

# Proportion of Hatchery Chum in Streams

SE Alaska



# Research Questions

- (1) What is the genetic stock structure of Chum Salmon across SE Alaska?
- (2) What is the extent and annual variability of straying by hatchery-produced Chum Salmon in SE Alaska?
- (3) What is the impact on fitness (productivity) of naturally spawned Chum Salmon in SE Alaska due to straying of hatchery Chum Salmon?



# Introduction



Alaska salmon hatcheries intended to supplement not replace



Expected to interact with wild stocks



Limit presence on spawning grounds



Straying is a fundamental behavior



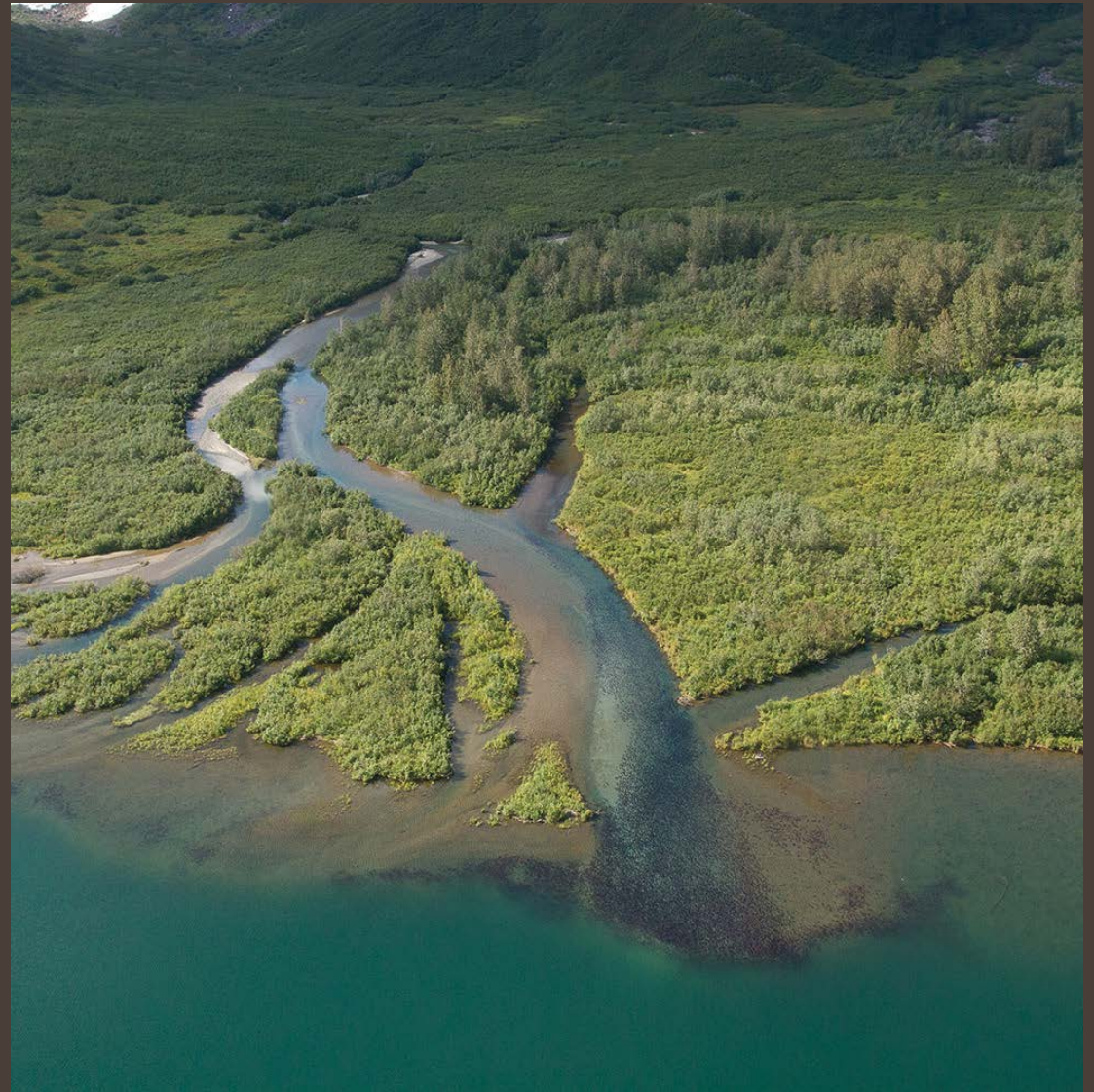
Study designed to measure straying by hatchery-origin Chum

