

Postdoctoral Fellowship in Ocean Dynamics Affecting Open-Ocean Productivity and High-Seas Salmon



University
of Victoria



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A glider deployed near Explorer Seamount by the Canadian-Pacific Robotic Ocean Observing Facility (C-PROOF) team.

Applications are invited for a two-year postdoctoral fellowship (PDF) to study mixed-layer dynamics and coastal-offshore exchange mechanisms in the Northeast Pacific using a diverse collection of ocean observations including ocean glider, Argo float, ship-based, and satellite data.

Background:

International Year of the Salmon (IYS) is a five-year initiative that aspires to establish the conditions necessary to ensure the resilience of salmon and people throughout the Northern Hemisphere. As part of IYS's 2022 Pan-Pacific Winter High Seas Expedition, the IYS is funding a number of postdoctoral positions to create an interdisciplinary team of young scientists examining and integrating the ocean observations generated by 5 IYS cruises as well as other relevant data sources. There are substantial resources available to understand the relevant ocean physics. The IYS cruises will be collecting CTD/Rosette data and deploying specialized Argo floats equipped with oxygen sensors. This project will couple these in situ measurements with satellite ocean colour, altimetry, and sea surface temperature measurements to construct a synoptic picture of the North Pacific Ocean. Argo float data may also be used to understand hydrographic properties on a large scale and in the mixed layer, while Line P observations, collected from both regular research cruises and from autonomous gliders moving along Line P, provide an opportunity to construct a detailed picture of temperature, salinity, oxygen, and chlorophyll in the upper 1000 m of the ocean along the Line P transect. There is potential to collect additional glider observations, *e.g.* along a north-south section through the planned Gulf of Alaska sampling array, from the 2022 expedition.

Project Goals: The project aims to use the diverse set of ocean observations described above to better understand the physical oceanographic processes that have the potential to influence salmon in the Northeast Pacific with a focus on mixed-layer dynamics and coastal-offshore exchange mechanisms. Specific research questions may include (but are not limited to) the following:

- What processes regulate the mixed layer depth and resulting habitat for salmon offshore?
- What processes drive restratification in the spring and what role does that play in the nutrient and oxygen budgets in the upper ocean?
- How does warm, coastal, nutrient-rich water enter and then mix in the Gulf of Alaska, and are the observed stratification and transport processes well represented by Northeast Pacific Ocean models?
- What processes drive mesoscale variability in physical and biogeochemical properties in the offshore region?

Project Team: The fellow will collaborate closely with a working group that includes scientists from the University of Victoria, the University of British Columbia, and the Institute of Ocean Sciences, a scientific facility of Fisheries and Oceans Canada. Further the fellow will join the Canadian-Pacific Robotic Ocean Observing Facility (C-PROOF) team. The project is supervised by Dr. Jody Klymak (University of Victoria), Dr. Tetjana Ross (Institute of Ocean Sciences), Dr. Stephanie Waterman (University of British Columbia), Dr. Roberta Hamme (University of Victoria), and Dr. Amber Holdsworth (Institute of Ocean Sciences).

Position Responsibilities: The postdoc will be responsible for the following tasks within the context of the overall project as described above:

- to work with the project team on processing, analyzing and interpreting existing observational data;
- to participate in the continued collection of in situ observational data in the region;
- to work with the local modelling community on comparing observations and model simulations to better understand the fidelity of the models in capturing mesoscale processes;
- to write high-impact manuscripts for publication in peer-reviewed journals.

Requirements:

- a PhD in physical oceanography
- experience working with observational datasets, as evidenced by the candidate's publication record
- willingness to work collaboratively with a group of scientists with diverse expertise and experiences in oceanography
- capacity to lead projects with collaborators, excellent communication skills, and demonstrated ability to finish projects on time

Additional details:

More information about IYS can be found at yearofthesalmon.org. To learn more about C-PROOF visit cproof.uvic.ca.

The University of Victoria is committed to upholding the values of equity, diversity, and inclusion in our living, learning and work environments. In pursuit of our values, we seek members who will work respectfully and constructively with differences and across levels of power. We actively encourage applications from members of [groups experiencing barriers to equity](#). Read the full equity statement here: www.uvic.ca/equitystatement.

This is a limited term, two-year PDF position paid at a rate of \$55,000 CAD per year plus applicable benefits with an opportunity for renewal given satisfactory performance and funding availability. A research budget is also available. We seek a candidate who has completed a PhD within the last five years (special allowances will be made for career interruptions and personal circumstances) and who shows evidence of strong quantitative skills and an understanding of ocean dynamics.

To apply, please send a cover letter, CV and two research publications to Dr. Jody Klymak by email (jklymak@uvic.ca). Your cover letter should address your motivation to excel in this project, and the skills and experience you can bring to the work, and list at least two academic references. Review of applications will begin on **May 15 2021**. Preferred start date is November 2021.