

Amendment No. 2
Intergovernmental Agreement
for
Monitoring of Native Fish in Tryon Creek

Pursuant to City Ordinance No. _____

This intergovernmental agreement (IGA) was made and entered into by and between the City of Portland acting by and through its Bureau of Environmental Services (BES) and the U.S. Fish and Wildlife Service (USFWS). The IGA is hereby amended as follows:

1. General Provisions, Section 1. Effective Date and Duration. The term of the agreement is extended through October 31, 2019.
2. General Provisions, Section 3. Consideration. The IGA amount is increased by \$62,577 for a new not-to-exceed total amount of \$169,286.
3. General Provisions, Section 4. Project Representatives.

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Project Co-manager: Marc Peters
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4. The Statement of Work is revised as follows:

The objectives of this amendment are:

- To extend fish species community, abundance and temporal use monitoring in Tryon Creek through June 2019 for the benefit of BES' Tryon Confluence and Boones Ferry Culvert projects;
- Conduct genetic analysis of fish tissue samples to determine the genetic origin of the salmonids utilizing Tryon Creek.

- 4.1 The Objectives and Tasks section is revised as follows:

Objective 1: Extend monitoring of fish use within Tryon Creek through June 2019

USFWS will continue to monitor fish use in Tryon Creek, including fish entering from the Willamette River, as well as native fish within Tryon Creek, with a prioritization on salmonids (*Oncorhynchus spp.*) and lamprey usage. Data collected will include, but not be limited to, distribution, fish densities, migration patterns and collection of genetic material.

USFWS will provide annual fish species community & abundance reports to BES. The report shall include answers to the following questions:

1. What is the species composition of fish found in the Tryon Creek confluence habitat, and how does this change through the year and over time?
2. What is the ratio of native to non-native fish species?
3. What sensitive fish species are present?
4. What is the origin (if known) of the fish using the Tryon Creek confluence area?
5. Does the time and location of where fish were previously tagged tell us about how the fish are moving through the system (e.g., travel time, residence time in Willamette River, etc.)?

Deliverables:

- Monitor fish system-wide 1 time per year in FY2016-17 and FY 2018-19.
- Monitor confluence additional 11 times per year in FY 2018-19. Monitor confluence for temporal use once per week over 3 spring and/or summer months in FY 2018-19.
- Provide annual fish species community, abundance and temporal use reports in September 2017 and September 2019.

Budget: \$34,403

Objective 2: Conduct genetic analysis of collected fish tissue samples

The USFWS genetic analysis laboratory will process the city's fish tissue samples in order to determine the race each salmon and trout sample belongs to. Genetic analysis of fish tissue that has been collected over a period of ten years will describe where and when specific stocks and races of ESA-listed fish are using the city's rivers and streams.

Deliverables:

- Process and analyze 450 fish tissue samples for genetic baseline determination. Samples are separated by species accordingly: Coho Salmon = 201; Coastal Cutthroat Trout = 117; Steelhead Trout = 112; Cutthroat-Steelhead Hybrid = 11; and small unknown trout = 4.
- Provide a report on the genetic analysis of all fish tissue samples collected from the City's streams over a ten year period that describes where and when specific populations, and possibly races, of salmonids are using the habitat. Include in the report a write-up of methods and results, as well as address the following questions:

1. *O. mykiss* (presumed steelhead trout)

Method: Receive and analyze 112 *mykiss* samples. To the resolution possible, determine how these *mykiss* samples assign to known genetic baselines in published genetic databases. Tools are available to determine whether a *mykiss* sample originated from the Willamette River basin or somewhere outside of the Willamette River basin.

Primary question: What race are these fish? Winter or summer?

Secondary question: Did the *mykiss* samples collected from lower Columbia River tributaries originate from a lower Columbia River tributary, a Willamette River tributary, or from an upper basin tributary?

2. *O. kisutch* (coho salmon)

Method: Receive and analyze 201 coho salmon samples. To the resolution possible, determine how these coho salmon samples assign to known genetic baselines in published genetic databases. In addition, for the samples whose stream of origin can be characterized, archive this information to be added to any future database on the origin of coho salmon.

Primary question: Did the *O. kisutch* samples collected from lower Columbia River tributaries originate from a lower Columbia River tributary, a Willamette River tributary, or from an upper basin tributary?

Caveat: Based on the databases that are available, the genetic tools are generally not available to determine origin at this scale. It will be difficult to assign coho salmon to many basins/stocks in the upper Willamette River (unless they all came from the Clackamas River). The parties acknowledge that the database that exists for coho salmon are primarily for coastal populations (including Puget Sound) and some in the lower Columbia River. Therefore, the power of the analysis is likely to be limited by the fact that the large majority of coho salmon stocks in the lower Columbia River have not been adequately (< 3 years for most collections) characterized. With what does exist, there is generally very little power to distinguish hatchery v. wild in the lower Columbia River. The only exception is in the Clackamas River, where the wild population above the dams is quite distinct. The parties recognize that USFWS will make assignments to the best of its ability.

3. *O. clarki* (coastal cutthroat trout)

Method: Receive and analyze 122 coastal cutthroat trout tissue samples. Use standard genetic tools to analyze coastal cutthroat trout samples from Tryon Creek. To make inferences about genetic health of the population, characterize a) the rate of hybridization, b) deviations from Hardy-Weinberg proportions, c) linkage disequilibrium, d) observed and expected heterozygosity, e) allelic richness, and f) allele frequency between suspected generations (to evaluate whether the population appears stable). Genetic tools are available to use for analysis and address this question.

