**TRANSPORTATION POOLED FUND PROGRAM**

**QUARTERLY PROGRESS REPORT**

Lead Agency (FHWA or State DOT): Washington State Department of Transportation

**INSTRUCTIONS:**

*Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.*

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| **Transportation Pooled Fund Program Project #**  *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)*  *TPF-5(323)* | | **Transportation Pooled Fund Program - Report Period:**  □XXQuarter 1 (January 1 – March 31)  □Quarter 2 (April 1 – June 30)  □Quarter 3 (July 1 – September 30)  □Quarter 4 (October 1 – December 31) | |
| **Project Title:**  Underwater Noise Attenuation Experimental Methods | | | |
| **Name of Project Manager(s):**  **Jon Peterson** | **Phone Number:**  **(360) 705-7499** | | **E-Mail**  **peterjn@wsdot.wa.gov** |
| **Lead Agency Project ID:** | **Other Project ID (i.e., contract #):** | | **Project Start Date:**  October 9, 2013 |
| **Original Project End Date:**  **December 2017** | **Current Project End Date:**  **December 2018** | | **Number of Extensions:** |

Project schedule status:

xx□ On schedule □ On revised schedule □ Ahead of schedule □ Behind schedule

Overall Project Statistics:

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| **Total Project Budget** | **Total Cost to Date for Project** | **Percentage of Work**  **Completed to Date** |
| $225,000 | 0 | 0 |

***Quarterly*** Project Statistics:

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| **Total Project Expenses**  **and Percentage This Quarter** | **Total Amount of Funds**  **Expended This Quarter** | **Total Percentage of**  **Time Used to Date** |
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| **Project Description**:  Washington State Department of Transportation (WSDOT) regularly installs and replaces steel piles when maintaining and constructing ferry terminals and bridges. In 2002 while driving steel piles at a ferry terminal, pile perch were killed by the impact pile driving activities. Since then, NOAA Fisheries and US Fish and Wildlife Service (the Services) established thresholds for harm and harassment and developed minimization measures for pile driving projects designed to protect Endangered Species Act listed species from pile driving activities. Minimization measures include requiring the use of a bubble curtain sound attenuation device, limiting numbers of piles installed per day, requiring monitoring of the zones of harm and harassment and stopping pile driving if any listed birds or marine mammals enter the zones. All of these measures can increase the time it takes to construct a project.  In 2004 WSDOT began conducting research on methods to reduce the effects of impact pile driving. Initial research focused on sound attenuation devices and a double walled, pile surrounding sleeve was tested. Underwater noise measurements for the purpose of evaluating the noise reduction performance of two new pile designs from the University of Washington were conducted on October 29-30, 2014 in Commencement Bay in cooperation with the Washington State Department of Transportation and Port of Tacoma. |

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| **Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**  The final report has been completed titled “Anthropogenic Sound and Fishes” by Popper, Hawkins and Halvorsen. The  report will be placed on the pooled fund website shortly. |
| **Anticipated work next quarter**:  Pooled fund will be closed out and remaining funds returned to the partner states. |

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| **Significant Results:**  This report considers the potential effects on fishes of the underwater sounds generated by impact pile driving and, where appropriate, other underwater sound sources. Using a comprehensive review of the scientific literature since 2005, the report considers what is now known about underwater sound and the effects of anthropogenic sound on behavior, physiology, and anatomy. The report then evaluates current (2008) guidelines in the light of new data, and proposes the incorporation of newer (2014) guidelines in future regulatory decisions. The report concludes with a discussion of major data gaps that need to be filled to further improve criteria and recommends research programs that will help fill these gaps. |
| **Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that**  **might affect the completion of the project within the time, scope and fiscal constraints set forth in the**  **agreement, along with recommended solutions to those problems).** |

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| **Potential Implementation:** |