
Appendix C

Derelict Gear Monitoring Plan

ADMIRALTY INLET PILOT TIDAL PROJECT
FERC PROJECT NO. 12690

DERELICT GEAR MONITORING PLAN

(submitted with the Final Application for a New Pilot Project License)

Submitted by:
Public Utility District No. 1 of Snohomish County



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DERELICT GEAR MONITORING PLAN

for the Admiralty Inlet Pilot Tidal Project

1.0 INTRODUCTION

The Derelict Gear Monitoring Plan (DGM Plan) defines Public Utility District No. 1 of Snohomish County's (the District) pilot license obligations with respect to the monitoring for derelict gear that is snared or collected on any structure associated with the Admiralty Inlet Pilot Tidal Project, Project No. 12690 (the Project), and the subsequent removal of such derelict gear. This plan was developed in consultation with the Marine Aquatic Resource Committee (MARC) and Project stakeholders.

The Project involves installation of two 6-meter OpenHydro tidal energy conversion turbines in Admiralty Inlet, as well as placement of transmission cables to shore. The turbines will be installed in the northeastern portion of Admiralty Inlet, approximately 1 km west-southwest of Admiralty Head near latitude 48°09'03.24" N longitude 122°41'15.72" W latitude, in water depth of approximately 58 meters. The center-to-center separation distance between the two turbines will be approximately 70 meters. The 6-meter diameter turbines will extend 10.5 meters above the seabed. Each turbine will have its own transmission cable that will be connected to the grid at the Puget Sound Energy infrastructure on privately owned land east of Admiralty Head.

Any marine structure has the potential to trap or accumulate derelict fishing gear, which can pose a hazard to marine life. Derelict gear in Puget Sound is the subject of a concentrated mapping and removal effort by the Washington Department of Fish and Wildlife (WDFW) and the Northwest Straits Commission, with a total of 2,882 crab pots and 356 nets identified as of mid-2009. As of December 31, 2010, the Northwest Straits Marine Conservation Initiative has removed 2,493 derelict nets. An additional 1,366 nets have been removed through other Northwest Straits Marine Conservation Initiative projects (Northwest Straits Foundation [NWSF] 2011). Because of these efforts, it is expected that the risk of derelict fishing gear snagging on Project works has decreased substantially, and will decrease even more in the future. Figure 1 (source: NWSF 2011) shows the derelict nets removed and nets known to be remaining in Central and South Puget Sound and Hood Canal. There are two nets that remain in Admiralty Inlet.

