



SEAK Chum Salmon

Pedigree Sampling



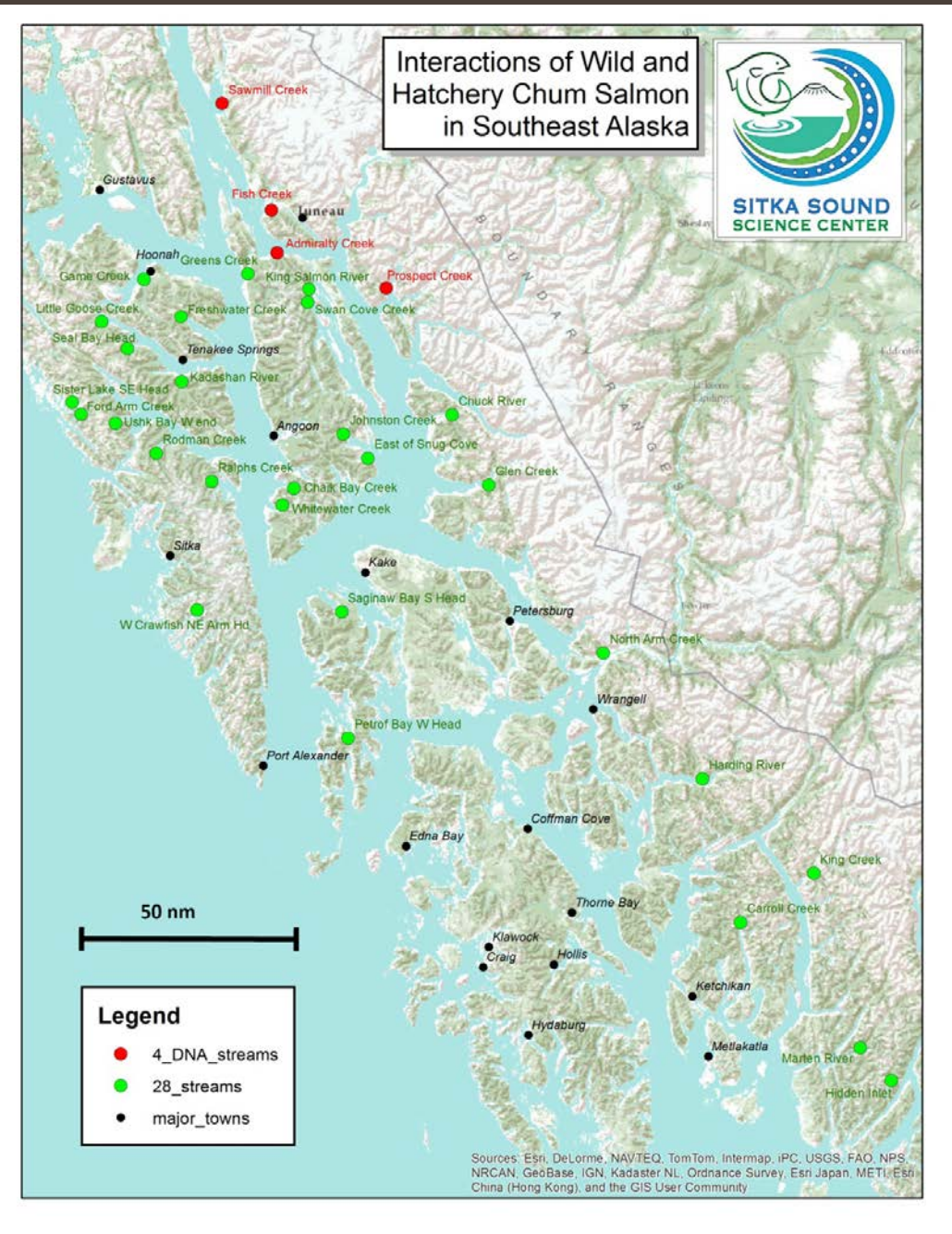
Background

- Conducted on a subset of the streams used for determining variability of straying
- Collecting tissue for DNA analysis to determine parentage
- And otoliths for origin

