

**PROJECT SPECIFIC CATEGORICAL EXCLUSION FOR A WAVE
GLIDER-BASED PASSIVE ACOUSTIC DETECTION SYSTEM,
PACIFIC NORTHWEST NATIONAL LABORATORY, RICHLAND, WASHINGTON**

Proposed Action

Pacific Northwest National Laboratory (PNNL) proposes to conduct a proof-of-principle study to develop a wave glider-based passive acoustic detection system for monitoring whale populations (e.g., presence, distribution, relative abundance). Long-term goals of the project include better understanding whale populations to facilitate environmentally responsible development of offshore energy and improving the capability to monitor the world's oceans.

Location of Action

The proposed action would occur at PNNL facilities in Richland, Washington; at the Marine Science Laboratory (MSL) in Sequim, Washington; and in Sequim Bay, Washington.

Description of the Proposed Action

The project would design and integrate a passive acoustic detection system (PADS) with a wave glider (Liquid Robotics, Inc.) currently in use at MSL. The goal of this work is to advance wave glider-based PADS for collecting data on whale populations, specifically Southern Resident Killer Whales (SRKW). Whale population data (i.e., species presence, distribution, relative abundance) is needed to facilitate project siting and environmental permitting processes for offshore energy development.

The proposed study would be conducted in three phases. In the first phase, PNNL would retrofit the wave glider with a PADS, conduct a one-day initial assessment of swim performance in Sequim Bay, and obtain samples of background noise that would be used to improve detection algorithms. In the second phase, PNNL would develop detection algorithms and conduct laboratory testing of the acoustic system in PNNL's Aquatic Research Laboratory (located in Richland) to quantify detection rates and improve detection filters. In the third phase, following completion of laboratory testing, PNNL would deploy the wave glider in Sequim Bay for three days (within a two week work window) and broadcast pre-recorded SRKW calls from a small research vessel to assess the wave glider's detection capabilities. Sample calls would be broadcast intermittently at or below natural levels of SRKW calls. Calls would be broadcast at levels that would not cause injury to marine mammals that may potentially occur in Sequim Bay. This activity is expected to occur no earlier than May 2012 and no later than August 2012.

Proposed activities must meet the U.S. Department of Energy (DOE) categorical exclusion (CX) eligibility criteria (10 Code of Federal Regulations [CFR] 1021.410) and all of the following criteria:

1. Laboratory activities would be conducted within existing structures that provide appropriate wastewater storage/handling, exhaust ventilation, air filtration, and additional confinement or controls appropriate to the nature of the materials and equipment used in the project.
2. Laboratory and field activities would comply with applicable facility safety and environmental administrative controls and permit requirements.
3. Releases of liquid substances to the environment would be minimized and remain compliant with applicable facility, local, state, and federal regulations; DOE Orders; and PNNL guidelines.

The proposed laboratory and aquatic research activities would include reasonably foreseeable actions necessary to implement the proposed action, such as safety support; boat operation; material transport; project closeout; maintenance, development, and demonstration of processes, instruments, and detectors; consulting and planning

with sponsors and collaborators; and maintenance, calibration, transport, and use of analytical and research equipment.

Biological and Cultural Resources

All laboratory activities related to this project would be conducted inside existing facilities, without modifications. Therefore, there are no anticipated impacts to sensitive cultural resources.

Project work in Sequim Bay would be temporary and intermittent. PNNL chose Sequim Bay as the study site for this project because it is not designated as critical habitat for any state or federally protected species, is not a whale or marine mammal mating or calving/pupping area, and does not provide habitat or prey for Endangered Species Act (ESA)-listed marine mammals (e.g., killer whale, Stellar sea lion) or anadromous fish (e.g., Puget Sound Chinook salmon, Hood Canal summer-run chum salmon, Puget Sound steelhead trout). In addition, Sequim Bay is outside the boundaries of the Protection Island Aquatic Reserve and project work would not result in any indirect or direct impacts to organisms using the reserve.

PNNL is coordinating with National Oceanic and Atmospheric Administration Fisheries (formerly National Marine Fisheries Service) and the Washington Department of Natural Resources to assure the project does not result in significant impacts to the following:

- Federally listed threatened or endangered species or their habitat (including critical habitat)
- Federally proposed or candidate species or their habitat (ESA)
- Federally protected marine mammals and Essential Fish Habitat (Marine Mammal Protection Act; Magnuson-Stevens Fishery Conservation and Management Act)
- state-listed or state-proposed endangered or threatened species or their habitat
- other Federally protected species.

