

## PERFORMANCE WORK STATEMENT (PWS)

### Net Pen Aquaculture for Endangered Suckers in Upper Klamath Lake

**GENERAL INFORMATION IS PRESENTED IN BLUE ITALICS WITH PARENTHESIS BORDERS, WHILE FILL-IN GUIDANCE IS PRESENTED IN BLUE ITALICS WITH BRACKET BORDERS. PLEASE DELETE ALL BLUE ITALICS WHEN FINALIZING THE PWS.**

**If any paragraph is not applicable, delete the paragraph TEXT and add "Not Applicable" Do not delete the paragraph number/title.**

#### Part 1

##### General Information

1. **GENERAL:** This is a non-personal services contract to provide net pen aquaculture facilities for endangered suckers in Upper Klamath Lake. The Government shall not exercise any supervision or control over the contract service providers performing the services herein. Such contract service providers shall be accountable solely to the Contractor who, in turn is responsible to the Government.

1.1 **Description of Services/Introduction:** The contractor shall provide all personnel, equipment, supplies, facilities, transportation, tools, materials, supervision, and other items and non-personal services necessary to perform fabrication, transportation, and installation of net pens in Upper Klamath Lake as defined in this Performance Work Statement except for those items specified as government furnished property and services. The contractor shall perform to the standards in this contract.

1.2 **Background:** Endangered Lost River sucker (*Deltistes luxatus*) and Shortnose sucker (*Chasmistes brevirostris*) exist only in the Klamath Basin. Populations in Upper Klamath Lake have seen dramatic declines over the past few decades. Both species successfully spawn and produce larvae, but there is no evidence of significant recruitment into the spawning population for over two decades. The recovery plan for Lost River and Shortnose sucker identified a 75% decline in the populations relative to abundance in the early 2000s as a trigger point to initiate a rearing program, this trigger was met for Shortnose sucker in 2014. The Bureau of Reclamation identified an assisted rearing program as a way to offset incidental take at Klamath Project facilities in the 2013 Biological Opinion on Project operations with a target of 8,000-10,000 released individuals, and the U.S. Fish and Wildlife Service (Service) created the Klamath Basin Sucker Rearing Program to meet these needs. The Service has also supported expansions of facilities to increase production to meet recovery goals. The construction of net pens in Upper Klamath Lake is intended to supplement aquaculture of Lost River suckers and Shortnose suckers through a prolonged acclimation period to conditions and trophic characteristics of the lake. The U.S. Geological Survey (USGS) has conducted studies involving mesocosms to investigate survival of juvenile suckers in Upper Klamath Lake. The mesocosms deployed in these studies are similar in concept to net pen aquaculture, and the successful growth and survival of juvenile suckers in certain locations within the lake has demonstrated the feasibility of net pen aquaculture for these species.

1.3 **Objectives:**

- Provide net pen aquaculture infrastructure that can withstand the water quality and weather conditions, including large winter ice flows and low dissolved oxygen, of Upper Klamath Lake, OR according to industry standards for general wear and tear.
- Design net pens that are congruent with target species biology.
- Ensure that the net pen aquaculture facility is congruent with the manufacturers' guidelines to ensure liability of the manufacturer in regards to improper construction onsite.

- Fabrication and onsite construction of net pens will be available and in working order by no later than May 31<sup>st</sup>, 2019.

