Attachment A

OSU Contract #_____
City Contract #_____

INTERGOVERNMENTAL AGREEMENT

Chinook Salmon Genetic Analysis

This Intergovernmental Agreement ("IGA") is entered into by and between the City of Portland ("**City**"), acting by and through its Bureau of Environmental Services, and the Cooperative Institute for Marine Resources Studies ("**OSU**"), acting by and through the Department of Fisheries and Wildlife of Oregon State University.

This IGA is authorized pursuant to ORS 190.110 and becomes effective upon full execution of this document.

PURPOSE

City and **OSU** desire to work together to conduct genetic analysis of Chinook salmon (*Oncorhynchus tshawytscha*) samples previously collected from certain Portland waterways, analyze those data, and report the findings to **City** for the purposes of furthering **City's** implementation of the Portland Watershed Management Plan.

By this IGA, **OSU** agrees to provide the necessary personnel, equipment and expertise to analyze data necessary to calculate a genetic stock group index for the grouped samples and to specify the probability of genetic lineage of each fish sampled, along with additional specific data requested by **City** and identified in the Statement of Work and Budget attached hereto as Exhibits A and B. In return, **City** agrees to reimburse **OSU** for costs associated with the provision of these services as described in this document.

GENERAL PROVISIONS

1. **Effective Date and Duration.** This IGA is effective on the date of execution by both parties. Unless earlier terminated or extended, this IGA shall expire when **OSU's** completed performance has been accepted by **City** or **June 30, 2015,** whichever date occurs first. Any extension of this IGA's term shall be by written amendment to this IGA.

2. **Statement of Work.** The activities authorized by this IGA ("the Work") are described in the Statement of Work contained in Exhibit A, which includes the delivery schedule for the Work. **OSU** agrees to perform the Work in accordance with the terms and conditions of this IGA.

3. **Consideration.** **City** agrees to pay **OSU** a sum not to exceed **$11,500** as allocated in Exhibit B.

4. **Project Representatives.** Each party has designated a project manager to be the formal representative for this project. All reports, notices, and other communications required under or relating to this IGA shall be directed to the appropriate project manager.

City's Project Manager

Melissa Brown
City of Portland
1120 SW Fifth Ave., Suite 1000
Portland, OR 97204
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OSU's Project Manager

Michael A. Banks
Oregon State University HMSC
2030 SE Marine Science Dr.
Newport, OR 97365
Phone: (541) 867-0421
Email: michael.banks@oregonstate.edu

5. **Subcontracts.** **OSU** shall not enter into any subcontracts for any of the work scheduled under this IGA without obtaining prior written consent from the City's Project Manager.

6. **IGA Documents.** This IGA consists of the following documents, which are listed in descending order of precedence: This IGA less all exhibits, attached Exhibit A (Statement of Work), and Exhibit B (Budget). All attached exhibits are hereby incorporated for reference.

7. **Amendments.** The terms of this IGA shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever except by written instrument signed by both parties.

8. **Reimbursement**.

   A. Upon receipt of the samples, **OSU** shall submit an invoice to **City** for reimbursement for 50% of the contract amount for the services to be performed. Upon completion of the genetic analysis and sequencer runs, **OSU** shall submit an invoice for the remaining charges, not to exceed a total of $11,500, and noting the project and City IGA number and the allocation of costs in accordance with line items identified in Exhibit B.

   B. Non-itemized or incomplete billings shall be detained for payment processing until **OSU** has supplied correct information to **City.**

   C. Invoices shall be submitted in duplicate, identifying the City IGA number, to the City's Project Manager. **City** shall pay all approved invoices within 30 days.

   D. The parties recognize and agree that some of the activities and obligations for reimbursement addressed in this IGA have commenced or arisen or will commence or arise prior to the effective date of this IGA.

9. **Termination**.

   A. The parties may agree to an immediate termination of this IGA or at a time certain upon mutual written consent.

   B. Either party may terminate this IGA for any reason effective not less than 30 days from delivery of written notice.

   C. Either party may terminate this IGA effective not less than 10 days from written notice or at such other date as may be established by both parties under any of the following conditions:

      i. If funding is not obtained and continued at levels sufficient to allow for purchase of the specified services. When possible, and when agreed upon, this IGA may be modified to accommodate a reduction in funds.

ii. If federal or state regulations or guidelines are modified, changed or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this IGA, or are no longer eligible for the funding proposed for payments authorized by this IGA.