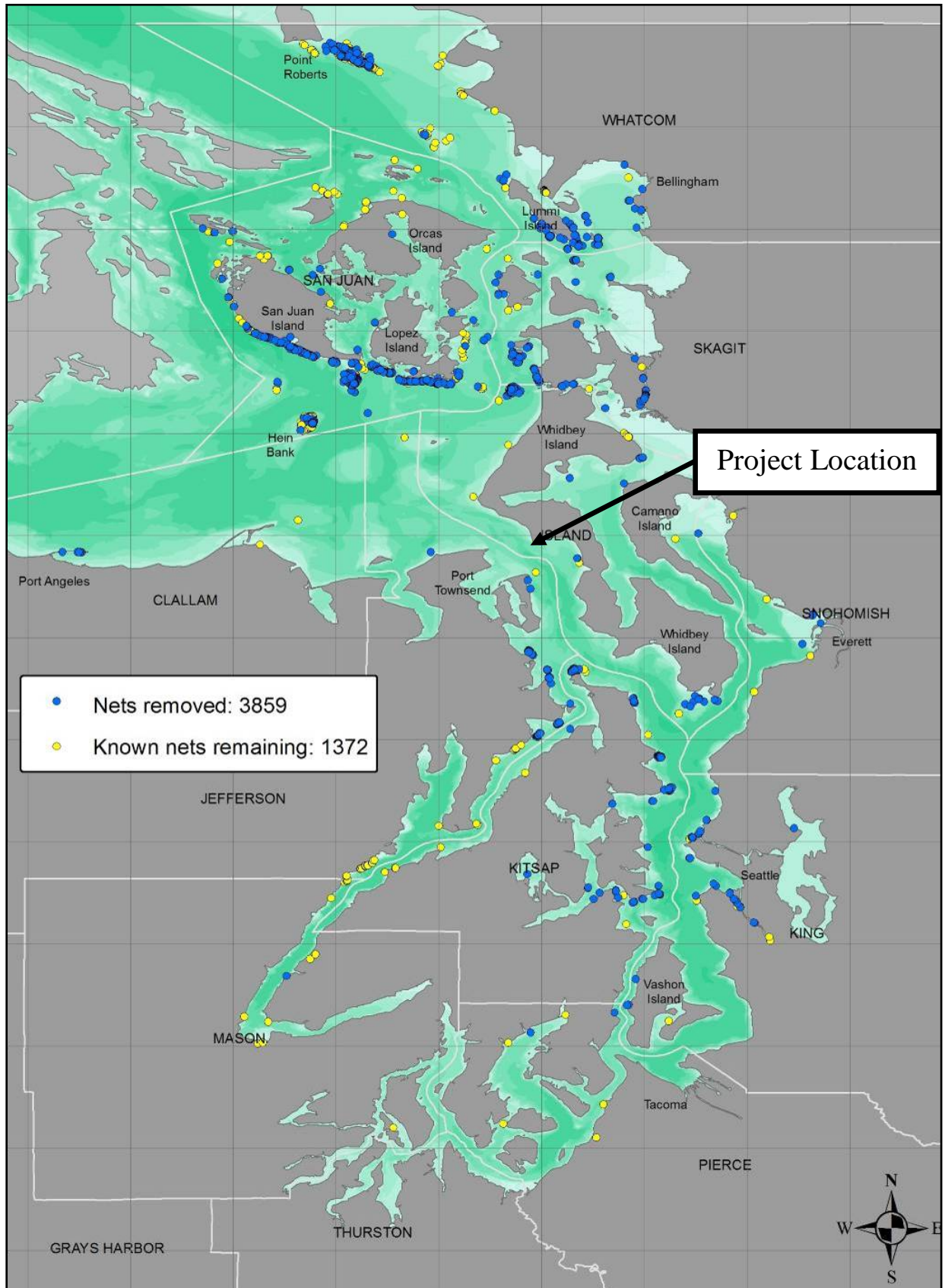


Figure 1. Known and removed derelict fishing gear in Puget Sound as of June 2010.**2.0 PLAN GOAL AND OBJECTIVES**

The DGM Plan Goal is to detect and remove any derelict gear that becomes snared or collected on any Project structure. To accomplish this, the District will (1) examine all Project structures during periodic ROV deployments; (2) remove any derelict gear located on Project structures; and (3) consult with the Admiralty Inlet Marine Aquatic Resources Committee (MARC) to consider modifications to this Plan, if needed, based on the results of derelict gear monitoring and removal efforts.

3.0 METHODS**3.1 Equipment**

The District will use a remote operated vehicle (ROV) for the detection and removal of derelict gear from Project structures.¹ The ROV will be equipped with a video camera for all deployments, and also with a manipulator skid, grabber arm, and rotary disc cutter or other cutting device for gear removal deployments. Successful removal of deep-water fishing gear using ROVs has been demonstrated in Puget Sound (Natural Resource Consultants, Inc. (NRC) 2008). ROVs capable of detection and subsequent removal of derelict gear are available for deployment at the Project site within 48 hours (pers. comm., L. Armbruster, Sound and Sea Technology, July 2010).

In addition to ROV-based detection efforts, the District will rely upon other detection means to assist in the detection of derelict gear. If debris becomes entangled with the turbine, it is anticipated that the performance of the turbine would be reduced; such a reduction would be detected by Project electrical controls. In addition, the District's Near-Field Monitoring effort may also have the capability to detect entanglement.

3.2 Monitoring Frequency and Protocols

The District will monitor for derelict gear during ROV deployments required as part of standard operations and maintenance procedures. During the first year following Project installation, the District will deploy a ROV at a minimum of once every three months. Following the first year, the MARC will review the results of the DGM Plan to determine the degree to which derelict gear gets caught on the Project, if at all, and determine whether changing the frequency of subsequent underwater inspections is appropriate. The District will continue monitoring and removal after the first year, if necessary at a frequency developed with the MARC.

During each ROV deployment, the District will use the ROV to inspect Project structures for accumulation of derelict gear, with findings recorded by video camera. The District will review video data collected during each deployment for evidence of derelict gear. In the event that

¹ Safety considerations preclude the use of divers near Project turbines (pers. comm., N. Murphy, OpenHydro, 2009), and much of the Project is below depths at which diver removal of derelict gear is typically conducted (NRC 2008).

footage during the ROV inspections indicates derelict gear is found on the Project structures, the District will remove the derelict gear as soon as feasible. The District will notify the MARC as to the result of its review of video data within seven days following the deployment.

