site orientation, landscaping, compatible scale, and building design to help preserve and protect the natural environment that defines this district and connects to the riverfront environment.**

Natural Resources

Macadam's location along the Willamette River's south reach means it plays a key role in the continued health of endangered and threatened fish, wildlife and rare plants within the city and Oregon. This riverine corridor is part of the Pacific Flyway for migrating and nesting birds. Natural features along and near the riverfront are valuable community assets, with lush vegetation and views of the mountains, hills and river. **Walking, birdwatching, biking, boating, paddleboarding and picnicking are among the popular activities along the river. Development should be low-rise and sited as far back from the increased greenway setback as possible.** Residents place great value on streets and paths that offer direct access to the river from residences and businesses to the west, and future development should work to improve the quality and quantity of these locations. Additionally, any new development needs to protect natural areas by preserving and planting trees, along with creating habitat-friendly development along the Willamette River. Development needs to include native plantings to enhance wildlife habitat, soften building edges and screen parking areas.

Scenic Resources

Visual connections to the Willamette River and other features from both sides of Macadam Avenue allow Portlanders to appreciate the area's scenic beauty. Maintaining these connections also helps to ensure permeability within the district, which helps with air quality, improving the overall health and livability. This includes preservation of public viewpoints close to the river and view streets, as referenced in the Macadam Plan District and the South Reach Scenic Resource Protection Plan. Special attention needs to be paid to landscaping and trees within the setback along Macadam Avenue and the identified view streets, particularly where rights-of-way have limited planting areas.

We hope these changes will be incorporated into the River Plan/South Reach.

Respectfully, Michael Kaplan
Michael Kaplan, President
South Portland Neighborhood Association

Riverpoint Homeowners' Association

February 18, 2020

Portland Planning and Sustainability Commission
River Plan/South Reach Testimony
1900 SW 4th Avenue, Suite 7100
Portland, OR 97201

Re: February 25, 2020 Public Hearing
On River Plan/South Reach

Dear Planning and Sustainability Commission:

The Board of Directors of the Riverpoint Homeowners' Association (Riverpoint) submits this written testimony for consideration at the Commission's above-captioned hearing. Riverpoint is located on the west bank of the Willamette River in the Johns Landing area.

First and foremost, we urge the City of Portland to assure the continuance of the "Greenway Trail West," as described in the draft South Reach Plan, by making it a "Scenic Corridor" in the final South Reach Plan. The Greenway Tail West, which is contiguous to our condominiums, is already described as a "scenic trail/path" in the October and January drafts of the South Reach Plan. Codifying it as a "Scenic Corridor" in the final Plan will assure its continuance as a scenic resource for all citizens in the future. (A copy of the "scenic trail/path", description, as found on page 105 of the draft South Reach Plan, accompanies this letter.)

The Greenway Trail West has been a prized possession of the citizens of Portland for years. If designated as a Scenic Corridor in the final plan it will permanently provide the citizens of Portland with an extended path, where they can walk along the river and enjoy the panoramic views of the city, the river and wildlife on it, the boats on the river - especially the sailboats from the Sailing Club - Mt Hood, and the natural east side of the river on Ross Island and Oaks Bottom. Currently, the most open and beautiful part of this scenic trail is the pathway going north from the Sailing Club to beyond the Landing which has been maintained as a scenic trail for over 40 years. The panoramic views from this stretch of the trail are spectacular, as shown in the picture of this area near the sailing club looking North, (lower left hand picture on the enclosed page 105 of the draft South Reach Plan). Throughout our country, cities with rivers are making an effort to create

scenic paths along their rivers. We already have a scenic treasure and should make every effort to preserve it.

We have discussed at meetings with City planning staff the existence of rip rap protecting much of the Johns Landing area of the river bank. In 1975, when the old BP Johns industrial area was developed, a great deal of fill was added to the site to raise the elevation high enough to protect from floods. This fill was then protected from flooding by a large riprap rock layer on the bank. It is well known that large trees should not be allowed to grow in riprap banks because the roots loosen the riprap and the trees become more vulnerable to being torn out in a flood, thus causing the riprap to collapse. If the riprap fails in a flood the entire riverfront area could be flooded and destroyed. The revolutionary development would never have been built without the rip rap armored bank. Currently the riprap bank has a layer of vegetation which provides an excellent riverbank environment and does not threaten the riprap.

The use of the path by bikers and walkers has increased markedly during the past two years. This increase has been accompanied by an increase in the height of vegetation along the path, which raises the risk of a serious accident occurring on the path. Recently, there was a multiple bike accident on the path which required an emergency response. The accident occurred on one of the many sharp corners of the path where vegetation impeded the path's sight lines. We are concerned about the liability for injury in such instances and urge that vegetative growth be trimmed to reduce that risk.

Finally, we oppose the proposed Overlay Zone Change in the Johns Landing area from a River General designation (g) to a River Environmental designation (e). We believe the recreational value, public health and safety and transportation features of the Greenway Trail should be the first priority of the area because it is used by so many people.

Thank you for your attention to these concerns.

Sincerely yours,

The Riverpoint Board of Directors
Lou Lustenberger, Ed Newbegin and Tim Small
6114 SW Riverpoint Lane
Portland, OR 9723

SCENIC RESOURCES INVENTORY | SCENIC CORRIDOR

NAME: GREENWAY TRAIL WEST –
Scenic Trail/Path

Description: The Greenway Trail extends along the west bank of the Willamette River from the northern South Reach study area boundary to the Sellwood Bridge. The trail is generally located directly adjacent to the river, though it is pulled back from the river in some locations. The trail goes through Willamette Park, Willamette Moorage Park and the Multnomah County open space parcel located just north of Sellwood Bridge. South of the Sellwood Bridge a soft surface trail extends into Powers Marine Park but does not extend further south. It is expected that the trail will be extended as a part of any future development south of the Sellwood Bridge to extend the trail to the southern Multnomah County boundary. The Greenway Trail is a multi-use trail for bicyclists and pedestrians. Skateboarding, roller skating, and traveling by personal transporter (e.g., Segway) are also common. The trail is ADA accessible from multiple locations. Traveling along the trail affords views of the river and riverbank vegetation, public parks, bridges, skylines, and distant mountains and hills. There are six viewpoints along the trail.

Management Considerations:

- The trail stops at the Sellwood Bridge. Future efforts should aim to extend the trail south to the southern end of Multnomah County and to Lake Oswego beyond.
- Vegetation management within the view corridors will ensure consistent access to views along the length of the trail.

Ownership: Portland Parks and Recreation (through easement)

Transportation Mode(s): Walking, biking, skating, wheelchair, personal transporter

View of Greenway Trail looking north.

View of Greenway Trail looking south to the Sellwood Bridge.

Ronald Ragen

#103442 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Letter attached

Testimony is presented without formatting.

Ronald K. Ragen
1300 S.W. Fifth Ave., Suite 2400
Portland, OR 97201
503-778-5301
ronragen@dwt.com

February 24, 2020

VIA HAND DELIVERY

Portland Planning and Sustainability Commission
River Plan/South Reach Testimony
1900 S.W. Fourth Avenue, Suite 7100
Portland, OR 97201

Re: February 25, 2020 Public Hearing
On River Plan/South Reach

Dear Planning and Sustainability Commission:

I submit this written testimony for consideration at the Commission's hearing as noted above.

My wife and I are owners of a first-floor condominium in Building A of Landing Square. Our condominium faces north to the Ross Island Bridge, directly east, and to the south to the Sellwood Bridge. We have lived in it for approximately 15 years. We purchased it largely because of its views of the river and the activity upon the river. That view has remained unobstructed since the condominium was built approximately 40 years ago.

I was a member of the Willamette River Greenway Committee (WRGC) for many years beginning almost from its inception. I am very familiar with Goal 15 which was and is to increase public access to, and enjoyment of, the river. In a nutshell, that meant and means (a) saving reasonable portions of the area on the river for public parks, (b) avoiding the development of structures or other non-natural native growth along much of the riverbank that would negatively affect the views from the river to the riverbank (i.e. homes, other buildings, wharves, etc.), and (c) preserving areas in cities and towns where the public could conveniently walk or bicycle to enjoy the activities on the river (i.e. sailing, rowing, fishing, powerboating, etc.). The goal was to let boaters in areas mostly of farms, orchards and undeveloped properties look to land and see natural riverbank from their boats, and to permit those in the more heavily populated areas to be able to look out to the river while they are walking or biking. In short, it was intended to provide scenic and recreational uses of all kinds to fit the needs and enjoyment of people in areas and in ways best suited for different types of public and private use.

Those of us on the WRGC had numerous conversations regarding the different needs for farming and undeveloped areas in unpopulated or lightly populated portions of the river, the need to develop parks in various locations along the entire river, and the importance of giving city dwellers the ability to walk and bike on paths while looking out to see the wide variety of river uses in the more densely populated portions of the river. There were many discussions regarding cities and towns such as Cottage Grove, Salem and Portland. We even floated down much of the river while Tom McCall fished and we together experienced the variety of riverbanks and river usage.

With minor exceptions, the portion of riverfront of South Reach between the Ross Island Bridge and Willamette Park is heavily developed with miscellaneous health-related buildings, small commercial buildings, and various residential structures (developed almost continuously with condominiums and apartments), all within easy walking or biking reach for city dwellers who wish to walk, jog or bike along the river and see the wide variety of activity on it. The condominiums and apartments house a large and growing number of residents who wish to experience the same river benefits, either from short walks from their homes or from their windows. For decades, they have purchased and maintained those homes at a cost reflecting the lifestyle that bordering the river has provided. They have maintained the waterfront so as to both protect not just their views but also the riprap that helps secure the fill on which much of the development rests. The usage of the walk/bikeway is heavy in all seasons and particularly so from March through October.

The users of the path are not there to try and peer over a group of walkers gathered at a riverfront viewpoint, but to view the river as they walk, jog or bike beside the river. They are looking out to see different activities moving along the river, not concentrated in front of viewpoints. The residents behind the path are watching motorboats, sailboats (some racing), Christmas boats, folks fishing, rowers racing or practicing, boarders, etc.

In short, the current usage of the Greenway Path is exactly what the WRGC intended for such areas of developed riverbank. That is why the residences and apartments were built there and have been there for decades. These are the best and highest uses of the riverbank in almost all of the South Reach area.

To say that this short stretch of the river is vital for fish, given the length of the Willamette River and the miles of protected riverbank, is simply unrealistic. Of much greater importance is a continued protection of the riprap on the waterfront that helps avoid a collapse of riverbank and trees, especially cottonwood trees, that tend to collapse and uproot in high winds or high water.

There is nothing about the South Reach area that makes it a location in special need of environmental overlay. There is no logical justification for changing the overlay zone from

River General to River Environmental except to attempt to provide a basis for the City to then seek to enforce an unnecessary and unjustified change in the way its staff would like to see the riverbank maintained, even though the proposed change would be seriously detrimental to both a significant portion of the public and to the citizens residing next to the pathway. There are no valid or meaningful benefits of the proposed change to users of the river, the fish or the riverbank.

Given the obvious appropriateness and public acceptance of the riverbank in South Reach for usage as intended by the WRGC, the period of time that portions of the river have been used in accordance with the WRGC's intent, and the City's own permitted building of residential buildings consistent with that usage, it could be argued that an inappropriate change at this time could be considered a "taking" by the City at great loss for both the public and for the rest of us who have considerable investments in housing and non-manufacturing type commercial buildings, all of which has occurred for decades with permission of the City.

I respectfully request that with consideration of the facts, both pro and con, regarding the South Reach area, you conclude that its continued use, possibly with some appropriate natural but maintained vegetation that would not harm the views for either those on the path or those residing to the west of the pathway, is the best possible use of the South Reach riverbank and is in the best interests of the public and the City.

Thank you for your serious consideration of these comments.

Sincerely,

Ronald K. Ragen

Ronald K. Ragen

Lou Lustenberger

#103441 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Letter attached.

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Riverpoint Homeowners' Association

February 18, 2020

Portland Planning and Sustainability Commission
River Plan/South Reach Testimony
1900 SW 4th Avenue, Suite 7100
Portland, OR 97201

Re: February 25, 2020 Public Hearing
On River Plan/South Reach

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Thank you for your attention to these concerns.

Sincerely yours,

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NAME: GREENWAY TRAIL WEST –
Scenic Trail/Path

Description: The Greenway Trail extends along the west bank of the Willamette River from the northern South Reach study area boundary to the Sellwood Bridge. The trail is generally located directly adjacent to the river, though it is pulled back from the river in some locations. The trail goes through Willamette Park, Willamette Moorage Park and the Multnomah County open space parcel located just north of Sellwood Bridge. South of the Sellwood Bridge a soft surface trail extends into Powers Marine Park but does not extend further south. It is expected that the trail will be extended as a part of any future development south of the Sellwood Bridge to extend the trail to the southern Multnomah County boundary. The Greenway Trail is a multi-use trail for bicyclists and pedestrians. Skateboarding, roller skating, and traveling by personal transporter (e.g., Segway) are also common. The trail is ADA accessible from multiple locations. Traveling along the trail affords views of the river and riverbank vegetation, public parks, bridges, skylines, and distant mountains and hills. There are six viewpoints along the trail.

Management Considerations:

- The trail stops at the Sellwood Bridge. Future efforts should aim to extend the trail south to the southern end of Multnomah County and to Lake Oswego beyond.
- Vegetation management within the view corridors will ensure consistent access to views along the length of the trail.

Ownership: Portland Parks and Recreation (through easement)

Transportation Mode(s): Walking, biking, skating, wheelchair, personal transporter

View of Greenway Trail looking north.

View of Greenway Trail looking south to the Sellwood Bridge.

jeffrey lang

#103419 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Attention: Planning & Sustainability Commissioners RE: Comments related to City of Portland's River Plan/South Reach Dear Commissioners, I address you today as I'm again concerned about the protection & revitalization of our precious Willamette River Greenway at South Reach. My recommendations will be confined to the Greenway. For Over 30 years I have been involved in Planning & development of the trail systems along the Willamette River known as the Willamette Greenway. I have testified often at both your commission as well as the Design Commission on a variety of issues including building height, development setbacks, riparian revitalization and natural resource protection along the Willamette River banks. Finally we are getting closer to a continuous greenway on both the West & East banks of the Willamette. These last undeveloped parcels of property along the Willamette in the South Reach need careful guidelines and ordinances to assure the Greenway is constructed and completed in tune with already agreed upon goals. To accomplish this i recommend the following: * Expand the Greenway setback to 100 feet from top of bank * Continue the 100 feet Greenway from South Waterfront going south, as to create a seamless & continuously flowing greenway along the S. Reach. The 100 feet greenway allows for friendly people oriented spaces, a break between bricks and mortar development, ample room for vegetation and sufficient land to protect the Willamette's River many natural resources. Recreational uses can be nicely accommodated in a 100 feet greenway. My family, colleagues and friends love the Willamette Greenway. We use it for recreation, relaxation, boating, fishing and to feel a calming piece of the Natural World. For residents of the region it is our breathing space as well as a sanctuary from the bustle of city life. * Lastly we must enforce ordinances that restrict the cutting, trimming or removing vegetation within and bordering the Greenway. Recently there have been flagrant violations of ordinances and the City's code. Thanks for your time, JM Lang

Susan Souers

#93436 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

To quote Amy Kober, Vice President of Communication for American Rivers, "Rivers are our most valuable natural infrastructure--providing clean water, flood protection and resilience in the face of climate change." We need to invest in them!

Testimony is presented without formatting.

Robert Palmer

#93435 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Type or paste your testimony in this box...We believe the additional restrictions placed on our property by the plan amount to a de facto condemnation of our property and will bring an appropriate action seeking compensation for that taking on behalf of ourselves and our affected neighbors if the additional restrictions are enacted.

Testimony is presented without formatting.

tammi harper

#93434 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Thank you for the opportunity to provide comments on the draft South Reach River Plan. I ride the Willamette Greenway trail to work daily, between the Tillikum bridge and Willamette Park. This stretch of the river, though urban, provides valuable habitat for nesting sparrows, hummingbirds, warblers, mourning doves and more. It deserves protection. I've watched sea lions wrestle with salmon, western grebes perform their courtship dance, osprey gathering dried grass from the bank for their nest across the river, bats hawk for insects in the light of my headlamp, bald eagle hunt mergansers and found sign of beaver, mink, coyote and deer. First, and foremost, this is their river - and we are guests. I've watched the Johns Landing Homeowners Association chop down native cottonwoods from the river's bank the past three summers. Is the city powerless to stop this egregious violation of code by homeowners who value their view of the river over native trees, habitat for wildlife and flood protection? Kindly consider the following: 1) Increase the Greenway Setback to 100 feet (33.475.210 C) The South Reach contains significant ecological values including critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is an important floodplain. Over 80% of the South Reach watershed is ranked as high or medium natural resource and 75% of the land and water is designated as Special Habitat Area. Because of its high resource value, the South Reach merits far more than the proposed 50 foot setback to preserve and protect it now and for the future. We strongly recommend a minimum 100’ setback. 2) Strengthen revegetation regulations. Suggest adding to 33.475.450: • Require review and remedial planting to be done within a specific time window (suggest 1 year) • Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive • Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards * Require existing properties to come into landscape compliance within the next 5 years thank you, tammi harper

Testimony is presented without formatting.

Ted Labbe

#93433 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see the attached comments from the Urban Greenspaces Institute on the proposed draft South Reach Plan.

Testimony is presented without formatting.

February 24, 2020

Portland Planning and Sustainability Commission
1221 SW Fourth Ave, Suite 7100
Portland, OR 97204

RE: South Reach Willamette River Plan proposed draft

Thank you for the opportunity to comment on the proposed draft of the South Reach Willamette River Plan. UGI works across the Portland-Vancouver metropolitan region to integrate greenspaces with the built environment. We engage with agencies, nonprofits, and the public on collaborative conservation initiatives and how to best leverage our limited public monies to achieve wildlife habitat connectivity, clean water, and public access to nature.

The Urban Greenspaces Institute has provided extensive comments on earlier drafts of the South Reach Plan (SRP) update. Unfortunately, very few of our recommendations were incorporated into this proposed draft. We are encouraged to see that the City has: prioritized protection of shallow water habitats, recognizes the potential for a mitigation bank and private property buyouts of in floodplains, highlights the need for a comprehensive protection and restoration plan for Ross Island-Oaks Bottom-Holgate Channel, and proposes new landscaping and vegetation requirements. However, many of the code requirements and safeguards for the South Reach's remarkable river ecosystem are weak and the need to be strengthened.

The South Reach has remarkable natural area assets and much of the conversation around updates to the City's plan for this reach is about how we protect and enhance this natural splendor. The Oaks Bottom Wildlife Refuge and Ross Island Natural Area are regionally significant habitats that deserve enhanced protection. In general, the Urban Greenspaces Institute (UGI) believes that the updated South Reach Plan (SRP) needs to prioritize conservation to an even greater extent than is proposed. Since the built environment so severely constrains conservation opportunities in the central and north reaches, the City needs to go bold in the south reach.

Our largest, outstanding concerns with the proposed SRP are:

- Inadequate greenway setbacks of 50 feet, where 100 feet or more is required.
- Weak development standards, with insufficient incentives to move future development away from the riverbank and out of floodplains.
- Vague commitments to address but not lead on boat wakes, live-aboards, a habitat mitigation bank, and completion of needed park capital plans.
- Insufficient documentation of park and infrastructure system needs and action plan costs.

Below we offer additional, more detailed comments on needed improvements. We look forward to continued engagement with you and City Council on the SRP.

South Reach as a Hub - One key concept that is currently buried in the plan deserves to be elevated: the idea that the South Reach is an ecological and recreational hub for the City. We believe this idea can help tell the story of the South Reach and demonstrate to policymakers the importance of protecting and restoring the area's significant natural assets. We suggest bringing this idea into the introduction and/or chapter 1 so that it is more prominent and helps set the stage for the proposed policy reforms.

Greenway Setback – Given the ecological significance of the South Reach to the City and the abundant science supporting 100-foot-wide riparian protection zones, the greenway setback should be expanded to a minimum of 100 feet from the top of bank everywhere within the South Reach. We do not favor a wholesale exemption to the river setback for river-dependent or river-related activities land uses. The latter land uses should be required to appeal for an exemption on a case-by-case basis.

There is no justification provided for the 50-foot setback, nor any alternatives for including a larger setback. The City's own Bureau of Environmental Services scientists have recommended stronger protections for the SRP riparian areas. Why has BPS not incorporated their recommendations into this proposed plan update? Please strengthen the river riparian setbacks and, if necessary, include exemptions for existing development situations like houseboats and Miles Place where development occurs within 100 feet of the top of bank.

Ordinary High Water Mark Delineation – Please clarify that the City will take on the field-determination of top of bank, and that property owners/developers will not be burdened with or relied upon for this task on a project-by-project basis. The proposed SRP language is weak and states that this will be led by the City where adequate data exists. We request that the City develop this necessary data to make this determination. The City has sufficient in-house technical expertise to complete the top-of-bank delineation for the whole of the South Reach. This approach would bring greater consistency and transparency across ownership and management boundaries, and remove uncertainty on the top of bank location for public and private property owners within the South Reach.

Grandfathering and Development Standards – The new 2035 comprehensive plan policies 7.11.e, 7.19, and 7.39 do not seem to grant special waivers or grandfather in existing development. We would like to see the City consider how new policies under the SRP could be used to require upgrades for existing development for bird-safe glazing and limits on exterior lighting, at a minimum. Furthermore, we believe that the new proposed tree and vegetation removal standards could be strengthened.

Please strengthen the bird-safe window glazing standards. Due to the proximity of new development within the SRP area, we maintain that 100% of all new buildings and redeveloped existing buildings should have bird-safe window glazing. The current proposed draft standard on bird-safe window glazing is weak and only requires where 30% or more of the building façade is windows, and then only on the lower 60 ft of the building.

The City should provide additional incentives to move future (re)development out of the greenway setback. For new construction within the greenway setback, the height and floor area ration (FAR) should be limited to their current size. All new development that includes increases in height or FAR should be required to move outside the greenway setback. In addition, we would encourage the City to locate common areas for new (re)development in or adjacent to the greenway.

The SRP has a good focus on parks, natural areas, recreation, and development regulations. However, there is scant attention to how urban design in the adjacent developed areas could reduce or enhance the resiliency of natural or built systems, and human communities. How might a more aggressive urban design framework around ecoroofs, street trees, green streets, water conservation, and green building design help alleviate the impacts of drought, extreme heat events, flooding, and wildfires in the South Reach? This deserves to be explored more, especially in the context of the integration of the South Reach plan with DOZA.