D. Either party may terminate this IGA in the event of a breach by the other party. Prior to such termination, however, the party seeking termination shall give the other party written notice of the party's intent to terminate. If the party has not cured the breach within 10 days or a longer period as granted in the cure notice, the party seeking compliance may terminate this IGA.

E. In the event of termination, **OSU** shall submit a Statement of Work Completed to **City** detailing how the money was spent.

F. In the event of termination, **City** shall pay **OSU** for services performed in accordance with this IGA prior to the termination date, accounting for any costs that have been paid to date.

G. Termination shall satisfy **City's** entire obligation under this IGA.

10. **Funds Available and Authorized.** Both parties certify that, at the time this IGA is executed, sufficient funds are available and are authorized or will be authorized through their annual budget approval processes to finance costs of this IGA within both parties' current appropriations and limitations. Both parties understand and agree that payment of amounts under this IGA attributable to work performed after the last date of the current budget period is contingent on both parties receiving appropriations, limitations, or other expenditure authority.

11. **Captions.** The captions or headings in this IGA are for convenience only and in no way define, limit or describe the scope or intent of any provisions of this IGA.

12. **Choice of Venue.** Oregon law shall govern this IGA and all rights, obligations and disputes arising out of the IGA. Venue for all disputes and litigation shall be in Multnomah County, Oregon.

13. **Severability/Survival.** If any of the provisions contained in this IGA are held unconstitutional or unenforceable, the enforceability of the remaining provisions shall not be impaired. All provisions concerning the limitation of liability, indemnity and conflicts of interest shall survive the termination of this IGA for any cause.

14. **Ownership of Work Product.** All work products, including reports, research data in hard copy or electronic form that result from this IGA, and any biological samples collected, are the exclusive property of **City**. However, **OSU** reserves the right to retain copies of such items for its records and **City** agrees to share any later analysis, including but not limited to genetic testing, conducted on the biological samples.

15. **Access to Records.** Each party and their duly authorized representatives shall have access to the books, documents, papers, and records of the other party which are directly pertinent to this IGA for the purpose of making audits, examinations, excerpts, and transcripts.

16. **Compliance with Applicable Law.** Both parties shall comply with all federal, state, and local laws, regulations, executive orders and ordinances applicable to the Work. Without limiting the

generality of the foregoing, the parties expressly agree to comply with: (I) Title VI of Civil Rights Act of 1964; (ii) Section V of the Rehabilitation Act of 1973; (iii) the Americans with Disabilities Act of 1990 and ORS 659.425; (iv) all regulations and administrative rules established pursuant to the foregoing laws; and (v) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations. Both parties' performance under this IGA is conditioned upon both parties' compliance with the provisions of ORS 279.312, 279.314, 279.316, 279.320, and 279.555, which are incorporated by reference herein.

17. **No Third Party Beneficiary.** **City** and **OSU** are the only parties to this IGA and, as such, are the only parties entitled to enforce its terms. Nothing contained in this IGA gives or shall be construed to give or provide any benefit, direct, indirect, or otherwise to third parties unless third persons are expressly described as intended to be beneficiaries of its terms.

18. **Indemnification.** Within the limits of the Oregon Tort Claims Act, codified at ORS 30.260 through 30.300, each party agrees to indemnify and defend the other and its officers, employees, agents and representatives from and against all claims, demands, penalties and causes of action of any kind or character relating to or arising from this IGA, including the cost of defense, attorney fees arising in favor of any person on account of personal injury, death or damage to property and arising out of or resulting from the negligent or other legally culpable acts or omissions of the indemnitor, its employees, agents, subcontractors or representatives.

19. **Merger Clause.** This IGA constitutes the entire agreement between the parties. No waiver, consent, modification or change of terms of this IGA shall bind either party unless in writing and signed by both parties. Such waiver, consent, modification or change, if made, shall be effective only in the specific instance and for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this IGA.

This agreement 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 agreement. The parties agree that City and OSU may conduct this transaction, including any contract amendments, by electronic means, including the use of electronic signatures.

CITY OF PORTLAND

Dean Marriott, Director Date

APPROVED AS TO FORM

APPROVED AS TO FORM

City Attorney **CITY ATTORNEY**

OREGON STATE UNIVERSITY

Date

OSU Procurement & Contracts Services

Exhibit A

STATEMENT OF WORK

Overview

This statement of work provides the methods for an analysis of juvenile Chinook (*Oncorhynchus tshawytscha*) tissue collected from specimens across the City of Portland's Willamette River sub-watersheds. The lower Willamette River is Endangered Species Act (ESA) designated critical habitat for five listed salmon and trout populations in the Columbia River basin. Two populations, the upper Willamette River Chinook salmon and steelhead trout, call the Willamette River their natal home. The other three populations, the lower Columbia River Chinook and coho salmon (*O. kisutch*), and steelhead trout (*O. mykiss*), temporarily use habitats found in the lower Willamette and several of its tributaries. Together, these five genetic stocks of fish comprise the baseline of salmon and trout identified in the City.

