



Exxon Valdez Oil Spill Trustee Council

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

Annual Project Reporting Form

Project Number: 25120114-D

Project Title: Continuous Plankton Recorder monitoring of plankton populations on the Alaskan shelf

Principal Investigator(s): Clare Ostle, Marine Biological Association, United Kingdom

Sonia Batten, North Pacific Marine Science Organization

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.**
-

1. Summary of Work Performed:

All 2025 activities were completed as planned. The Continuous Plankton Recorder (CPR) was deployed on six transects in 2025, monthly from March through August (Fig. 1). The location of the ship's transect continues to be consistent from month to month (Fig. 1). At the time of writing, provisional plankton data for March to June are available and the samples are undergoing quality control.



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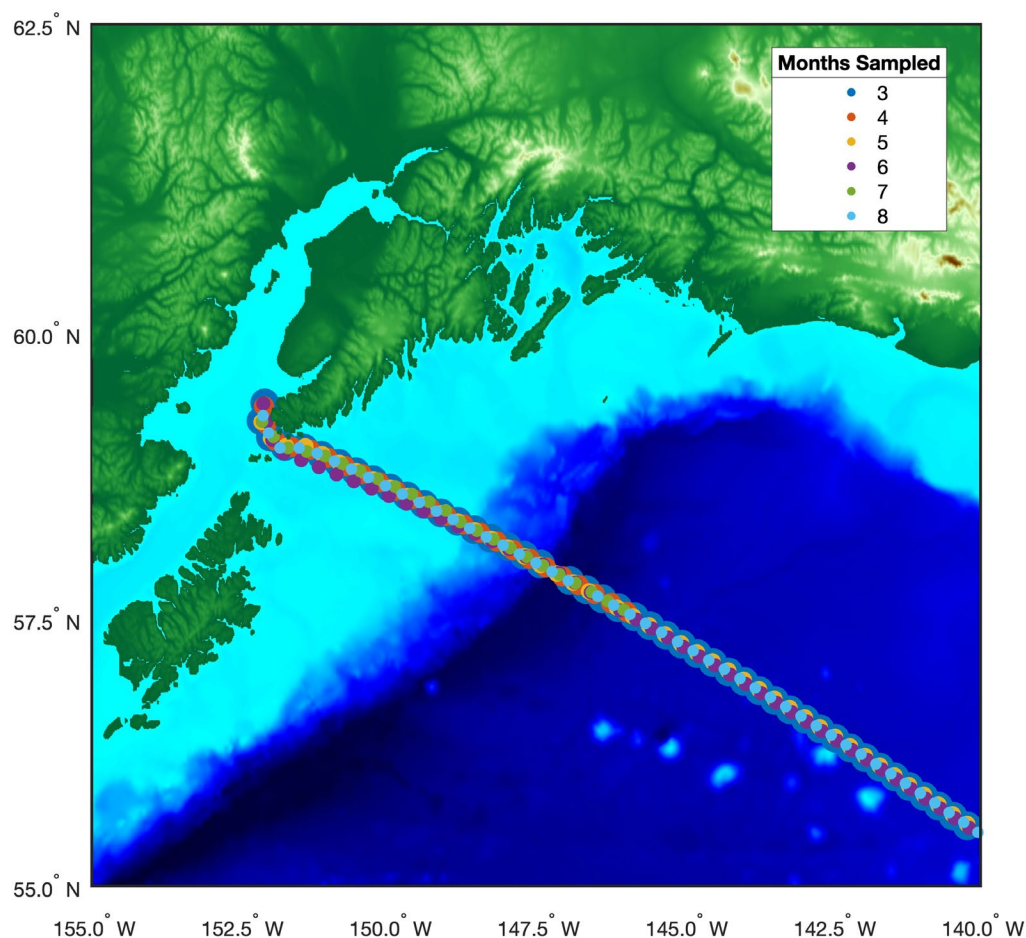


Figure 1. Location of Continuous Plankton Recorder samples collected in 2025 colored by month sampled.