Pruning and Vegetation Disturbance – Landward of the greenway setback, we would like to see the City limit pruning and removal of all tree greater than three inches diameter at breast height (dbh, instead of the current proposed six inches dbh). We believe this approach would be consistent with the 2035 comprehensive plan because the latter includes language to 'encourage' improved conservation practices and 'increase the width and quality of vegetated riparian buffers'.

Within the greenway, please require that all trees planted to replace any tree removals be a minimum of 1.5 inches diameter at breast height (DBH). Otherwise there is an opportunity for people to perpetually prune vegetation less than 1.5 inches DBH and replace it with something smaller. Second, please require that replacement trees be maintained for a minimum of five years post-planting.

Please also clarify how complaints about vegetation pruning and disturbance will be handled under the proposed SRP. The current system is not working well.

Greenway Reviews – UGI would like to see greenway reviews and certain urban design considerations within the South Reach Plan area transferred from the Design Commission to the Planning and Sustainability Commission. This is the proper forum for greenway disputes and development reviews since many relate to zoning, natural resources, and conservation, rather than architectural design considerations. The PSC would be better prepared to support BPS staff on development standards that move (re)development out of the greenway setback,

limit building sizes, and apply appropriate environmental safeguards to protect the Willamette River and its remarkable natural resources and values.

Floodplain Management – We appreciate that the SRP has an entire section devoted to floodplains and climate resilience objectives. UGI supports the City's proposed actions. However, under the SRP we would like to see the City introduce (not just consider) the development of incentives for reduction of impervious surfaces within the river overlay zone and a willing seller program for flood-prone private properties. Both of these programs are needed and should be incorporated into the SRP, not left for consideration under some future planning exercise.

We understand that the City is awaiting the guidance of FEMA on new floodplain development requirements, but this should not delay adoption of pro-active policy to reduce flood hazards for people and restore floodplains for fish and wildlife. Our recommendation for a minimum 100-foot greenway setback is also consistent with the City's goals to move human development out of harms way from flooding.

Missing or Inaccessible Information on System Deficiencies/Needs – We appreciate the 2040 visioning of the South Reach in Volume 1 chapter 2. The draft provides a great vision for park access, urban design, active transportation, recreation, natural resources, and habitat conservation. The included maps detail connections and opportunities within the network of trails, parks, natural areas, and other public infrastructure.

However, missing from this overview are clear statements and details around the deficiencies or needs in these systems. It would be helpful to have a better discussion of what is missing - but desired and needed – to make the various systems whole and functional. Without this recognition of needs, it is unclear what this plan is for or working to achieve. It can't just be about what we have. We also need to attend to what is needed to address deficiencies.

There are numerous examples of system deficiencies or needs that have been highlighted in the community outreach around the South Reach Plan. We were surprised to see no attempt to detail these system needs upfront in the discussion draft. These are mentioned in Chapter 3 but the reader has to dig for them. Once highlighted in Chapter 3, they are not related back to the few needs identified in vision from volume 1 chapters 1 and 2.

For each of the key issues summary at the end of volume 1 chapter 1, please acknowledge these additional system deficiencies or unresolved challenges:

- For Demographics, please add an acknowledgement that the neighborhood skews older and white, with less poverty. What programs or improvements exist or need to be created to open these areas up to recreation by lower income, people with disabilities, and/or people of color (including those from other parts of the City)?

- For Land Use, Zoning and Development you mention brownfields and contaminated sites. Please add some discussion about how and where development encroaches on natural systems and/or limits park/trail access. How can this plan chart a path forward on some of these challenges?
- For Recreation, Public Access and Scenic Views, I expected to see some mention of the status of each park. What are the management challenges for each park? Please acknowledge what parks have capital plans, and/or where they are needed. For parks with capital plans, what is the total value of needed improvements across the network of parks and natural areas in the South Reach?
- For Watershed Health, there is good overview of habitats and natural resources, but nothing on water quality. Please tell us about the frequency and extent of water quality challenges and more about the restoration and cleanup of Ross Island and how that fits into this larger vision.
- For Transportation, you provide a good overview of what is there, but the reader does not get a sense of what is a deficiency and need, nor how this plan will provide a vision for remedying these needs.
- Under Public Services and Facilities, it would be nice to have a summary of public service levels for these various utilities, services, and schools. Is there a way that the South Reach Plan could be used to creatively remedy challenges we have with any of these? For example, what access to outdoor learning environments do students at Llewellyn School have and might better trail connectivity to Oaks Bottom remedy that?

One of the largest system needs in the South Reach for a comprehensive management plan for the Oaks Bottom-Holgate Channel-Ross Island complex. Thank you for elevating this need in the SRP proposed draft.

Needed Capital Improvement Planning – The City Council and staff need to prioritize park capital planning in the South Reach. We urge the City to prioritize the development of capital improvement plans for all the South Reach properties, to be completed within the next four years. If funding this work is a challenge within the current budget, we encourage the City Council to explore new revenue streams tied to river-based commerce. Completing these capital plans is the first step towards a more integrated approach for river restoration and recreation at the network of publicly owned sites in the South Reach.

Public Access and Recreation Management – Since many in the general public value what they can access and interact with, we think there needs to be more thought given to public access to the River and its environs. In particular we would like to see more public access highlighted for pedestrians and bikes via both on-street greenway and off-street trails, and this improved public access tied to improved protection for natural resources with larger river setbacks for future (re)development.

More resources need to be devoted to wayfinding, so that folks on the various Southwest Hills trails or eastside on-street greenways can find their way to the River. We need to highlight difficult crossings for bikes and pedestrians on high traffic corridors, like SW Macadam/SR 43 and beyond so that they can be prioritized for improvement by PBOT.

In certain locations, we need additional trail connectivity improvements. One location we are particularly fascinated with is Moreland Wood, at which SMILE is championing the idea of a new City park. We join with SMILE in supporting this idea, which could provide a much-needed public access to Oaks Bottom from the adjacent neighborhood and the nearby Llewelyn School near SE 14th Ave and Duke Street. We appreciate that the Plan highlights public access recreation management needs, particularly the lack of safe and direct river access for the Brooklyn neighborhood.

As more boat and recreation pressure builds on the River itself, we think the City can have an active hand in shaping the types of recreation growth on the River. Is more motorized boat traffic desirable? Why would we expand parking and boat ramps for motorized craft to alleviate crowding if this only increases motorized craft use (e.g. induced demand)?

UGI does not support development of additional parking and boat ramps for motorized craft. But we generally favor more City planning and support for non-motorized recreation infrastructure like storage space for kayaks and the like. We believe the City should devote more resources and infrastructure to passive, non-motorized recreation choices and less to serving the motorized watercraft community.

Waverly Country Club – We appreciate that the SRP calls for the application of greenway regulations to Waverly Country Club, if and when it is annexed to the City. However, we would like to see the City lead on this challenge and not wait for some uncertain future consideration of annexation.

The City provides urban services to Waverly, but it is not a part of the City and so City code and South Reach Plan does not apply to the property. We find this relationship problematic: Waverly Country Club enjoys all the benefits of being within the City of Portland but escapes certain baseline community and environmental standards that apply to others within the City.

The Waverly site is contiguous with the South Reach and has some of the best opportunities for riverbank restoration in the whole of the South Reach. We urge the City to pursue annexation so that South Reach Plan regulations can apply. The City could either work collaboratively with Waverly Country Club to negotiate the conditions for Waverly's annexation, or the City could initiate a conversation with Clackamas County to adopt an intergovernmental agreement that specifies the City's role as the principal provider of municipal services for the property. Whether or not the City is able to apply the South Reach Plan standards to Waverly, we suggest that

the City could recommend improved zoning regulations for immediate adoption by Clackamas County that align with the South Reach Plan approach, regulations, and vision.

Docks and Overwater Structures - We need to acknowledge difficult policy choices with new overwater structures like docks and floats, but note that design can alleviate and mitigate for some of these impacts. In addition to docks, swimming floats anchored off-shore for swimmers, need to be actively managed to prevent them from becoming magnets for misuse.

We support the proposed approach to only allow docks away from shallow water habitats, but we would like to see the City go farther. We suggest that the City consider cap-and-trade approach on new docks and floating structures to limit the overall number of floating structures and manage them so that they are accessible to the general public. The City should work with the State of Oregon to put limits on new private docks and floating structures, but allow new public docks/expansions in certain limited circumstances.

Live-aboard Boats – Live-aboard boats are a mounting public health and water quality challenge that must be dealt with in a humane manner but cannot be ignored. The City must rise to the challenge of moving folks along who are camped out long-term in their boats. We believe that objective 10 and associated actions (p. 57 of volume 3) are too vague and need more specificity in the SRP. The City needs to demonstrate more leadership around this issue with Multnomah County and the State of Oregon. We would like to see the City advocate for a special fee on boat registrations to help cover the costs of transient boat cleanup and removal.

Boat Wakes – The City also needs to take a more active role in managing boat wakes and speed limits in the Ross Island reach and beyond. Unfortunately, the proposed focus in the SRP is on boater education and coordination with the Oregon State Marine Board. We understand that authority over the challenge of boat wakes rests with the Oregon State Marine Board, but the City should be more in managing access and facilities for large boats, which are the biggest culprits.

Boat wakes are contributing to ongoing erosion of river banks, which creates a large cost burden on the City when bank restoration is required in the future. Separate from the ecological considerations, the City has an interest in mitigating the long-term costs of this remedial bank restoration by working more actively to impose boat speed limits, which would do much to improve public safety and limit bank erosion. Boat speed limits could easily be aligned with the PBOT's current vision zero policy for streets.

Off-leash Pet Management – The City of Portland Parks needs to prioritize improved infrastructure and education around off-leash pets at both Oaks Riverfront and Willamette Parks. There is scant mention in the plan of the inter-related problems

with dogs off leash, pet waste pickup, and fecal coliform contamination – especially at swimming beaches.

UGI would like to see better signage, more pet waste bag dispensers, and education/enforcement for off-leash pets. Fecal coliform contamination remains a persistent water quality challenge in the Willamette River and pet waste is one little-mitigated vector of this contaminant, which limits human recreational water contact activities. The City can and should do more.

Action Plan Costs Missing; Timeframes, Milestones, and Partners Vague – No cost estimates are provided in the Action Plan table. It would be helpful for policymakers to have costs to implement SRP measures under both near- and long-term timeframes. Action Plan items listed in the table with an 'ongoing' timeframe need more time specificity, and milestones would be useful to keep the City on track with implementation. Otherwise the action plan measures are too fuzzy and the community cannot track the plan progress and achievements.

We appreciate that BPS has defined lead agencies for implementation, but the Plan seems to be less specific with regard to 'private' parties and does not call out avenues for Portland's thriving nonprofit sector to engage in implementation. We think this is a blind spot that BPS planners need to think through more carefully. This plan represents a guide for the whole of Portland including City bureaus and the community.

Natural Resources Inventory Methods and Data – Please explain and provide justification for why the inventory of upland habitats did not consider habitats smaller than two acres in size. We think smaller habitat patches have value in urban settings as stepping stones for wildlife movement, and that there may be value to recognizing and including smaller upland habitat patches in the inventory.

We found no mention of the regional oak distribution dataset available from Metro ('OakQuest'). Was this data used in the SRNRPP inventory update? Though the model affords special status for oak as a 'special habitat', there are several locations within the South Reach that harbor oak not represented in the City's natural resource inventory. The regional oak distribution maps are available online via the Intertwine Oak Prairie Working Group website http://www.theintertwine.org/projects/oak-prairie-work-group, and the data can be requested from Tommy Albo with Metro.

The Natural Resources Inventory model ranks 'developed areas' within the floodplain/floodprone lands as 'low value'. However, it is important to recognize that certain developed areas within floodplains would easy to reclaim as potentially valuable floodplain lands with a role toward attenuating and infiltrating floodwaters. We suggest the City consider surface parking lots within floodplains/floodprone lands differently from other developed lands under the Plan.

Buildings could remain 'low value', whereas paved areas could be considered 'medium value' to reflect their restoration potential.

Under future redevelopment within the greenway, the City should consider how existing buildings could be setback from the river farther, and how surface parking lots can be restored to functional floodplain habitats. There are higher and better uses than parking for our precious Willamette River greenway.

Natural Resources Protection Plan and Conflicting Uses Discussion - Under the description of 'conflicting uses' (Volume 3, page 58-64), we found no discussion of in-river impacts from uses like boat traffic/wakes and dredging/destruction of shallow water habitat. The framework seems to emphasize protection of riverbanks, floodplains, and uplands but not in-river habitats. This suggests that the City's required ESEE analysis may be incomplete.

Thank you for the opportunity to comment.

Sincerely,

Ted Labbe, Executive Director
Urban Greenspaces Institute
ted@urbangreenspaces.org
503-758-9562

Stacie Hall

#93432 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Planning and Sustainability Commission: As you are moving forward with the South Reach River Plan, please consider strengthening habitat buffers along the river. The stretch of the Willamette River has the best remaining river habitat in Portland, as well as, some of the best potential for restoration opportunities. Here are some improvements to include: • Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. • Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. • Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. • The plan must call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you for your consideration of these items.

Testimony is presented without formatting.

Ann Littlewood

#93431 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The city should add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential.

Testimony is presented without formatting.

Demaris Martinez

#93430 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I would like to see at least a 100 ft. habitat buffer zone to protect riparian wildlife along that part of the Willamette River in question.

Testimony is presented without formatting.

teresa mcgrath

#93429 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you for adding your voice towards improving the South Reach River Plan.

Testimony is presented without formatting.

Jeffrey Sher

#93428 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I support the Portland Audabon recommendations for the south reach River plan. This includes the hundred foot setback as well as other provisions for protecting wildlife in this important resource right in our city. I also would encourage that the Waverley golf course be included in the south reach plan. It is very important that we do as much as possible to protect the river and adjacent wildlife habitat. Thank you for your consideration and for the work that you have done on this project.

Testimony is presented without formatting.

B. Greene

#93427 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

The proposed draft of the South Reach River Plan takes some important steps towards prioritizing natural resource protection, but it falls short in ensuring adequate habitat buffers along the river. This stretch of the Willamette contains some of the best remaining river habitat in Portland as well as some of the best potential for restoration opportunities. It is critical that the Planning and Sustainability Commission better protect and restore this stretch of river: Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you.

Testimony is presented without formatting.

William Risser MD

#93426 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Expand the Willamette River setback to at least 100 feet. Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area. Expand regulatory protections for trees and other native vegetation throughout the plan area, especially along the River Environmental Overlay zones. Call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area. These are the recommendations of the Portland Audubon Society and I agree with them.

Testimony is presented without formatting.

Dawn Smallman

#93425 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Dear Planning and Sustainability Commission on the River Plan: I would like to advocate for the following changes to the plan for the south reach of the Willamette River: -Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Add tools to remove development from the setback over time. -Strengthen bird-safe building and lighting provisions and extend them to the entire the South Reach Area to reduce bird collisions with windows and reduce light pollution. -Expand regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones. -The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential. Thank you, Dawn Smallman, Portland, OR resident

Testimony is presented without formatting.

Judy Todd

#93424 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

TO: Planning & Sustainability Commission on the South Reach draft proposal RE: Considerations on the South Reach Plan on the Willamette River I believe the current draft of the South Reach River Plan falls short in ensuring adequate habitat buffers along the river. This stretch of the Willamette contains some of the best remaining river habitat in Portland and should have a setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience. Other needs not fully apparent that need your close and considered attention please: 1. Strengthening bird-safe building and lighting provisions and extend them to the entire South Reach Area. 2. Ensuring regulatory protections for trees and other native vegetation throughout the plan area to maintain and improve vegetation and critical habitat. 3. The addition of the Waverly Country Club grounds into the plan area given the Club's significant natural resources and restoration potential. We need partners like this on the river. Thank you, Judy Todd

Testimony is presented without formatting.

John Nutt

#93423 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am a frequent user of the South Reach of the Willamette, usually kayaking on this section of the river but also using the trails along the river. I think that this is a very important resource for the community and deserves the highest quality protection. I support the Audubon suggestions to strengthen the current proposal.

Testimony is presented without formatting.

Micah Meskel

#93422 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Date: February 24, 2020 To: Portland Planning and Sustainability Commission From: Audubon Society of Portland Re: South Reach Plan Proposed Draft Dear Portland Planning and Sustainability Commission, Thank you for the opportunity to comment on the South Reach River Plan Proposed Draft (January 2020). Audubon Society of Portland has been participating in the river planning process since its inception with the initiation of River Renaissance in 2001. Audubon strongly supports the priority of the South Reach Plan to "Enhance the role of the Willamette River South Reach as fish and wildlife habitat, a place to recreate, and as an amenity for riverfront neighborhoods and others." This is consistent with priorities that the city has set for the South Reach dating back to River Renaissance. We believe that the Plan captures well the opportunity that is present in the South Reach when it writes: The Willamette River South Reach and associated floodplain and riparian areas includes some of the only remaining contiguous high-value natural resources within the City of Portland. Due to the extent of parks and natural areas along this stretch of the river, the South Reach provides many ecosystem services not observed in other reaches, including numerous sites containing shallow water habitat, bottomland hardwood forests and native oak stands and rare plant species. These natural resource areas provide unique habitat opportunities for fish and wildlife that reside and migrate through this highly urbanized environment. The importance of the South Reach natural resources is reinforced by its relationship to the regional ecosystem and connections to adjacent migration corridors. --Volume 3 at page 72 Overall, the South Reach River Plan does a good job advancing this objective and we appreciate the work that has gone into this plan. However, at a time that calls out for bold action to protect our environment there are key places where the plan is too timid. We urge you to go further. Our comments are divided into two sections: General Comments and Page Specific Comments. GENERAL COMMENTS: 1) The proposed setbacks are insufficient: The South Reach Proposed Draft currently proposes to expand river setbacks from 25 to 50 feet. While this represents an improvement over current river protections, it is insufficient to meet the ecological aspirations of the South Reach Plan. We would contest the draft plan's assertion that both Metro and the City have determined that 50 feet is the "absolute minimum width necessary to protect rivers, streams and wetlands." Our understanding is that both the City and Metro have determined that setbacks in the range of 150 to 300 feet are necessary to achieve a full range of ecological functions. In fact, City of Portland scientists with the Bureau of Environmental have continued to advocate strongly for a scientifically supported 100' minimum setback. While 50 feet might be reasonable in the heavily developed

Central Reach, it represents a remarkably weak approach in in the South Reach which still has significant intact habitat and where the City has prioritized the protection of habitat and natural resources. We understand from discussions with city staff that the driver behind the decision to go with 50 foot setbacks was that expanding setbacks to 75 or 100 feet would effectively double the number of existing structures located within the setback. The City should view this dilemma not as a basis for continuing to institute an insufficient setback, but rather as a reflection of the urgency of getting the setbacks right going forward. Setting the setback at 50 feet will only ensure that even more structures encroach into this ecologically sensitive 100-foot zone in the future, whereas moving the setback to 100 feet now will prevent new development and allow the City to reduce existing development over time. The decision the City makes on this issue will determine whether the current problematic situation improves or degrades going forward. We urge the City to set a high standard for riparian protection in the South Reach rather than going for the "absolute minimum." In an age of climate change and endangered salmon populations, the City must take every opportunity to set truly aspirational goals. We recommended a setback throughout the South Reach of at least 100 feet. 2) The Proposed Draft lacks adequate mechanisms to reduce existing development within the proposed setback over time: Regardless of whether the setback is expanded to 50, 100 or some other width, it is critical that the South Reach Plan include specific regulatory and non-regulatory (incentive based) strategies to ensure that existing development within the setback is reduced over time. The failure to include these types of mechanisms remains in our opinion is one of the biggest weaknesses in the Central Reach River Plan and relegates the expansion of the Central Reach setbacks from 25 to 50 feet to be little more than a paper victory. It would be unfortunate for the City to perpetuate this significant deficiency into the South Reach Plan. Expanded setbacks will only have real meaning if the City also includes aggressive strategies to ensure that existing development is moved back from the river when redevelopment occurs. We appreciate the complexity and potential controversy associated with such measures, but failure to meaningfully address this issue will simply perpetuate the status quo. The landscape transformation necessary to restore our river and create more resilient landscapes in the face of climate change will be incremental in nature and will take decades to accomplish. It is therefore essential that the City have strong mechanisms in place to ensure that it can take maximum advantage of each redevelopment opportunity that occurs in order to advance these goals. 3) Audubon strongly supports the inclusion of specific strategies to address the FEMA Floodplains Biological Opinion: Portland Audubon strongly supports the inclusion of a variety of policies and strategies to meet the obligations of the FEMA Floodplains Salmon Biological Opinion that was released in 2016 in response to a lawsuit by Audubon Society of Portland et al. It is critically important that the City update its floodplain regulations on the timeline set forth in the BiOp in order to ensure that the City remains eligible for the National Flood Insurance Program (NFIP). Moreover, compliance with the BiOp will ensure that the City has in place common sense provisions to protect people and property, improve ecological function, protect imperiled species and create a more resilient landscape in the face of climate change. Overall, we believe that the South Reach Plan does a good job of incorporating new policies and strategies to address this challenge. We would note in particular our support for applying the river environmental