1.4 Scope: Design, fabricate, and ensure proper installation of net pens for deployment in Upper Klamath Lake for rearing of endangered Lost River and Shortnose suckers. *Services include* design of a facility with a minimum of 4 nets with approximately 3,000 square feet of surface area per net that is in contact with the benthos of Upper Klamath Lake. The design should be easily scalable with minimal additional infrastructure to include up to 30 nets with approximately 3,000 square feet per net. The total initial net surface area in contact with the lake benthos should be adequate for stocking 12,000 suckers at a density of one fish per square foot. The design of all structures and nets will be able to withstand high frequency waves and winter ice flows inherent in Upper Klamath Lake without sustaining damage according to industry standards. Submersible designs are preferred; however, other designs will be considered if adequate justification is provided. All structures and nets shall be easily accessible for semiannual cleaning and able to withstand additional weight as a result of significant biofouling inherent in Upper Klamath Lake. The deployment site of all structures and nets will be according to the preference of the Contracting Officer Representative and is tentatively at the Rattlesnake Point site (42°20'42.00"N, 121°51'31.00"W). All structures and nets shall be fabricated for deployment in minimum and maximum lake depth according to records initiated in 2005 by the USGS Oregon Water Science Center for Rattlesnake Point (RPT) and which can be found at [https://or.water.usgs.gov/cgi-bin/grapher/graph\\_setup.pl?basin\\_id=ukl&site\\_id=11505900#step2](https://or.water.usgs.gov/cgi-bin/grapher/graph_setup.pl?basin_id=ukl&site_id=11505900#step2) . Additionally, structures and net design will account for potential sinking into the muddy lake bottom by providing methods of recovery in the event of this occurrence, or construction that prevents this possibility. All nets will be equipped with adequate protection from avian and aquatic predators such as grebes, pelicans, terns, seagulls, cormorants, otters, osprey, eagles, and adult yellow perch as well as other aquatic animals that may damage infrastructure, or nets, such as muskrats. All structures and nets will be equipped with necessary infrastructure for the placement of aeration equipment sufficient to supply oxygenated water to all nets. A power source for the operation of electric motors associated with aeration will be included. The power source must be easily removable and transportable for over-wintering of the facility and it must not require more than weekly maintenance. All nets will have a platform on at least one side of the net for monitoring and access of fish for sampling and release. Walking platforms shall be at least three and a half feet in width and include one larger platform that is, at minimum, seven and a half feet in width, twelve feet in length, and able to support 3,500 lbs. The net shall be made of tear resistant material and have a maximum mesh size of 6 millimeters. Cost analysis and feasibility of net pen size in order to meet the required stocking density and number of individual nets is the responsibility of the manufacturer.

1.5 Period of Performance: [The period of performance shall be for two full years (24 months).

The Period of Performance reads as follows:

Jan 1<sup>st</sup>, 2019-Feb 1<sup>st</sup>, 2019: Research of design, cost analysis, feasibility, confirmation of design

Feb 1<sup>st</sup>, 2019-April 1<sup>st</sup>, 2019: Fabrication, necessary construction, transportation of nets and structures to Klamath Falls, OR.

April 1<sup>st</sup>, 2019 - May 1<sup>st</sup>, 2019: Onsite construction (if necessary to ensure viability of design), debriefing of features

May 1<sup>st</sup>, 2019 - December 31<sup>st</sup>, 2020: Quality control/quality assurance, troubleshooting immediate problems related to function, performance evaluations criteria described in PRS # 3, 4, 5, and 7.

## 1.6 General Information

1.6.1 Quality Control: The contractor shall develop and maintain an effective quality control program to ensure services are performed in accordance with this PWS. The contractor shall develop and implement procedures to identify, prevent, and ensure non-recurrence of defective services. The contractor's quality control program is the means by which he assures himself that his work complies with the requirement of the contract.

1.6.2 Quality Assurance: The government shall evaluate the contractor's performance under this contract in accordance with the Performance Requirements Summary (PRS) found at Technical Exhibit 1. The PRS lays out the Performance Objectives, and the corresponding standards, performance thresholds and method of surveillance.

1.6.3 Recognized Holidays: The Federal Government observes the following holidays. If work is to be performed on/in a government facility, please note performance cannot occur on those days.

New Year's Day	Labor Day
Martin Luther King Jr.'s Birthday	Columbus Day
President's Day	Veteran's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

1.6.4 Hours of Operation: If work is to be performed on/in a government facility, the contractor is responsible for conducting business, between the hours of 8 a.m. to 5 p.m. Monday thru Friday except Federal holidays or when the Government facility is closed due to local or national emergencies, administrative closings, or similar Government directed facility closings. For other than firm fixed price contracts, the contractor will not be reimbursed when the government facility is closed for the above reasons.

1.6.5 Place of Performance: The work to be performed under this contract will be performed at the contractor facility for design and fabrication of equipment and nets. Construction after transportation, but before deployment will be located the Klamath Falls Fish and Wildlife Office, 1936 California Ave, Klamath Falls, OR, 97601. Deployment of structures and nets will be located in Upper Klamath Lake at the Rattlesnake Point site (42°20'42.00"N, 121°51'31.00"W) or a comparable site selected by the Contracting Officer Representative (COR).

1.6.6 Type of Contract: The government will award a *(Type of contract to be determined by CO and the customer)*.

1.6.7 Security Requirements:

1.6.7.1 Physical Security: The contractor shall be responsible for safeguarding all government equipment, information and property provided for contractor use. At the close of each work period, government facilities, equipment, and materials shall be secured.