Although only some of the data are available at this time (March-June 2025), preliminary analyses suggest that in the plankton there was a higher proportion of large-round diatoms in the phytoplankton, and high numbers of small copepods compared to previous years (Fig. 2). There were low numbers of pteropods and large copepods and no euphausiids recorded.



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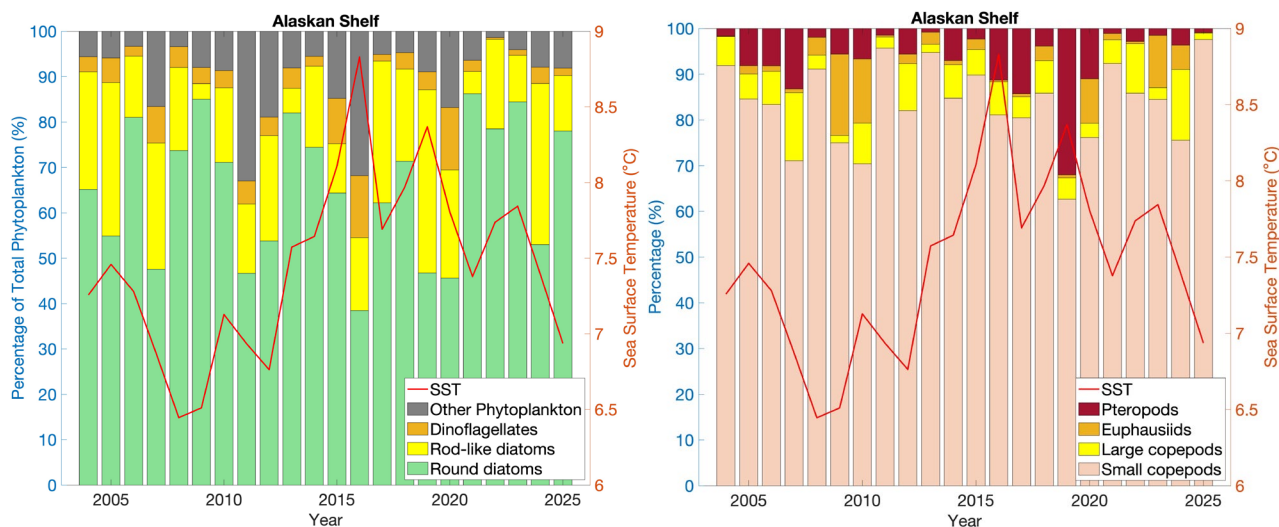


Figure 2. Left panel shows the mean annual percentage of the total phytoplankton (green=round diatoms, yellow=rod-like diatoms, orange=dinoflagellates, grey=all other phytoplankton). Right panel shows the mean annual percentage of the total zooplankton (pink = small copepods, yellow = large copepods, orange = Euphausiids, dark red = Pteropods). 2025 only includes data from March and June and are preliminary. Red line is the annual Sea Surface Temperature within the Alaskan Shelf region from 2004 to 2025, obtained from the International Comprehensive Ocean-Atmosphere Data Set (ICOADS). Please note as of writing this report the ICOADS Sea Surface Temperature dataset (<https://downloads.psl.noaa.gov/Datasets/icoads/1degree/global/std/>) has not been updated beyond July 2025 so this is not a complete year of sea surface temperatures.

The seasonal mean profiles shown in Fig. 3 also confirm that there were high numbers of small copepods as the mean copepod community lengths were below average in May and June 2025 (and outside the previous range), while the number of zooplankton recorded were high in June.

Without the finalized data for the year, it is difficult to draw firm conclusions; however, the preliminary data suggest that conditions favored small copepods in the spring/early-summer months in 2025.