Extent

Annual variability

# Study Area

- More than 1,200 stream/rivers in SE Alaska
- Approximately 450 had historic runs of >1,000 Chum Salmon
- Chum populations are divided into 2 runs
  - Summer (mid-July to mid-August)
  - Fall (September and later)



# Study Area

- Identified 81 summer-run Chum Salmon streams
- Summer-run chum are grouped into 3 management units
- 32 streams were randomly selected
  - Final selection was modified for safety concerns

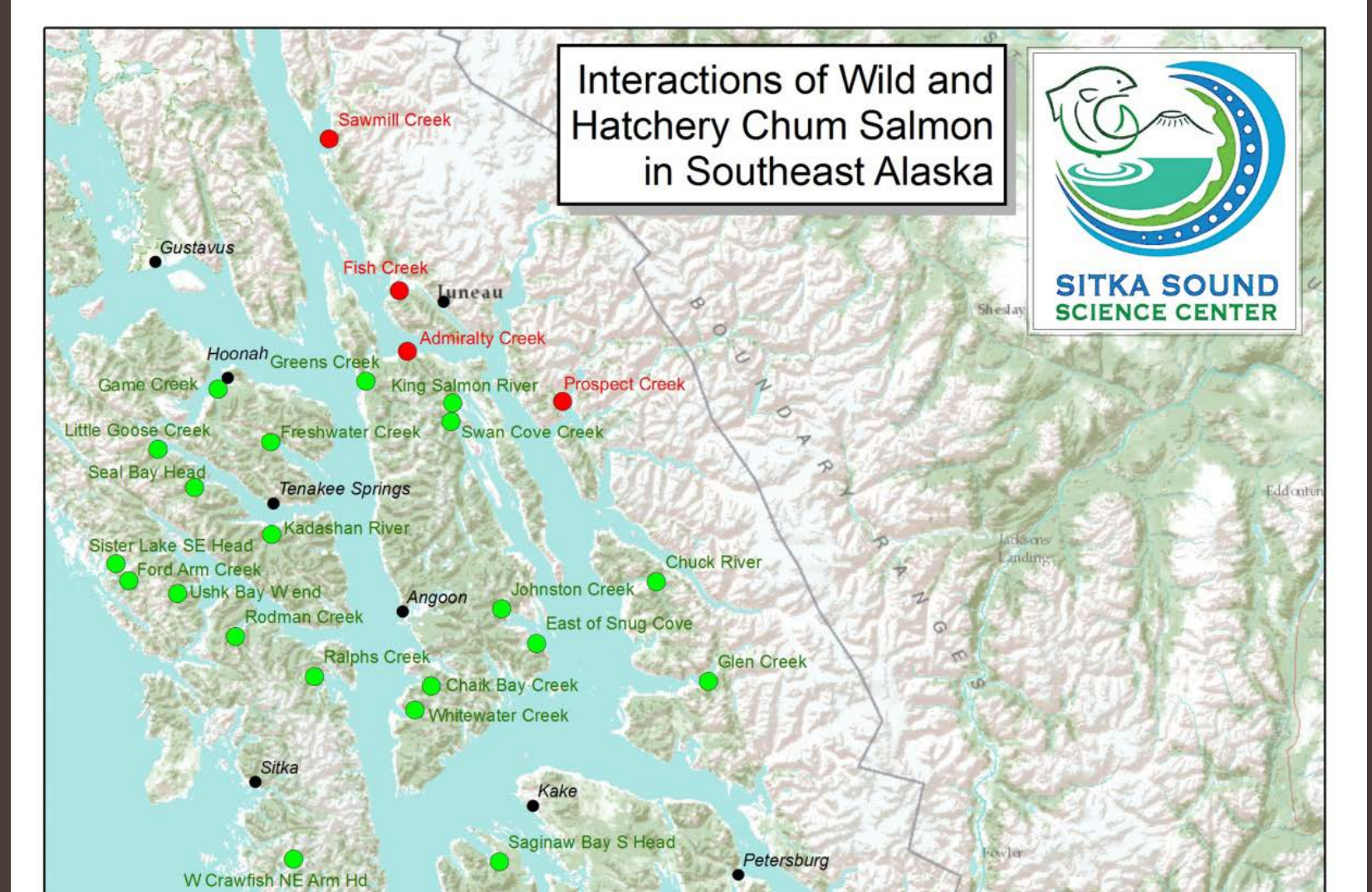