1.6.7.2 Key Control: Not applicable

1.6.7.3 Lock Combinations: The Contractor shall establish and implement methods of ensuring that all lock combinations are not revealed to unauthorized persons. The Contractor shall ensure that lock combinations are changed when personnel having access to the combinations no longer have a need to know such combinations. These procedures shall be included in the Contractor's Quality Control Plan.

1.6.8 Special Qualifications: The contractor shall have facilities and contacts sufficiently in place to ensure professional quality of work congruent with the Period of Performance. This timeline should disqualify any bids by contractors that are not already affiliated with the fabrication, construction, and knowledge associated with net pen aquaculture either in freshwater or saltwater.

1.6.9 Post Award Conference/Periodic Progress Meetings: The Contractor agrees to attend any post award conference convened by the Contracting Officer or contract administration office in accordance with Federal Acquisition Regulation Subpart 42.5. The Contracting Officer, Contracting Officers Representative (COR), and other Government personnel, as appropriate,

may meet periodically with the contractor to review the contractor's performance. At these meetings the contracting officer will apprise the contractor of how the government views the contractor's performance and the contractor will apprise the Government of problems, if any, being experienced. Appropriate action shall be taken to resolve outstanding issues. These meetings shall be at no additional cost to the government.

1.6.10 Contracting Officer Representative (COR): The (COR) will be identified by separate letter. The COR monitors all technical aspects of the contract and assists in contract administration. The COR is authorized to perform the following functions: assure that the Contractor performs the technical requirements of the contract; perform inspections necessary in connection with contract performance; maintain written and oral communications with the Contractor concerning technical aspects of the contract; issue written interpretations of technical requirements, including Government drawings, designs, specifications; monitor Contractor's performance and notify both the Contracting Officer and Contractor of any deficiencies; coordinate availability of government furnished property; and provide site entry of Contractor personnel. A letter of designation issued to the COR, a copy of which is sent to the Contractor, states the responsibilities and limitations of the COR, especially with regard to changes in cost or price, estimates or changes in delivery dates. The COR is not authorized to change any of the terms and conditions of the resulting order.

1.6.11 Key Personnel: The following personnel are considered key personnel by the government: Evan Childress, Senior Fish Biologist, and Zach Tiemann, Fish Biologist. The contractor shall provide a contract manager who shall be responsible for the performance of the work. The name of this person and an alternate who shall act for the contractor when the manager is absent shall be designated in writing to the contracting officer. The contract manager or alternate shall have full authority to act for the contractor on all contract matters relating to daily operation of this contract. The contract manager or alternate shall be available between 8 and 4:30, Monday through Friday except Federal holidays or when the government facility is closed for administrative reasons.

1.6.12 Identification of Contractor Employees: All contract personnel attending meetings, answering Government telephones, and working in other situations where their contractor status is not obvious to third parties are required to identify themselves as such to avoid creating an impression in the minds of members of the public that they are Government officials. They must also ensure that all documents or reports produced by contractors are suitably marked as contractor products or that contractor participation is appropriately disclosed.

1.6.13 Contractor Travel : Travel may be necessary to ensure proper onsite construction. At a minimum, the Contractor or their subcontractor is expected to travel to Klamath Falls, Oregon, for on-site construction and deployment of net pens and training of Government employees on their operation. The contractor may be required to travel to off-site training locations and to ship training aids to these locations in support of this PWS. Contractor will be authorized travel expenses consistent with the substantive provisions of the Joint Travel Regulation (JTR) and the limitation of funds specified in this contract. All travel requires Government approval/authorization and notification to the COR.

1.6.14 Data Rights : The Government has unlimited rights to all documents/material produced under this contract. All documents and materials, to include the source codes of any software, produced under this contract shall be Government owned and are the property of the Government with all rights and privileges of ownership/copyright belonging exclusively to the Government. These documents and materials may not be used or sold by the contractor without written permission from the Contracting Officer. All materials supplied to the Government shall be the sole property of the Government and may not be used for any other purpose. This right does not abrogate any other Government rights.

