



Exxon Valdez Oil Spill Trustee Council

Long-Term Research and Monitoring, Mariculture, Education and Outreach

Annual Project Reporting Form

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**Project Number:** 25120114-O

**Project Title:** Long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound

**Principal Investigator(s):** John R. Moran, Auke Bay Laboratories, National Marine Fisheries Service, and Lauren A. Wild, University of Alaska Southeast Sitka Campus

**Reporting Period:** February 1, 2025 – January 31, 2026

**Submission Date:** March 16, 2026

**Project Website:** <https://gulfwatchalaska.org/>

Please check all the boxes that apply to the current reporting period.

- Project progress is on schedule.**
  - Project progress is delayed.**
  - Budget reallocation request.**
  - Personnel changes.**
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**1. Summary of Work Performed:**

Field work

We completed April and September 2025 Gulf Watch Alaska Long-term Research and Monitoring (GWA-LTRM) humpback whale (*Megaptera novaeangliae*) surveys as planned. As in 2024, the April 2025 survey was under less than ideal conditions. Snow, rain, and wind (peak gust of 83 mph) proved challenging for visual observations. Only one humpback whale was identified (P295) during this survey. Small schools of adult herring (*Clupea pallasii*) were seen but no active spawn was recorded during the survey. In Unakwik Bay we biopsied and identified a sperm whale (*Physeter macrocephalus*); the same individual was seen in 2023. Erin Falcone (Marine Ecology and Telemetry Research) joined us on the April survey to train us on new tablet-based data collection software, as well as work on merging the Prince William Sound and



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Southeast Alaska databases. Fortunately, conditions were more favorable for our primary population monitoring survey in September.

Whale populations within Prince William Sound remained at post-heatwave low abundance during the September 2025 survey. No significant concentrations of whales or their prey were observed. Humpback whales primarily targeted krill and small, mobile schools of juvenile herring; adult herring were not located during this survey. Marine bird foraging flocks, largely targeted juvenile herring, frequently humpback whale would cue in on the activity and consume the school. Killer whales (*Orcinus orca*) were sighted in proximity to Point Countess (AK6s) and Kiniklik Island (AT142, AT145, AT184, and likely AT205). Dall's porpoises (*Phocoenoides dalli*) and harbor porpoises (*Phocoena phocoena*) were infrequently encountered. The Steller sea lion (*Eumetopias jubatus*) haulouts at Glacier Island, The Needle, and Dutch group were photographed and provided to Alaska Department of Fish and Game's sea lion program personnel. A significant highlight was the resighting of a humpback whale freed from shrimp gear near Valdez in July 2024; the individual appeared healthy and free of gear. Two of our killer whale encounters were of particular interest:

“You had a couple of great encounters in PWS, one with AF5 animals we very rarely encounter and another off Kiniklik Island with transients that was super interesting, as it included GOA transients travelling with West Coast Transients. We have seen this before, but of real interest to me is that the transients from B.C. West Coast Transients have never been seen this far up in Alaska even though they have been encountered several hundred times in B.C. ... As the WCT population grows rapidly I suppose we can expect more encounters like this, but at the moment this sighting greatly expands the known range of this population, ...” Graeme Ellis (Fisheries and Oceans Canada, Pacific Biological Station, Nanaimo, BC).

Due to Department of Government Efficiency related personnel reductions, the fall 2025 survey was unable to collaborate with the forage fish team for the annual predator-prey interactions survey.

Overview

We continue to monitor the steep decline of the local humpback whale population in Prince William Sound, Alaska following the 2014-2016 northeast Pacific marine heatwave (PMH).



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Prior to the PMH, humpback whales in Prince William Sound fed primarily on adult herring, especially when herring aggregated in large shoals during the spring, fall, and winter. Following the PMH, juvenile herring and euphausiids have become more common in the diet of whales. We used the unique marking of the flukes to identify and “photographically mark” individual whales. Annual and seasonal population estimates from 2007-2024 were derived using both closed and open mark/recapture models based on recaptures from 2024 (Fig. 1). Recaptures made during 2025 are used to estimate whale abundance in 2024.