zone to both developed and undeveloped floodplain—this is consistent with the mandates contained in the BiOp. We have included several additional specific recommendations in our more detailed comments below. 4) Greenway Vegetation: One of the biggest environmental challenges in the South Reach is the ongoing illegal removal of vegetation in the greenway by adjacent property owners. This ongoing issue significantly undermines efforts to restore the South Reach to ecological health. We recommend two things to address this ongoing concern: First, we would recommend applying the River Environmental Zone to low ranked herbaceous areas along the river that currently lack trees and shrubs, but which have the potential to be restored to a multi-layered vegetative condition. Second, the City should impose significant penalties for illegal removal of vegetation along the river and should move to a more aggressive strategy of periodically surveying the South Reach to proactively identify where illegal removal has occurred (rather than depending solely on public reporting to trigger enforcement.) In particular, we would recommend very strong penalties for any repeat offenders. Adoption of these two strategies will send a clear message that illegal removal of vegetation along the river is viewed as a significant offense and that significant penalties can be triggered. 5) Application of Bird Safe Building and Lighting Standards: We appreciate and support the application of birdsafe building and lighting standards in the South Reach Plan. We believe these standards should be applied citywide either through the adoption of individual area plans or comprehensively at a citywide scale. We support the proposed application of the Bird Safe Building Standards to the entire plan area. We would urge the City to also apply the lighting standards to the entire plan area as well. As currently proposed, the lighting standards would only apply within the setback, which would render them near meaningless. Light pollution is a problem across our entire landscape and the standards should be addressed comprehensively. We want to ensure that these standards effectively capture things like street lighting, trail lighting, exterior building lighting, signage, etc. We also want to ensure that the lighting standards are able to be updated once currently ongoing work is completed on the Citywide Dark Skies Initiative. Finally we believe that the lighting standards on page 61 of Volume 1 could be more robust would recommend adding the following: a. Minimize/ eliminate unnecessary exterior lighting b. Minimize total lumens output to reduce glare and bounce c. Specify 3000 K or below to minimize emission of blue output (1-1.3 scotopic/ photopic ratio) d. Specify use of adaptive controls such as dimmers, timers and motion sensors 6) Green Roofs: We would urge the City to apply the same green roof standard to the South Reach Plan as were applied in the Central City Plan. 7) Top of Bank: It appears that the City will apply a “default top of bank” where data currently does not exist regarding the top of bank. We would urge the City to use more robust default criteria to ensure that in locations where top of bank has not been identified, that it is erring on the side of protection rather than incursion. We would also urge the city to contract as soon as possible with an appropriate organization to survey areas where the top of bank is currently undefined and resolve this issue prior to adoption of the plan. The South Reach is a relatively limited geographic area and it seems reasonable to us to resolve this issue rather than kick it down the road. 8) Waverley Country Club: The City currently provides urban services to Waverley Country Club, but has not annexed it into the city and therefore cannot apply its code to this property. This site; contiguous to South Reach,

though outside the City limits in unincorporated Clackamas County, represents one of the most significant opportunity sites in the South Reach for riverbank restoration. It makes no sense for the City to provide services but then not be able to hold the property owners to baseline environmental standards. We would urge the City to prioritize two pathways to be called out as action items of this plan to remedy this situation. First, the City should initiate steps with the property owner to annex the property into the City of Portland, and thus bring it into its code application. If the owner does not comply with this action, Portland City Council should initiate conversations with Clackamas County Commissioners to work towards an Intergovernmental Agreement (IGA), between the two jurisdictions to establish the City's role as the principal provider of municipal services for this property. A similar IGA already exists between the City of Portland and Multnomah County that establishes the City of Portland as the principal provider for all unincorporated Multnomah County parcels within the City of Portland's urban services boundary, and it is long overdue to have a similar arrangement with Clackamas County. 9) Docks: We would urge the City to take a more aggressive approach to docks. Currently there is a proliferation of private docks in the South Reach while at the same time the City has been severely restricted in its ability to establish new docks for public use. It is important that the City not only put in place code to require dock construction techniques that minimize threats to salmon, but also that it put in place provisions that ensure that public docks are prioritized over private docks. 10) Application to the North Reach: The South Reach Plan indicates that its code language will eventually be applied to the North Reach. While there are many elements of the South Reach Plan which are applicable to the North Reach, we believe that it will be important to carefully consider and put in place specific strategies that will promote the restoration and ecological recovery of this most degraded reach of the Willamette including strategies to create shallow water habitat and adjacent riparian areas for listed salmonid species interspersed throughout the North Reach and also to establish a functional greenway along the Willamette. As written, we do not believe that the South Reach or Central Reach Plans are sufficient to accomplish those objectives in the North Reach. The North Reach will require a significant process of its own. 11) Two decades (and counting) is too long of a time period to develop the Portland River Plan: Nearly two decades have elapsed since the City began the process of updating its code related to the Portland reaches of the Willamette River. Even with the anticipated adoption of the South Reach Plan in 2020, the City will still only be two thirds of the way through this process with the complex and controversial North Reach still to go. This is far too long of a time period to develop this type of a plan. The result of such an elongated timeline is that much of the early work that forms the foundation of this plan is now more than a generation out of date, Portland has undergone major changes in terms of demographics and community priorities, public and NGO costs associated with plan development have skyrocketed and most importantly, the river has been managed under out of date policies and regulations for nearly two decades. While we appreciate the complexity of developing something like River Plan, we believe that a plan like this should take no more than 3-5 years to develop including ample opportunity for public engagement and input and that a 3-5 year plan development timeline is reasonably proportional to the 15-25 year timeframe that a plan is likely to be in effect before it needs to undergo another major revision. We would strongly urge the

City to immediately initiate work on the North Reach River Plan upon adoption of the South Reach Plan and to aim to have it completed in 18 months. 12) The City provided inadequate time for the public to review the South Reach Plan Discussion Draft: The City only provided 36-days for the public to review this three volume plan which spans more than 800 pages. BPS was well aware that this is too short of a timeline because multiple organizations expressed concerns and had to request extensions about a similar timeline on a South Reach Discussion Draft, which was much more narrowly distributed in October 2019. Even among groups with staffing resources, this kind of timeline leaves virtually no opportunity for coordination, discussion or outreach to their broader constituencies. It is difficult to understand the compressed public comment periods given that the South Reach Plan has been under development for nearly a year and a half. The result is that significant opportunities for greater public engagement at this critical juncture were missed and groups with lesser resource levels were probably excluded altogether. We would strongly urge the City to ensure that that it builds in at least 60-days for public comment periods on large complex plans. 13) A track changes version of the current draft would be helpful so that readers can easily discern changes from one draft to the next: Many groups submitted substantial comments on the November 2019 Discussion Draft. We appreciate all the changes that were made. However, it would help expedite review if the City provided a comprehensive track changes version of the current dr aft were provided. PAGE SPECIFIC COMMENTS: Volume 1 Part 1: Chapter I, Introduction: Policies, Objectives and Recommendations Land Use, Zoning and Development (Page 6): The document should explain how the land use designation in the first two bullets of this section (current versus 2035 Comp Plan) would be resolved over time. Regional (page 12): Provide more information regarding what it means to come into compliance with Title 3 and Title 13. What specifically must the City do? Volume 1, Part 1: Chapter II, The Future of South Reach Future of the South Reach (Page 18): ? Include something about experiencing and enjoying nature. We see this as broader than simply “viewing wildlife.” The South Reach ought to include real opportunities for quiet enjoyment of nature. This should be included in the bold print paragraph at the beginning. ? Audubon continues to strongly oppose the inclusion of commercial facilities in parks, especially non-essential facilities such as snack stands. There is no reason given the availability of commercial activity in close proximity to the South Reach to convert limited park spaces for commercial use. ? This section should include something about water quality ? The section in climate resilience should be significantly more robust and should include an expanded greenway in which development has been significantly pulled back from the river edges. Recreation Opportunities Map (Page 23): Why is there a sailboat icon on Ross Island---is the City assuming public boat access to Ross Island? Thank you for adding an icon delineating where quiet enjoyment of nature will be prioritized. Please consider adding the area around Elk Rock Island and the Peter Kerr Property/ Elk Rock Garden, Ross Island Lagoon and Holgate Channel. In addition, please more the sailboat icon off of Ross Island and onto the river itself since there is no public boat access allowed on Ross Island. Watershed Health (Page 24): Thank you for adding verbiage describing restoration of banks and uplands along Willamette River Greenway to benefit fish as well as migratory birds. One additional question here is the use of the word “ample” to describe the amount of shallow water habitat. While

this area represents the healthiest portion of the Willamette within the City “ample “is still an overstatement. We would recommend substituting “retain significant areas of’ in place of “provide ample.” Watershed Health Map (Page 26): ? It is not clear why virtually the entire riverbank along the South Reach is not coded as a habitat area---The City should have as its goal, restoration along the entire south reach. ? This map should also include floodplains ? The City also needs to address Waverly Golf Course—its omission represents a huge gap in restoration objectives in the South Reach in an area with very high potential for restoration. Volume 1, Part 1: Chapter III, Policies, Objectives, and Recommendations Key Issues and Opportunities (Page 29): While an expansion of the setbacks from 25 to 50 feet is an improvement over current conditions, it is disappointing that the City has chosen to take such a conservative approach to this issue. As the plan notes, both Metro and the City have determined that 50 feet is the “absolute minimum width necessary to protect rivers, streams and wetlands.” While 50 feet might be reasonable in the heavily developed Central Reach, it represents a remarkably weak approach in in the South Reach which still has significant intact habitat and where the City has prioritized the protection of habitat and natural resources. We urge the City to set a high standard for riparian protection in the South Reach rather than going for the “absolute minimum.” In an age of climate change and endangered salmon populations, the City must take every opportunity to set truly aspiration goals. Birdsafe Building (Page 30): We strongly support the inclusion of strong lighting and glazing standards throughout the South Reach. See comments in “General Comments” section for specific recommendations on how the lighting provisions could be strengthened. Docks (Page 30): We also have noted the significant increase in docks serving private residences. We do not understand why these docks are being permitted when public docks (for example at South Waterfront) cannot get permitted. There is a fundamental equity issue associated with permitting private docks while public access to the river remains severely limited. We strongly support the City putting in place mechanisms to ensure that new docks are better prioritized, while also ensuring that impacts on listed fish are minimized. Removal of vegetation (Page 31): We strongly support more aggressive enforcement of vegetation protections along the river. There should be significant penalties associated with illegal removal of vegetation. Objectives and Actions #1 (Page 32): ? We would strongly encourage the City to apply a 100 foot setback rather than the proposed 50 foot setback ? The plan should include clear strategies (incentives, code, etc.) for ensuring that setback targets are met over time (i.e. that existing development is moved out of the floodplain). ? The City should find a way to address the riparian edge of Waverley Golf Course, which represents a major opportunity area for restoration. Objectives and Actions # 2 (Page 33): ? Apply River Environmental to all high and medium ranked resources within setback as well as low ranked resources that contain significant tree canopy or restoration potential. ? The goal should not be to reduce costs of environmental violations for applicants—the city should be increasing penalties in order to reduce the number of violations. Ross Island (Page 35): Ross Island has three associated islands (not two): Toe, East and Hardtack. It also provides habitat for a wide array of mammals, which are not mentioned in the first paragraph. Ross Island (Page 39): Thanks for including information on the restoration of Ross Island Lagoon. Please add that it is also a priority to work with RIS&G to get the entire island under a single management plan.

Objectives and Actions #4 (Page 41): ? Add Waverley Golf Course to 5th bullet: We would urge the City to specifically initiate discussions regarding an Intergovernmental Agreement with Clackamas County to manage unincorporated areas within the City's urban services district. ? Add a bullet about private property along the lines of: work with groups such as Friends of Trees, Depave, Audubon/ Columbia Land Trust (Backyard Habitat Certification Program) to promote restoration and connectivity on private property in the South Reach. Objectives and Actions #6 (Page 45) ? First paragraph: Add, “to ensure that new development is designed to minimize flood risk and protect salmon….” The FEMA BiOp is driven by salmon protection so this species should be explicitly mentioned. ? Add consideration of regulatory strategies (i.e. land use regulations) to ensure that existing development in floodplain, especially in setback area, is reduced over time. As written, the focus is entirely on voluntary strategies. Objectives and Actions #1 (Page 50): ? Add bullet regarding increasing opportunities for partnerships with conservation and community groups to support restoration, community science, etc. Objectives and Action #5 (Page 56): ? The plan should make it an explicit goal to annex Waverly Golf Course into the City. It makes no sense for the city to provide services but allow Waverly to avoid other obligations that come with being part of the City. If the City is going to provide services, it should also require a setback from the river, greenway trail, etc. The City should initiate discussions regarding an Intergovernmental Agreement with Clackamas County to manage unincorporated areas within the City's urban services district. Riverfront Communities (Page 73): As a general comment on this section, it appears that the plan does nothing to facilitate reduction of existing development within the greenway over time. In some cases (for example Miles Place), it seems to lock in existing development. The City should explicitly adopt policies (regulatory and non-regulatory) which facilitate reduction of development in the greenway as well as in existing floodplains over time. Volume 1, Part 2: Implementation Tools Page 31 of: We strongly support applying the River Environmental Zone to the developed floodplain and changing the goal of this zone from “no net loss” to “compensate for impacts and improve natural resource features and functions over time.” Both changes are consistent with the FEMA BiOp as well as the City’s goals to improve the health and resilience of our environment over time. However, while the commentary is clear that this zone now applies to developed floodplains, the actual code language is less clear. We would recommend making this explicit in the zone language. Page 32 of Implementation tools: For the reasons cited, we support applying the river environmental zone to the interior of Hardtack and Ross Islands. Page 42 of Implementation Tools: We would urge the City to only allow mitigation credits to be allowed for banks within the South Reach rather than within the entire Lower Willamette. Mitigation banks should be reasonably proximal to the impact area. Page 42 of Implementation Tools: For the record, we continue to strongly oppose the development of commercial spaces in public parks. We are particularly concerned about commercial spaces such as food outlets that are in no way river related or river dependent in waterfront parks. 1,500 square feet is a large allowance for development in a place such as Sellwood Riverfront Park and would fundamentally change the nature of this park. Page 43, Mitigation Bank Credits (C): Why was this section changed from the November draft from “applicant must provide proof of the purchase of the appropriate number of credits” to applicant must provide proof of purchase of credits”? Page 45 of

Implementation Tools: The Setback standard of 50 feet is too small for reasons cited above in this letter. The City should go beyond the bare minimum to achieve ecological health in the South Reach. It seems remarkably unambitious that the City would establish the same low threshold for setbacks in the South Reach as it applied in the much more heavily developed and constrained Central Reach. The City should explain why it is going with such a low setback. Moreover, the City needs to establish regulatory and non-regulatory strategies to reduce existing development in the setback area over time. Without these types of mechanisms, the wider setback is at best a paper victory. Page 50 of Implementation Tools (33.475.220.B.2.c(2): We are concerned about the exception to landscaping requirements when landscaping is deemed by the fire marshal to be a safety hazard. It is difficult to envision a situation in which riverbank landscaping would create a specific fire hazard. More clarity here would be appreciated. Page 53 of Implementation Tools (33.475.220.B.2.c(5): We oppose the change that would allow revegetation projects to occur anywhere in the River Environmental Zone rather than in the same reach as where impacts occur. Revegetation should be reasonably proximal to the impact area. There are plenty of opportunities within the reaches to accomplish revegetation without going outside the reach. Page 57: Why was the word "legal" removed before non-conforming uses (the term "legal" was added in the November discussion draft and removed in the January discussion draft)? Without the word "legal" the current draft would appear to authorize illegal non-conforming uses. Page 60 Docks: The City should establish a clear goal to reduce the number of docks and to prioritize public rather than private docks. Page 61: 33.475230 (Exterior lighting): We do not see why the word "avoid" was removed with relation to light pollution. Why not "avoid and minimize" as originally written rather than simply "minimize?" The new explanation that has been provided on page 60 is entirely unsatisfactory: that the goal is to minimize rather than avoid since lighting is not being avoided. Nobody is suggesting that lighting should be avoided, but we are suggesting that glare and spill should be avoided. The goal should always be to avoid where possible and minimize (and mitigate) where avoidance is not possible. This explanation strikes us as somewhat bizarre and at odds with the avoid, minimize, mitigate hierarchy used by the city and most other entities when it comes to environmental impacts. Page 64 of implementation tools: We strongly support the inclusion of birdsafe building practices in the South Reach. Page 77: Nonconforming uses 33.475.250.D: This section in our opinion needs a major overhaul. This is where the City could make real progress in terms reducing existing development in the setback area. Instead, the proposed code does nothing to either regulate or incentivize reduction over time as redevelopment occurs. The City should incorporate effective mechanisms to reduce development in the setback area over time. Page 77: Nonconforming uses 33.475.250.D(1): We are concerned that language in the November draft specifically stating that the footprint (building coverage) of a house in the river setback cannot be increased has been removed in the current draft. While the current draft specifies that a building can be "expanded vertically within the building footprint," we believe that the more explicit language in the prior draft prohibiting expansion of coverage was important for clarity. Page 77: Nonconforming uses 33.475.250.D(2): We are concerned about the new language in the January draft regarding expansion of seawalls. We believe that this language is too permissive given the significant negative

impacts that seawalls have on river ecology. There should be provisions included that ensure that removal of seawalls and restoration is actively explored and promoted whenever a seawall is modified. Page 78: Exemptions from regulations: ? We are concerned that 33.475.405 (D) is too expansive. We would recommend eliminating or narrowing this section. ? (H) We again encourage the City to find mechanisms to reduce, not perpetuate existing development in setback areas ? (J) If the tree removal threshold is set at 1.5” dbh within the river overlay zone, replacement standards must stipulate that required replacement trees be larger than 1.5” dbh in size. This will ensure that a loophole is not created that allows for the planting of small trees (

Testimony is presented without formatting.

Date: February 24, 2020
To: Portland Planning and Sustainability Commission
From: Audubon Society of Portland
Re: South Reach Plan Proposed Draft

Dear Portland Planning and Sustainability Commission,

Thank you for the opportunity to comment on the South Reach River Plan Proposed Draft (January 2020). Audubon Society of Portland has been participating in the river planning process since its inception with the initiation of River Renaissance in 2001.

Audubon strongly supports the priority of the South Reach Plan to "Enhance the role of the Willamette River South Reach as fish and wildlife habitat, a place to recreate, and as an amenity for riverfront neighborhoods and others." This is consistent with priorities that the city has set for the South Reach dating back to River Renaissance. We believe that the Plan captures well the opportunity that is present in the South Reach when it writes:

> *The Willamette River South Reach and associated floodplain and riparian areas includes some of the only remaining contiguous high-value natural resources within the City of Portland. Due to the extent of parks and natural areas along this stretch of the river, the South Reach provides many ecosystem services not observed in other reaches, including numerous sites containing shallow water habitat, bottomland hardwood forests and native oak stands and rare plant species. These natural resource areas provide unique habitat opportunities for fish and wildlife that reside and migrate through this highly urbanized environment. The importance of the South Reach natural resources is reinforced by its relationship to the regional ecosystem and connections to adjacent migration corridors.*
> *--Volume 3 at page 72*

Overall, the South Reach River Plan does a good job advancing this objective and we appreciate the work that has gone into this plan. However, at a time that calls out for bold action to protect our environment there are key places where the plan is too timid. We urge you to go further. Our comments are divided into two sections: General Comments and Page Specific Comments.

GENERAL COMMENTS:

1) **The proposed setbacks are insufficient**: The South Reach Proposed Draft currently proposes to expand river setbacks from 25 to 50 feet. While this represents an improvement over current river protections, it is insufficient to meet the ecological aspirations of the South Reach Plan. We would

contest the draft plan's assertion that both Metro and the City have determined that 50 feet is the "absolute minimum width necessary to protect rivers, streams and wetlands." Our understanding is that both the City and Metro have determined that setbacks in the range of 150 to 300 feet are necessary to achieve a full range of ecological functions. In fact, City of Portland scientists with the Bureau of Environmental have continued to advocate strongly for a scientifically supported 100' minimum setback. While 50 feet might be reasonable in the heavily developed Central Reach, it represents a remarkably weak approach in in the South Reach which still has significant intact habitat and where the City has prioritized the protection of habitat and natural resources.

We understand from discussions with city staff that the driver behind the decision to go with 50 foot setbacks was that expanding setbacks to 75 or 100 feet would effectively double the number of existing structures located within the setback. The City should view this dilemma not as a basis for continuing to institute an insufficient setback, but rather as a reflection of the urgency of getting the setbacks right going forward. Setting the setback at 50 feet will only ensure that even more structures encroach into this ecologically sensitive 100-foot zone in the future, whereas moving the setback to 100 feet now will prevent new development and allow the City to reduce existing development over time. The decision the City makes on this issue will determine whether the current problematic situation improves or degrades going forward.

We urge the City to set a high standard for riparian protection in the South Reach rather than going for the "absolute minimum." In an age of climate change and endangered salmon populations, the City must take every opportunity to set truly aspirational goals. We recommended a setback throughout the South Reach of at least 100 feet.

2) **The Proposed Draft lacks adequate mechanisms to reduce existing development within the proposed setback over time**: Regardless of whether the setback is expanded to 50, 100 or some other width, it is critical that the South Reach Plan include specific regulatory and non-regulatory (incentive based) strategies to ensure that existing development within the setback is reduced over time. The failure to include these types of mechanisms remains in our opinion is one of the biggest weaknesses in the Central Reach River Plan and relegates the expansion of the Central Reach setbacks from 25 to 50 feet to be little more than a paper victory. It would be unfortunate for the City to perpetuate this significant deficiency into the South Reach Plan. Expanded setbacks will only have real meaning if the City also includes aggressive strategies to ensure that existing development is moved back from the river when redevelopment occurs. We appreciate the complexity and potential controversy associated with such measures, but failure to meaningfully address this issue will simply perpetuate the status quo. The landscape transformation necessary to restore our river and create more resilient landscapes in the face of climate change will be incremental in nature and will take decades to accomplish. It is therefore essential that the City have strong mechanisms in place to ensure that it can take maximum advantage of each redevelopment opportunity that occurs in order to advance these goals.

3) **Audubon strongly supports the inclusion of specific strategies to address the FEMA Floodplains Biological Opinion**: Portland Audubon strongly supports the inclusion of a variety of policies and strategies to meet the obligations of the FEMA Floodplains Salmon Biological Opinion that was

released in 2016 in response to a lawsuit by Audubon Society of Portland et al. It is critically important that the City update its floodplain regulations on the timeline set forth in the BiOp in order to ensure that the City remains eligible for the National Flood Insurance Program (NFIP). Moreover, compliance with the BiOp will ensure that the City has in place common sense provisions to protect people and property, improve ecological function, protect imperiled species and create a more resilient landscape in the face of climate change. Overall, we believe that the South Reach Plan does a good job of incorporating new policies and strategies to address this challenge. We would note in particular our support for applying the river environmental zone to both developed and undeveloped floodplain—this is consistent with the mandates contained in the BiOp. We have included several additional specific recommendations in our more detailed comments below.

4) **Greenway Vegetation**: One of the biggest environmental challenges in the South Reach is the ongoing illegal removal of vegetation in the greenway by adjacent property owners. This ongoing issue significantly undermines efforts to restore the South Reach to ecological health. We recommend two things to address this ongoing concern: First, we would recommend applying the River Environmental Zone to low ranked herbaceous areas along the river that currently lack trees and shrubs, but which have the potential to be restored to a multi-layered vegetative condition. Second, the City should impose significant penalties for illegal removal of vegetation along the river and should move to a more aggressive strategy of periodically surveying the South Reach to proactively identify where illegal removal has occurred (rather than depending solely on public reporting to trigger enforcement.) In particular, we would recommend very strong penalties for any repeat offenders. Adoption of these two strategies will send a clear message that illegal removal of vegetation along the river is viewed as a significant offense and that significant penalties can be triggered.