1.6.15 Organizational Conflict of Interest: Contractor and subcontractor personnel performing work under this contract may receive, have access to or participate in the development of proprietary or source selection information (e.g., cost or pricing information, budget information or analyses, specifications or work statements, etc.) or perform evaluation services which may create a current or subsequent Organizational Conflict of Interests (OCI) as defined in FAR Subpart 9.5. The Contractor shall notify the Contracting Officer immediately whenever it becomes aware that such access or participation may result in any actual or potential OCI and shall promptly submit a plan to the Contracting Officer to avoid or mitigate any such OCI. The Contractor's mitigation plan will be determined to be acceptable solely at the discretion of the Contracting Officer and in the event the Contracting Officer unilaterally determines that any such OCI cannot be satisfactorily avoided or mitigated, the Contracting Officer may effect other remedies as he or she deems necessary, including prohibiting the Contractor from participation in subsequent contracted requirements which may be affected by the OCI.

**1.7. Data Management Plan (DMP):** Not applicable.

1.7.1 Annotate if a DMP is being used for data collection, when data is collected for a decision document, when new data is collected in the field, or with continued data collection such as in annual surveys. If a DMP is not relevant for ADHOC or when downloading existing data from the internet so state. NOTE: The Project Lead or technical cognizant has used discretion as to whether or not a DMP is relevant or not relevant and has determined it to be \_\_\_relevant or \_\_\_not relevant . 1.7.2 If the Plan is to be a *deliverable* as a prerequisite to data collection, so state and note as a deliverable in the Deliverable Element (above). OR

1.7.3 If the Plan exists and will be available as *Government Furnished Information*, so state and note as GFI in the GFI Element (below) and attach or reference the Plan.

PART 2  
DEFINITIONS & ACRONYMS

**2. DEFINITIONS AND ACRONYMS:**

**2.1. DEFINITIONS:**

2.1.1. **CONTRACTOR.** A supplier or vendor awarded a contract to provide specific supplies or service to the government. The term used in this contract refers to the prime.

2.1.2. **CONTRACTING OFFICER.** A person with authority to enter into, administer, and or terminate contracts, and make related determinations and findings on behalf of the government. Note: The only individual who can legally bind the government.

2.1.3. **CONTRACTING OFFICER'S REPRESENTATIVE (COR).** An employee of the U.S. Government appointed by the contracting officer to administer the contract. Such appointment shall be in writing and shall state the scope of authority and limitations. This individual has authority to provide technical direction to the Contractor as long as that direction is within the scope of the contract, does not constitute a change, and has no funding implications. This individual does NOT have authority to change the terms and conditions of the contract.

2.1.4. **DEFECTIVE SERVICE.** A service output that does not meet the standard of performance associated with the Performance Work Statement.

2.1.5. **DELIVERABLE.** Anything that can be physically delivered, but may include non-manufactured things such as meeting minutes or reports.

2.1.6. **KEY PERSONNEL.** Contractor personnel that are evaluated in a source selection process and that may be required to be used in the performance of a contract by the Key Personnel listed in the PWS. When key personnel are used as an evaluation factor in best value procurement, an offer can be rejected if it does not have a firm commitment from the persons that are listed in the proposal.

2.1.7. **PHYSICAL SECURITY.** Actions that prevent the loss or damage of Government property.

2.1.8. **QUALITY ASSURANCE.** The government procedures to verify that services being performed by the Contractor are performed according to acceptable standards.

2.1.9. **QUALITY ASSURANCE Surveillance Plan (QASP).** An organized written document specifying the surveillance methodology to be used for surveillance of contractor performance.

2.1.10. **QUALITY CONTROL.** All necessary measures taken by the Contractor to assure that the quality of an end product or service shall meet contract requirements.

2.1.11. **SUBCONTRACTOR.** One that enters into a contract with a prime contractor. The Government does not have privity of contract with the subcontractor.

2.1.12. **WORK DAY.** The number of hours per day the Contractor provides services in accordance with the contract.

2.1.12. **WORK WEEK.** Monday through Friday, unless specified otherwise.

## 2.2. ACRONYMS:

COR	Contracting Officer Representative
COTR	Contracting Officer's Technical Representative
COTS	Commercial-Off-the-Shelf
FAR	Federal Acquisition Regulation
CO	Contracting Officer
OCI	Organizational Conflict of Interest
POC	Point of Contact
PRS	Performance Requirements Summary
PWS	Performance Work Statement
QA	Quality Assurance
QAP	Quality Assurance Program
QASP	Quality Assurance Surveillance Plan
QC	Quality Control
QCP	Quality Control Program
RPT	Rattlesnake Point
TE	Technical Exhibit
USGS	United States Geological Survey

PART 3  
GOVERNMENT FURNISHED PROPERTY, EQUIPMENT, AND SERVICES

**3. GOVERNMENT FURNISHED ITEMS AND SERVICES:**

3.1. Services: N/A

3.2 Facilities: If necessary, the Government will provide access to the Klamath Falls Fish and Wildlife Office locked, fenced gravel parking lot for temporary storage of materials or construction activities. Storage and construction cannot interfere with normal use of the parking lot for vehicles and boats.