*Table 1. Counts of humpback whales, calves, encounter rates, and crude birth rates (CBR; the number of calves per whales) for fall surveys in Prince William Sound, Alaska.*

<b>Year</b>	<b>Whales</b>	<b>Calves</b>	<b>Nautical miles (NM) surveyed</b>	<b>Encounter rate Whale/NM</b>	<b>CBR</b>
2008	71	7	412	0.17	9.9%
2011	62	2	441	0.14	3.2%
2012	81	5	444	0.18	6.2%
2013	113	6	355	0.32	5.3%
2014	181	1	427	0.42	0.6%
2017	12	0	543	0.02	0.0%
2018	17	1	541	0.03	5.9%
2019	35	0	573	0.06	0.0%
2020	14	2	331	0.04	14.3%
2021	23	0	525	0.04	0.0%
2022	19	1	504	0.04	5.3%
2023	34	4	497	0.07	11.8%
2024	38	5	540	0.07	13.2%
2025	29	0	490	0.06	0.0%



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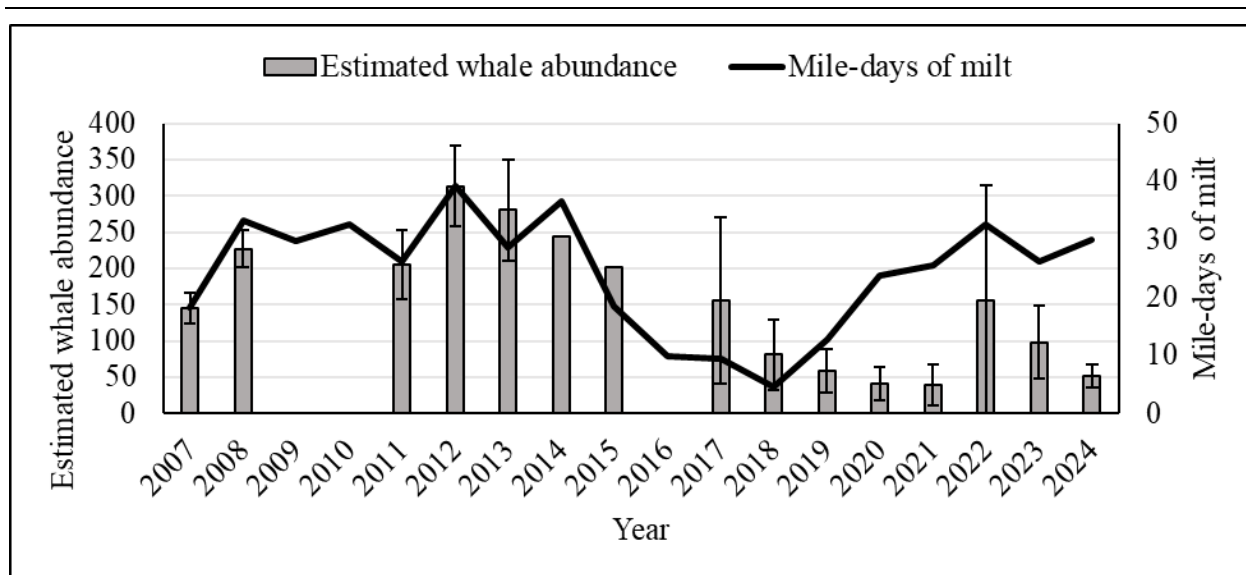


Figure 1. The abundance of humpback whales derived from Chapmanized-Petersen estimates and herring mile-days of milt (an index of spawning population size) from Prince William Sound, Alaska. Note there is no 2016 survey so the observed data in 2015 are used for 2017 and none of the whales captured in 2021 were recaptured in 2022, hence the large error bars.

In 2023, we estimated that 1.4% of the pre-spawning biomass of herring was consumed by whales during the fall and 0.9 % during the spring. This contrasts sharply with the peak annual consumption of 38.1% in 2013. Consumption rates for 2022 and 2023 remained low. Given the higher herring abundance in 2024 and whale counts similar to 2023, we suspect the consumption rates by whales on herring was lower in 2024. Counts of whales were lower in 2025 than in 2024; one whale was seen feeding on adult herring during the spring survey and no whales were seen feeding on adult herring during the fall survey. If the herring biomass has increased or remained constant, humpback whales may not be significantly impacting Prince William Sound herring at this time. The decline in the number of whales in Prince William Sound, either through mortality or emigration, along with a shift towards euphausiids as a prey source, has likely removed some of the predation pressure on herring, potentially aiding the modest recovery of herring seen within Prince William Sound (Fig. 1).