5) **Application of Bird Safe Building and Lighting Standards**: We appreciate and support the application of birdsafe building and lighting standards in the South Reach Plan. We believe these standards should be applied citywide either through the adoption of individual area plans or comprehensively at a citywide scale. We support the proposed application of the Bird Safe Building Standards to the entire plan area. We would urge the City to also apply the lighting standards to the entire plan area as well. As currently proposed, the lighting standards would only apply within the setback, which would render them near meaningless. Light pollution is a problem across our entire landscape and the standards should be addressed comprehensively. We want to ensure that these standards effectively capture things like street lighting, trail lighting, exterior building lighting, signage, etc. We also want to ensure that the lighting standards are able to be updated once currently ongoing work is completed on the Citywide Dark Skies Initiative. Finally we believe that the lighting standards on page 61 of Volume 1 could be more robust would recommend adding the following:
    a. Minimize/ eliminate unnecessary exterior lighting
    b. Minimize total lumens output to reduce glare and bounce
    c. Specify 3000 K or below to minimize emission of blue output (1-1.3 scotopic/ photopic ratio)
    d. Specify use of adaptive controls such as dimmers, timers and motion sensors

6) **Green Roofs**: We would urge the City to apply the same green roof standard to the South Reach Plan as were applied in the Central City Plan.

7) **Top of Bank**: It appears that the City will apply a "default top of bank" where data currently does not exist regarding the top of bank. We would urge the City to use more robust default criteria to ensure that in locations where top of bank has not been identified, that it is erring on the side of protection rather than incursion. We would also urge the city to contract as soon as possible with an appropriate organization to survey areas where the top of bank is currently undefined and resolve this issue prior to adoption of the plan. The South Reach is a relatively limited geographic area and it seems reasonable to us to resolve this issue rather than kick it down the road.

8) **Waverley Country Club**: The City currently provides urban services to Waverley Country Club, but has not annexed it into the city and therefore cannot apply its code to this property. This site; contiguous to South Reach, though outside the City limits in unincorporated Clackamas County, represents one of the most significant opportunity sites in the South Reach for riverbank restoration. It makes no sense for the City to provide services but then not be able to hold the property owners to baseline environmental standards. We would urge the City to prioritize two pathways to be called out as action items of this plan to remedy this situation. First, the City should initiate steps with the property owner to annex the property into the City of Portland, and thus bring it into its code application. If the owner does not comply with this action, Portland City Council should initiate conversations with Clackamas County Commissioners to work towards an Intergovernmental Agreement (IGA), between the two jurisdictions to establish the City's role as the principal provider of municipal services for this property. A similar IGA already exists between the City of Portland and Multnomah County that establishes the City of Portland as the principal provider for all unincorporated Multnomah County parcels within the City of Portland's urban services boundary, and it is long overdue to have a similar arrangement with Clackamas County.

9) **Docks**: We would urge the City to take a more aggressive approach to docks. Currently there is a proliferation of private docks in the South Reach while at the same time the City has been severely restricted in its ability to establish new docks for public use. It is important that the City not only put in place code to require dock construction techniques that minimize threats to salmon, but also that it put in place provisions that ensure that public docks are prioritized over private docks.

10) **Application to the North Reach**: The South Reach Plan indicates that its code language will eventually be applied to the North Reach. While there are many elements of the South Reach Plan which are applicable to the North Reach, we believe that it will be important to carefully consider and put in place specific strategies that will promote the restoration and ecological recovery of this most degraded reach of the Willamette including strategies to create shallow water habitat and adjacent riparian areas for listed salmonid species interspersed throughout the North Reach and also to establish a functional greenway along the Willamette. As written, we do not believe that the South Reach or Central Reach Plans are sufficient to accomplish those objectives in the North Reach. The North Reach will require a significant process of its own.

11) **Two decades (and counting) is too long of a time period to develop the Portland River Plan:** Nearly two decades have elapsed since the City began the process of updating its code related to the Portland reaches of the Willamette River. Even with the anticipated adoption of the South Reach Plan in 2020, the City will still only be two thirds of the way through this process with the complex and controversial North Reach still to go. This is far too long of a time period to develop this type of a plan. The result of such an elongated timeline is that much of the early work that forms the foundation of this plan is now more than a generation out of date, Portland has undergone major changes in terms of demographics and community priorities, public and NGO costs associated with plan development have skyrocketed and most importantly, the river has been managed under out of date policies and regulations for nearly two decades. While we appreciate the complexity of developing something like River Plan, we believe that a plan like this should take no more than 3-5 years to develop including ample opportunity for public engagement and input and that a 3-5 year plan development timeline is reasonably proportional to the 15-25 year timeframe that a plan is likely to be in effect before it needs to undergo another major revision. We would strongly urge the City to immediately initiate work on the North Reach River Plan upon adoption of the South Reach Plan and to aim to have it completed in 18 months.

12) **The City provided inadequate time for the public to review the South Reach Plan Discussion Draft**: The City only provided 36-days for the public to review this three volume plan which spans more than 800 pages. BPS was well aware that this is too short of a timeline because multiple organizations expressed concerns and had to request extensions about a similar timeline on a South Reach Discussion Draft, which was much more narrowly distributed in October 2019. Even among groups with staffing resources, this kind of timeline leaves virtually no opportunity for coordination, discussion or outreach to their broader constituencies. It is difficult to understand the compressed public comment periods given that the South Reach Plan has been under development for nearly a year and a half. The result is that significant opportunities for greater public engagement at this critical juncture were missed and groups with lesser resource levels were probably excluded altogether. **We would strongly urge the City to ensure that that it builds in at least 60-days for public comment periods on large complex plans.**

13) **A track changes version of the current draft would be helpful so that readers can easily discern changes from one draft to the next:** Many groups submitted substantial comments on the November 2019 Discussion Draft. We appreciate all the changes that were made. However, it would help expedite review if the City provided a comprehensive track changes version of the current draft were provided.

PAGE SPECIFIC COMMENTS:

Volume 1 Part 1: Chapter I, Introduction: Policies, Objectives and Recommendations

Land Use, Zoning and Development (Page 6): The document should explain how the land use designation in the first two bullets of this section (current versus 2035 Comp Plan) would be resolved over time.

Regional (page 12): Provide more information regarding what it means to come into compliance with Title 3 and Title 13. What specifically must the City do?

Volume 1, Part 1: Chapter II, The Future of South Reach

Future of the South Reach (Page 18):

- Include something about experiencing and enjoying nature. We see this as broader than simply "viewing wildlife." The South Reach ought to include real opportunities for quiet enjoyment of nature. This should be included in the bold print paragraph at the beginning.
- Audubon continues to strongly oppose the inclusion of commercial facilities in parks, especially non-essential facilities such as snack stands. There is no reason given the availability of commercial activity in close proximity to the South Reach to convert limited park spaces for commercial use.
- This section should include something about water quality
- The section in climate resilience should be significantly more robust and should include an expanded greenway in which development has been significantly pulled back from the river edges.

Recreation Opportunities Map (Page 23): Why is there a sailboat icon on Ross Island---is the City assuming public boat access to Ross Island? Thank you for adding an icon delineating where quiet enjoyment of nature will be prioritized. Please consider adding the area around Elk Rock Island and the Peter Kerr Property/ Elk Rock Garden, Ross Island Lagoon and Holgate Channel. In addition, please more the sailboat icon off of Ross Island and onto the river itself since there is no public boat access allowed on Ross Island.

Watershed Health (Page 24): Thank you for adding verbiage describing restoration of banks and uplands along Willamette River Greenway to benefit fish as well as migratory birds. One additional question here is the use of the word "ample" to describe the amount of shallow water habitat. While this area represents the healthiest portion of the Willamette within the City "ample "is still an overstatement. We would recommend substituting "retain significant areas of' in place of "provide ample."

Watershed Health Map (Page 26):

- It is not clear why virtually the entire riverbank along the South Reach is not coded as a habitat area---The City should have as its goal, restoration along the entire south reach.
- This map should also include floodplains

- The City also needs to address Waverly Golf Course—its omission represents a huge gap in restoration objectives in the South Reach in an area with very high potential for restoration.

Volume 1, Part 1: Chapter III, Policies, Objectives, and Recommendations

Key Issues and Opportunities (Page 29): While an expansion of the setbacks from 25 to 50 feet is an improvement over current conditions, it is disappointing that the City has chosen to take such a conservative approach to this issue. As the plan notes, both Metro and the City have determined that 50 feet is the "absolute minimum width necessary to protect rivers, streams and wetlands." While 50 feet might be reasonable in the heavily developed Central Reach, it represents a remarkably weak approach in in the South Reach which still has significant intact habitat and where the City has prioritized the protection of habitat and natural resources. We urge the City to set a high standard for riparian protection in the South Reach rather than going for the "absolute minimum." In an age of climate change and endangered salmon populations, the City must take every opportunity to set truly aspiration goals.

Birdsafe Building (Page 30): We strongly support the inclusion of strong lighting and glazing standards throughout the South Reach. See comments in "General Comments" section for specific recommendations on how the lighting provisions could be strengthened.

Docks (Page 30): We also have noted the significant increase in docks serving private residences. We do not understand why these docks are being permitted when public docks (for example at South Waterfront) cannot get permitted. There is a fundamental equity issue associated with permitting private docks while public access to the river remains severely limited. We strongly support the City putting in place mechanisms to ensure that new docks are better prioritized, while also ensuring that impacts on listed fish are minimized.

Removal of vegetation (Page 31): We strongly support more aggressive enforcement of vegetation protections along the river. There should be significant penalties associated with illegal removal of vegetation.

Objectives and Actions #1 (Page 32):

- We would strongly encourage the City to apply a 100 foot setback rather than the proposed 50 foot setback
- The plan should include clear strategies (incentives, code, etc.) for ensuring that setback targets are met over time (i.e. that existing development is moved out of the floodplain).
- The City should find a way to address the riparian edge of Waverley Golf Course, which represents a major opportunity area for restoration.

Objectives and Actions # 2 (Page 33):

- Apply River Environmental to all high and medium ranked resources within setback as well as low ranked resources that contain significant tree canopy or restoration potential.
- The goal should not be to reduce costs of environmental violations for applicants—the city should be increasing penalties in order to reduce the number of violations.

Ross Island (Page 35): Ross Island has three associated islands (not two): Toe, East and Hardtack. It also provides habitat for a wide array of mammals, which are not mentioned in the first paragraph.

Ross Island (Page 39): Thanks for including information on the restoration of Ross Island Lagoon. Please add that it is also a priority to work with RIS&G to get the entire island under a single management plan.

Objectives and Actions #4 (Page 41):

- Add Waverley Golf Course to 5th bullet: We would urge the City to specifically initiate discussions regarding an Intergovernmental Agreement with Clackamas County to manage unincorporated areas within the City's urban services district.
- Add a bullet about private property along the lines of: work with groups such as Friends of Trees, Depave, Audubon/ Columbia Land Trust (Backyard Habitat Certification Program) to promote restoration and connectivity on private property in the South Reach.

Objectives and Actions #6 (Page 45)

- First paragraph: Add, "to ensure that new development is designed to minimize flood risk and protect salmon…." The FEMA BiOp is driven by salmon protection so this species should be explicitly mentioned.
- Add consideration of regulatory strategies (i.e. land use regulations) to ensure that existing development in floodplain, especially in setback area, is reduced over time. As written, the focus is entirely on voluntary strategies.

Objectives and Actions #1 (Page 50):

- Add bullet regarding increasing opportunities for partnerships with conservation and community groups to support restoration, community science, etc.

Objectives and Action #5 (Page 56):

- The plan should make it an explicit goal to annex Waverly Golf Course into the City. It makes no sense for the city to provide services but allow Waverly to avoid other obligations that come with being part of the City. If the City is going to provide services, it should also require a setback from the river, greenway trail, etc. The City should initiate discussions regarding an Intergovernmental Agreement with Clackamas County to manage unincorporated areas within the City's urban services district.

Riverfront Communities (Page 73):
As a general comment on this section, it appears that the plan does nothing to facilitate reduction of existing development within the greenway over time. In some cases (for example Miles Place), it seems to lock in existing development. The City should explicitly adopt policies (regulatory and non-regulatory) which facilitate reduction of development in the greenway as well as in existing floodplains over time.

Volume 1, Part 2: Implementation Tools

Page 31 of: We strongly support applying the River Environmental Zone to the developed floodplain and changing the goal of this zone from “no net loss” to “compensate for impacts and improve natural resource features and functions over time.” Both changes are consistent with the FEMA BiOp as well as the City’s goals to improve the health and resilience of our environment over time. However, while the commentary is clear that this zone now applies to developed floodplains, the actual code language is less clear. We would recommend making this explicit in the zone language.

Page 32 of Implementation tools: For the reasons cited, we support applying the river environmental zone to the interior of Hardtack and Ross Islands.

Page 42 of Implementation Tools: We would urge the City to only allow mitigation credits to be allowed for banks within the South Reach rather than within the entire Lower Willamette. Mitigation banks should be reasonably proximal to the impact area.

Page 42 of Implementation Tools: For the record, we continue to strongly oppose the development of commercial spaces in public parks. We are particularly concerned about commercial spaces such as food outlets that are in no way river related or river dependent in waterfront parks. 1,500 square feet is a large allowance for development in a place such as Sellwood Riverfront Park and would fundamentally change the nature of this park.

Page 43, Mitigation Bank Credits (C): Why was this section changed from the November draft from “applicant must provide proof of the purchase of the appropriate number of credits” to applicant must provide proof of purchase of credits”?

Page 45 of Implementation Tools: The Setback standard of 50 feet is too small for reasons cited above in this letter. The City should go beyond the bare minimum to achieve ecological health in the South Reach. It seems remarkably unambitious that the City would establish the same low threshold for setbacks in the South Reach as it applied in the much more heavily developed and constrained Central Reach. The City should explain why it is going with such a low setback. Moreover, the City needs to establish regulatory and non-regulatory strategies to reduce existing development in the setback area over time. Without these types of mechanisms, the wider setback is at best a paper victory.

Page 50 of Implementation Tools (33.475.220.B.2.c(2): We are concerned about the exception to landscaping requirements when landscaping is deemed by the fire marshal to be a safety hazard. It is difficult to envision a situation in which riverbank landscaping would create a specific fire hazard. More clarity here would be appreciated.

Page 53 of Implementation Tools (33.475.220.B.2.c(5): We oppose the change that would allow revegetation projects to occur anywhere in the River Environmental Zone rather than in the same reach as where impacts occur. Revegetation should be reasonably proximal to the impact area. There are plenty of opportunities within the reaches to accomplish revegetation without going outside the reach.

Page 57: Why was the word “legal” removed before non-conforming uses (the term “legal” was added in the November discussion draft and removed in the January discussion draft)? Without the word “legal” the current draft would appear to authorize illegal non-conforming uses.

Page 60 Docks: The City should establish a clear goal to reduce the number of docks and to prioritize public rather than private docks.

Page 61: 33.475230 (Exterior lighting): We do not see why the word “avoid” was removed with relation to light pollution. Why not “avoid and minimize” as originally written rather than simply “minimize?” The new explanation that has been provided on page 60 is entirely unsatisfactory: that the goal is to minimize rather than avoid since lighting is not being avoided. Nobody is suggesting that lighting should be avoided, but we are suggesting that glare and spill should be avoided. The goal should always be to avoid where possible and minimize (and mitigate) where avoidance is not possible. This explanation strikes us as somewhat bizarre and at odds with the avoid, minimize, mitigate hierarchy used by the city and most other entities when it comes to environmental impacts.

Page 64 of implementation tools: We strongly support the inclusion of birdsafe building practices in the South Reach.

Page 77: Nonconforming uses 33.475.250.D: This section in our opinion needs a major overhaul. This is where the City could make real progress in terms reducing existing development in the setback area. Instead, the proposed code does nothing to either regulate or incentivize reduction over time as redevelopment occurs. The City should incorporate effective mechanisms to reduce development in the setback area over time.

Page 77: Nonconforming uses 33.475.250.D(1): We are concerned that language in the November draft specifically stating that the footprint (building coverage) of a house in the river setback cannot be increased has been removed in the current draft. While the current draft specifies that a building can be “expanded vertically within the building footprint,” we believe that the more explicit language in the prior draft prohibiting expansion of coverage was important for clarity.

Page 77: Nonconforming uses 33.475.250.D(2): We are concerned about the new language in the January draft regarding expansion of seawalls. We believe that this language is too permissive given the significant negative impacts that seawalls have on river ecology. There should be provisions included that ensure that removal of seawalls and restoration is actively explored and promoted whenever a seawall is modified.

Page 78: Exemptions from regulations:

- We are concerned that 33.475.405 (D) is too expansive. We would recommend eliminating or narrowing this section.
- (H) We again encourage the City to find mechanisms to reduce, not perpetuate existing development in setback areas

- (J) If the tree removal threshold is set at 1.5" dbh within the river overlay zone, replacement standards must stipulate that required replacement trees be larger than 1.5" dbh in size. This will ensure that a loophole is not created that allows for the planting of small trees (<1.5" dbh) and their immediate removal. The code is supposed to ensure the retention of existing vegetation along the riverbank. Additionally, trees planted as mitigation for tree removal in the river overlay zone should require a maintenance plan to ensure a higher survival rate.
- (K) Consistent with prior comments, we oppose exemptions to build on top of existing docks. This makes it less likely that docks will be removed over time.
- (L) The pruning allowances for trees are too broad and will result in continued de-vegetating of the greenway.
- (P) the Security camera exemption seems too broad and could be used as a pretext for removing vegetation from the greenway
- (V)(6) Trails should be at least 25 feet from top of bank rather than 15 feet

Page 85: Why was the figure regarding trail vegetation pruning and maintenance that was added to the November draft removed in the January draft?

Page 90: 33.475.440.B: We support the new "riparian buffer area" 170 feet landward of OHW in which beneficial gain must be demonstrated

Page 93: Trail Standards: The distance from top of bank is too small. We could recommend at least 25 feet. In addition, the disturbance area for major trails (16-foot wide trails and 24-foot wide disturbance area) is excessively generous. This means that the standards could functionally allow the disturbance area for major trails to consume 24 feet out of a 50-foot wide greenway.

Page 99: Standards for vegetation pruning and removal: We support the proposed restrictions during nesting season. We would note that dead trees (as opposed to dangerous trees) could actually provide nesting habitat. In fact, snags are often some of the most important nest trees. We would urge the city to only allow for the removal of dangerous trees during the restricted time period.

Page 103: Tree Replacement requirements: Shouldn't larger trees be replaced on an inch for inch basis consistent with the big tree mitigation standards? Why is the City not using inch for inch replacement for removal of trees above 30 inches in diameter?

Page 101-103: Mitigation: As per prior comments, we believe that all mitigation should occur within the South reach.

Page 107 Standards for structures: We are concerned about the provision to allow for one 300 square foot land-based structure per swimming site. Given that the proposed code would allow up to 8 swimming sites per reach, this means that there could be as many as 8 temporary 300 square foot land-based structure allowed in the greenway per reach as well. This seems excessive. Also there are not provisions for protecting and restoring habitat that could be impacted by these structures included in the code.

Page 115: Corrections to Violations of the River Environmental Zone: Given the prevalence of illegal cutting of trees and removal of vegetation in the South Reach, these requirements seem inadequate. We would urge the City to include more severe penalties, especially for sites where there are repeat violations.

Page 125: Cleanup of contaminated sites: Should large trees be replaced on an inch for inch basis. Also again recommend mitigation be with the reach.

Page 195-199: We support the inclusion of code to bring the city into compliance with the 2006 FEMA BiOP

Volume 1, Part 2: Action Plan

- W1C: We are assuming that the city will use the default top of bank where TOB has not been explicitly identified. Is that correct?
- W3A: Pleased to see planning for RI/ Oaks Bottom Plan prioritized
- W4C: Seems like scheduling this work at Willamette Park 6-20 years out is a long timeline given that the plan was developed in 2012
- W4E and W4F: Add Audubon/ CLT Backyard Habitat Program to list of partners
- W6A and W6B: Strongly support these efforts to meet Fema BiOp
- W6C: City should commit to developing incentives rather than "consider" for removal of impervious surfaces
- W6D: Strongly support city developing a Willamette Floodplain willing seller program
- R1B: Dog parks—language should be clarified here to make it clear that off leash areas will not be located in natural areas.
- R5B: The City should prioritize annexing Waverley so that it can apply environmental code. City should pursue and IGA with the County within 5 years.
- Objective 9: Add another action regarding exploring expansion of no wake areas
- C7A: City should not be working to expand development within setback

Volume 2, Chapter II, Scenic Resources Protection Plan

In general, we are supportive of the work done in this volume. We do have some questions regarding sites SRSW04, SRSE03, SRSE06, SRSE07 and SRSE08. While we think these viewpoints are all valuable, we would urge the city to recognize that it is acceptable to have obstructed views during portions of the year when trees are leafed out. These sites are in or over natural areas where seasonal variation in vegetation should be part of the experience. We are particularly concerned about SRSE07 and SRSE08 as it would appear that both views of the city skyline could eventually be blocked out by a relatively large stand of trees (enclosed in the red rectangles). Maintaining this view in the long run could result in a large scale removal of trees at Oaks Bottom and on Ross Island which would be strongly opposed. The City should reevaluate these sites based on the potential natural resource impacts.

We would also recommend eliminating SRSW08 given the presence of large mature trees and the relatively low public benefit (low access) to this site.

Volume 3: Chapters I-IV, Natural Resources Protection Plan

Page iv: We support protection of both the undeveloped (strictly limit) and developed (limit) floodplains. This is consistent with the FEMA BiOp

Page v: we would urge the City to consider rank patches of trees less than ½ acre in size. The science increasingly demonstrates the importance of smaller patches for connectivity, urban heat island, air purification, etc. We also think that the ranking of the Oaks Bottom Complex and Powers Marine Park as medium for wildlife habitat seems low. These are some of the most valuable wildlife habitat areas in the City (especially the Oaks Bottom Complex). If they are only ranking medium for wildlife habitat, something is off in the calibration of the ranking system.

Vii Map: It seems odd that the southern tip of Ross Island would only get a medium combined ranking while the rest of the island (outside developed areas) gets a high ranking. The southern tip is contiguous with the rest of the natural area (i.e. part of a habitat mosaic). It does not make sense to give it a different ranking from the rest of the undeveloped island.