3.3 Utilities: The Government will provide electricity for construction activities in the parking lot described above. The Contractor shall instruct employees in utilities conservation practices. The contractor shall be responsible for operating under conditions that preclude the waste of utilities.

3.4 Equipment: The Government will provide two motor boats (approximately 19 ft long) with operators for transportation of materials onsite and tools necessary for construction of materials onsite for up to 10 working days.

3.5 Materials: N/A



PART 4  
CONTRACTOR FURNISHED ITEMS AND SERVICES

**4. CONTRACTOR FURNISHED ITEMS AND RESPONSIBILITIES:**

4.1 General: The Contractor shall furnish all supplies, equipment, facilities and services required to perform work under this contract that are not listed under Section 3 of this PWS.

4.2 Secret Facility Clearance: N/A

4.3. Materials. The Contractor shall furnish materials, supplies, and equipment necessary to meet the requirements under this PWS.

4.4. Equipment. The Contractor shall furnish all equipment required to meet the requirements under this PWS. If the Government boats described above will not be sufficient to complete deployment, the Contractor will supply sufficient watercraft.

PART 5  
SPECIFIC TASKS

**5. Specific Tasks:** Design, fabricate, and ensure proper installation of net pens for deployment in Upper Klamath Lake for rearing of endangered Lost River and Shortnose suckers.

5.1. Basic Services. The contractor shall provide services for the design, fabrication, construction, and deployment of a net pen aquaculture facility in Upper Klamath Lake for the propagation of Lost River and Shortnose suckers. Specific biological considerations for these two species of suckers shall be implemented in net design, including contact with lake bottom while nets are occupied with a minimum surface area of one fish per square foot and a capacity of 12,000 fish. The location of this facility is nonnegotiable and must be able to withstand conditions of the lake, year-round, at the Rattlesnake Point site specified by COR. Most notably, the structure of this facility should be able to withstand constant, high-frequency waves during the spring and fall as well as ice flows in the winter. The net pens do not necessarily need to be able to hold fish over the winter; completely submersible designs are preferred. The design must include buoys and/or beacons as required by state regulations. The fabrication and construction of this facility shall be implemented in working order no later than May 31<sup>st</sup>, 2019.

5.2.1 Design of net pens. A full description of design via blueprint, digital model, or outline shall be submitted along with cost analysis of net pen size with a minimum of four individual net pens. A clear description of the estimated longevity of all structures, nets, and solar/aeration components will be included. The final design will be agreed upon by the COR before fabrication.

5.2.2 Design of net pens – biological considerations. The final net design must conform to biological specifications of the species. A major component of both species' natural diets include benthic macroinvertebrates. The fish held in these pens are not anticipated to be fed, and growth will rely on the natural productivity of the lake. Therefore, it is essential that the bottom of the nets be in contact with the lake benthos. The life history of these species in regards to diet is also the motive by which stocking densities are correlated with the bottom surface area of each net. The target number of fish to be held in this facility is approximately 12,000 fish at density of one fish per square foot.

5.2.3 Design of net pens – site considerations. The site of this facility is at the discretion of the COR and is tentatively set to the Rattlesnake Point (RPT) site. This site, located at 42°20'42.00"N, 121°51'31.00"W in Upper Klamath Lake, has a history of water quality monitoring and has been used as a mesocosm site by the USGS. The positive growth and acceptable mortality of juvenile suckers combined with the history of water quality data were taken into consideration when choosing the site for larger scale net pen aquaculture. Several site considerations must be taken into account by the contractor at RPT including the potential for high-frequency waves with swells of up to four feet, silty/muddy substrate, variable and shallow depth that ranges between 1-4 meters, and large ice flows during winter months. The substrate at RPT consists of silt/mud and poses a complication to the structure of the facility that must be addressed with either strategies to account for entrapment and sinking into the substrate, or is designed to nullify the effects of the substrate. If a solution to shallow water depths onsite is to move the facility to a deeper site, the structures must be able to be deconstructed and transportable by design. It is essential that the contractor implement a design that accounts for the site conditions.