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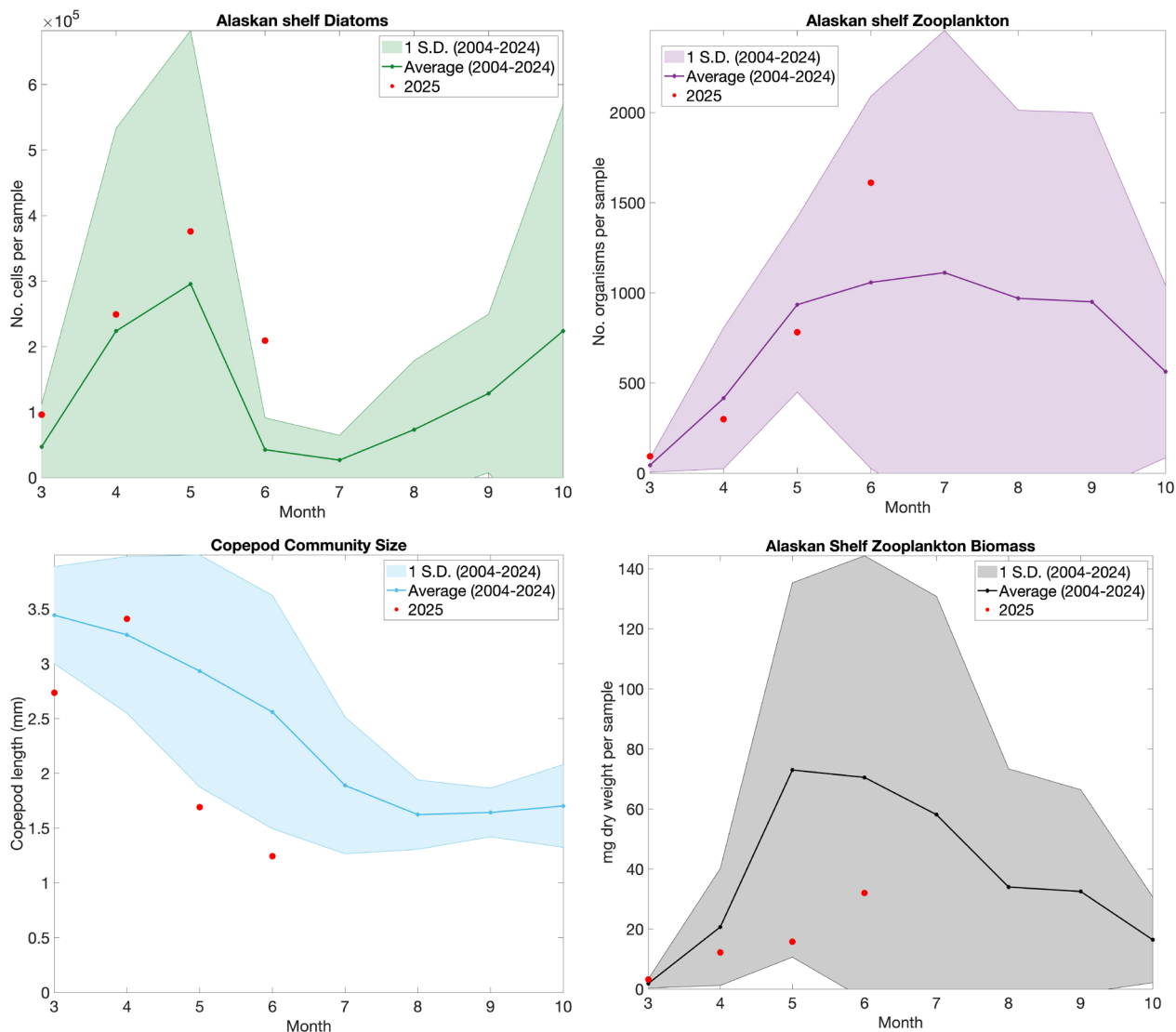


Figure 3. Seasonal mean monthly diatom abundance (green), number of zooplankton (purple), copepod length (blue) and zooplankton biomass (black) from 2004-2024 with red circles showing the 2025 monthly means. Note: 2025 data are preliminary.



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2. Products:

Peer-reviewed publications:

Kléparski, L., C. Ostle, S. D. Batten, N. Djeghri, C. Hauri, R. Pagès, and S. Strom. 2025. How marine heatwaves are reshaping phytoplankton in the Northeast Pacific. *Limnology and Oceanography* 70:2447-2463.