Page 8-9 Birds: In the future, we should add language about birds that reflects the decline of many common species as well as species that are currently formally listed on various watch lists. In fact, many species that we currently take for granted in Portland are experiencing significant local long-term declines. Data is now available and could be added.

Page 9: Peregrine Falcons:

- Bob Sallinger should be listed as the source of all the Peregrine Information (I provided the information to the Intertwine Alliance).
- The Fremont Bridge is believed to be the “most productive” nest site in Oregon (not the “most common”).
- Peregrines are nesting on both Portland area bridges and cliffs (not just bridges)
- Currently there is a known nest site in the South Reach at Elk Rock Cliffs. Falcons have also nested on the Sellwood Bridge.

Page 10: Add, raccoon, to list of animals found in more intensely developed urbanized areas. It would also be good to add something about the role of yards in providing habitat and connectivity in developed areas.

Page 22: Regulatory and Policy Framework

- Add a section on the Intertwine Alliances Biodiversity Guide.
- Might also want to reference the birdsafe building guide that the City Developed with Audubon in the section regarding the MBTA

Page 61: Buildings, fences and other barriers
Add window collisions to the list of potential mortality factors. It would be good to note here that collisions are ranked as the second highest cause of anthropogenic mortality for birds in North America accounting for as many as 1 billion bird deaths annually.

Volume 3: Chapters V, Natural Resources Protection Plan

Page 80: Add osprey on pilings, utility poles, etc.

Page 86: Map—the southern tip of Ross Island should not be ranked low and medium—it is part of a mosaic of habitats on the island that should all be ranked high

Page 87: The southern tip and interior of Ross Island should all be "strictly limit" for the reasons previously outlined. We are very surprised to see the interior of Ross Island get only a "limit" designation. There is something off in the calibration of rating system if the interior of RI gets only a limit recommendation.

Page 87: It does not make sense to only protect half the river beginning at Waverley golf course. Even if Waverley is outside the City, the protections should still apply on the river.

General Comments on Volume 3:

- The volume needs to more clearly delineate what it means to "strictly limit" versus "limit" conflicting uses. The volume never really provides a clear explanation.
- The City should consider providing a "limit" designation on some low ranked herbaceous areas. These areas represent significant opportunities to increase ecological function. By applying an "allow" designation to all of these areas, the City limits the likelihood that ecological function will be improved and creates a one way dynamic in which once areas are de-vegetated, they are not typically restored. We are particularly concerned about this dynamic on the west bank of the Willamette where adjacent property owners have intentionally and often illegally removed vegetation. They should not now be rewarded by having this potential habitat adjacent to the river ranked low and given an allow decision.
- It would be helpful to include a map of areas that are given a limit decision strictly because they are in the developed floodplain. It would be interesting to know how much land this new application has brought into a protected status in the South Reach.

Other:

- I would suggest including maps of projected changes in flooding in the South Reach over the next century.

Thank you for your consideration of these comments.

Bob Sallinger
Conservation Director
Audubon Society of Portland

Micah Meskel
Activist Program Manager
Audubon Society of Portland

Tim Davis

#93420 | February 24, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

We must LIMIT PARKING for cars! Everyone seems to worry about "increased traffic" (meaning CAR traffic) and the incessant need for "traffic studies." But the KEY to reducing driving is to provide as little PARKING as possible! We also need to dramatically *activate* and create *access* to our river! There's literally *nowhere* to put in a kayak anywhere in South Waterfront! And Waterfront Park is totally dead--unless there's a huge event, in which case half the park is gated and requiring a paid ticket for entry. Our ENTIRE waterfront needs a total redesign. And Kengo Kuma's "Portland Steps" will be AMAZING! :)

Testimony is presented without formatting.

M J Riehl

#93417 | February 23, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

February 23, 2020 Planning and Sustainability Commission 1900 SW Fourth Avenue, Suite 7100 Portland, Oregon 97201 Re: River Plan/South Reach Project As a Portland native who has walked the West side Willamette River Greenway for decades, I strongly object to the inadequate 50-foot setback proposed for the south reach. In the 1990s I provided testimony regarding development of the Avalon Hotel, strongly supporting a healthy greenway in order to serve the needs of the growing population of Portland as well as to provide native vegetation and habitat important to fish and wildlife. In addition, no encroachments into the south reach setback should be allowed. Over the years, there has been constant pruning along some greenway areas, seemingly without any consequences. Native habitat should be restored, and a plan should be developed which includes dealing with violations of the River Environmental Zone, including monetary penalties if violations are not resolved in a timely manner. The Willamette River and the Greenway need to be adequately protected for future generations of Portlanders, and for a healthy river and riparian environment. M J Riehl 6032 NE Hancock Street Portland Oregon 97213

Testimony is presented without formatting.

Leigh Schwarz

#93416 | February 23, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Johns Landing Owners Association February 16, 2020 Portland Planning and Sustainability Commission River Plan / South Reach Testimony 1900 SW 4th Avenue, Suite 7100 Portland, OR 97201 RE: River Plan / South Reach Proposed Draft Dear Commissioners: The Johns Landing Owners Association (JLOA) represents 102 homeowners in four condominium complexes adjacent to the Willamette Greenway Trail. Specifically, we own, lease and/or manage a one-quarter mile stretch of land on both sides of the Greenway Trail from the Willamette Sailing Club north. We object to planting requirements set out in the Plan. We homeowners value the community safety and scenic river views of this high-density residential area along the Willamette River. We support the Draft Plan's designation of our properties as a scenic resource. However, the public health and safety of Johns Landing residents and Greenway Trail users have not been sufficiently addressed in the Economic, Social, Environmental & Energy (ESEE) analysis. This is particularly the case with regard to our concerns about conflicting uses in our area. Community safety. The Greenway Trail is heavily used for bike commuting, recreation, river access and serenity. Undulations and curves severely limit visibility and safety. Families are afraid to walk and bike with small children because of crowded conditions, high rates of speed of bikes and scooters and lack of visibility at a distance. Neighbors and other visitors must limit dog walking or strolls with elderly friends and family to certain hours of the day due to the dangers and fast pace of traffic on the Greenway Trail. Kayakers and paddle boarders have difficulty walking long boats to the water because they cannot see bikers, dogs or walkers coming from either direction due to tall, dense vegetation. Vegetation barriers encourage campers, who hide, light fires, dump trash and urinate and defecate. Fireworks are a serious concern in dry months. These public uses on our property create hazardous conditions in this increasingly dense and trafficked residential area. These activities raise liability concerns. The potential risks of injury due to poor site lines, dense traffic on the path, beach and brush fires, assaults, and robberies must be better addressed. Prevention of harm should be paramount. Recently, there was an accident on the bike path and the emergency response was hindered by difficult access to the path. First responders and multiple crashed bikes were positioned in one of the February 16, 2020 Portland Planning and Sustainability Commission Page 2 many undulations in the path where vegetation impedes sight lines. As a consequence, many people, runners, scooters and bikes, converged into the two blind curves, creating additional danger. Scenic river views. In the early 1970s, when JLOA was formed, our property was developed from derelict industrial land. New land along the river was created, with State and City approval, to expand the available area by

bringing in fill dirt and riprap rock armoring. The Greenway Trail was created at the same time as JLOA. Before that, there was no Greenway Trail, no place to walk along the Willamette to enjoy views from the Sellwood Bridge to downtown Portland. For more than 40 years, people have appreciated the beautiful wide-open vistas along our property. What makes this portion of the Greenway Trail particularly special and unique is its openness, the fact that you can stop anywhere in this section and enjoy the full expansive river experience. Thank you for considering our concerns. Respectfully, Leigh Schwarz, President Johns Landing Owners Association

Testimony is presented without formatting.

Johns Landing Owners Association

February 16, 2020

Portland Planning and Sustainability Commission
River Plan / South Reach Testimony
1900 SW 4th Avenue, Suite 7100
Portland, OR 97201

RE: River Plan / South Reach Proposed Draft

Dear Commissioners:

The Johns Landing Owners Association (JLOA) represents 102 homeowners in four condominium complexes adjacent to the Willamette Greenway Trail. Specifically, we own, lease and/or manage a one-quarter mile stretch of land on both sides of the Greenway Trail from the Willamette Sailing Club north. We object to planting requirements set out in the Plan.

We homeowners value the community safety and scenic river views of this high-density residential area along the Willamette River. We support the Draft Plan's designation of our properties as a scenic resource. However, the public health and safety of Johns Landing residents and Greenway Trail users have not been sufficiently addressed in the Economic, Social, Environmental & Energy (ESEE) analysis. This is particularly the case with regard to our concerns about conflicting uses in our area.

Community safety. The Greenway Trail is heavily used for bike commuting, recreation, river access and serenity. Undulations and curves severely limit visibility and safety. Families are afraid to walk and bike with small children because of crowded conditions, high rates of speed of bikes and scooters and lack of visibility at a distance. Neighbors and other visitors must limit dog walking or strolls with elderly friends and family to certain hours of the day due to the dangers and fast pace of traffic on the Greenway Trail. Kayakers and paddle boarders have difficulty walking long boats to the water because they cannot see bikers, dogs or walkers coming from either direction due to tall, dense vegetation.

Vegetation barriers encourage campers, who hide, light fires, dump trash and urinate and defecate. Fireworks are a serious concern in dry months. These public uses on our property create hazardous conditions in this increasingly dense and trafficked residential area.

These activities raise **liability concerns**. The potential risks of injury due to poor site lines, dense traffic on the path, beach and brush fires, assaults, and robberies must be better addressed. Prevention of harm should be paramount.

Recently, there was an accident on the bike path and the emergency response was hindered by difficult access to the path. First responders and multiple crashed bikes were positioned in one of the

many undulations in the path where vegetation impedes sight lines. As a consequence, many people, runners, scooters and bikes, converged into the two blind curves, creating additional danger.

Scenic river views. In the early 1970s, when JLOA was formed, our property was developed from derelict industrial land. New land along the river was created, with State and City approval, to expand the available area by bringing in fill dirt and riprap rock armoring. The Greenway Trail was created at the same time as JLOA. Before that, there was no Greenway Trail, no place to walk along the Willamette to enjoy views from the Sellwood Bridge to downtown Portland. For more than 40 years, people have appreciated the beautiful wide-open vistas along our property. What makes this portion of the Greenway Trail particularly special and unique is its openness, the fact that you can stop anywhere in this section and enjoy the full expansive river experience.

Thank you for considering our concerns.

Respectfully,

Leigh Schwarz, President
Johns Landing Owners Association

Kenton Hill, President
Riveridge Homeowners Association

Patricia McCaig, President
Bankside Homeowners Association

Louis Lustenberger, President
Riverpoint Homeowners Association

Andy Pennington, President
Riverwind Homeowners Association

Caryanne Conner

#93415 | February 23, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

February 23, 2020 Planning and Sustainability Commission 1900 SW Fourth, Suite 7100 Portland, OR 97201 I would like to add the following written testimony regarding the current proposed draft of the Willamette River Plan/ South Reach. I have lived and worked for the last 30 years in a condominium at Willamette Shores Condos along the Greenway Trail along the Willamette River in Portland. Most days the Greenway Trail provides my exercise, walking from Portland south to the Sellwood Bridge. Increase the setback to at least 100 feet: In the thirty years that I have lived next to the Greenway I concluded that the trail is a resource for the entire City and that future portions of the trail should be wider. The use of the trail has dramatically increased over the use, as has the population of the City. Making the width 100 feet, as it is in South Waterfront, provides enough space to separate cyclists and commuters from the families and recreational walkers. New and existing properties should comply with landscaping requirements: My condo complex has been forced by the city to comply with the current Greenway plan. Which means we have spent money planting native species of trees and shrubs on both sides of the Greenway path. We also provided several years of water to maintain the new plantings. New landscaping should require at least a three year maintenance plan. However, many properties, including the JLOA Condos to the south of us, have refused to comply with attempts to enforce the existing landscaping requirements. We are left with dead and dying vegetation cut to the ground. It is ugly to see and hot to walk, run or pedal with no shade. Severe pruning has been allowed on all the JLOA properties for the 30 years that I have lived here. Inconsistent enforcement by the City results in angry neighbors, an ugly trail experience for all users, and pressure to remove the few remaining trees along the riverbank.

Kerry Chipman

#93414 | February 23, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I submitted some testimony yesterday but neglected to mention a subject that I'm not sure is currently covered by the South Reach plan: tree planting requirements. I live in a condo along the Greenway Trail in Johns Landing and from the north end of Heron point to the sailing club just north of Willamette Park there is one mature tree along the river side of the trail. My fellow condominium owners with the loudest voices have intimidated our city into acquiescing in their idiosyncratic vision of what a riverview should look like, completely barren of any vegetation more than a few inches high. This is misguided and selfish. Natural rivers have trees along the banks. Trees enhance the beauty of a riverview, as well as providing nothing but positive benefits for fish. Strategically planted trees on both sides of the Greenway Trail would not only enhance the view, it would make the trail far more user-friendly during the hot summer months by offering some shady places to rest and recreate along the bank. The riverbank here is a regional resource which I and my fellow condo owners are fortunate enough to live on. The loudly expressed views of a few owners should not trump making this resource more enjoyable to those of us who aren't fortunate enough to live on the bank. Despite what you will undoubtedly hear from some of my neighbors, there's no evidence that trees along the river will do anything but enhance property values. I'm asking that you consider mandating the planting of trees along the riverbank and establishing protections to ensure that these trees are not removed by the fortunate few who have the money to buy here.

Testimony is presented without formatting.

David Schoellhamer

#93413 | February 23, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

The Sellwood-Moreland Improvement League (SMILE) has reviewed the Proposed Draft Report of the South Reach River Plan and offers the attached comments.

Testimony is presented without formatting.

S·M·I·L·E

SELLWOOD MORELAND IMPROVEMENT LEAGUE
8210 SE 13th AVENUE, PORTLAND, OR 97202
STATION 503-234-3570 • CHURCH 503-233-1497

February 23, 2020

Portland Planning and Sustainability Commission
River Plan / South Reach Testimony
1900 SW 4th Ave, Suite 7100
Portland, OR 97201

Dear Commissioners:

The Sellwood-Moreland Improvement League (SMILE) has reviewed the Proposed Draft Report of the South Reach River Plan and offers the following comments. Below we refer to Volume 1, Chapter III, Policies, Objectives and Recommendations.

- **Floodplain management and Climate Resilience Objective 8, page 46, evaluating future landslide risk:** We endorse this objective. Many residences are adjacent to the Sellwood Bluff in our neighborhood and susceptible to landslides. For example, 1433 SE Reedway had a landslide that closed trails below for months and the house had to be moved 15 feet back from the bluff in 2014.
- **Recreation Objective 13: Retire viewpoints, pages 62-63:** This report and specifically this objective fail to resolve the longstanding conflict between the river (g and n) and scenic (s) overlays. Oaks Bottom has River-general (g) and River-natural (n) overlays which essentially prohibit tree pruning and removal. The Sellwood Bluff above Oaks Bottom has an s-overlay which has additional development restrictions to preserve the scenic view. The conflict is that trees in Oaks Bottom often block the view from the scenic overlay. Property owners in the s-overlay are still burdened with development restrictions even though there is no longer a scenic view. This is bad land use policy and unfair zoning. Retiring viewpoints is not enough. Either remove the s-overlay from properties that no longer have a scenic view or retain the s-overlay and actively manage trees in Oaks Bottom to preserve the scenic view. Resolving this conflict should consider ecosystem health, Oaks Bottom recreation, property owners along the Bluff, benefits of a scenic view from the Bluff, benefits of the tree canopy on the view of the Bluff from the Springwater Corridor, River, and west side, and probably other factors.
- **Riverfront Communities, Sellwood, Objective 2, page 77:** With regards to respecting the historic character of the Sellwood neighborhood, please add a reference to the Sellwood-Moreland Neighborhood Plan[1] and the Sellwood-Moreland Main Street Design

[1] ht ps://beta.portland.gov/sites/default/files/2020-01/sellwood-moreland-neighborhood-plan-1998.pdf

Guidelines[2] which are being finalized now and should be approved by SMILE this spring.

- **Policies, Objectives and Recommendations, Objective #1, Vol 1 Pt 1, pg 31;** We recommend increasing the setback for development from 50 feet to 100 feet to provide for improved wildlife habitat.
- **Scenic Resources Inventory -Greenway Trail East Scenic Corridor, Vol 2 Page 106:** The Greenway Trail East description doesn't include the existing waterfront trail south of Spokane Street, parallel to the Springwater Corridor. We request that this Scenic Corridor trail be included in the inventory and that future extensions and connections to the north and south, as shown on Map 2-7, be described for future implementation. This should include documentation that the waterfront trail currently ends at a locked gate at the north property line of the Portland Rowing Club.
- **Scenic Resources Inventory -Greenway Trail East Scenic Corridor, Vol 2 Page 106:** We request that the undeveloped SE Grand Avenue right-of-way from SE Linn Street to SE Ochoco Street be included as part of the Greenway Trail East to provide a pedestrian pathway alternative to the busy Springwater Corridor trail. This is consistent with a proposal currently being considered by PBOT for a community-initiated Pathway project.
- **Scenic Resources Inventory -Greenway Trail East Scenic Corridor, Vol 2 Page 106:** Access to the Oaks Amusement Park Beach (SRSE04, Vol. 2, Ch. 2 Page 68) via the stairs down from Oak Amusement Park is restricted for most of the year via a locked gate at the top of the stairs. There is currently a sign saying the gate is unlocked during daylight hours, but for the last several years the gate has been locked at nearly all times, even in the summer and when river levels are low. We recommend the gate be unlocked during predictable posted hours to provide public access through Oaks Amusement Park.
- **Policies, Objectives and Recommendations, Vol 1, Pt 1, pg 77 and 78**: We support the proposed Objectives #2 and #3 Actions to improve the Sellwood transportation system to and along the riverfront for all modes of travel to safely accommodate residents and visitors to the area.

This testimony was discussed at public meetings of the SMILE Land Use Committee on February 5, SMILE Natural Amenities Committee on February 5, SMILE Transportation Committee on February 19, and the SMILE Board of Directors on February 19. The SMILE Board of Directors approved this testimony on February 19, 2020. If you have any questions, please contact me at simonrfulford@gmail.com. Thank you for the opportunity to testify.

Sincerely,

Simon Fulford
President, Sellwood-Moreland Improvement League

[2] ht p://www.sellwood.org/2020/02/17/draft-sellwood-moreland-main-streets-guidelines/

Kerry Chipman

#93411 | February 22, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am concerned about several aspects of the South Reach plan. Tree removal. My understanding is that the new plan would require replacement of any tree that is cut down if the tree was 1.5 inches dbh, but only needs to be replaced with a ½ inch tree. That makes no sense, because the new tree could then be immediately cut down. Replacement trees must be big enough so that this loophole is closed. Greenway setback. It's 100 feet in South waterfront, and the result is both attractive and functional for users. Other than greed, there is no reason not to extend that 100 foot setback along the entire Greenway. Adjacent building heights. Buildings that sit right on the Greenway shouldn't be so tall as to overwhelm it or put it in shade for half of the day. They should start low and increase in height as they go back from the setback. Johns Landing is a pretty good example of reasonable building heights. Redevelopment. If an existing structure within the setback gets redeveloped, increases in height or floor area ratios should not be allowed. It either needs to maintain the same basic footprint and size, or decrease in size. Macadam corridor design guidelines. I'm very reluctant to have these repealed without further examination by the neighborhood association. Johns Landing is still livable, I believe in part because of these guidelines. Let's not scrap them lightly. Thank you for your consideration.

Testimony is presented without formatting.

Daniel Newberry

#93405 | February 21, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see attached file

Testimony is presented without formatting.

PORTLAND PARKS & RECREATION
Healthy Parks, Healthy Portland

February 20, 2020

Mr. Eli Spevak, Chair
Portland Planning and Sustainability Commission
1900 SW Fourth Ave.
Portland, OR 97201

Dear Chair Spevak and members of the Commission:

The Portland Urban Forestry Commission (UFC) appreciates the opportunity to testify on the River Plan/South Reach Proposed Draft. The River Plan/South Reach provides an enormous opportunity to both sustain and improve the urban forest and watershed in this remarkable landscape.

Portland's Urban Forestry Management Plan (2004) defines the urban forest as: "the complex system of trees and smaller plants, wildlife, associated organisms, soil, water, air and people in and around our city. The urban forest surrounds us and contributes to the quality of our daily lives." The Urban Forestry Commission's comments reflect this holistic definition and address not only trees but also vegetation and wildlife that rely on the urban forest. The UFC supports many aspects of the plan (listed later in this letter), however, we also have concerns and recommendations. In summary, we recommend the following revisions:

1. Incorporate Portland Comprehensive Plan 2035 Urban Forest policies and related discussion in the River Plan/South Reach policy and future vision reports.

2. Widen the proposed River Setback to at least 100 feet, to limit future development, improve existing development over time, in large part to retain space for the trees and vegetation needed for a healthy, functioning riparian corridor that is resilient in the face of climate change.

3. Strengthen the River Overlay Zone provisions relating to trees and vegetation.
   a. Clarify that exemptions for tree and vegetation removal apply only if no development or other activities subject to the development standards or review requirements of this chapter are proposed, consistent with the Environmental Overlay Zone.
   b. Eliminate exemptions for removal of non-native trees less than 6 inches and non-native vegetation landward of the River Setback. (33.475.405 L. 2.)
   c. Address the potential unintended consequences associated with varying tree size thresholds proposed for tree removal and replacement, and reduce the size of Garry Oak, Yew, and Madrone trees that can be removed per standards and without a review.

d. Apply the proposed seasonal restriction on vegetation removal and pruning to the River Environmental Overlay Zone generally, or at least to the River Setback, as well as the riparian buffer area. Add actions to educate arborists about avoiding harm to nesting birds.

4. Pursue additional resources and more effective procedures to ensure that regulations to protect trees and vegetation are well-enforced along the River Setback and throughout the South Reach.

Additional detail is provided below.

