



NOAA
FISHERIES

Alaska Fisheries
Science Center

Little Port Walter Research Station 2024 Year in Review

Core Personnel

Charlie Waters

Station Manager

Heather Fulton-Bennett

Station Biologist

Brad Weinlaeder

Facilities

Andrew Gray

Supervisor

Hannah Ingerson

Logistician

Juliana Cornett

Biological Technician



2024

By the Numbers

56

People

8

Research Projects

6

Vessels in Operation

24

SCUBA Dives Logged



LPW's largest spawning
Chinook in years – 42in, 48lbs!



2024's Chinook spawning team

Personnel

12 AFSC scientists
2 NCCOS scientists
2 AKRO scientists
3 NOAA Hollings Scholars
3 Alaska Sea Grant Fellows
1 UAS aquaculture intern
1 visiting scientist (UAF-CICOES)
2 NOAA Teachers at Sea
3 visiting staff from Alaska Department of Fish and Game (ADFG)
6 visiting staff from the Northern Southeast Regional Aquaculture Association (NSRAA)
1 visiting scientist from the National Weather Service (NWS)
2 visiting scientists from Pacific Hybreed
4 volunteers
6 contractors (4 science, 3 facilities)
5 facilities staff (3 ABL, 2 Seattle)
3 administrative staff (2 ABL, 1 AFSC Seattle)

Vessels

RV Aleutian Wind
LPW 1 ("The Munson")
RV Steelhead
RV Seahorse
"Dive Whaler"
"The Work Barge"

Projects

Development of an ocean-type broodstock of Chinook salmon for Alaska

All hatchery Chinook salmon in Southeast Alaska are stream-type; they spend two years in the hatchery before release into saltwater. LPW and NSRAA aim to develop an ocean-type stock of Chinook (released after one year) to reduce hatchery operating costs. In 2024, experiments were conducted on juvenile Chinook to inform optimal rearing protocols. In addition, gametes from 232 female and 440 male Chinook (~1.7 million fertilized eggs) were collected at LPW to continue this project. This work is led by Andrew Gray and Drs. Charlie Waters (ABL/EMA) and Heather Fulton-Bennett (LPW/EMA) in collaboration with NSRAA.

Oysters for Alaskan mariculture

In partnership with Pacific Hybreed, AFSC researchers led by Dr. Jordan Hollarsmith (AFSC Mariculture lead) and Henry Fleener (AFSC, now USDA) began testing the efficacy of oyster mariculture at LPW by deploying experimental arrays of juvenile oysters in cages to track performance at different cage densities and locations. In 2024, a full cohort of pacific oysters was deployed at LPW with data collected from those oysters informing future crossbreeding designs.

NOAA Teacher in the Field

LPW hosted two alumni teachers through NOAA's Teacher at Sea program to pilot a more land-based experience. Drs. Kate Schafer (Sequoyah School) and Jeff Miller (Estrella Mountain Community College) joined NOAA scientists and NSRAA staff in spawning returning adult Chinook, with plans to integrate their experiences and LPW data into high school and college curriculums.

UAS Applied Aquaculture Internship

As part of UAS' Applied Aquaculture Program, LPW hosted a student for their required work experience internship. This year was a highly successful trial, with the student working on a wide range of projects, and we plan to host two students in summer 2025

Quantifying PFAS compound concentrations across salmon species

PFAS are a class man-made chemical compounds used in a wide range of commercial applications. Levels of PFAS compounds from LPW (relatively pristine) and Auke Creek (relatively urbanized) are being compared across various life stages and tissues to assess which Pacific salmon species and tissues show the highest bioaccumulation potential. This work is led by Drs. Felipe Arzayus, Ed Wirth, and Tony Pait (NCCOS).

Understanding domestication selection in Chinook salmon using whole genome sequencing

This work aims to better understand divergence between hatchery and wild Chinook salmon in Southeast Alaska to inform best management practices. With support from ADFG, this project is led by Dr. Charlie Waters (ABL/EMA) and Dr. Wes Larson (ABL/Genetics) in collaboration with Dr. Matt Hale (TCU) and Natasha Howe (PSMFC).

Genetic basis of run timing in pink salmon

The LRR9 gene is highly associated with run timing across multiple species of salmon in Southeast Alaska, including pink salmon. Additional populations, including LPW pink salmon, are being surveyed to understand the extent of this association and its potential implications for fisheries management. This work is being led by Drs. Wes Larson and Pat Berry (ABL/Genetics) with support from LPW staff.

Publications

- Barfuss et al. 2024. "Using genetic data to determine origin for out-migrating smolt and returning adult steelhead trout (*Oncorhynchus mykiss*) in a Southeast Alaska drainage." *Ecology & Evolution* 14:e70472.
- Howe, N., Waters, C.D., et al. 2024. "Genomic evidence for domestication selection in three hatchery populations of Chinook salmon, *Onchorhynchus tshawytscha*" *Evolutionary Applications* 17:e13656.
- Neidetcher, S., et al. 2024. A novel approach for rapidly determining the reproductive status of walleye Pollock (*Gadus chalcogrammus*) using Raman spectroscopy. *Frontiers in Marine Science* 11: 1455514.

Running Total: 220!

Pacific Salmon Treaty (PST) management of Chinook salmon

The Little Port Walter Chinook salmon research program contributes key data for estimating harvest rates by commercial fisheries in Southeast Alaska and PST management. The 45+ year time series also aims to understand the impacts of climate change on salmon population productivity and ecology. In 2024, 1574 adult Chinook salmon were caught and processed for length, weight, sex, genetic samples, and fin clip status at LPW. 1153 coded wire tags were retrieved and identified for fish age, stock, and inclusion in the coastwide RMIS database of tags recovered in fisheries and escapement. This work is led by Andrew Gray and Drs. Charlie Waters (ABL/EMA) and Heather Fulton-Bennett (LPW/EMA).

Understanding changes in salmonid growth and phenology due to climate change using long term datasets from LPW

This work is led by Dr. Charlie Waters (ABL/EMA) and past NOAA Hollings Scholars Emma Rudy Srebnik (PIFSC) and Julia Kischkat and will aid in understanding how populations in the region will respond to changing environmental conditions.

Development of spectroscopy tools to rapidly assess critical life history and energetic responses of groundfish

Juvenile Walleye Pollock and Pacific Cod are being raised at LPW to provide known age fish under controlled conditions for calibration model development, as well as age and growth research for broader fisheries management. This work is ongoing and led by Drs. Tom Helser and Esther Goldstein (REFM/AGP), with LPW sampling and collections led by Dr. Heather Fulton-Bennett (LPW/EMA).



NOAA Teachers in the Field get ready to travel to LPW via float plane
Photo: Kate Schafer



Oysters are cleaned and measured to look at differences in growth between genetic strains as well as rearing conditions



Dylan Miller (Lynker) takes a fin clip for genetic analysis of pink salmon run timing



NOAA Hollings Scholar Mehana Leafchild ensures proper coded wire tag placement in a juvenile Chinook salmon

All Photos: Heather Fulton-Bennett



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U.S. Secretary of Commerce

Richard W. Spinrad
Under Secretary of Commerce
for Oceans and Atmosphere

Janet Coit
Assistant Administrator
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