3.3 Derelict Gear Removal Procedures

If derelict gear is detected on a Project structure, the District will notify appropriate parties as outlined below. Following notification, the District will prepare, in consultation with the MARC, a derelict gear removal plan specifying the gear type detected and its location, the proposed ROV approach path, acceptable tidal conditions, local habitats, proposed disposal method, and other relevant information. In addition, the District will schedule the ROV staging and support vessel as well as commit the necessary personnel for the gear removal. The derelict gear removal plan will be submitted to WDFW and approved by WDFW and the MARC prior to removal work, and will include the District's notification obligations as outlined below.

The gear removal deployment will generally involve vessel anchoring, ROV anchoring, ROV approach and assessment of the derelict gear and any aquatic species trapped, ROV securing of the derelict gear using a manipulator arm and/or cutting tool, and winching up of the ROV, derelict gear, and ROV anchor by the support vessel. Upon removal, the derelict gear will be examined by a marine biologist. Species, size, and number of trapped or entangled marine life observed by video and from observations of gear brought to surface will be recorded and reported to the MARC. Disposal typically consists of removal of lead from nets for recycling, and landfill disposal for all remaining material (pers. comm., G. Ruggerone, NRC, August 2010).

3.4 Notification Protocols

In the event derelict gear is detected on a Project structure, the District will follow this notification approach:

- If there is evidence of entanglement of marine mammals, immediate notification of MARC and WDFW's Derelict Fishing Gear Hotline and activate National Marine Fisheries Service (NMFS) response plan (Attachment 1).
- If there is evidence of entanglement of other marine resources, notify MARC and WDFW's Derelict Fishing Gear Hotline within two business days or as otherwise specified through the Endangered Species Act consultations.
- If derelict gear is entangled, but no species are caught within it, notify MARC and WDFW's Derelict Fishing Gear Hotline within two weeks.
- If an injured, stranded, entangled, or dead marine mammal is observed during the any aspect of work described by this Plan, the District will follow NMFS protocols included in Attachment 1.

All detection notifications will be conducted via email and will include the following information: (1) location, (2) type of gear, (3) presence of aquatic organisms, and (4) the District's proposed removal and disposal process and timeline.

Following the development of a derelict gear removal plan, but prior to its implementation, the District will also conduct the following notifications, as required by WDFW (NWSF 2007):

- Three-day advance notice to the U.S. Coast Guard Notice to Mariners system;
- Three-day advance notice to local WDFW fisheries enforcement office;
- Three-day advance notice to local Tribes;
- Three-day advance notice to U.S. Navy;
- Three-day advance notice to local and county officials.

In addition to these pre-work notifications, the District will notify and confer with the MARC as described below.

4.0 ADAPTIVE MANAGEMENT AND REPORTING

In implementing this Plan, the District will consult with the MARC as appropriate on the technical issues described above and data interpretation associated with the monitoring. Such consultation will include consideration of results from monitoring efforts and subsequent adjustments to monitoring methods. In particular, the District will adopt the following triggers and subsequent actions:

- **Adaptive Management Trigger 1:** If monitoring shows that derelict gear has become ensnared or collected on any Project structure but no species are caught within it, the District will remove the derelict gear as soon as feasible, and notify the MARC within two weeks. The District will then, after consulting with the MARC in accordance with the Adaptive Management Committee Plan, modify the Project and/or monitoring plan if necessary.
- **Adaptive Management Trigger 2:** If monitoring shows non-listed species found entangled or otherwise impinged at the Project, the District will remove the derelict gear as soon as feasible, notify the MARC within two weeks, and provide a report to the MARC giving all available information on the case. The District will then, after consulting with the MARC in accordance with the Adaptive Management Committee Plan, modify the Project and/or monitoring plan if necessary.
- **Adaptive Management Trigger 3:** If monitoring shows marine mammals that are alive, but appearing debilitated, the District will record the sighting as part of their monitoring report as highlighted below in the Reporting Protocol for Injured or Stranded Marine Mammals. The District will then, after consulting with the MARC in accordance with the Adaptive Management Framework, modify the Project and/or monitoring plan if necessary.
- **Adaptive Management Trigger 4:** If monitoring shows live marine mammals observed entangled in fishing gear or marine debris, the District will immediately contact the marine mammal disentanglement network in Washington as highlighted below in the Reporting Protocol for Injured or Stranded Marine Mammals, and to NMFS giving all

available information on the case as highlighted below. The District will also immediately contact the MARC, and after consulting with the MARC in accordance with the Adaptive Management Framework, modify the Project and/or monitoring plan if necessary.