The decline in humpback whales, beginning in 2015, was paralleled by a decline in their primary prey, Pacific herring. Herring recovered to pre-heatwave levels by 2022, while the humpback



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whale population still remains below pre-heatwave levels. The heatwave associated decline and lack of recovery of humpback whales in Prince William Sound demonstrates the susceptibility of this species to oceanographic perturbations resulting in their food source being depleted, and that it will likely be a decade or more post-heatwave before this local population recovers.

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**2. Products:**

Peer-reviewed publications:

Moran, J., J. Straley J., J. Maselko, L. Wild, and R. Suryan. *Accepted*. “The decline of humpback whales in Prince William Sound, Alaska, following the 2014-2016 Northeast Pacific Marine Heatwave. *Marine Mammal Science*.

Reports:

None to report.

Popular articles:

None to report.

Conferences and workshops:

Atkinson, S., J. Moran, S. Teerlink, D. DeMaster, K. Mashburn, V. Melica, and H. Pearson. 2026. From changing oceans to confused physiology: Endocrine adaptations in marine mammal populations. Oral presentation, Society for Integrative and Comparative Biology Annual Meeting, Portland, Oregon, January.

Moran, J., J. Straley, L. Wild, B. Witteveen, J. Maselko, and H. Riley. 2026. Failure to recover: long-term monitoring of humpback whales in Prince William Sound, Alaska Poster presentation, Alaska Marine Science Symposium. Anchorage, Alaska, January.

Public presentations:

Moran, J. 2025. Using seabirds (and other clues) to identify whale prey: How to make an educated guess. Juneau Marine Naturalist training, Juneau, Alaska, May.



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Data and/or information products developed during the reporting period:

None to report.

Data sets and associated metadata:

Moran, J., and J. Straley. 2025. CastAway CTD data: 2017-2019 and 2022-2024 Gulf Watch Alaska pelagic component, long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound. Gulf of Alaska Data Portal: [https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder\\_metadata/41844522](https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder_metadata/41844522).

Straley, J., and J. Moran. 2025. Dall's and harbor porpoise survey data, Prince William Sound, Alaska: 2007-2008, 2011-2015, and 2017-2024, Gulf Watch Alaska pelagic component. Gulf of Alaska Data Portal: [https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder\\_metadata/2514142](https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder_metadata/2514142).

Straley, J., and J. Moran. 2025. Lipid analyses for Pacific herring, invertebrates and humpback whales in the Gulf of Alaska, 2012-2021 and 2022-2024, Gulf Watch Alaska pelagic component. Gulf of Alaska Data Portal: [https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder\\_metadata/2510153](https://gulf-of-alaska.portal.aos.org/#metadata/54adceab-74cb-4419-b02c-bacb6d2acb8b/project/folder_metadata/2510153).

Additional Products not listed above:

2025 also saw the completion of our 5-year National Marine Fisheries Service (NMFS) Marine Mammal Research permit #24378 and submission of new 10-year NMFS Marine Mammal Research Permit (#29418), pending approval by NMFS. This permit, issued to the University of Alaska Southeast (principal investigators (PIs) Straley and Wild) allows us to conduct the marine mammal research for this and other projects, including takes and approaches for photo-ID, tissue sampling, and other activities.

PI Wild submitted the annual reports and the renewal for the Institutional Animal Care and Use Committee (IACUC) protocol to conduct vertebrate research at the University of Alaska Southeast.



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**3. Coordination and Collaboration:**

*The Alaska SeaLife Center or Prince William Sound Science Center*

The humpback whale team collaborates with Prince William Sound Science Center (PWSSC) at a programmatic level because members of the GWA-LTRM program management teamwork for PWSSC and PWSSC is the fiscal agent for the University of Alaska's grant through the National Oceanic and Atmospheric Administration (NOAA).

*EVOSTC Long-Term Research and Monitoring Projects*

The humpback whale project is part of the pelagic component of the GWA-LTRM program. We collaborate regularly with other pelagic projects. In particular, we conduct the integrated predator-prey surveys with the forage fish project (25120114-C, PI Arimitsu). Although this portion of the project was not completed during 2025 due to staffing issues at the U. S. Geological Survey, we continued to analyses of prior years' data. We exchange killer whale and humpback whale sighting data with the former GWA-LTRM killer whale project (24120114-N, PIs Durban and Matkin). We also work closely with Herring Research and Monitoring component projects regarding herring predation by humpback whales, including contributing data to the herring modeling (25120111-C, PI Branch) project for their Bayesian age-structured assessment model.