5.2.4 Design of net pens – biofouling considerations. Significant biofouling will be encountered on both net pen fabric and structures. The design of net pens supporting structures and choice of material for nets must account for the significant weight posed by biofouling during summer months. In addition, nets for individual net pens should be relatively easy to remove for semi-annual cleaning and maintenance.

5.2.5 Design of net pens – accessibility. All nets will be accessible via a walking platform specified in 5.3.2. This purpose of this platform will be access to fish for intermittent sampling and release, and for removal of nets for cleaning and/or maintenance.

5.2.6 Design of net pens – electricity and power. Dissolved oxygen concentrations at RPT can be very low during summer months and aeration of nets must be incorporated into the structural design. While it is not expected to significantly impact the dissolved oxygen concentration of the entire net volume, all aeration components should at least provide a refugial source of oxygen that incorporates the entire water column of the net. In addition to generators, piping/tubing, and method of aeration delivery, the design of the facility shall incorporate a power source with adequate amperage to supply the aeration components. Solar power with battery back-up for night time operation is preferred. All aeration and power components will be easily deconstructed for transport to offsite storage during winter months.

5.2.7 Design of net pens – predator control. All nets will be equipped with adequate protection for fish from avian and aquatic predators such as grebes, pelicans, terns, seagulls, cormorants, otters, osprey, eagles, and adult perch as well as other aquatic animals that may damage infrastructure, or nets, such as muskrats.

5.3.1 Fabrication of net pens - materials. The choice of structural materials is at the discretion of the contractor as it relates to withstanding site conditions as listed in 5.2.3 and biofouling conditions as listed in 5.2.4 while maintaining long term function. Nets will be resistant to tearing and biofouling with a maximum netting material size of 6 millimeters.

5.3.2 Fabrication of net pens - platforms. A platform will be included that runs the entire length of one side of each net pen (if rectangular), or along the perimeter of one quarter of the net pen (if circular). In addition to these access platforms, a working platform will be included that is at least 7.5 feet by 12 feet and able to withstand 3,500lbs. A separate platform will be designated for housing aeration materials and a solar power source. Platforms will either be submersible by design, or have a demonstrated ability to withstand large winter ice flows. If neither of these conditions can be met, the platforms must be removable with small watercraft and a 14 x 8 ft trailer.

5.3.3 Fabrication of net pens - Aeration and electricity components. The choice in aeration method is at the discretion of the contractor within the guidelines of being an approved method of aeration for freshwater net pens according to industry standards. This includes diffusers, cone aerators, and/or fountains with capacities equal to, or greater than, the volume of the net pen and meet the specifications in 5.3.6.

5.4.1 Facility deployment - transportation of materials. The contractor shall be responsible for transportation of all materials to Klamath Falls Fish and Wildlife Office located at 1936 California Ave., Klamath Falls, OR 9760. The contractor shall also provide any specialized watercraft needed to transport structures to the RPT site. Specialized watercraft include barges and boats equipped with cranes, davit arms, or modified for heavy loads.

5.4.2 Facility deployment – onsite construction. Any necessary onsite construction required for full functionality of the facility is the responsibility of the contractor. Government personnel will be made available to help with onsite construction at the joint discretion of the Contractor and COR, but quality control of any construction will be obligated to the contractor. The contractor is obligated to ensure fully functional deployment of the facility within the timeline described in the Period of Performance.

PART 6  
APPLICABLE PUBLICATIONS

**6. APPLICABLE PUBLICATIONS**

6.1. The Contractor must abide by all applicable regulations, publications, manuals, and local policies and procedures such as the Occupational Safety and Health Act and the Oregon Safe Employment Act.

PART 7  
ATTACHMENT/TECHNICAL EXHIBIT LISTING

7. **Attachment/Technical Exhibit List:**

7.1. Attachment 1/Technical Exhibit 1 – Performance Requirements Summary

## TECHNICAL EXHIBIT 1

### Performance Requirements Summary

The contractor service requirements are summarized into performance objectives that relate directly to mission essential items. The performance threshold briefly describes the minimum acceptable levels of service required for each requirement. These thresholds are critical to mission success.