## Overview

Sampling conducted in  
32 streams

2013 – 2015

Collected otoliths

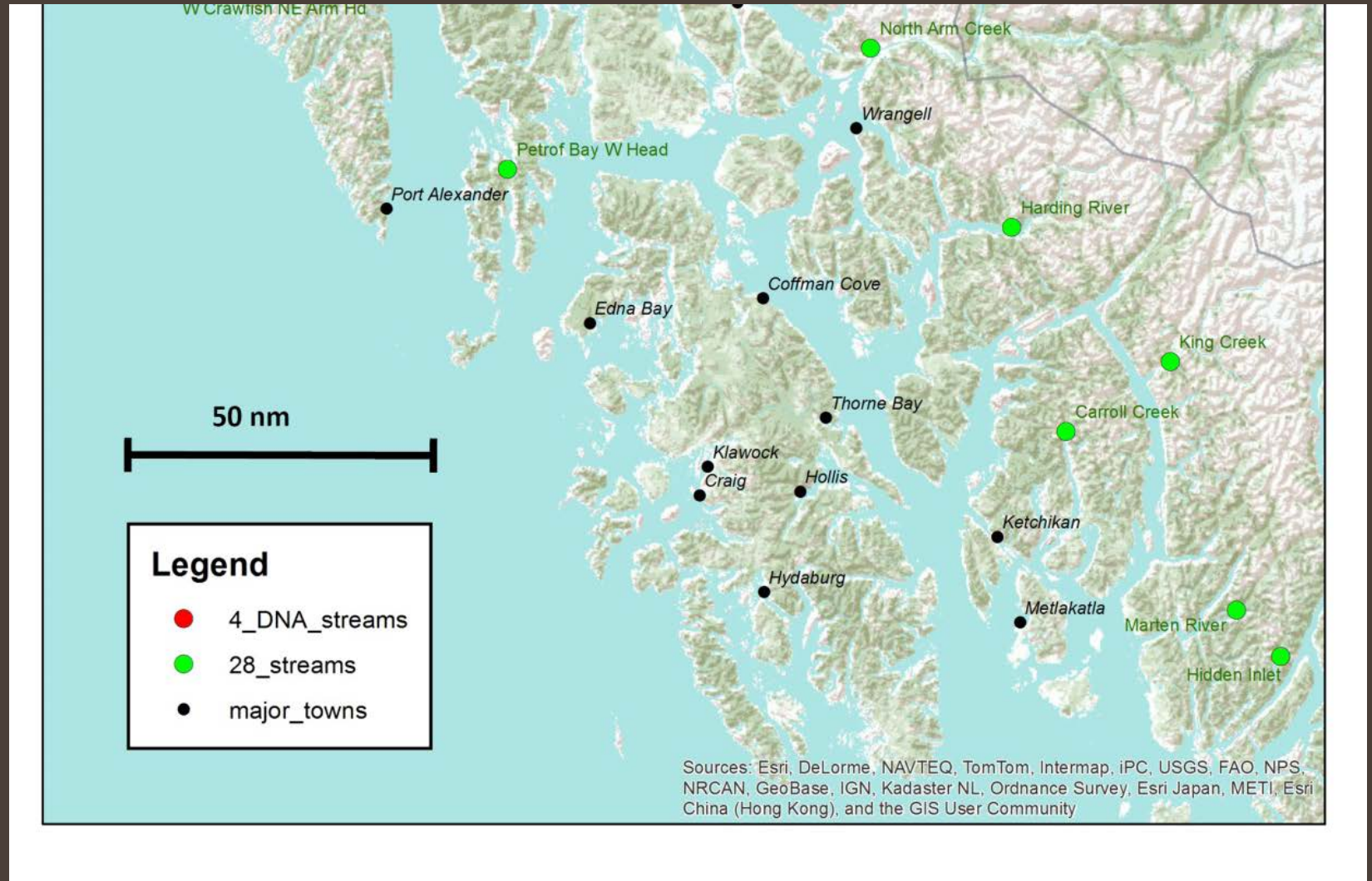


# Overview

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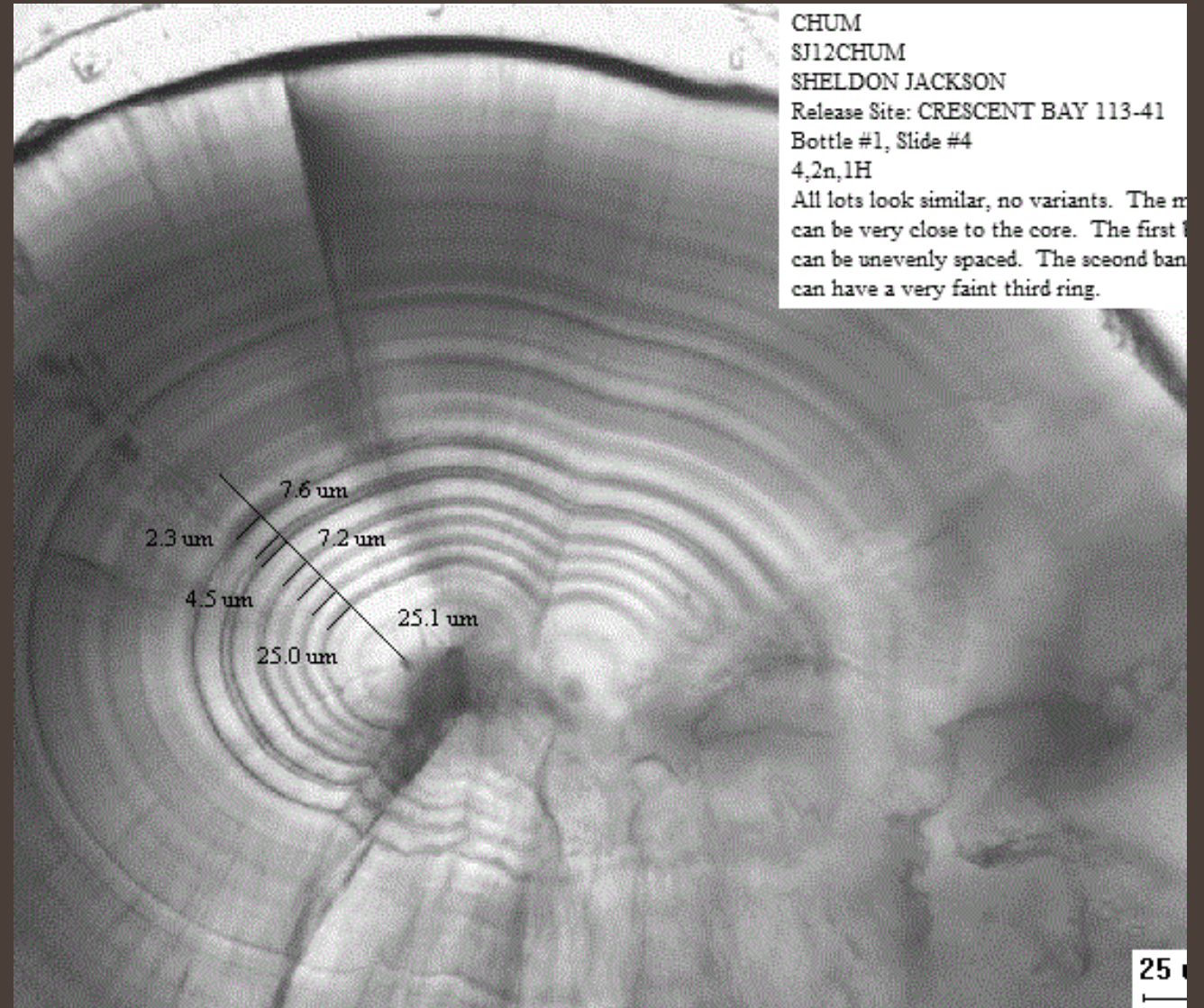
2013 – 2015