The Urban Forestry Commission supports the following River Plan/South Reach Proposed Draft elements:

1. Applying the River Environmental Overlay Zone to limit development in High- and Medium-ranked natural resources and the developed floodplain, as identified in the City's Natural Resource Inventory (see comment below). The UFC would also support including low-ranked natural resource areas that contain significant tree canopy.
2. Establishing a Riparian Buffer within flood areas and requiring new development to improve floodplain function, which can occur by enhancing tree canopy and vegetation.
3. Increasing the tree replacement requirements from previous code iterations.
4. Limiting standards allowing tree removal (with replacement) only to City-designated public view corridors.
5. Establishing seasonal restrictions on vegetation pruning to reduce risk of harming nesting birds.
6. Establishing bird-safe glazing standards to reduce risk of bird window collisions, as many collisions are associated with tree and vegetation reflections in windows.
7. Restoring unique Portland habitat areas, e.g., Ross Island and Elk Rock Island, and reconnecting streams and riparian corridors to through Powers Marine Park.
8. Including a specific list of actions.

The Urban Forestry Commission recommends the following revisions:

1. Incorporate Portland Comprehensive Plan 2035 Urban Forest policies and related discussion in the River Plan/South Reach policy and future vision reports.

   The Proposed Draft highlights the importance of trees and vegetation in the South Reach Planning area. The reports note that the land within the planning area is 60 percent forest and 16 percent woodland as specified in the Natural Resource Inventory. Notably, however Volume 1, Part 1, Ch 3 does not include Portland's strong Urban Forest-related policies (Policy 7.11 a-h – attached). These policies highlight the diverse benefits provided by the urban forest in both natural and developed areas and provide important policy basis for the Proposed Draft. In addition, the Future Vision report for the South Reach (Volume 1, Part 1, Chapter 2) should be revised to call for a robust urban forest in both natural and developed portions of the plan area.

2. Please widen the proposed River Setback to at least 100 feet, to limit future development, improve existing development over time, and retain space for the trees and vegetation needed for a healthy, functioning riparian corridor that is resilient in the face of climate change.

   The proposed 50-foot river setback, while an improvement on the existing 25-foot greenway setback, and consistent with the Central Reach Plan, is inadequate to provide a functioning riparian corridor and to meet City goals and policies for the South Reach. The scientific literature presented in Portland's Natural Resource Inventory Update for Riparian Corridors and Wildlife Habitat (2012), and which Metro also used to develop regional riparian policies and regulations, generally calls for larger setbacks (e.g., 200-300 feet or more) along rivers and streams, particularly larger rivers, to provide important riparian functions. Many key riparian functions are provided by trees and vegetation within the corridor.

   The proposed Riparian Buffer in the South Reach flood area is a step in the right direction, but it is insufficient. The South Reach is different in character than the Central reach and the City must take steps now to limit future development and maintain space for trees and vegetation within at least 100 feet of the Willamette River top-of-bank, both within and outside flood areas. Further, where existing development becomes non-conforming, changes to those developments may trigger non-conforming upgrades which can include upgrading landscaping and meeting Title 11 Tree Density standards. This would help improve tree canopy and riparian corridor function over time.

3. Strengthen the River Overlay Zone provisions relating to trees and vegetation, as follows:

   a. Clarify that exemptions for tree and vegetation removal apply only if no development or other activities subject to the development standards or review requirements of this chapter are proposed.

      The City's Environmental Overlay Zone Exemptions (33.430.080) apply to vegetation removal or trimming only if no development or other activities subject to the development standards or review requirements of that chapter are proposed. This ensures that vegetation removal associated with development or activities that are subject to standards or river review are evaluated in conjunction with that project. The proposed River Environmental Overlay Zones should be revised to include this qualifier.

   b. Eliminate exemptions for removal of non-native trees less than 6 inches and non-native vegetation landward of the River Setback. (33.475.405 L. 2.)

      The proposed River Overlay Zone regulations would exempt removal and pruning of trees less than 1 ½ inches caliper within the River Setback only for nuisance species trees. Landward of the River Setback, the regulations would exempt removal and pruning of trees less than 6 inches caliper for both non-native and nuisance trees, as identified in the

Portland Plant List. The UFC supports policies and regulations to require planting of native vegetation within the River Environmental Overlay Zone. However, existing non-native trees also provide important ecosystem services and are not invasive. Therefore, we recommend that the exemptions apply only to nuisance trees, both within and landward of the river setback.

c. Address the potential unintended consequences associated with the varying tree size thresholds proposed for tree removal and replacement in the River Environmental Overlay Zone, and reduce the size of Garry Oak, Yew, and Madrone trees that can be removed per standards and without a review.

   The Proposed Draft specifies that City-required landscape or replacement trees in the River Environmental Overlay Zone must be at least ½ inch in caliper. The proposed draft contains exemptions and standards allowing removal of trees up to 1 ½ inch or 6-inch caliper.

   This is creating confusion and the perception of a loophole. Our understanding is that City-required trees must be all native species, and therefore the proposed exemptions would not apply to them. We also understand that City-required trees are not to be removed and must be replaced if they die.

   First the UFC recommends making these restrictions clearer in the code and commentary. Second, we are concerned that the different planting and removal size requirements will create confusion, leading to potential violations and loss of trees. Indeed, ongoing problems with tree and vegetation removal violations along the Willamette river are well-documented, and City enforcement of regulations restricting tree and vegetation removal and pruning has not been effective.

   We ask that PSC consider options to prevent inadvertent or intentional violations of the tree and vegetation removal regulations. These options should include increasing the minimum size for replacement trees to 1 ½ inches caliper, except in conjunction with resource enhancement projects where the many trees planted could be smaller. We also ask that reporting requirements to ensure trees and vegetation have been planted and established be extended to 5 years, and that additional resources be provided for inspections and enforcement.

   In addition, we are concerned about proposals to allow removal of Garry Oak, Yew, and Madrone trees less than 6 inches caliper, subject to standards, including within the River Setback. These trees are relatively slow-growing and rare in the City. Please reduce the size threshold for removal without review.

d. Apply the proposed seasonal restriction on vegetation removal and pruning to the River Environmental Overlay Zone generally, or at least to the River Setback, as well as the

riparian buffer area. Include actions to educate local arborists about Migratory Bird Treaty Act prohibitions on harm to protected bird species and active nests.

The Urban Forestry Commission supports the proposal to restrict tree pruning between April 15 and July 31 (33.475.440.K.2) in the proposed Riparian Buffer Area. This seasonal restriction will help reduce risk of harm to nesting birds as required by the Migratory Bird Treaty Act. This restriction would also be appropriate in the River Overlay Zone generally, or at least within the River Setback. This restriction should be considered for inclusion in the Central Reach Plan, and in the Environmental Overlay Zones.

4. Pursue additional resources and more effective procedures to ensure that regulations to protect trees and vegetation are well-enforced along the River Setback and throughout the South Reach.

   The City needs to establish and implement more effective approaches to prevent and respond to illegal removal of trees and vegetation, especially along the Willamette Riverbank, within the River Setback, and on hills and bluffs. The UFC understands there is pressure to allow tree removal for views and supports the City in limiting tree removal for views only to City designated public viewpoints/corridors. Tree removal in violation of City code should be enforced quickly and ambitiously, and the City should provide educational materials to property owners and other residents and businesses.

Sincerely,

Daniel Newberry, Policy Committee Chair
Urban Forestry Commission

Policy 7.11 Urban forest. Improve, or support efforts to improve the quantity, quality, and equitable distribution of Portland's urban forest through plans and investments.

7.11.a. Tree preservation. Require and incent preservation of large healthy trees, native trees and vegetation, tree groves, and forested areas.

7.11.b. Urban forest diversity. Coordinate plans and investments with efforts to improve tree species diversity and age diversity.

7.11.c. Tree canopy. Coordinate plans and investments toward meeting City tree canopy goals.

7.11.d. Tree planting. Invest in tree planting and maintenance, especially in low-canopy areas, neighborhoods with under-served or under-represented communities, and within and near urban habitat corridors.

7.11.e. Vegetation in natural resource areas. Require native trees and vegetation in significant natural resource areas.

7.11.f. Resilient urban forest. Encourage planting of Pacific Northwest hardy and climate change resilient native trees and vegetation generally, and especially in urban habitat corridors.

7.11.g. Trees in land use planning. Identify priority areas for tree preservation and planting in land use plans and incent these actions.

7.11.h. Managing wildfire risk. Address wildfire hazard risks and management priorities through plans and investments.

Jim Sjulin

#93404 | February 21, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Please see attached PDF file sent on behalf of the 40 Mile Loop Land Trust.

Testimony is presented without formatting.

To: **Portland Planning & Sustainability**

From: **40 Mile Loop Land Trust**

Date: **February 21, 2020**

Please consider our comments on the current draft of the ***River Plan / South Reach*** under review by the Planning & Sustainability Commission. As a trail advocacy organization, we are happy to have this opportunity to advocate for what we believe needs to be completed and improved to have a safe and cohesive urban trail system in the South Reach of the Willamette River.

Multi-modal trails on both sides of the Willamette River in Portland's South Reach clearly function both as recreation and as transportation assets. Public perception of off-street trails is generally good and is an undeniable factor in motivating people to walk, run, or bicycle for their own health and likewise in encouraging people to choose active transportation modes with a near-zero carbon footprint.

40 Mile Loop Comments on the *Springwater Corridor*

By any measure the ***Springwater Corridor*** has been a huge success. Popular with recreationalists and commuting bicyclists, the trail is heavily used. As final gaps close in the Sellwood area and as the SE 17th Avenue Trail to Milwaukie's Trolley Trail becomes better known and better connected to the Springwater, we should expect even greater numbers of users.

Unfortunately, higher numbers of users will elevate the probability of conflicts. Already we know that we have occasional conflicts, mainly between bicyclists and pedestrians. Some conflicts can be assigned to simple discourteous behavior, but not all. When two people walking side-by-side encounter faster moving bicyclists from both directions, the 10 feet wide paved surface that exists in portions of the trail is simply not adequate. Similar conflicts can occur when groups of people stop to enjoy views of the Willamette River or of Oaks Bottom Wildlife Refuge.

Imagine if you can, walking with someone across the Hawthorne Bridge (also 10 feet wide) and encountering bicyclists going in ***both*** *directions.*

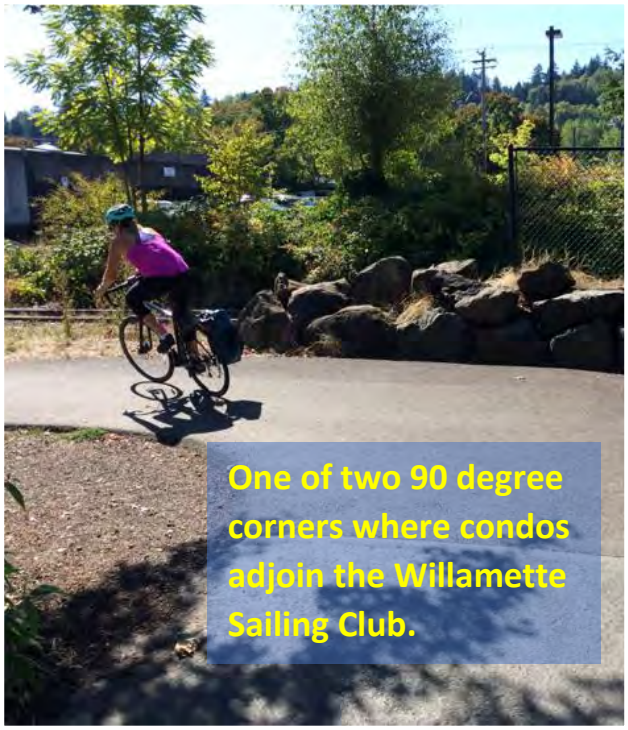
In light of the existing level of conflict and in consideration of growing numbers of users, we believe that the ***River Plan / South Reach*** should call for an eventual widening of all segments of the ***Springwater Corridor*** to meet the current regional trail standard of 12-14 feet.

40 Mile Loop Comments on the *Southwest Greenway Trail*

In spite of undeniable benefits, multi-modal trails oddly have had a difficult time getting the recognition and the funding they need to become complete systems capable of providing maximum benefits. The Willamette Greenway Trail in Southwest Portland is a prime example. It's a mere 3.27 miles from the Marquam Bridge to the Sellwood Bridge ***and yet it has taken us nearly 40 years to complete 2.55 miles of trail***. (In case you're wondering, that's about 350 feet per year.)

Trouble in Johns Landing

After nearly 4-decades-in-the-waiting to become part of a completed system, older sections of the ***Southwest Greenway Trail*** in the Johns Landing area are now out-of-date. At only 8 feet wide, older trail sections are too narrow and have too many sharp turns to safely accommodate today's mixture of pedestrians and bicyclists.



In the near future the pressure on the Johns Landing section of the Greenway Trail may increase dramatically. To take an honest look at what lies ahead, we have to consider a bigger picture than what we can see in the South Reach alone. As the following aerial photos remind us, there are only two remaining properties with Southwest Greenway Trail gaps. Both are in South Waterfront and one is expected to develop soon. When these gaps are closed, a significantly larger volume of trail users will be within easy reach of the Johns Landing section of the Greenway Trail. World-class urban trail loops will be completed involving the Sellwood Bridge, the Tilikum Crossing, the Hawthorne Bridge, the Steel Bridge, the Eastbank-Springwater, Waterfront Park, and the Southwest Willamette Greenway Trail. ***The Johns Landing section of the Southwest Willamette Greenway will be the glaringly deficient anomaly in an otherwise well-functioning system.***

> *"This could turn out to be a real mess… akin to pouring a growler into a shot glass."*

The following aerial photos are of the two remaining gaps in the Southwest Greenway Trail. Both are single ownerships and both are located in South Waterfront, part of the ***Central City Plan*** area. The left photo is the Zidell property. On the right is the Alamo Manhattan project that is scheduled for City land use action within weeks.

Two Options for a Better Greenway Trail in Johns Landing

Fortunately, we still have an opportunity to put the ***Southwest Greenway Trail*** together as a real system that could function well. To carry the future load of recreational and commuter traffic in the Johns Landing area, we need to continue to build a dual trail system. A dual or twin trail system has been started along the River in South Waterfront adjacent to new condominiums. And a robust bicycle route extends from Waterfront Park via SW Harbor Way to the SW Moody & Bond couplet. But how do we get this done in the Johns Landing area? From our perspective, it looks like we have two choices:

1. We build it in the Johns Landing area the same way we are doing it now, meaning that it gets done when properties eventually redevelop ***over the next 50 to 150 years***. That's right, a long time from now. And it won't be easy since land needed for a wider dual trail system would have to come from parcels that are very narrow and very valuable.
2. We commit to converting the Willamette Shoreline Trolley into a multi-modal "Rail with Trail" system, similar to the Springwater on the east side of the River. That won't be easy either, but it could be done within the next 10 years if we had the will to do it. This is a multi-jurisdictional challenge given the ownership structure of the trolley line. And the big question of how far south it goes is another multi-jurisdictional question involving the City of Lake Oswego. ***However, reaching and connecting to the Sellwood Bridge seems to us to be a doable shorter- term goal and could enhance the prospects of an eventual extension further south.***

In our opinion, the better choice between #1 and #2, is obvious. In addition to a much more acceptable timeline, the **Trolley alignment** provides a straight, less encumbered alternative that will be embraced by transportation commuters and higher speed recreational bicyclists.

Now, through the adoption of the ***River Plan / South Reach***, is the right time and the right place to make a strong planning and policy statement that **a dual trail system for the Johns Landing area, utilizing the trolley alignment is the direction that the City must take**.

A Need to Tie Alignments Together at SW Bancroft

Even though the area around SW Bancroft St. is outside the **South Reach** planning area, now is an appropriate time to call the City's attention to the fact that the trail and bicycle facilities at the south end of the **Central City Plan** do not appear to match the trail and bicycle facilities at the north end of the **South Reach Plan**.

However, in the vicinity of SW Bancroft and SW Lowell Streets, there appears to be ***an opportunity to sensibly tie together*** the new riverfront dual trail system, the Moody & Bond on-street bike-lane couplet, the old 8-feet wide Greenway Trail, and the "Rails with Trails" Trolley alignment.

*Because the Alamo Manhattan property is about to develop means that resolving trail connections and alignments in this area is an **urgent need**. Left unresolved, it will have a significant negative impact on the South Reach Greenway Trail.*

The yellow arrows are the one-way on-street bike lanes in the SW Bond & Moody couplet.

The blue dashed lines are the "twin trail" alignment in the South Waterfront condo area.

The solid green line is the old 8-feet wide Greenway Trail.

The red dashed line is the Willamette Shoreline Trolley alignment, a rail-with-trail opportunity.

40 Mile Loop Comments on the *Sellwood Greenway Trail*

A riverfront trail in the Sellwood neighborhood has been on the ***City's Comprehensive Plan*** for many years. The justified excitement of acquiring, building, and opening the ***Springwater Corridor*** has caused some neglect in completing what the 40 Mile Loop now calls the ***Sellwood Greenway Trail*** or ***Sellwood Greenway***, for short. We believe that the ***Sellwood Greenway*** has great merit and we would like to highlight the potential that is has as a calm pedestrian route along the Willamette River and as a public asset that provides excellent visual and rare physical connection with the River.

As long envisioned, the ***Sellwood Greenway*** extends from the **Springwater Corridor's** intersection with SE Linn Street west to the River then northward to a re-connection with the Springwater Corridor in the vicinity of Oaks Amusement Park. In its entirety it is approximately 1.4 miles in length and is today about 45% completed. The ***South Reach Plan*** calls for removal of part of the trail at the north end from property owned by the Oregon Yacht Club. More on that later, but first here are two maps showing the location of the ***Sellwood Greenway***.

Sellwood Greenway Trail

South of the Sellwood Bridge

Completed segments await 2 gap closures and wayfinding signs to invite trail users to what should be a pedestrian only route along the Willamette River.

This segment features views of the river, moorages, and of Powers Marine and Riverview Natural Areas on the west side.

Sellwood Greenway Trail

North of the Sellwood Bridge

A long-awaited extension north of Sellwood Riverfront Park will complete this northern section of the ***Sellwood Greenway Trail***.

This segment features access to the Willamette River itself with natural beaches at Oaks Crossing Natural Area and northward.

The ***Sellwood Greenway Trail*** alignment through Oaks Amusement Park property needs to be determined with one or more connections to the ***Springwater Corridor***.

*Perhaps the most significant of the public assets made accessible by the **Sellwood Greenway Trail** is the **beach**. It's a mixture of cobble, sand, and silt washed in from the Willamette River and its tributaries. It feels real and is a cherished rarity in Portland. It already has been discovered as a place where Portlanders can actually touch, wade, and swim in the River.*

In this northern portion of the ***Sellwood Greenway*** we find **Sellwood Riverfront Park**, then **Oaks Crossing Natural Area**, and **Oaks Amusement Park** at the north end. Proximate river views are excellent throughout this portion of the Greenway, and at Oaks Crossing you can get a sense of what much more extensive forested Willamette River riparian areas looked like in the past.

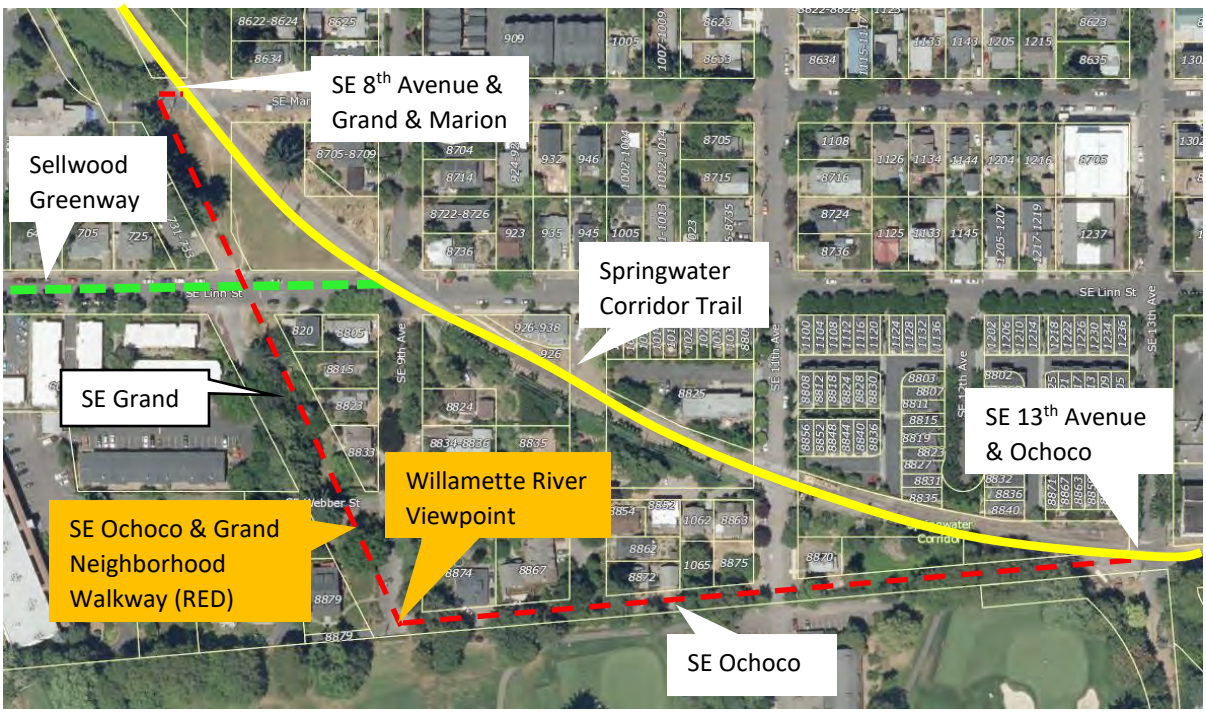
The ***River Plan / South Reach*** proposes an adjustment of the trail alignment off property owned by the Oregon Yacht Club onto adjacent property owned by the Oaks Amusement Park. This move is not objectionable to the 40 Mile Loop. However, our support is conditioned on our ability to find one or more mutually agreeable routes to reconnect the ***Sellwood Greenway*** to the ***Springwater Corridor***

through Oaks Park property. To that end, the 40 Mile Loop is willing to participate in a planning process with Oaks Park along with neighborhood representatives and other interest groups.

Not to be overlooked in this commentary on the ***Sellwood Greenway*** is our primary point. When completed, the ***Sellwood Greenway*** will be an important public asset, deserving of full acknowledgement and support within the ***River Plan / South Reach***.

Initiatives Compatible with the Sellwood Greenway and the Springwater Corridor

The 40 Mile Loop also supports compatible initiatives such as the ***SE Ochoco and Grand Neighborhood Walkway***. This walkway alignment is currently a proposal under consideration by the Sellwood Moreland Improvement League (SMILE) before being presented to the City. The walkway alignment is connected to the ***Springwater Corridor*** at both ends, intersects the ***Sellwood Greenway***, and provides access to a **public viewpoint** identified in the ***River Plan / South Reach***. The walkway and public viewpoint are shown in the aerial photo below.