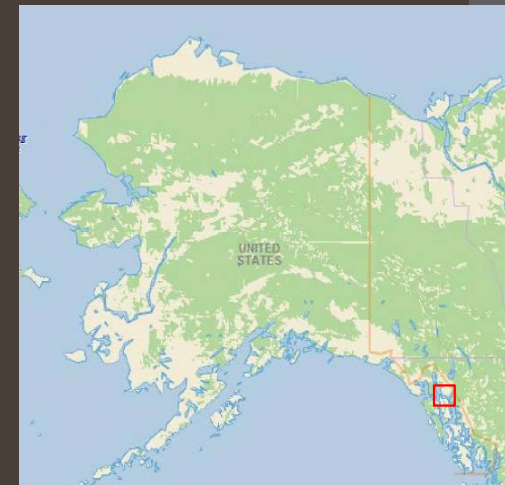
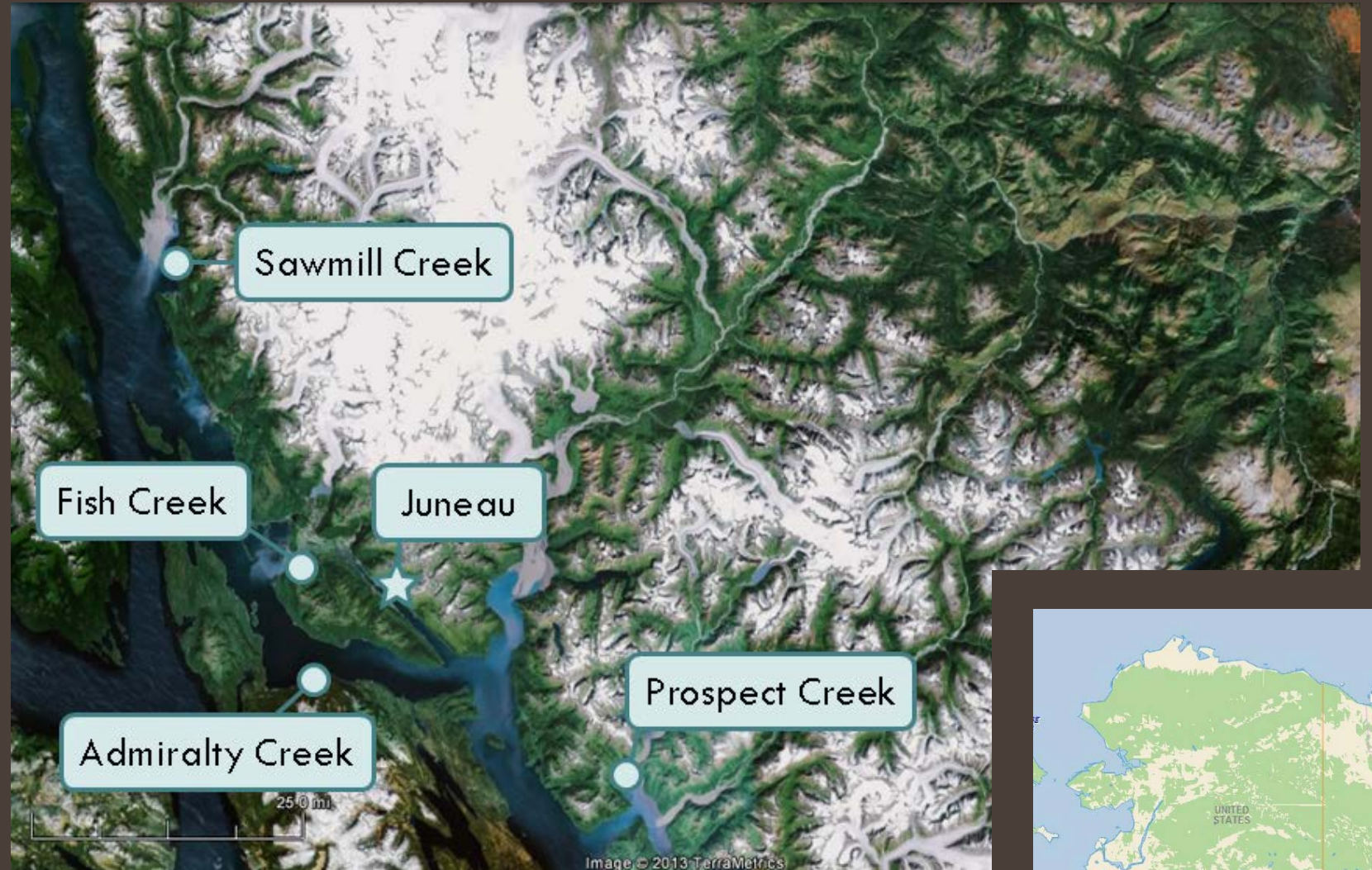