It is well understood that juvenile Chinook from other watersheds throughout the Columbia Basin use habitat in the City of Portland. It is unclear where those juvenile Chinook originate, whether in Portland or in other watersheds outside the city. The National Marine Fisheries Service (NMFS), the federal agency tasked with ESA fish recovery, cites that the lower Willamette is likely to also serve another nine listed salmon and trout populations that pass through the area during up and downstream migrations. Because the Willamette River joins the Columbia River so far downstream, it is common for everything that migrates to and from the middle and upper Columbia reaches, including the Snake River watershed, to swim in and/or around this area. The nine upper Columbia watershed populations known to visit the lower Willamette River are: Columbia River bull trout; Upper Columbia spring Chinook and steelhead trout; Snake River sockeye; Snake River fall, spring and summer Chinook; Snake River steelhead trout; Middle Columbia steelhead trout; and Columbia River chum salmon.

Previous genetic analysis work was completed for Chinook in the lower Columbia Slough in 2006 and 2007, and a determination was made that interior Columbia Basin summer/fall, lower Columbia River fall, and upper Willamette River spring Chinook salmon are using the lower slough (C. Baker, Ducks Unlimited, personal communication; see also Teel et al., 2014).

Confirmation of use of the City's streams by specific stocks is important for several reasons. First, knowledge of Willamette River use by Columbia River fish is limited. Tracking the use of streams by non-Willamette fish outside of their designated critical habitat boundaries would provide greater detail about how Columbia River fish distribute after leaving their natal watersheds and utilize resources in others. The City stands to benefit greatly from the results by implementing project designs and best practices that could further reduce impacts to ESA-listed fish, as well as provide immediate benefits to local populations of salmon and trout.

A total of 129 Chinook salmon tissue samples preserved in ethanol will be shipped to the Hatfield Marine Science Center in Newport, Oregon, in care of Dr. Michael Banks and his associate Mr. Jonathan Minch. Dr. Banks will employ the GAPS 13 genetic baseline, essentially running each sample across each of the 13 loci in the DNA sequence to determine genetic stock identification.

Objective and Tasks

Objective. Evaluate genetic composition of juvenile Chinook sampled from Willamette River streams in Portland, Oregon.

Task 1: Use the GAPS 13 genetic baseline to assay the samples.

1. **Products:**

DNA Extraction and GAPS13 amplification:

DNA extraction of 129 samples will follow a silica-based method utilizing multichannel pipettes, PALL glass fiber filtration plates, and buffer, centrifuge and transfer protocols described in Ivanova et al. (2006). A total of 13 microsatellites (GAPS 13) will be amplified using the polymerase chain reaction. This panel was developed and standardized among twelve Fisheries Genetics Laboratories in the Pacific Northwest known as Genetic Analysis of Pacific Salomon (GAPS) baseline (Seeb et al 2007) and includes: *Ogo-2, -4* (Olsen et al. 1998); Oki100 (Candian Department of Fisheries and Oceans, unpublished); *Omm1080 (*Rexroad et al. 2001); *Ots-3M* (Greig and Banks 1999); *Ots-9* (Banks et al. 1999); *Ots-201b, -208b, -211, -212, -213* (Greig et al 2003); *OtsG474* Williamson et al. (2002); and *Ssa408* Cairney et al. 2000 – protocols detailed in Seeb et al. 2007.

Reporting Group Assignment and Statistical analysis

Assignment of individual samples as well as the overall sample set to reporting groups detailed in Seeb et al. 2007 and Moran et al. 2013) will be made using a statistical package named ONCOR (Kalinowski 2008 *www.montana.edu/kalinowski/Software/ONCOR.htm*), utilizing the 'assign individual to baseline population' option.

Schedule:

A draft report of results will be made available 3 months after receipt of samples and a final delivered to the City of Portland before June 30, 2015.

Task 2: Produce a report on methods, results, and discussion.

Products: Final report will include methods, results and discussion including estimated stock composition of the overall sample set is, as well as "best estimate" of what the genetic stock origin for each individual fish.

Schedule: Final Report will be completed by June 30, 2015.