Primary question: Does the cutthroat trout population in Tryon Creek appear to be healthy from a genetic perspective?

Secondary question: Did coastal cutthroat trout samples collected from Portland's tributary streams originate from somewhere other than Tryon Creek (particularly the mid-Columbia River, upper Columbia River, Snake River regions)?

Caveat: The parties acknowledge it is unlikely this question can be addressed very rigorously in coastal cutthroat trout. Large, broad reaching databases to assign population origin in coastal cutthroat trout do not exist.

4. Hybrid (presumed) trout samples

Method: Receive and analyze 11 trout hybrid samples. Use established genetic markers to analyze tissue samples from trout identified (morphologically) as hybrids. Determine whether the samples came from *mykiss*, *clarki*, or hybrid fish. Genetic tools exist that will allow an answer to this question.

Primary question: Are these samples *O. mykiss*, *O. clarki* or *mykiss/clarki* hybrids?

5. Unidentified trout samples

Method: Analyze 0-4 *mykiss* samples. To the resolution possible, determine how these *mykiss* samples assign to known genetic baselines in published genetic databases.

Primary question: Are these samples from *O. mykiss*, *O. clarki* or *mykiss/clarki* hybrids?

Secondary question: if any of these samples came from pure *mykiss*, did they originate from lower Columbia River tributaries or out-of-basin (somewhere other than the lower Columbia River)?

Caveat: Based on the databases that are available, the genetic tools are available to determine origin at this scale. Specifically, tools are available to determine whether a *mykiss* sample originated from the Willamette River basin or somewhere outside of the Willamette River basin.

Budget: \$28,174

4.2 The **Budget Detail** section is revised as follows:

Fiscal year	Cost
July 2010-June 2011	
Personnel	\$5,209
Equipment	\$10,000
Overhead (31.5%)	\$4,791
<i>Annual subtotal</i>	<i>\$20,000</i>
July 2011-June 2012	
Personnel	\$5,274
Equipment	\$1,000
Overhead (31.5%)	\$1,976
<i>Annual subtotal</i>	<i>\$8,250</i>
July 2012-June 2013	
Personnel	\$18,888
Equipment	\$1,000
Overhead (31.5%)	\$6,265
<i>Annual subtotal</i>	<i>\$26,153</i>
July 2013-June 2014	
Personnel	\$5,274
Equipment	\$1,000
Overhead (31.5%)	\$1,976
<i>Annual subtotal</i>	<i>\$8,250</i>

July 2014-June 2015		
orig ord and amend #1	Personnel	\$18,888
	Equipment	\$1,000
	Overhead (31%)	\$6,265
	<i>Annual subtotal</i>	<i>\$26,153</i>
Amendment #2	Genetic Analysis	\$21,425
	Overhead (31.5%)	\$6,749
	<i>Annual subtotal</i>	<i>\$28,174</i>
	<i>Annual TOTAL</i>	<i>\$54,327</i>
July 2015-June 2016		\$0
July 2016-June 2017		
	Personnel	\$18,888
	Equipment	\$1,000
	Overhead (31.5%)	\$6,265
	<i>Annual subtotal</i>	<i>\$26,153</i>
July 2017-June 2018		\$0
July 2018-June 2019		
	Personnel	\$18,888
	Equipment	\$1,000
	Overhead (31.5%)	\$6,265
	<i>Annual subtotal</i>	<i>\$26,153</i>
TOTAL		\$169,286

4.3 The **Funding and Payment Schedule** section is revised as follows:

The project will be funded in part by City of Portland, Bureau of Environmental Services, and will allow for the purchase of and payment for:

- Data Management
- Analysis of fish tissue samples to determine genetic origin of salmonids
- Fish collection and tagging
- Other monitoring pursuant to this agreement

BES shall provide project funding to USFWS as follows:

Year 1	2010/2011	\$20,000
Year 2	2011/2012	\$8,250
Year 3	2012/2013	\$26,153
Year 4	2013/2014	\$8,250
Year 5	2014/2015	\$54,327
Year 6	2015/2016	\$0
Year 7	2016/2017	\$26,153
Year 8	2017/2018	\$0
Year 9	2018/2019	\$26,153

Following the execution of the original IGA, USFWS submitted an invoice to BES for the 1st year funding in the amount of **\$20,000**. Thereafter, USFWS shall submit annual invoices to BES at the end of each year 2 thru 9, on a reimbursement basis, in the amount indicated in the above table.

Total payments shall not exceed **\$169,286** for the duration of the IGA.

All other terms and conditions remain the same.

This contract amendment may be signed in two (2) or more counterparts, each of which shall be deemed an original, and which, when taken together, shall constitute one and the same contract amendment.

The parties agree BES and USFWS may conduct this transaction by electronic means, including the use of electronic signatures.

U.S. FISH AND WILDLIFE SERVICE

By: _____ Date: _____

Name: _____

Title: _____

Contract No. 30001822 Amendment/Change Order No. 2Contract Title: Monitoring of Native Fish in Tryon Creek**CITY OF PORTLAND SIGNATURES:**By: _____ Date: _____
Bureau DirectorBy: n/a Date: _____
Chief Procurement OfficerBy: n/a Date: _____
Elected Official

Approved:

By: _____ Date: _____
Office of City AuditorApproved as to Form **APPROVED AS TO FORM**By:  Date: _____
Office of **CITY ATTORNEY**