40 Mile Loop Comments on the Brooklyn Neighborhood Connection

We are very pleased to see the ***River Plan's*** acknowledgement of the need for a safe connection between the Brooklyn Neighborhood and the River. SE McLoughlin / 99E is an important transportation corridor that is also a formidable barrier. It has been said that Mayor Frank Ivancie promised the Brooklyn Action Corps a bridge over McLoughlin.

We invest in the protection of rivers, scenic views, and cultural resources. And we build great trails like the ***Springwater Corridor***. But they may as well be miles away, as far as adjacent neighborhoods cut off by transportation barriers are concerned. We have been aware of the Brooklyn Neighborhood situation (and the attending urban legend) for a long time and, unfortunately, it applies to many neighborhoods that are cut off from community assets by transportation corridors.

Recall that we did build a bridge across I-5 to reconnect the Lair Hill neighborhood to South Waterfront and the Willamette River.

It can and must be done again!

Summary of 40 Mile Loop Recommendations for the River Plan / South Reach

1. **Adopt a goal of widening the Springwater Corridor Trail to City and Regional standards of 12 to 14 feet.**
2. **Extend the dual trail system from South Waterfront through the Johns Landing area by constructing a 12 to 14 feet wide paved trail in or adjacent to the Willamette Shoreline Trolley alignment from SW Bancroft to the Sellwood Bridge.**
3. **As described above, just north of the South Reach plan area, implement a plan that ties together the 4 different types of pedestrian and bicycle facilities (including the Trolley trail alignment) that meet in the vicinity of SW Bancroft and Lowell.**
4. **Recommit to the completion of the Sellwood Greenway Trail.**
5. **Accommodate and encourage neighborhood walkways that connect viewpoints and other public assets to primary trail systems on both sides of the River.**
6. **Overcome barriers that prevent neighborhoods like the Brooklyn Neighborhood from reaching important nearby public assets such as the Willamette River and the Springwater Corridor.**

Jeanne Galick

#93403 | February 21, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

February 20, 2020 Planning and Sustainability Commission 1900 SW Fourth, Suite 7100 Portland, OR 97201 Re: River Plan/South Reach Note: My attached pdf file is my testimony with photos. While appreciative of the hard work and sincere efforts that staff has put into the long-anticipated South Reach plan updating the Willamette Greenway, important issues and concerns remain. 33.475.210 C Increase greenway setback to 100 feet This is a prime–and maybe, last–opportunity to promote healthy riverine habitat for fish and wildlife as well as to conserve a natural, recreational and scenic resource for the city. Unfettered by the industrial and development constraints of the north reach and central city, south reach has significant ecological values: • It is designated as critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is a key migratory habitat for Pacific Lamprey. • It is an Important floodplain • Over 80% of the South Reach watershed is ranked as high or medium natural resource; 75% of the land and water is designated as Special Habitat Area • City Policy 3.81 calls out for "Enhance the role of the Willamette South Reach as fish and wildlife habitat..." This plan proposes only a 50 foot setback – far less than the 100-150 feet scientists recommend for a healthy riverine environment. Given the significant natural resources that still exist along this stretch of the river, 50 feet is inadequate and shortsighted. We need to do much better than "minimum" for protecting our best resource for the future. Furthermore, increasing the setback to 100 feet will make it consistent with the 100' South Waterfront greenway setback, directly to the north. 33.475.210 E Encroachment into the setback There is no valid reason to allow even a 5 foot encroachment. The suggested quid pro quo will not appear or function as a public area. If the goal is to increase and improve the greenway setback, allowing buildings to encroach is a step backwards. 33.475.250 Nonconforming uses and development A primary objective is to ensure that existing development moves outside the greenway setback when redevelopment occurs. Limit the height and FAR of any existing properties that are within the setback to their 2018 size. If a property wants to increase in height or FAR, the structure will need to move outside the greenway setback. Limit grandfathering structures: if only a foundation remains of a structure, any replacement structure should be considered new development and moved outside the setback. Strengthen 33.475.405 J, L Tree removal threshold set at 1.5" dbh is supposed to ensure the retention of existing vegetation along the riverbank. Two basic issues: one, trees are rarely allowed to even get to 1.5" dbh before they are cut down so they do not trigger replacement and two, replacing them with trees that are only 1/2" dbh means that they can be continually removed. • Require replacement trees be greater than 1.5" dbh and/or require 3-year

maintenance plan • Severe pruning should be considered removal and require replacement. 33.475.450 Corrections to Violations A major problem is severe, constant pruning in the greenway setback from Heron Pointe south to Willamette Park – a mile stretch of a nearly unrelentingly barren riverbank. There is little habitat value. And in summer heat, the lack of shade becomes a real problem for trail users. 33.865.010 Provide for the replacement of resources and functional values that are lost through violations of the River Environmental Zone Add to 33.475.405 and 33.475.450 and 33.865.010: • Require tree and shrub replacement when areas are severely pruned • Replacement trees should be larger than 1.5" dbh • Require remedial planting to be done within a limited time window of cutting (suggest 1 year) • Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive • Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards • Strong monetary penalties for violations if not resolved within a set time limit Move Greenway Review to Planning & Sustainability Commission Nearly all greenway disputes involve zoning, development standards and natural resources rather than design. The Planning and Sustainability Commission is the more logical arbiter for such disputes than the Design Commission. Require Design Guidelines to be used in the River Overlay Zone It is of utmost importance that development integrates sensitively with the river. The Community Standards are formulaic and do not reflect or enhance unique environments or natural amenities. They are generic urban design standards not intended for, or responsive to, the city's premier natural resource. Even with some last-minute additions to DOZA, the standards still can allow development that falls short of enhancing this special environment. Development along the Willamette River should be held to higher requirements for compatibility and context. Our neighborhood experience is that Community Standards are often used to avoid stricter guidelines that reflect the river's unique values, and to avoid any design review process. Exemption from the standards is allowed in other limited areas of the city. Development and Urban Design • Limit building height immediately adjacent to the setback to 35'. Encourage step-backs to minimize the impact of new development along the river. Lower heights contribute to a healthier airshed and views for those west of the river. • Encourage/require communal open spaces in multi-family and townhome developments to be contiguous with the setback. This will visually increase the greenspace along the trail. 33.930.150 Measuring Top of Bank If LIDAR measurements are unavailable, recommend that the city measures the top of bank/100 feet from high water. Past disputes have occurred when interested parties are the surveyors. Increased risks of fire, illegal dumping, camping and environmental degradation are growing problems in the south reach. Recommend hiring a part-time park ranger to monitor and address these issues or find appropriate, timely help. Performance Targets: Keeping a record of performance will keep the River Plan on track and accountable. Repealing Macadam Corridor Design Guidelines The MCD guidelines have been a vital instrument for keeping South Portland livable. The proposed replacement character statement combined with DOZA may work but the neighborhood association would like more time to study it. It has submitted some edits. Finally, I urge commissioners to think not of what is good for the next year but as Tom McCall would say, think of what is good for the next 20 years. Increase the greenway setback and restore and protect a healthy river environment. Jeanne E Galick 7005 SW

Virginia Ave Portland, OR 97219

Testimony is presented without formatting.

February 20, 2020

Planning and Sustainability Commission
1900 SW Fourth, Suite 7100
Portland, OR 97201

Re: River Plan/South Reach

While appreciative of the hard work and sincere efforts that staff has put into the long-anticipated South Reach plan updating the Willamette Greenway, important issues and concerns remain.

33.475.210 C Increase greenway setback to 100 feet
This is a prime–and maybe, last–opportunity to promote healthy riverine habitat for fish and wildlife as well as to conserve a natural, recreational and scenic resource for the city. Unfettered by the industrial and development constraints of the north reach and central city, south reach has significant ecological values:

- It is designated as critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is a key migratory habitat for Pacific Lamprey.
- It is an Important floodplain
- Over 80% of the South Reach watershed is ranked as high or medium natural resource; 75% of the land and water is designated as Special Habitat Area
- City Policy 3.81 calls out for "Enhance the role of the Willamette South Reach as fish and wildlife habitat..."

This plan proposes only a 50 foot setback – far less than the 100-150 feet scientists recommend for a healthy riverine environment. Given the significant natural resources that still exist along this stretch of the river, 50 feet is inadequate and shortsighted. We need to do much better than "minimum" for protecting our best resource for the future. Furthermore, increasing the setback to 100 feet will make it consistent with the 100' South Waterfront greenway setback, directly to the north.

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There is no valid reason to allow even a 5 foot encroachment. The suggested quid pro quo will not appear or function as a public area. If the goal is to increase and improve the greenway setback, allowing buildings to encroach is a step backwards.

33.475.250 Nonconforming uses and development
A primary objective is to ensure that existing development moves *outside* the greenway setback when redevelopment occurs. Limit the height and FAR of any existing properties that are within the setback to their 2018 size. If a property wants to increase in height or FAR, the structure will need to move *outside* the greenway setback.

Limit grandfathering structures: if only a foundation remains of a structure, any replacement structure should be considered new development and moved outside the setback.

Strengthen 33.475.405 J, L
Tree removal threshold set at 1.5" dbh is supposed to ensure the retention of existing vegetation along the riverbank. **Two basic issues:** one, trees are rarely allowed to even get to 1.5" dbh before they are cut down so they do not trigger replacement and two, replacing them with trees that are only 1/2" dbh means that they can be continually removed.

- Require replacement trees be greater than 1.5" dbh and/or require 3-year maintenance plan
- Severe pruning should be considered removal and require replacement.


Violations of landscape standards have dragged on for over 4 years without being resolved

This stretch of the Willlamette Greenway is consistently "pruned." Vegetation includes native trees, all of which have been topped multiple times, distorting their growth. Because of this type of severe cutting, it is impossible to prove that a tree could be 1.5" dbh

33.475.450 Corrections to Violations
A major problem is severe, constant pruning in the greenway setback from Heron Pointe south to Willamette Park – a mile stretch of a nearly unrelentingly barren riverbank. There is little habitat value. And in summer heat, the lack of shade becomes a real problem for trail users.

33.865.010 Provide for the replacement of resources and functional values that are lost through violations of the River Environmental Zone
Add to 33.475.405 and 33.475.450 and **33.865.010:**

- **Require tree and shrub replacement when areas are severely pruned**
- **Replacement trees should be larger than 1.5" dbh**
- **Require remedial planting to be done within a limited time window of cutting (suggest 1 year)**
- **Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive**
- **Require replanting with native species <u>after nuisance plants</u> are removed if the disturbed area is not in compliance with landscape standards**
- **Strong monetary penalties for violations if not resolved within a set time limit**

Move Greenway Review to Planning & Sustainability Commission
Nearly all greenway disputes involve zoning, development standards and natural resources rather than design. The Planning and Sustainability Commission is the more logical arbiter for such disputes than the Design Commission.

Require Design Guidelines to be used in the River Overlay Zone
It is of utmost importance that development integrates sensitively with the river. The Community Standards are formulaic and do not reflect or enhance unique environments or natural amenities. They are generic urban design standards not intended for, or responsive to, the city's premier natural resource. Even with some last-minute additions to DOZA, the standards still can allow development that falls short of enhancing this special environment. Development along the Willamette River should be held to higher requirements for compatibility and context. Our neighborhood experience is that ***Community Standards are often used to avoid stricter guidelines that reflect the river's unique values, and to avoid any design review process.*** Exemption from the standards is allowed in other limited areas of the city.

Development and Urban Design
• Limit building height immediately adjacent to the setback to 35'. Encourage step-backs to minimize the impact of new development along the river. Lower heights contribute to a healthier airshed and views for those west of the river.
• Encourage/require communal open spaces in multi-family and townhome developments to be contiguous with the setback. This will visually increase the greenspace along the trail.

33.930.150 Measuring Top of Bank
If LIDAR measurements are unavailable, recommend that the city measures the top of bank/100 feet from high water. Past disputes have occurred when interested parties are the surveyors.

Increased risks of fire, illegal dumping, camping and environmental degradation are growing problems in the south reach. **Recommend hiring a part-time park ranger** to monitor and address these issues or find appropriate, timely help.

Performance Targets: Keeping a record of performance will keep the River Plan on track and accountable.

Repealing Macadam Corridor Design Guidelines
The MCD guidelines have been a vital instrument for keeping South Portland livable. The proposed replacement character statement combined with DOZA may work but the neighborhood association would like more time to study it. It has submitted some edits.

Finally, I urge commissioners to think not of what is good for the next year but as Tom McCall would say, think of what is good for the next 20 years. Increase the greenway setback and restore and protect a healthy river environment.

Jeanne E Galick
7005 SW Virginia Ave
Portland, OR 97219

Mike Houck

#93402 | February 20, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

testing

Testimony is presented without formatting.

Louis Lustenberger

#93397 | February 20, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Riverpoint Homeowners' Association February 18, 2020 Portland Planning and Sustainability Commission River Plan/South Reach Testimony 1900 SW 4th Avenue, Suite 7100 Portland, OR 97201 Re: February 25, 2020 Public Hearing On River Plan/South Reach Dear Planning and Sustainability Commission: The Board of Directors of the Riverpoint Homeowners' Association (Riverpoint) submits this written testimony for consideration at the Commission's above-captioned hearing. Riverpoint is located on the west bank of the Willamette River in the Johns Landing area. First and foremost, we urge the City of Portland to assure the continuance of the "Greenway Trail West," as described in the draft South Reach Plan, by making it a "Scenic Corridor" in the final South Reach Plan. The Greenway Tail West, which is contiguous to our condominiums, is already described as a "scenic trail/path" in the October and January drafts of the South Reach Plan. Codifying it as a "Scenic Corridor" in the final Plan will assure its continuance as a scenic resource for all citizens in the future. (A copy of the "scenic trail/path", description, as found on page 105 of the draft South Reach Plan, accompanies this letter.) The Greenway Trail West has been a prized possession of the citizens of Portland for years. If designated as a Scenic Corridor in the final plan it will permanently provide the citizens of Portland with an extended path, where they can walk along the river and enjoy the panoramic views of the city, the river and wildlife on it, the boats on the river - especially the sailboats from the Sailing Club - Mt Hood, and the natural east side of the river on Ross Island and Oaks Bottom. Currently, the most open and beautiful part of this scenic trail is the pathway going north from the Sailing Club to beyond the Landing which has been maintained as a scenic trail for over 40 years. The panoramic views from this stretch of the trail are spectacular, as shown in the picture of this area near the sailing club looking North, (lower left hand picture on the enclosed page 105 of the draft South Reach Plan). Throughout our country, cities with rivers are making an effort to create scenic paths along their rivers. We already have a scenic treasure and should make every effort to preserve it. We have discussed at meetings with City planning staff the existence of rip rap protecting much of the Johns Landing area of the river bank. In 1975, when the old BP Johns industrial area was developed, a great deal of fill was added to the site to raise the elevation high enough to protect from floods. This fill was then protected from flooding by a large riprap rock layer on the bank. It is well known that large trees should not be allowed to grow in riprap banks because the roots loosen the riprap and the trees become more vulnerable to being torn out in a flood, thus causing the riprap to collapse. If the riprap fails in a flood the entire riverfront area could be flooded and destroyed. The revolutionary development would never have been built

without the rip rap armored bank. Currently the riprap bank has a layer of vegetation which provides an excellent riverbank environment and does not threaten the riprap. The use of the path by bikers and walkers has increased markedly during the past two years. This increase has been accompanied by an increase in the height of vegetation along the path, which raises the risk of a serious accident occurring on the path. Recently, there was a multiple bike accident on the path which required an emergency response. The accident occurred on one of the many sharp corners of the path where vegetation impeded the path's sight lines. We are concerned about the liability for injury in such instances and urge that vegetative growth be trimmed to reduce that risk. Finally, we oppose the proposed Overlay Zone Change in the Johns Landing area from a River General designation (g) to a River Environmental designation (e). We believe the recreational value, public health and safety and transportation features of the Greenway Trail should be the first priority of the area because it is used by so many people. Thank you for your attention to these concerns. Sincerely yours, The Riverpoint Board of Directors Lou Lustenberger, Ed Newbegin and Tim Small 6114 SW Riverpoint Lane Portland, OR 9723

Testimony is presented without formatting.

NAME: GREENWAY TRAIL WEST –
Scenic Trail/Path

Description: The Greenway Trail extends along the west bank of the Willamette River from the northern South Reach study area boundary to the Sellwood Bridge. The trail is generally located directly adjacent to the river, though it is pulled back from the river in some locations. The trail goes through Willamette Park, Willamette Moorage Park and the Multnomah County open space parcel located just north of Sellwood Bridge. South of the Sellwood Bridge a soft surface trail extends into Powers Marine Park but does not extend further south. It is expected that the trail will be extended as a part of any future development south of the Sellwood Bridge to extend the trail to the southern Multnomah County boundary. The Greenway Trail is a multi-use trail for bicyclists and pedestrians. Skateboarding, roller skating, and traveling by personal transporter (e.g., Segway) are also common. The trail is ADA accessible from multiple locations. Traveling along the trail affords views of the river and riverbank vegetation, public parks, bridges, skylines, and distant mountains and hills. There are six viewpoints along the trail.

Management Considerations:

- The trail stops at the Sellwood Bridge. Future efforts should aim to extend the trail south to the southern end of Multnomah County and to Lake Oswego beyond.
- Vegetation management within the view corridors will ensure consistent access to views along the length of the trail.

Ownership: Portland Parks and Recreation (through easement)

Transportation Mode(s): Walking, biking, skating, wheelchair, personal transporter

View of Greenway Trail looking north.

View of Greenway Trail looking south to the Sellwood Bridge.

Michael Kaplan

#93391 | February 19, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

February 18, 2020 Planning and Sustainability Commission 1900 SW Fourth, Suite 7100 Portland, OR 97201 Re: River Plan/South Reach Comments from the South Portland Neighborhood Assoication Thank you for the opportunity to comment on the draft River Plan/South Reach. The South Portland neighborhood has the longest and most accessible river frontage in the city so we are very concerned about how the natural, scenic and recreational resources are managed. At our February SPNA meeting, the board approved the following: 1) Increase the Greenway Setback to 100 feet (33.475.210 C) The South Reach contains significant ecological values including critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is an Important floodplain. Over 80% of the South Reach watershed is ranked as high or medium natural resource and 75% of the land and water is designated as Special Habitat Area. Because of its high resource value, the South Reach merits far more than the proposed 50 foot setback to preserve and protect it now and for the future. We strongly recommend a minimum 100' setback. 2) Strengthen revegetation regulations. Suggest adding to 33.475.450: • Replacement trees should be larger than 1.5" dbh • Require review and remedial planting to be done within a specific time window (suggest 1 year) • Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to get established and thrive • Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards 3) Move Greenway Review to the Planning and Sustainability Commission 4) Development and Urban Design a) Limit the height and FAR of any properties that are within the setback to 2018 size. If a property wants to redevelop, the structure will need to move outside the greenway setback to increase in either FAR or height. b) Limit building height immediately adjacent to the setback to 35'. Encourage step-backs 5) Do not allow the use of Community Design Standards within the River Overly Zone It is of utmost importance that development integrates sensitively with the river. The Community Standards are formulaic and do not reflect or enhance unique environments or natural amenities. They are generic urban design standards not intended for, or responsive to, the city's premier natural resource. Development along the Willamette River should be held to higher requirements for compatibility and context. Our neighborhood experience is that Community Standards are often used to avoid stricter guidelines that reflect the river's unique values, and also to avoid any design review process. 6) View Streets (Vol 2., Map 2.2) SPNA is very pleased to see Pendleton, Vermont, Nevada, California, Nebraska and Carolina as view streets. These streets provide important physical breaks along the Macadam thoroughfare, allowing views to and from the

river and lessening the sense of an enclosed highway. 7) Edits to the Macadam Character Statement After the expected implementation of the DOZA zoning code amendments, the Macadam District Character Statement will be the only instrument available to influence the design characteristics of development in this unique corridor. Given its importance, please seriously consider incorporating our suggested additions (in red/bold) to the draft Character Statement We feel the additions more fully capture our district, what makes it special and what design and landscape treatments will keep it that way. MACADAM DISTRICT CHARACTER Located between Portland's west hills and the Willamette River, South Portland's Southwest -Macadam area is a unique district whose history and development have been shaped by its close proximity to the river, abundant natural resources and its proximity to Central City. For centuries prior to European American settlement, native people lived and thrived in the natural environment of this region. Some camped in the area. They often traveled by river to hunt, gather, fish and trade with others, including at nearby Willamette Falls. These cultural practices are central to native peoples' lifeways today and for the future and minimizing the impacts of development on the natural environment is important. European Americans settled this district around the north-south Macadam Avenue Corridor and a parallel railroad line located between Macadam Avenue and the river. During the City's early growth period in the mid to late-1800s and into the 1900s, lands between the Willamette River and Macadam Avenue developed, in part, as an industrial area where firms took advantage of both river and land transportation modes. At the same time the area west of the Avenue formed with supportive commercial businesses. Further west from Macadam, housing was constructed to meet the needs of those employed in the industries along this stretch of the river. This developmental evolution meant that the Macadam Avenue Corridor has historically separated the Willamette River from the residential neighborhoods west of the Avenue. Over the decades, particularly after World War II, much of the industry in the Corridor relocated due to a shift in technology and demand. Changes in development patterns and uses in the flatter lands between Macadam Avenue and the Willamette River built off of a resurgence of development in the downtown and other inner city residential neighborhoods. In the 1970s, Johns Landing, a groundbreaking multi-dwelling residential project developed between Macadam Avenue and the Willamette River. Later, several city-adopted plans placed emphasis on introducing commercial and residential uses to the neighborhood and creating public access to and along the river. Other goals for the area included visual connections to the river, neighborhood serving development along the Macadam corridor with landscaping to enhance its boulevard character, and riverfront development that is compatible with public use and enjoyment of the riverfront. This led to the creation of several residential developments, the greenway trail and Willamette Park. More recently, the 2035 Comprehensive Plan (2018) identifies Macadam as a Neighborhood Center and SW Macadam Avenue as a Civic Corridor, a prominent multi-modal city street that connects the central city to major destinations in SW Portland and beyond. These plans, along with a unique geographic and topographic landscape, helped shape the diverse development character along SW Macadam. Development along the northern end has more of a boulevard character due with higher densities and larger setbacks as it transitions to Central City's South Waterfront district. In contrast, development along the southern end reflects more of a main street

character with lower densities and development built up to street lot lines. It is because of the unique topography of the south section, wedged between hills and highway (Macadam), that maximum heights of development are limited, protecting neighborhood livability and a healthy airshed. Despite these differences, Macadam Avenue's designation as a Neighborhood Center and Civic Corridor recognizes its' importance as a place to accommodate some growth and development, provide a safe and attractive pedestrian environment, and abundant riverfront access. Community Character South Portland's Macadam area is a close-knit community that places substantial value on its proximity to the nearly two miles of accessible Willamette River shoreline with a publicly accessible greenway trail, Willamette Park, Heron Pointe Wetlands and the Cottonwood Bay natural area. The area's topography and proximity to the river has created three very distinct parts: northern SW Macadam Avenue, Southern SW Macadam Avenue (south of SW Boundary) and the Willamette River Greenway. These places are distinct in their topography, density, heights, uses, and development. Future development within all three areas should work together to improve both the quality and quantity of physical and visual access to the river. This connection to the river makes it an exceptionally livable community and a regional de stination for active and passive recreation. Safety and ease of moving around the district without a car is also a high priority for residents and workers. Future development needs to consider how to incorporate measures for comfort and safety of pedestrians, cyclists and transit users such as more trees along the streets and trail, wider pathways, bus shelters, and more frequent crossings – particularly on and around Macadam). The riverfront also holds significance for the regions' tribal nations, urban native community and others who carry out cultural practices near and on the river, such as launching canoes. It is therefore important to recognize the social and cultural values of the riverfront through onsite features and river-responsive design. Architectural Character The European American settlement in the Macadam District created an eclectic mix of architecture, both past and present. For the future, the district needs architecture that is responsive to its context and the environment, along Macadam Avenue and the Willamette River. While City plans envisioned SW Macadam as a tree lined boulevard, its designation as a state highway has focused on efficient movement of vehicles rather creating a pedestrian friendly or welcoming urban environment. A few remnants from the area's industrial past can be found along the avenue. They have been renovated to feature high quality, durable materials such as masonry or stucco, and utilize ample glazing, covered entries, integrated landscaping or inviting pedestrian pathways to soften the harsh environment along this busy corridor, allowing for a more interactive, pedestrian oriented public realm. Use landscaping to reinforce the boulevard character of Macadam and to provide visual connections with private property. Trees interspersed with low-growing vegetation or grass should visually predominate over impervious surfaces. Awnings, street furniture, plazas, sculpture courts or other amenities ...reinforce a boulevard design. Keep signage consistent with and supportive of Macadam's role as a scenic boulevard. Future development should incorporate these features to create a more welcoming and comfortable streetscape environment. Development along Macadam Avenue, and throughout the district, should be permeable, allowing residents, workers and visitors to physically and visually access the riverfront, particularly on many of the large north-south sites along the riverfront.

