
GRADUATE STUDENT OPPORTUNITIES

The Conservation and Recovery Research on Oolichan (Eulachon, *Thaleichthys pacificus*) in Haisla Territory Project (CAROOHT)

The Conservation and Recovery Research on Oolichan (Eulachon, *Thaleichthys pacificus*) in Haisla Territory Project (CAROOHT) has been developed to address aspects of the fish and fish habitat offsetting plan related to Oolichan for the LNG Plant Processing Area and *Fisheries Act Authorization (FAA)*.

Research will be conducted over five years in a collaboration between LNG Canada, Ecofish Research, Haisla Nation, DFO Science and Fisheries Management, as well as UNBC, UVic and SFU. The scientists involved will include Adam Lewis, Morgan Hocking and Alejandro Buren from Ecofish Research, Mark Shrimpton, Heather Bryan and Eduardo Martins from UNBC, Caren Helbing, Francis Juanes, and Mary Lesperance from UVic, and Jonathan Moore from SFU.

The Haisla Nation historically harvested Oolichan in the Kitimat and Kildala Rivers. Due to declining stocks in these rivers, every spring, Haisla family groups now travel to the Kemano River for Oolichan fishing. After a long, hard North Coast winter, Oolichan are the first fish returning to spawn in local rivers. The Haisla use Oolichan for almost everything, from food to medicine. Haisla people process Oolichan and make it into a clear grease, producing a quality well known up and down BC's Coast. Haisla people still trade this valuable commodity with neighbouring villages.¹

In the 1990s, there was a sudden decline in the Oolichan stock in the Fraser River, which prompted the development of multiple research projects and forums province wide. Initial studies determined that there are currently three Oolichan populations spawning along the BC coast: the Nass and Skeena River population (designated as threatened in May 2011), the Central Pacific Coast population (designated as endangered in May 2011), and the Fraser River population (designated as endangered in May 2011).² The CAROOHT research program will focus on the endangered Central Pacific Coast population located in the major rivers and estuary habitats entering Douglas Channel and Gardner Canal.

1. <https://haisla.ca/community-2/about-the-haisla/>

2. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/eulachon-3-rivers.html#doc_info

CONTACT

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Fieldwork will involve sampling adult and larval Oolichan in the major rivers and estuary habitats entering Douglas Channel (Kitimat, Dala and Kildala Rivers and Anderson, Moore and Wathl Creeks) and Gardner Canal (Foch, Giltoyees, Kemano, Wahoo, Kowesas River, and Kitlope and Rivers).

The primary goal of the CAROOHT research program is to advance scientific knowledge of Oolichan presence and distribution in the Traditional Territory of Haisla Nation to allow for more informed fisheries management and conservation decisions (e.g., sustainable harvest levels and listing decisions under *Species at Risk Act* (SARA)). To achieve this goal, the following research objectives were identified:

OBJECTIVES:

1. Determine Oolichan presence, distribution and run timing within Kitimat River and other selected rivers entering Douglas Channel and Gardner Canal. For these rivers, map and describe the location and extent of potential and known spawning habitats.
2. Identify and evaluate options to support the recovery and long-term management of Oolichan populations in the identified rivers.
3. Investigate opportunities and methods for Oolichan propagation and husbandry to support recovery of the Kitimat River population.

GRADUATE POSITIONS TO FILL:

- UVic Ph.D. - Developing environmental DNA (eDNA) as a tool for monitoring Oolichan populations in British Columbia
- UVic Ph.D. - Molecular animal health assessments (filled)
- UNBC Ph.D. - Modelling Oolichan population dynamics in marine and riverine environments
- UNBC M.Sc. - Abundance patterns, environmental stressors, and traditional knowledge
- UNBC M.Sc. - Drivers of survival in key life stages
- UNBC M.Sc. - Oolichan husbandry



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UVic Ph.D. OPPORTUNITY

eDNA as a tool for monitoring Oolichan

We would like to report an exciting fully funded Ph.D. opportunity through the University of Victoria (UVic) to develop environmental DNA (eDNA) as a tool for monitoring Oolichan (*Eulachon*, *Thaleichthys pacificus*) populations in British Columbia. The stipend will be \$24,000 per year for four years and will include a field travel budget and all field and research expenses covered. The student will become a key team member in the Conservation and Recovery Research on Oolichan in Haisla Territory Project (CAROOHT). The CAROOHT project will be conducted over five years in a collaboration between LNG Canada, Haisla Nation, Ecofish Research, DFO Science and Fisheries Management, as well as the University of Northern British Columbia (UNBC), Simon Fraser University (SFU), and UVic.

The “eDNA as a tool for monitoring Oolichan” Ph.D. will be based out of UVic and will include fieldwork to collect eDNA samples in remote rivers in Douglas Channel and Gardner Canal working with Haisla Nation and Ecofish Research staff. Some initial Oolichan eDNA data has already been collected, which will be used as a starting point for a quantitative Ph.D. to develop eDNA as a tool for monitoring Oolichan, including assessment of the presence, distribution and run-timing of spawning adults and estimating stock biomass during larval Oolichan outmigration.

This Ph.D. will be supervised by Francis Juanes in Biology at UVic and will be supported by Caren Helbing (Biochemistry and Microbiology at UVic), Mary Lesperance in Mathematics and Statistics at UVic) and Morgan Hocking (Ecofish Research and School of Environmental Studies at UVic).



THE QUALIFICATIONS AND SKILLS WE ARE LOOKING FOR:

If you have the following qualifications and are looking for an exciting and challenging opportunity, we would like to hear from you.

- M.Sc. in Biology or related field an asset
- Applied fisheries focus, fisheries experience an asset
- Quantitative skills required, including statistical modelling using R or equivalent
- Experience with eDNA or other genomic tools an asset, although focus will be on the application of the results rather than lab processing of the data for the Ph.D. program
- Effective analytical and technical writing skills, and ability to produce high quality reports and peer-reviewed articles
- Excellent time management, organizational and multi-tasking skills
- Strong attention to detail with a commitment to quality, excellence, and ethics

APPLY NOW!

Desired start date is September 2021 or January 2022. Interested applicants can send a resume and cover letter that clearly identifies their experience to CAROOHT@ecofishresearch.com.

- Frances Juanes: juanes@uvic.ca
- Caren Helbing: chelbing@uvic.ca
- Morgan Hocking: mhocking@ecofishresearch.com
- Mary Lesperance: mlespera@uvic.ca