Collected otoliths



# Straying

- Hatchery-origin fish in natural spawning grounds
- Identified by hatchery-applied mark
- Not identifying natural-origin strays





# Stream Surveys

- Focused on carcasses and post-spawn fish
- Census of live and dead Chum
- 2 or more sampling events per stream
- Covered full stream length



# Goals

192 fish per sampling event

Annual target of 384 individuals

Success depended on environmental factors

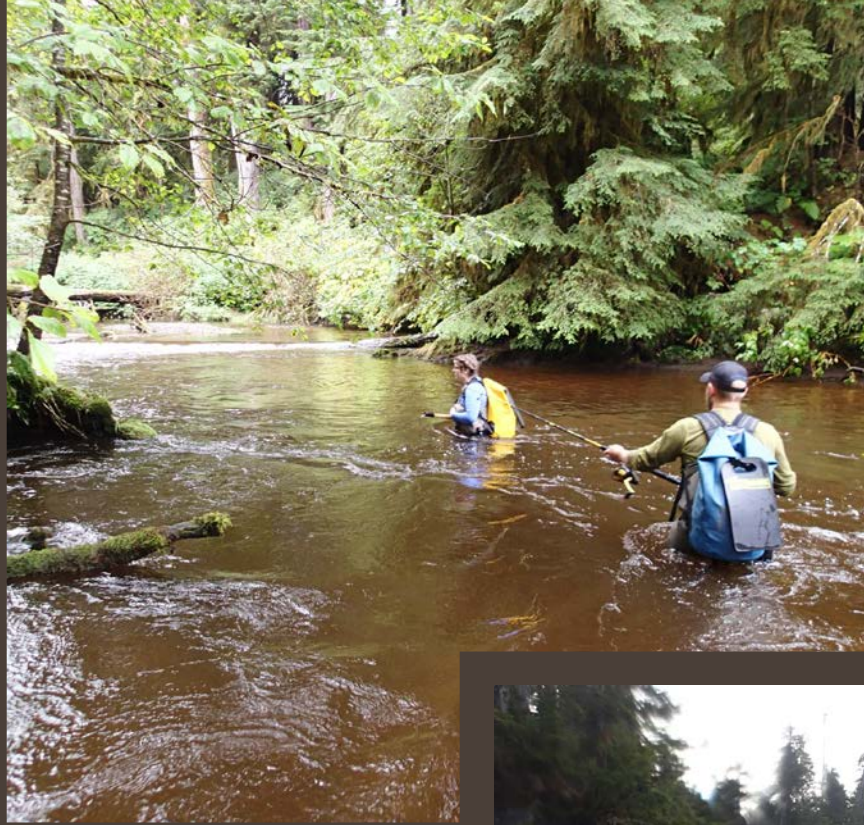


# Environmental Factors

Weather Conditions

Stream flow & flooding

Availability of Chum Salmon



# Project Success

2 or more sampling  
events per stream

192 fish per sampling  
event

Annual goal of 384  
individual Chum Salmon  
sampled

Year	Survey Goal Met	Sampling Event Goal Met	Annual Goal Met
<b>2013</b>	31	27%	47%
<b>2014</b>	32	14%	16%
<b>2015</b>	30	18%	47%

# Summary



- 5 field crews conducting surveys
- Highly dependent on the environment
- Collected what was available