



NOAA FISHERIES

Alaska Fisheries
Science Center

Core Personnel

Charlie Waters
Station Manager

Heather Fulton-Bennett
Station Biologist

Brad Weinlaeder
Facilities

Andrew Gray
Supervisor

Little Port Walter Research Station 2022 Year in Review



2022

By the Numbers

49

People

9

Research Projects

1524

Number of Fish Sampled

5

Vessels in Operation



Personnel

12 AFSC scientists (7 ABL, 4 Seattle, 1 Newport)
3 NCCOS scientists (2 Washington DC, 1 Beaufort)
3 NOAA Hollings Scholars
1 NOAA EPP/MSI Scholar
2 Alaska Sea Grant Fellows
3 graduate students (UAF, TCU)
1 undergraduate intern (U Chicago Metcalf Intern)
6 external visiting scientists (ADFG, Florida Int. Tech.)
3 volunteers (UAF)
4 visiting staff from the Northern Southeast Regional Aquaculture Association (NSRAA)
5 contractors (3 science, 2 facilities)
6 facilities staff (3 ABL, 3 NOAA HQ facilities)

Vessels

RV Katmai
LPW 1 ("The Munson")
"The Work Barge"
R/V Steelhead
R/V Sandlance

Research Projects

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 Little Port Walter to provide known age fish under controlled conditions to aid in age and growth research, as well as calibration model development. This work is ongoing and led by Drs. Tom Helser and Esther Goldstein (REFM/AGP), with LPW sampling and collections led by Heather Fulton-Bennett (ABL/LPW).

Pacific Salmon Treaty management of Chinook salmon

Monitoring of adult returns to study marine survival and estimation of harvest rate by commercial fisheries in southeast Alaska. In 2022, 1367 adult Chinook salmon were caught and processed for length, weight, sex, genetic samples, and fin clip status. 760 coded wire tags were retrieved and identified for fish age, stock, and for inclusion in the coastwide RMIS database of tags recovered in fisheries and escapement. This work is part of a 45+ year effort to understand salmon population dynamics, ecology, and enhancement. It is led by Andrew Gray and Dr. Charlie Waters (ABL/EMA).

Testing of herring deterrent methods to avoid unintended spawning events on commercial kelp farms

Led by Drs. Jordan Hollarsmith (AFSC Mariculture Lead), Chris Taylor (NOS), and Kevin Boswell (FIT), this work used acoustic receivers to examine the behavioral impacts of a range of deterrent systems on a pen of wild-caught herring.

Effects of thiamine deficiency on early life stage survival in Alaskan salmon

This work builds off findings of thiamine deficiency in other west coast populations and was started at Little Port Walter in 2020. This work is led by Drs. Charlie Waters (ABL/EMA) and Cody Pinger (ABL/RECA) and may improve our understanding of factors contributing to the current declines of some Alaskan salmon stocks.



Researchers from the Washington DC NCCOS office with LPW staff and contractors.

ABL - Auke Bay Laboratories
AGP - Age & Growth Program
NCCOS - National Centers for Coastal Ocean Science
REFM - Resource Ecology & Fisheries Management

LPW - Little Port Walter Research Station
EMA - Ecosystem Monitoring & Assessment
RECA - Recruitment Energetics & Coastal Assessment
RMIS - Regional Mark Information System

Quantify PFAS compound concentrations in juvenile and adult coho and pink salmon

PFAS are a growing class of man-made chemical compounds used in a wide range of commercial applications. Because of their broad commercial utility, this class of chemicals is now found in all types of environments at a global scale. Levels of PFAS compounds from LPW (relatively pristine) will be compared to samples collected in Auke Creek (relatively urbanized) to understand the transport potential of these man-made chemicals across different environments and assess their bioaccumulation potential in commercial fish stocks. 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 is led by Dr. Charlie Waters (ABL/EMA) and Dr. Wes Larson (ABL/Genetics) in collaboration with Dr. Matt Hale and Natasha Howe (TCU) and with support from ADFG. The study includes samples from LPW, two production hatcheries in Southeast Alaska, and their respective wild populations.

Understanding changes in salmon phenology due to climate change using long term datasets from LPW

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

Facilities Improvements

- Increased wireless connectivity and speed throughout the station, including on docks, in the shop, and at the weir
- Installation of a fume hood for work with hazardous chemicals
- Repaired and relaunched the R/V Sandlance skiff, a valuable addition to the LPW small boats fleet
- Made partial repairs to Chinook salmon fish trap and net pen frames

Develop an ocean-type broodstock of Chinook salmon for Alaska in collaboration with NSRAA

This project was developed as part of the SE Alaska Pacific Salmon Treaty Chinook mitigation strategy. Hatchery Chinook caught in SE Alaska are not counted towards the annual treaty quota of Chinook. Current stream-type Chinook are costly to produce in time, water, and feed because they spend a year in the hatchery before being released into saltwater. If successful, the ocean-type broodstock would drastically reduce operating costs of Chinook salmon enhancement activities in Alaska because of the short time they spend in the hatchery before being released into saltwater. In 2022, 23 female and 60 male Chinook from the unique Keta stock were spawned for development at NSRAA's Hidden Falls Hatchery. This work is ongoing and led by Andrew Gray and Dr. Charlie Waters (ABL/EMA) in collaboration with NSRAA.

Assess of levels of mercury in returning adult Chinook and pink salmon

This work is led by Dr. Brad Blackwell (McMurry University) and may continue in 2023, including opportunities for students and publications.

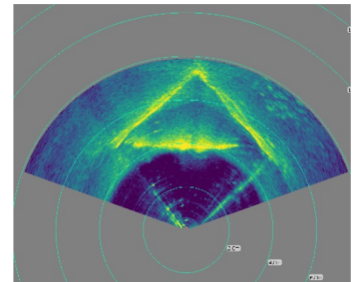
Publications

- Reich, A. 2022. Phenotypic Divergence Between Hatchery Pink and Coho Salmon and Their Wild Counterparts. Master's thesis, University of Alaska Fairbanks, Juneau.
- *In review.* Hollarsmith, J.A., Boswell, K., Taylor, C., et al. Strategies to deter Pacific herring (*Clupea pallasii*) from aquatic farm infrastructure.
- *In prep.* Kischkat J., Waters, C.D., et al. "Quantifying long-term phenological shifts in migration timing and duration for Pacific salmonids from Sashin Creek, Alaska."
- *In prep.* Pinger, C., Waters, C.D., et al. "Understanding the effects of thiamine deficiency on early life stage survival in Alaskan Chinook salmon."
- *In prep.* Howe, N., Waters, C.D., et al. "Genome-wide signatures of domestication selection in Chinook salmon across three hatchery-wild population comparisons."

Running Total: 215!



Graduate student Cassandra Dahl processes an adult Chinook salmon
Photo: Heather Fulton-Bennett



Acoustic data showing herring behavior in response to deterrents
Data: Jordan Hollarsmith



Dr. Charlie Waters removes a Chinook salmon from the Sashin Creek weir. Photo: Heather Fulton-Bennett



The June 2022 research team in front of the main "Whitehouse" building. Photo: Bryan Cormack



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U.S. Secretary of Commerce

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Photo: Heather Fulton-Bennett