*EVOSTC Mariculture Projects*

J. Moran has provided logistical support for the Mariculture Recon team.

*EVOSTC Education and Outreach Projects*

Heather Riley (University of Alaska Southeast) gave three school presentations to 2nd, 4th, and 6th grade classes in Virginia, May 2025.

*Individual EVOSTC Projects*

The humpback whale project works with the Data Management program to ensure data collected are properly reviewed, have current metadata, and are posted to the Gulf of Alaska data portal within required timeframes. We will work with other individually funded Exxon Valdez Oil Spill Trustee Council projects if collaborative efforts make sense based on data collected.



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*Trustee or Management Agencies*

In addition to PI Moran being a NOAA employee, the project makes numerous contributions to NOAA reports and databases, including the following:

PI Moran contributed data layers and expertise for the NOAA Aquaculture Opportunity Areas Atlas.

Humpback whale data were contributed to a model of the North Pacific humpback whale abundance, based on public efforts and the North Pacific Humpback Whale Photo-ID collaboration, and being produced for a potential report to the International Whaling Commission.

The project also provides photographs of sea lion haulouts and brands to the Alaska Department of Fish and Game.

*Native and Local Communities*

PI Moran assisted with training for Large Whale Entanglement Response Workshop in Angoon, Alaska.

PI Moran and PI Wild sit on the Sitka Whalefest Science Symposium Committee, inviting speakers and knowledge holders to share their work. This draws a wide audience, including high school and undergraduate students from around Alaska.

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**4. Response to EVOSTC Review, Recommendations and Comments:**

No review, recommendations, or comments were provided in 2025. This project responded to comments in the FY24 annual report.

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**5. Budget:**

Below is the combined budget for the NOAA and UAS portions of the project. UAS spending for FY25 continues to be behind schedule because of the delay in releasing funds in the NOAA grant during FY24.



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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
PROGRAM BUDGET PROPOSAL AND REPORTING FORM

<b>Budget Category:</b>	Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5-YR TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$78,137	\$81,515	\$78,040	\$79,866	\$81,739	\$399,296	\$235,078
Travel	\$15,394	\$14,320	\$14,488	\$18,083	\$14,852	\$77,137	\$37,000
Contractual	\$57,300	\$50,000	\$50,000	\$52,000	\$52,000	\$261,300	\$196,772
Commodities	\$4,000	\$7,000	\$7,000	\$2,300	\$2,300	\$22,600	\$13,977
Equipment & F&A Exempt	\$17,400	\$18,900	\$19,845	\$20,837	\$21,879	\$98,861	\$52,779
Indirect Costs (varies by proposer)	\$15,575	\$14,897	\$13,887	\$14,379	\$13,846	\$72,585	\$43,701
<b>SUBTOTAL</b>	<b>\$187,806</b>	<b>\$186,633</b>	<b>\$183,260</b>	<b>\$187,465</b>	<b>\$186,616</b>	<b>\$931,779</b>	<b>\$579,307</b>
General Administration (9% of subtotal)	\$16,903	\$16,797	\$16,493	\$16,872	\$16,795	\$83,860	N/A
<b>PROJECT TOTAL</b>	<b>\$204,709</b>	<b>\$203,430</b>	<b>\$199,754</b>	<b>\$204,337</b>	<b>\$203,411</b>	<b>\$1,015,639</b>	
Other Resources (In-Kind Funds)	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$700,000	

**COMMENTS:**  
 This is the combined budget for the individual Moran and Straley budgets that follow. Moran is affiliated with NOAA, a Trustee Agency, and Wild is affiliated with the University of Alaska Southeast, a Non-Trustee Agency. The budgets have been combined by using a Non-Trustee Agency budget reporting form. This form contains the summary information only. Detail by year for each PI can be found in the following two worksheets.  
  
 UAS spending for FY25 continues to be behind schedule because of the 7 month delay in the issuance of the NOAA grant during FY24.

<b>FY22-26</b>	<b>Project Number: 25120114-O</b> <b>Project Title: Humpback Whale Monitoring</b> <b>PI(s): Moran (NOAA) &amp; Wild (UAS)</b>	<b>SUMMARY TABLE</b>
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