<https://aslopubs.onlinelibrary.wiley.com/doi/10.1002/lno.70137>.

Reports:

MONITOR Committee report for PICES on the North Pacific Continuous Plankton Recorder Survey. 2025. <https://meetings.pices.int/publications/annual-reports/2025/2025-MONITOR.pdf>.

Ostle, C., and S. Batten. 2026. Continuous plankton recorder data from the Northeast Pacific, 2022-2024. In, B. E. Ferriss, editor. *Abbreviated Ecosystem Status Report 2025: Gulf of Alaska, Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska*, North Pacific Fishery Management Council, 1007 West Third, Suite 400, Anchorage, Alaska 99501.

Popular articles:

2 popular online articles were published describing one of the new vessels towing a CPR in the North Pacific:

Lupynis, E. 2025. Small fish, big data: How Drax is helping biodiversity researchers. [Drax](#).

Ostle, C. 2025. Global marine research boosted by M/V Kaying's role in the Continuous Plankton Recorder Survey. [Marine Biological Association](#).

Conferences and workshops:

Ostle, C., S. Batten, L. Kléparski, F. Loro, and A. Sastri. 2025. Update on the North Pacific CPR survey. Oral presentation, North Pacific Marine Science Organization (PICES) Monitor Technical Committee annual meeting, Yokohama, Japan, November.



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Public presentations:

No new contributions for this reporting period.

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

CPR data have been included in the International Group for Marine Ecological Time Series (IGMETS) effort led by the Intergovernmental Oceanographic Commission of UNESCO (IOC), the International Ocean Carbon Coordination Project (IOCCP) and the Ocean Carbon and Biogeochemistry Program (OCB) which seeks to integrate a suite of in situ biogeochemical variables from time-series stations, together with satellite-derived information, to look at holistic changes within different ocean regions. The website <http://igmets.net/> has a Time Series Explorer which allows the user to construct time series of available variables and investigate trends. North Pacific CPR data provide much of the plankton information for the region. The data are also stored in the Ocean Biodiversity Information System (OBIS):

<https://mapper.obis.org/?datasetid=ec1d0387-bca6-43dd-b8d2-22091402dd18>.

Monthly abundances for selected plankton can be generated for user-specified regions sampled by the CPR using this extraction tool:

<https://www.dassh.ac.uk/lifeforms/>

<https://doi.mba.ac.uk/data/3086>

Data sets and associated metadata:

Ostle, C. 2025. Environmental Drivers: Continuous Plankton Recorders. Gulf of Alaska Data Portal: https://workspace.nprb.org/file/45354720/CPR_Plankton_Data_GWA_2024.csv.

Additional Products not listed above:

Pegau S., C. L. Roberts, and C. Ostle. *In prep*. Conditions affecting Pacific herring recruitment in the Gulf of Alaska.



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3. Coordination and Collaboration:

The Alaska SeaLife Center or Prince William Sound Science Center

Funding has been provided to the North Pacific CPR Survey Consortium through the Alaska Sea Life Center (from the North Pacific Research Board) and the Prince William Sound Science Center (PWSSC) for over a decade. We have thus already developed a good working relationship with the administrators in these organizations. We have participated in the PWSSC outreach program by giving talks to elementary and high school students, and at a public lecture as part of the PWSSC science lecture series in Cordova. We have also contributed articles to Delta Sound Connections. Collaborations with PWSSC researchers on juvenile herring have resulted in published papers and we are currently working on an additional collaborative manuscript.

EVOSTC Long-Term Research and Monitoring Projects

Environmental Drivers Component

This project provides a spatial link between the locally more intensive (but less seasonally resolved) sampling of lower trophic levels from the Seward Line and lower Cook Inlet within the Environmental Drivers component. Although there are differences in sampling design in each place, necessitated by the different sampling conditions, there are techniques available to facilitate integration, as mentioned above. The CPR data can also provide information on seasonal timing changes which will help with interpretation. The time series in Prince William Sound offers a chance to compare variability across the wider region and examine the degree to which the outer shelf may influence the Sound. There is thus strong collaboration within the Environmental Drivers group.