References

Banks M.A., Blouin M.S. Baldwin B.A., Rashbrook V.K., Fitzgerald H.A., Blankenship S.M. & Hedgecock D. (1999) Isolation and inheritance of novel microsatellites in Chinook salmon. (*Oncorhynchus tshawytscha*). *Journal of Heredity* 90:281-288; errata *Journal of Heredity* 90, U1-U1.

Cairney M., Taggart J.B. & Hoyheim B. (2000). Atlantic salmon (*Salmo salar* L.) and cross-species amplification in other salmonids. *Molecular Ecology* 9, 2175- 2178.

Greig C.A. & Banks. M.A. (1999) Five multiplexed microsatellite loci for rapid response run identification of California's endangered winter Chinook salmon. *Animal Genetics* 30, 318-320

Greig C., Jacobson D.P. & Banks M.A. (2003) New tetranucleotide microsatellites for fine-scale discrimination among endangered Chinook salmon (*Oncorhynchus tshawytscha*). *Molecular Ecology Notes* 3, 376-379.

Ivanova N.V., Dewaard J.R. & Hebert P.D.N. (2006). An inexpensive, automation-friendly protocol for recovering high-quality DNA. *Molecular Ecology Notes 6*, 998–1002.

Kalinowski S.T. (2008) ONCOR software for genetic stock identification.
http://www.montana.edu/kalinowski/Software/ONCOR.htm

Olsen, J. B., P. Bentzen, and J. E. Seeb. (1998) Characterization of seven microsatellite loci derived from pink salmon *Molecular Ecology* 7, 1083-1090.

Moran, P, D.J. Teel, M.A. Banks, T.D. Beacham, M.R. Bellinger, S.M. Blankenship, J.R. Candy, J.C. Garza, J.E. Hess, S.R. Narum, L.W. Seeb, W.D. Templin, C.G. Wallace, C.T. Smith. (2013). Divergent life-history races do not represent Chinook salmon coast-wide: the importance of scale in Quaternary biogeography *Canadian Journal of Fisheries and Aquatic Sciences*, 2013, 70(3): 415-435.

Rexroad III C. E., Coleman R. L., Martin A.M., Hershberger, W. K. & Killefer. J. (2001) Thirty-five polymorphic microsatellite markers for rainbow trout (*Oncorhynchus mykiss*). *Animal Genetics* 32, 317-319.

Seeb L.W., Antonovich A., Banks M.A., Beacham T.D., Bellinger M.R., Blankenship S.M., Campbell M., Decovish N.A., Garza J.C., Guthrie III C.M., Lundrigan T.A., Moran P., Narum S.R., Stephenson J.J., Supernault K.J., Teel D.J., Templin W.D., Wenburg J.K., Young S.F. & Smith. C.T. (2007) Development of a standardized DNA database for Chinook salmon. *Fisheries*. 32, 540-542.

Teel, D.J, Bottom, D.L., Hinton, S.A., Kuligowski, D.R., McCabe, G.T., McNatt, R., Roegner, G.C., Stamatiou, L.A, and Simenstad, C.A. (2014) Genetic identification of Chinook Salmon in the Columbia River Estuary: Stock-Specific Distributions of Juveniles in Shallow Tidal Freshwater Habitats. *North American Journal of Fisheries Management*, 34:3, 621-641.

Williamson K.S., Cordes J.F. & May. B. (2002) Characterization of microsatellite loci in Chinook salmon (*Oncorhynchus tshawytscha*) and cross-species amplification in other salmonids. *Molecular Ecology Notes* 2, 17-19.

Exhibit B

Budget

Task 1:
The Budget is based on OSU's rate schedule for Fiscal Year 2015. If the samples are received and analyzed prior to July 1, 2014, the rates will be lower.

1. Each tissue sample is run through each of the 13 loci in the GAPS 13 baseline. OSU Fees Online 9338 DNA Extraction/DNA Sequencing/Microsatellites itemize a cost per sample per 10 loci is $63.0 (effective 7/1/2014); therefore, to arrive at a sample's genetic stock origin costs using 13 loci the cost for this project will be $63*1.3 = $81.90.

   129 samples x $81.90 = $10,565.10

2. Each sequencer run costs $50. 129 samples will require (2) trays and baseline markers, and need (3) runs to assay the samples.

   1 sequencer ($50) x 2 trays x 3 runs = $300

The total cost to analyze 129 samples = $10,865.10

Task 2:
Compile the results into a report: 5.5 hours@ $115 per hour = $632.50