Categorical Exclusion to Be Applied

Because the proposed action is to conduct research activities in the aquatic environment and to conduct research within existing laboratories, the following CXs, as listed in the DOE National Environmental Policy Act (NEPA) implementing procedures 10 CFR 1021, would apply:

- B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.
- B3.16 Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to:
- (a) Acquisition of rights-of-way, easements, and temporary use permits;

- (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices;
- (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and
- (d) Surveying and mapping.

These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary, or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.

Eligibility Criteria

The proposed activity meets the eligibility criteria of 10 CFR 1021.410(b) because the proposed action does not have any extraordinary circumstances that might affect the significance of the environmental effects, is not connected to other actions with potentially significant impacts [40 CFR 1508.25(a)(1)], is not related to other actions with individually insignificant but cumulatively significant impacts [40 CFR 1508.27(b)(7)], and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during environmental impact statement (EIS) preparation.

The “Integral Elements” of 10 CFR 1021 are satisfied as discussed in Table 1.

Table 1. Integral Elements, 10 CFR 1021, Subpart D, Appendix B (1)-(5)

Would The Proposed Action:	Evaluation:
Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health?	The proposed action would not threaten a violation of regulations or DOE or executive orders.
Require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities?	No waste management facilities would be constructed under this CX. Any generated waste would be managed in accordance with applicable regulations in existing facilities. Waste disposal pathways would be identified prior to generating waste and waste generation would be minimized.

Disturb hazardous substances, pollutants, or contaminants that preexist in the environment such that there would be uncontrolled or unpermitted releases?	No preexisting hazardous substances, pollutants, or contaminants would be disturbed in a manner that results in uncontrolled or unpermitted releases.
<p>Have the potential to cause significant impacts on environmentally sensitive resources., including, but not limited, to:</p> <ul style="list-style-type: none"> • protected historic/archaeological resources • protected biological resources and habitat • jurisdictional wetlands, 100-year floodplains • Federally or state-designated parks and wildlife refuges, wilderness areas, wild and scenic rivers, national monuments, marine sanctuaries, national natural landmarks, and scenic areas. 	<p>No environmentally sensitive resources would be adversely affected. Refer to the Biological and Cultural Resources section for details.</p> <p>The proposed action would not adversely affect floodplains, wetlands regulated under the Clean Water Act, national monuments or other specially designated areas, prime agricultural lands, or special sources of water.</p>
Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species?	The proposed action would not involve the use of genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements.

Checklist Summarizing Environmental Impacts

The following checklist summarizes environmental impacts that were considered when preparing this CX determination. Affirmative answers to relevant questions are explained in detail in checklist footnotes.

Would The Proposed Action:	Yes	No
1 Result in more than minimal air impacts?		X
2 Increase offsite radiation dose measurably?		X
3 Require a radiological work permit?		X
4 Cause more than a minor or temporary increase in noise level?		X
5 Discharge any liquids to the environment?	X ^(a)	
6 Require a spill prevention control and countermeasures plan?		X
7 Require an excavation permit (e.g., for test pits, wells, utility installation)?		X
8 Disturb an undeveloped area?		X
9 Use carcinogens, hazardous, or toxic chemicals/materials?		X
10 Involve hazardous, radioactive, polychlorinated biphenyl, or asbestos waste?		X
11 Require environmental permits?		X

(a) Small amounts of liquid waste could be generated during laboratory research activities. Liquid wastes generated by research operations would be discharged into existing treatment systems and/or in accordance with applicable local, state, and federal regulations and permit requirements.

DOE Orders, and PNNL guidelines.

Compliance Action

I have determined that the proposed action satisfies the DOE NEPA eligibility criteria and integral elements, does not pose extraordinary circumstances, and meets the requirements for the CX referenced above. Therefore, using the authority delegated to me by DOE Order 451.1B, Change 2, I have determined that the proposed action may be categorically excluded from further NEPA review and documentation.

Signature:  Date: 1/4/12
Theresa L. Aldridge
PNSO NEPA Compliance Officer

cc: JA Stegen, PNNL