Pelagic Monitoring Component

Productivity of the plankton populations directly influences the organisms monitored by the Pelagic Component and will be a necessary contribution to their studies. A recent collaborative paper led by Pelagic Component lead Dr. Mayumi Arimitsu (Arimitsu et al. 2021) describes some of these relationships with forage fish, and we expect such collaboration to continue, particularly as the time-series becomes long term and trends can become validated.

Arimitsu, M., J. Piatt, S. Hatch, R. Suryan, S. Batten, M. A. Bishop, R. Campbell, H. Coletti, D. Cushing, K. Gorman, R. Hopcroft, K. Kuletz, C. Marsteller, C. McKinstry, D. McGowan,



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J. Moran, W. S. Pegau, A. Schaeffer, S. Schoen, J. Straley, and V. von Biela. 2021. Heatwave-induced synchrony within forage fish portfolio disrupts energy flow to top pelagic predators. *Global Change Biology*.
<https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.15556>.

Nearshore Monitoring Component

Nearshore studies are perhaps harder to link directly, but many benthic invertebrates have a planktonic phase. We have already provided a subset of CPR data to other Gulf Watch Alaska principal investigators summarizing the meroplankton to examine the long-term variability in larvae.

Lingering Oil Monitoring Component

As above, the coastal component of lingering oil is harder to link directly, but we do see some connections with planktonic larval stages and are hoping to explore this further.

Herring Research and Monitoring Component

We have actively collaborated with the Herring Research and Monitoring Component, and a publication has been produced. These time series will be updated during this project, and as they lengthen, we expect further insights. We currently have a further collaborative publication with the Herring research and Monitoring group in preparation (see the Products section above).

Synthesis and Modeling Component

Suryan et al. (2021) provides an example of the collaborative efforts of the group with a synthesis report in *Scientific Reports* on the ecosystem response to the marine heat wave in the Gulf of Alaska. Such collaborations will continue and results will become more significant as the time-series involved are continued and long-term trends can be described. The following synthesis paper (Kl parski et al. 2025) includes CPR data, Seward Line data, and model output from Dr. Claudine Hauri's ocean acidification group:

Kl parski, L., C. Ostle, S. D. Batten, N. Djeghri, C. Hauri, R. Pag s, and S. Strom. 2025. How marine heatwaves are reshaping phytoplankton in the Northeast Pacific. *Limnology and Oceanography* 70:2447-2463.

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Suryan, R. M., M. L. Arimitsu, H. A. Coletti, R. R. Hopcroft, M. R. Lindeberg, S. J. Barbeaux, S. D. Batten, W. J. Burt, M. A. Bishop, J. L. Bodkin, R. Brenner, R. W. Campbell, D. A. Cushing, S. L. Danielson, M. W. Dorn, B. Drummond, D. Esler, T. Gelatt, D. H. Hanselman, S. A. Hatch, S. Haught, K. Holderied, K. Iken, D. B. Irons, A. B. Kettle, D. G. Kimmel, B. Konar, K. J. Kuletz, B. J. Laurel, J. M. Maniscalco, C. Matkin, C. A. E. McKinstry, D. H. Monson, J. R. Moran, D. Olsen, W. A. Palsson, W. S. Pegau, J. F. Piatt, L. A. Rogers, N. A. Rojek, A. Schaefer, I. B. Spies, J. M. Straley, S. L. Strom, K. L. Sweeney, M. Szymkowiak, B. P. Weitzman, E. M. Yasumiishi, and S. G. Zador. 2021. Ecosystem response persists after a prolonged marine heatwave. *Scientific Reports* 11:1–17. <https://doi.org/10.1038/s41598-021-83818-5>.