- **Adaptive Management Trigger 5:** If monitoring shows protected species found entangled in derelict gear on a Project structure, the District will notify the MARC within two business days or as otherwise specified in the ESA consultation, remove the derelict gear as soon as feasible, and will provide a report to NMFS giving all available information on the case as highlighted below in the Reporting Protocol for Injured or Stranded Marine Mammals. The District will then, after consulting with the MARC in accordance with the Adaptive Management Framework, modify the Project and/or monitoring plan if necessary.

The District will follow the procedures described in the Adaptive Management Framework when consulting with the MARC on implementation of the Plan. By June 30 of each year, the District will develop and file an annual report to the Commission fully describing its implementation of the Plan during the previous calendar year and a list of the proposed activities during the current calendar year. The MARC will have at least 30 days to review and comment on a draft report prior to the District finalizing and filing the report with FERC. The annual report will provide the following:

- A summary of the monitoring results.
- A summary of the results of any derelict gear removal effort.
- A summary of any issues or concerns identified by members of the MARC during the year regarding implementation of the Plan.
- A list of any changes to the Plan proposed by consensus of the MARC during the year.
- A list of Plan activities planned for the current year.

5.0 REFERENCES

Natural Resource Consultants, Inc. (NRC). 2008. Remote operated vehicle deepwater crab pot removal feasibility study. Seattle, Washington.

Northwest Straits Foundation (NWSF). 2011. Program Accomplishments 2002-Present. [Online] URL: <http://www.derelictgear.org/Progress.aspx>. Accessed February 2011.

Northwest Straits Foundation (NWSF). 2007. Derelict fishing gear priority ranking project. Seattle, Washington.

Live Marine Mammals Observed at Sea

The Platform of Opportunity Program (POP) is administered by the National Marine Mammal Laboratory. If interested in training or to obtain standardized reporting forms for reporting sighting data contact Sally Mizroch at (206) 526-4030.

Live Marine Mammals Observed Swimming but Appearing Debilitated or Injured

Capability to respond to free swimming animals is very limited and relocation is a major issue. In addition, medical treatment facilities for marine mammals in Washington State are limited to pinnipeds. Therefore we recommend that monitors record the sighting as part of the monitoring report. The data should include: (1) species or common name of animal involved; (2) date of observation; (3) location (latitude/longitude in decimal degrees); and (4) description of injuries or unusual behavior observed.

Live Marine Mammals Observed Entangled in Fishing Gear or Marine Debris

The marine mammal disentanglement network in Washington is based at National Marine Fisheries Service (NMFS) Protected Resources Division and may be contacted via the Marine Mammal Stranding Network Program Office at (206) 526-4747 or Brent Norberg at (206) 909-3771 (cell). Contact should be made immediately if an entanglement is observed and, if possible the reporting vessel should remain on scene while contact is made. Report should include the following information: (1) Species or common name of animal involved; (2) location (latitude/longitude in decimal degrees); (3) whether the animal is anchored by the gear or swimming with the gear in tow; (4) a description of the entangling gear (line size, line color, size number and color of floats if attached, presence or absence of pots or webbing; (5) if towing gear give direction of travel and current speed; and (6) local weather conditions (sea state, wind speed and direction). The disentanglement network will determine whether or not a response can be mounted immediately and will advise the reporting vessel on next steps.

Dead Marine Mammals Observed Floating at Sea

Dead, floating marine mammals fall within the definition of "stranded" under the Marine Mammal Protection Act. To report strandings in the Puget Sound region contact the Marine Mammal Stranding Network Office at (206) 526-4747.

Dead Protected Species Found Entangled or Otherwise Impinged at the Project

These should be reported as part of the monitoring report to NMFS giving all available information on the case. The report should include the following information: (1) species or common name of animal involved; (2) location (latitude/longitude in decimal degrees); (3) whether the animal was found on the buoy or anchoring system; and (4) a description of injuries or entanglement observed; if derelict fishing gear or other debris was involved give a description of the gear (line size, line color, size number and color of floats if attached, presence or absence of pots or webbing; photographs if possible. In the event derelict gear is involved the presence of protected species entangled in the gear should be included in the report initiating

gear removal planning and coordination. *Note: If listed species are entangled, injured or killed at the Project the applicant should request re-initiation of consultation.*