Additionally, buildings should step back from the riverfront and provide “eyes” on the trail with balconies, terraces or a communal open space. Finally, future development needs to capitalize on the unique geographic location of this district by incorporating environmentally-friendly building practices and techniques to help preserve and protect the riverfront environment that defines this district. This includes thoughtful site orientation, landscaping, compatible scale, and building design to help preserve and protect the natural environment that defines this district and connects to the riverfront environment. Natural Resources Macadam’s location along the Willamette River’s south reach means it plays a key role in the continued health of endangered and threatened fish, wildlife and rare plants within the city and Oregon. This riverine corridor is part of the Pacific Flyway for migrating and nesting birds. Natural features along and near the riverfront are valuable community assets, with lush vegetation and views of the mountains, hills and river. Walking, birdwatching, biking, boating, paddleboarding and picnicking are among the popular activities along the river. Development should be low-rise and sited as far back from the increased greenway setback as possible. Residents place great value on streets and paths that offer direct access to the river from residences and businesses to the west, and future development should work to improve the quality and quantity of these locations. Additionally, any new development needs to protect natural areas by preserving and planting trees, along with creating habitat-friendly development along the Willamette River. Development needs to include native plantings to enhance wildlife habitat, soften building edges and screen parking areas. Scenic Resources Visual connections to the Willamette River and other features from both sides of Macadam Avenue allow Portlanders to appreciate the area’s scenic beauty. Maintaining these connections also helps to ensure permeability within the district, which helps with air quality, improving the overall health and livability. This includes preservation of public viewpoints close to the river and view streets, as referenced in the Macadam Plan District and the South Reach Scenic Resource Protection Plan. Special attention needs to be paid to landscaping and trees within the setback along Macadam Avenue and the identified view streets, particularly where rights-of-way have limited planting areas. We hope these changes will be incorporated into the River Plan/South Reach. Respectfully, Michael Kaplan, President South Portland Neighborhood Association

Testimony is presented without formatting.

February 18, 2020

Planning and Sustainability Commission
1900 SW Fourth, Suite 7100
Portland, OR 97201

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Thank you for the opportunity to comment on the draft River Plan/South Reach. The South Portland neighborhood has the longest and most accessible river frontage in the city so we are very concerned about how the natural, scenic and recreational resources are managed.

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The South Reach contains significant ecological values including critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is an Important floodplain. Over 80% of the South Reach watershed is ranked as high or medium natural resource and 75% of the land and water is designated as Special Habitat Area. Because of its high resource value, the South Reach merits far more than the proposed 50 foot setback to preserve and protect it now and for the future. We strongly recommend a minimum 100' setback.

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- Require replanting with native species <u>after nuisance plants</u> are removed if the disturbed area is not in compliance with landscape standards

3) Move Greenway Review to the Planning and Sustainability Commission

4) **Development and Urban Design**

a) Limit the height and FAR of any properties that are within the setback to 2018 size. If a property wants to redevelop, the structure will need to move *outside* the greenway setback to increase in either FAR or height.

b) Limit building height immediately adjacent to the setback to 35'. Encourage step-backs

5) Do not allow the use of Community Design Standards within the River Overly Zone

It is of utmost importance that development integrates sensitively with the river. The Community Standards are formulaic and do not reflect or enhance unique environments or natural amenities. They are generic urban design standards not intended for, or responsive to, the city's premier natural resource. Development along the Willamette River should be held to higher requirements for compatibility and context. Our neighborhood experience is that ***Community Standards are often used to avoid stricter guidelines that reflect the river's unique values, and also to avoid any design review process.***

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European Americans settled this district around the north-south Macadam Avenue Corridor and a parallel railroad line located between Macadam Avenue and the river. During the City's early growth period in the mid to late-1800s and into the 1900s, lands between the Willamette River and Macadam Avenue developed, in part, as an industrial area where firms took advantage of both river and land transportation modes. At the same time the area west of the Avenue formed with supportive commercial businesses. Further west from Macadam, housing was constructed to meet the needs of those employed in the industries along this stretch of the river. This developmental evolution meant that the Macadam Avenue Corridor has historically separated the Willamette River from the residential neighborhoods west of the Avenue.

Over the decades, particularly after World War II, much of the industry in the Corridor relocated due to a shift in technology and demand. Changes in development patterns and uses in the flatter lands between Macadam Avenue and the Willamette River built off of a resurgence of development in the downtown and other inner city residential neighborhoods. In the 1970s, Johns Landing, a groundbreaking multi-dwelling residential project developed between Macadam Avenue and the Willamette River. Later, several city-adopted plans placed emphasis on introducing commercial and residential uses to the neighborhood and creating public access to and along the river. Other goals for the area included visual connections to the river, neighborhood serving development along the Macadam corridor with landscaping to enhance its boulevard character, and riverfront development that is compatible with public use and enjoyment of the riverfront. This led to the creation of several residential developments, the greenway trail and Willamette Park.

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We hope these changes will be incorporated into the River Plan/South Reach.

Respectfully,
Michael Kaplan, President
South Portland Neighborhood Association

Jim Owens

#93388 | February 19, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

February 12, 2020 To: Portland Planning and Sustainability Commission From: Portland Parks Board Subject: Testimony on River Plan/South Reach The Portland Parks Board, through its Land Use and Infrastructure Working Group, has been briefed by Portland Bureau of Planning and Sustainability (BPS) staff several times over the past year on the River Plan/South Reach project. At its February 11, 2020 meeting, the Barks Board approved the following testimony prepared by its Working Group on the Proposed Draft Plan. On behalf of the Portland Parks Board, its Land Use and Infrastructure Working Group expresses broad support for the River Plan/South Reach Proposed Draft, while highlighting a few key features of the Plan for specific comment and support. We also wish to express appreciation to BPS, and specifically Debbie Bischoff, for keeping the Working Group informed on the planning process and key planning issues. • Allowance of limited retail in a limited number of parks (Chapter 33.475.200 B) The Parks Board has previously testified before the Commission in support of limited retail in Central City parks and supports the proposed regulations of retail uses within three parks of the South Reach planning area. This support is based on the philosophy that retail uses within parks should be limited and be secondary to and complementary of recreational and open space uses, while recognizing that they also serve to promote park use, safety and diversity. The proposed regulations would ensure that such retail uses occupy a small footprint, be located outside the river setback, not interfere with recreation activities, and be occupied by businesses supportive of park uses. • Increase in the Willamette River Greenway setback width to 50 feet, combined with a floodplain management program, to ensure that new development and redevelopment provides adequate protection for natural, scenic, historic and recreational resources. • Support for efforts of the Joint Office of Homeless Services to minimize the impacts of housing, camping, and live-aboard boaters on the natural environment, public and private properties, and recreational uses. • Support for completion of an Oaks Bottom Complex Management Plan that includes planning for the future of Ross Island, Sellwood Riverfront Park, and a publicly accessible swimming beach at Oaks Amusement Park if determined feasible. • Purchase of Ross Island for public uses. • Creation of a riverfront park in the Brooklyn neighborhood, as identified in the 1991 City-adopted neighborhood plan, that re-establishes Brooklyn’s historic link to the river. • Improvements to the Springwater Corridor and Willamette River Greenway trails within the South Reach planning area to reduce conflicts among users and to ensure equitable access for users of all abilities. • Establishment of a Powers Marine Park at the former Staff Jennings site. • Extension of Willamette River Greenway to Lake Oswego • Ongoing partnerships with Native American

community members to identify and establish potential locations for the planting and harvesting of first foods. • Support for rulemaking by the Oregon State Marine Board to address wake enhancing devices and their effects to structures, other recreational activities, erosion, wildlife, etc. • Support for reinstatement of the Multnomah County Sheriff's River Patrol as part of a comprehensive education and enforcement program. Sincerely, Jim Owens Co-Chair, Land Use & Infrastructure Working Group Paddy Tillett Co-Chair, Land Use & Infrastructure Working Group

Testimony is presented without formatting.

PORTLAND PARKS & RECREATION℠
Healthy Parks, Healthy Portland

February 12, 2020

To: Portland Planning and Sustainability Commission

From: Portland Parks Board

Subject: Testimony on River Plan/South Reach

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Sincerely,

Jim Owens
Co-Chair, Land Use & Infrastructure Working Group

Paddy Tillett
Co-Chair, Land Use & Infrastructure Working Group

Thomas Gornick

#93387 | February 19, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

Re: South Reach Willamette River Plan: Suggested Changes This letter is in support of the South Reach Williamette River Plan, however as a resident of South Portland who walks the greenway daily for recreation and access to the central city, the plan has still not adequately addressed two important issues: 1) Increase the Greenway Setback to 100 feet (33.475.210 C) The South Reach contains significant ecological areas including critical habitat for seven salmon and steelhead species. It is part of the Pacific Flyway for migratory birds. It is an Important floodplain. Over 80% of the South Reach watershed is ranked as high or medium natural resource and 75% of the land and water is designated as Special Habitat Area. Because of its high resource value, the South Reach merits far more than the proposed 50-foot setback to preserve and protect it now and for the future. We strongly recommend a minimum 100' setback. Less than 100 feet allows development to encroach and limit important habitat and recreational use by the citizens. 2) Strengthen revegetation regulations. Suggest adding to 33.475.450: • Require review and remedial planting to be done within a specific time window (suggest 1 year). • Require a minimum 3-year maintenance plan to ensure that vegetation has an opportunity to be established and thrive. • Require replanting with native species after nuisance plants are removed if the disturbed area is not in compliance with landscape standards. * Require existing properties to come into landscape compliance within the next 5 years. Today current property owners along the greenway care for the riverbank and path with little regard to habitat, vegetation and aesthetics. One set of condos along the western bank from approximately SW Carolina to SW Pendleton mow and clear cut all vegetation to the river's edge. The Willamette River is a natural resource, but more important, can and should be a defining landscape for our community. The river is not and should not be managed for and by development. As a city and community, we should take our ques from our Native American communities and treat it as a living resources that brings life and good living to all in Portland. Everyone of us, including development should understand that if we embrace the river as a natural wonder all our lives and property will have greater value.

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Thomas W. Gornick

0422 SW California St. | Portland, OR 97219-2332 | Phone: 503-816-6265
E-Mail: twgornick@gmail.com

February 19, 2020

Bureau of Planning and Sustainability
1900 SW Fourth Ave, Suite 1700
Portland, OR 97201

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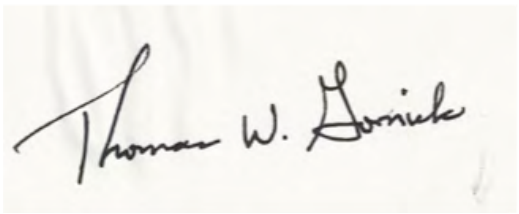
Again, I support the plan but encourage the city to improve the plan with vision. See the river as a natural wonder and gift, we are only stewards for this time and are required to pass it on even better than it was given to us.

Sincerely



Connie Coleman

#93386 | February 19, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I am in support of Portland Audubon's position on the protections for the South Reach of the Willamette River. Please be sure they are included in the plan. Thank you.

Testimony is presented without formatting.

Kyenne Williams

#93350 | February 18, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I appreciate that the proposed draft of the South Reach River Plan takes some important steps towards prioritizing natural resource protection, particularly along a stretch of the Willamette with some of the best remaining river habitat in Portland. This a fabulous opportunity to implement restoration and it's critical that the Planning and Sustainability Commission consider the following: - Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience - Require bird-safe building and environmentally friendly lighting practices in the South Reach Area - Strengthen protections for trees and other native vegetation throughout the plan, especially along the River Environmental Overlay zones - Take whatever steps necessary to include Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential

Testimony is presented without formatting.

Katherine Leck

#93349 | February 18, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

I agree with the Portland Audubon that the draft of the South Reach River Plan needs improvement: Expand the Willamette River setback to at least 100 feet to provide better river protection, riparian habitat, access and climate resilience (currently proposed at only 50 feet wide) Require rather then encourage bird-safe building and environmentally friendly lighting practices in the South Reach Area to reduce bird collisions with windows and reduce light pollution Strengthen regulatory protections for trees and other native vegetation throughout the plan area and especially along the River Environmental Overlay zones The plan should call for the City to take necessary steps to add Waverly Country Club into the South Reach plan area given its significant natural resources and restoration potential

Testimony is presented without formatting.

Kathy Orton

#83316 | February 10, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

As a long time Brooklyn resident, I am impressed with the South Reach River Plan. Appreciate the specifics on both scenic and natural resources. Really hope that Brooklyn access to the river happens within short time of approval of this plan. With Ross Island Sand & Gravel vacating their site, there is now an in place a way to access the river, with just a few modifications. Please consider Brooklyn access as a high priority of this project. Thank you for all your hard work! Kathy Orton/Brooklyn

Testimony is presented without formatting.

Michael Hayes

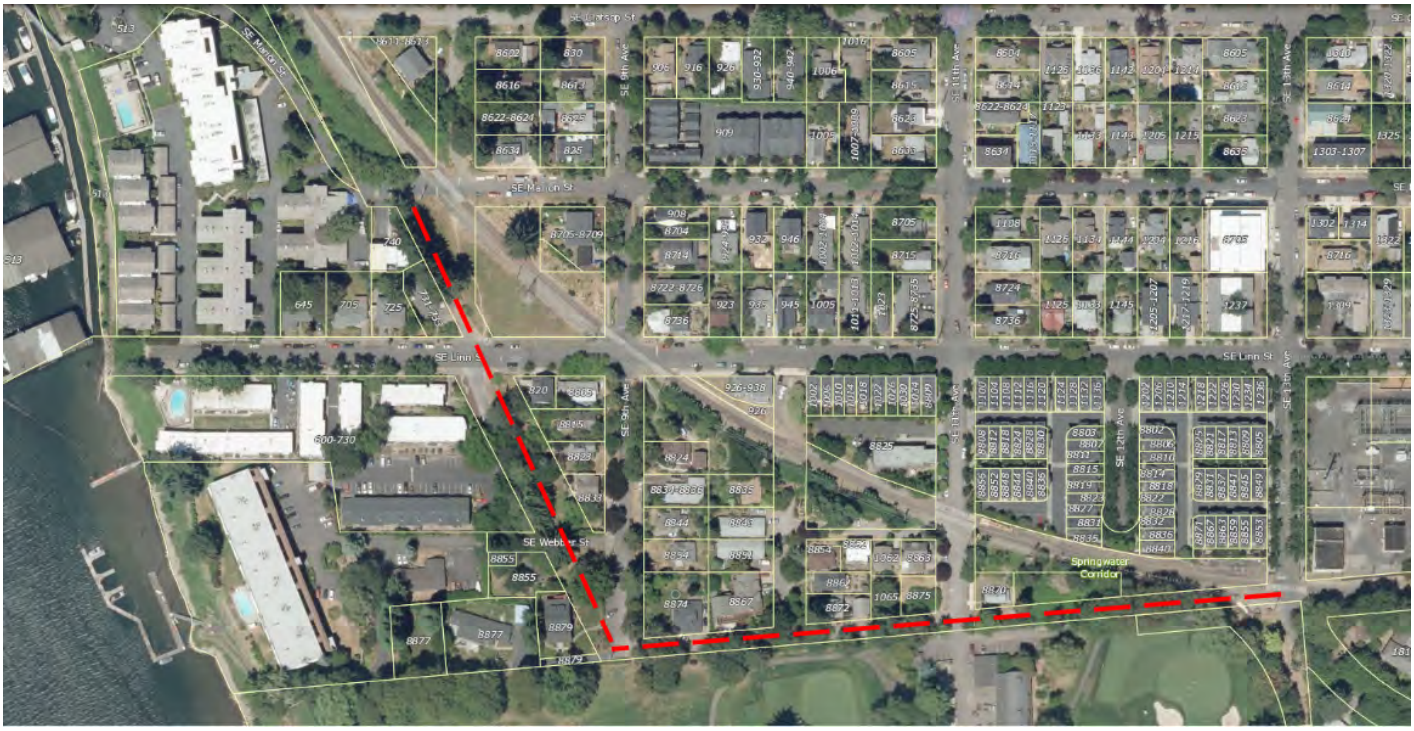
#83271 | February 6, 2020

Testimony to **the Planning and Sustainability Commission** on the **River Plan | South Reach, Proposed Draft**

GREENWAY TRAIL EAST / SPRINGWATER CORRIDOR – Scenic Trail/Path (see Vol.2, pg. 106) Proposed edits/comments: "The (Greenway Trail East) trail stops (insert the distance) south of the Sellwood Bridge" at the Portland Rowing Club property and resumes south of that property ending at the foot of SE Linn Street. The route of the trail resumes on Linn Street. The elevation differential from the existing riverside trail to the viewpoint site at the foot of SE Linn Street is (insert the vertical distance), a staircase could complete the connection and at last make the south reach of the river accessible to most Sellwood residents. A floating dock at the foot of SE Linn would further enhance access to the water. The most direct and the more scenic route for the Greenway Trail from Linn Street to the proposed Viewpoint at the foot of SE 9th Avenue at SE Ochoco Street would NOT be along the albeit attractive view street of SE 9th Avenue, rather it would be within the currently undeveloped 80-foot-wide SE Grand Avenue right-of-way. Here we can develop an off-road trail that would pass through a parklike environment in keeping with our scenic values and desire for pedestrian safety. It would provide a direct connection to the future extension of the Greenway Trail south of the city limit as envisioned by Oregon State Land Use Goal 15. (see Volume 1, Figures 1&2) In my opinion, the entire SE Grand Avenue right-of-way from SE Umatilla Street to the city limit at SE Ochoco Street should be jointly managed by PBOT and PP&R as green (OS) open space. PP&R already manages the adjoining Sellwood Gap parcels and the 106-foot-wide SE Sherrett Street pedestrian area west of SE Grand Avenue which extends to Willamette River. On all of the maps, please paint both ROWs and the OS parcels "Park" green. The trail connection between the Springwater and the Greenway Trails depicted in the 1987 Greenway Plan near SE Sherrett Street should be retained and shown on the map. And the pathway along SE 6th Avenue from SE Sherrett Street to SE Tacoma Street deleted from the Comprehensive Plan as not being of citywide significance, should be shown on this specific plan; it is important as a safe alternative to walking among fast moving bicycles on the Springwater Trail. PBOT is currently considering a community-initiated Portland Pathway that could include a segment of the Greenway Trail from Linn to Ochoco streets, it would be within the SE Grand Avenue right-of-way. The red dashed line depicted on an attachment to this testimony is the route of the proposed pathway. (Attached file: Map.PNG). A minor edit should be considered in Volume 2, on page 11, the last sentence. I believe that the proposed Viewpoint at SE 9th Avenue and SE Ochoco Street just inside rather than just outside of the South Reach boundary, the boundary in this area being the SE Grand Avenue right-of-way. SE Grand and SE 9th Avenues merge at SE Ochoco Street. I agree with the

observation in SRSE 13 that the property line hedge along SE Ochoco Street degrades the view potential. Where the Waverley Country Club grounds crew have reduced the vegetation height, the view along SE Ochoco is wonderful. A note: The attached graphic shows the route of a community initiated Portland Pathway proposal currently under review. We have been told that as of one week ago, the all-bureau review was nearly complete. Next PBOT will notify neighbors, if at least 40% support the proposal we will move into the trail design phase. If you agree that SE Grand Avenue would be the preferred route for the Greenway Trail between SE Linn Street and the city limit at the foot of SE 9th Avenue, that would greatly influence the SMILE lead pathway design decision. The timing may be very good for PSC guidance.

Testimony is presented without formatting.


SE Linn St
SE Webber St
SE 9th Ave
SE 11th Ave
SE 12th Ave
SE 13th Ave
Springwater Corridor