EVOSTC Mariculture Projects

As above, plankton underpin many important food webs, particularly fisheries, and reflect the environmental conditions, it is therefore likely that our plankton time-series will be of significant use to mariculture projects funded by the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC), and we are open to such collaboration and sharing of data.

EVOSTC Education and Outreach Projects

We have a good track record with education and outreach and enjoy getting involved. Sonia Batten has presented at the Cordova elementary and secondary schools and given a public lecture in the community as well as a presentation as part of the PWSSC lecture series. We very much enjoy this aspect of the work and will look to continue to contribute.

Individual EVOSTC Projects

The CPR data from the Gulf of Alaska region are provided to the Data Management project as an annual data product to the data management team. These data are quality controlled and provided in a consistent format for ease of use and dissemination.

As plankton underpin many important food webs and reflect the environmental conditions, we envisage that our data will be of significant use to several of the other projects involved, and we are open to such collaboration.



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Trustee or Management Agencies

CPR data are provided as an annual summary to the National Oceanic and Atmospheric Administration (NOAA) Ecosystem Status Report (CPR contributed since 2016), a synthesis report used by fisheries managers, and the Preview of Ecosystem and Economic Conditions (PEEC) meeting (CPR contributed since 2020) to form individual stock-specific assessments (e.g., walleye pollock, Pacific cod and sablefish in the Gulf of Alaska). These contributions will be continued.

Native and Local Communities

The CPR project continues engaging with local communities as we have during the first 10 years of the GWA-LTRM program. Servicing is provided in Anchorage by Kinnetic Laboratories, the volunteer vessel officers and crew are strong supporters of the project and pleased to be participating, providing local involvement and engagement.

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.

5. Budget:

Cumulative spending through FY25 appears low. This is due to the delay in the release of project funding at the start of the funding cycle, the long delay in NOAA's release of FY24 funds, and because MBA invoices for the project quarterly and the most recent spending is available through November 2025.



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**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
PROJECT BUDGET PROPOSAL AND REPORTING FORM**

Budget Category:		Proposed FY 22	Proposed FY 23	Proposed FY 24	Proposed FY 25	Proposed FY 26	5- YR TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel		\$39,616	\$40,607	\$41,622	\$42,663	\$43,730	\$208,238	\$140,102
Travel		\$1,316	\$1,366	\$1,399	\$1,433	\$1,467	\$6,980	\$4,903
Contractual		\$9,304	\$9,537	\$9,775	\$10,020	\$10,270	\$48,906	\$34,895
Commodities		\$5,837	\$5,985	\$6,134	\$6,287	\$6,445	\$30,688	\$21,026
Equipment		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Indirect Costs	Rate = 40%	\$22,429	\$22,998	\$23,572	\$24,161	\$24,765	\$117,925	\$82,852
SUBTOTAL		\$78,502	\$80,492	\$82,503	\$84,564	\$86,676	\$412,737	\$283,778
General Administration (9% of subtotal)		\$7,065	\$7,244	\$7,425	\$7,611	\$7,801	\$37,146	N/A
PROJECT TOTAL		\$85,567	\$87,736	\$89,928	\$92,175	\$94,477	\$449,884	
Other Resources (In-Kind Funds)		\$128,351	\$131,605	\$134,892	\$138,262	\$141,715	\$674,825	

COMMENTS:
 The North Pacific CPR survey is supported by a Consortium managed by the North Pacific Marine Science Organisation, of which the EVOSTC is a member. Costs included here are estimated at 40% of the full costs of acquiring data along the north-south transect. The remaining in-kind funds will come from the consortium which currently includes the NPRB, Canadian Dept Fisheries and Oceans and the Marine Biological Association.

 Cumulative spending through FY25 appears low. This is due to the delay in the release of project funding at the start of the funding cycle, the long delay in NOAA's release of FY24 funds, and because MBA invoices for the project quarterly and the most recent spending is available through November 2025.

FY22-26	Project Number: 25120114-D Project Title: CPR in the GOA PI(s): Ostle (MBA) & Batten (PICES)	NON-TRUSTEE AGENCY SUMMARY PAGE
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