<b>Performance Objective</b> (The Service required—usually a shall statement)	<b>Standard</b>	<b>Performance Threshold</b> (This is the maximum error rate. It could possibly be “Zero deviation from standard”)	<b>Method of Surveillance</b>
<b>PRS # 1.</b> A written summary of net and structural design that describes how the design will withstand site conditions before fabrication of structures and nets. An estimate of longevity of structures, components, and nets will be included. (paragraph 5.2.1).	The contractor provided a written summary of net and structural design that fully explained how the design performs against high frequency waves, silty/muddy substrate, and ice flows while in shallow water depths. The contractor also clearly states the longevity of all structures, nets, and components.	Zero deviation from standard	100% inspection
<b>PRS # 2</b> All nets and structures will be designed and fabricated using biological considerations of the species (paragraph 5.2.2).	Net designs must be in contact with lake benthos and stocking density of each net is calculated by surface area of the bottom of the net rather than volume.	Surface area of the net may be increased using structure if approved by the COR	100% inspection
<b>PRS # 3</b> All structures and nets must be able to withstand site conditions without sustaining damage beyond normal wear and tear. (paragraph 5.2.3 and 5.2.4).	Nets and structures will be submersible, able to withstand high frequency waves, deployable in shallow depths (minimum 1 meter). If nets and structures are not submersible at the depth specified, nets and structures will be designed with deconstruction and transportation strategies that are sustainable each year. All structures and nets will be designed with the consideration for additional weight due to biofouling.	Structural failure may be encountered in the first over-winter period of deployment, but must be accounted for and have a strategy developed and enforced prior to the next year’s deployment.	Periodic surveillance – Quarterly inspection for two years, or until structures conform with the standard listed in PRS # 3
<b>PRS # 4</b> All nets will be accessible via an adjacent platform for sampling of fish, removal of nets for maintenance, and release of fish (paragraph 5.2.5 and 5.3.2).	Nets are accessible for non-lethal sampling of fish, removal of nets for maintenance, and release of fish. Protocols are developed for the removal of nets and release of fish directly into the lake from the net pen.	Zero deviation from standard	Periodic surveillance for one year – monthly sampling for accessibility to fish, semi-annual removal of nets

<p><b>PRS # 5</b> All net pens will have an approved method of aeration that incorporates the entire water column and equipped with a solar power source that is capable of powering any pumps, or engines, needed to accomplish the aeration goals (paragraph 5.2.6, 5.3.2, 5.3.3)</p>	<p>Aeration components will be designed to supply oxygenated water for the entire volume of each net pen. Each net pen will be equipped with its own aeration source. A solar or other adequate power source not requiring more than weekly maintenance will be incorporated into the design that is capable of powering all aeration components needed for the entire facility. All aeration and power components must be easily deconstructed and transportable as needed for over-wintering. Additional platform structures capable of supporting and housing aeration and power components will be incorporated into the design.</p>	<p>Alternative power sources may be deployed if deemed acceptable by the COR. No deviation from the standard will be considered for aeration components.</p>	<p>Periodic surveillance for two years – monthly confirmation of working components.</p>
<p><b>PRS # 6</b> In addition to platforms designated for access to net pens and to house aeration and power components, an additional working platform will be included (paragraph 5.3.2)</p>	<p>A working platform at least 7.5 feet wide, 12 feet in length, and able to support approximately 3,500lbs will be included. Considerations will be made for larger platforms if the weight capacity is not supported by the minimum dimensions.</p>	<p>No deviation from the standard</p>	<p>100% inspection</p>
<p><b>PRS # 7</b> All nets will incorporate protection from predator and nuisance species (paragraph 5.3.7)</p>	<p>Implementation of netting and/or barriers to prevent predation of cultured species and damage to net pens that results in their malfunction.</p>	<p>Species that drift into nets as larvae are allowable.</p>	<p>Periodic surveillance for two years – monthly sampling of fish and semi-annual inspection of nets</p>
<p><b>PRS # 8</b> All transportation and onsite construction will be the responsibility of the contractor (paragraph 5.4.1, 5.4.2)</p>	<p>Delivery of materials to the deployment and onsite construction of nets and platforms by May 31<sup>st</sup>, 2019. Specialized transportation equipment will be provided by the contractor. A walkthrough of features related to functionality will be included.</p>	<p>Delivery of undamaged materials and deployment according to the dates listed in the Period of Performance (paragraph 1.5)</p>	<p>100 % inspection</p>