Study Streams

- Straying study started with 32 streams
- 4 designated for pedigree



Pedigree Streams



Methods

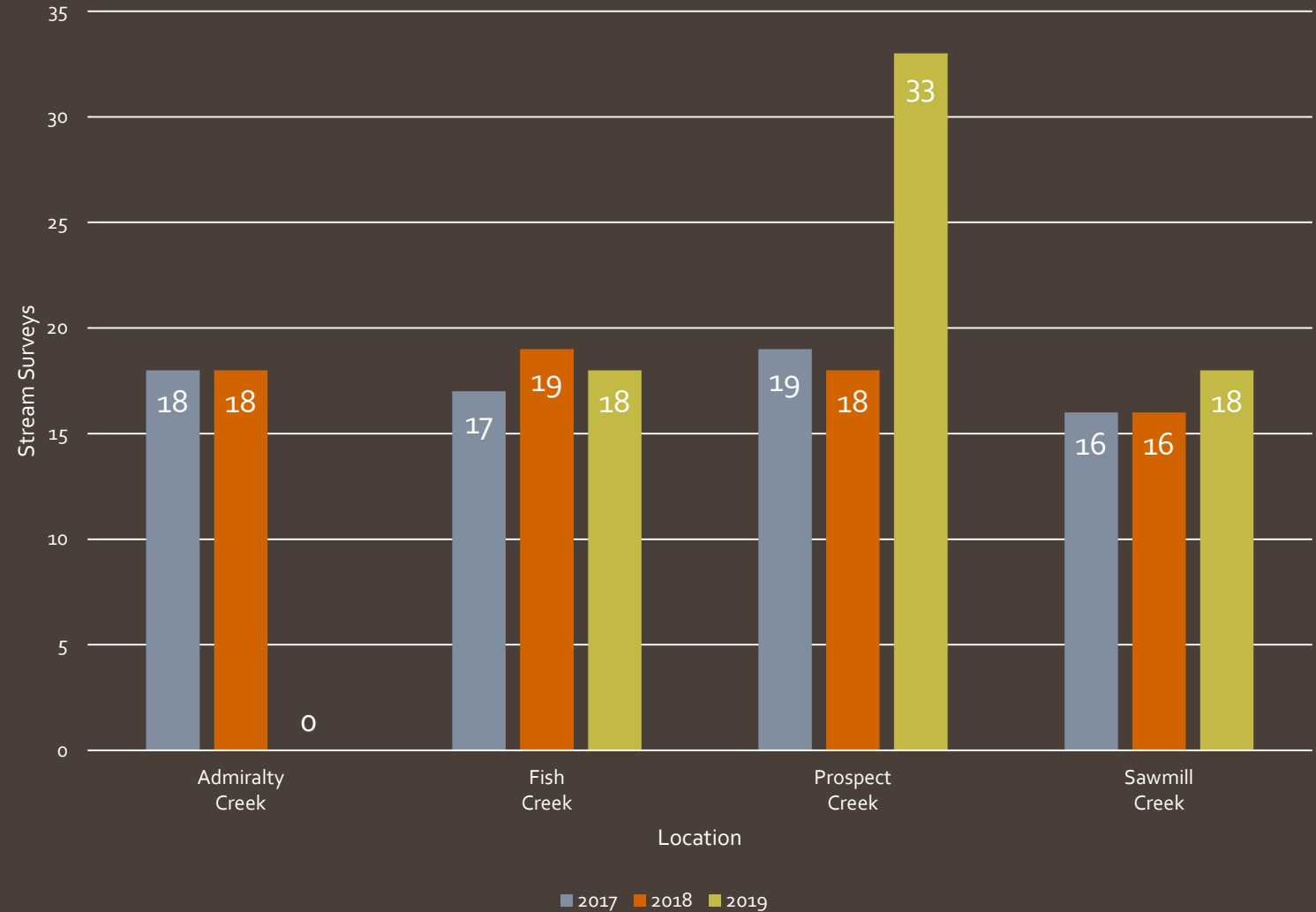
Repeated sampling on 4 streams (reduced to 3 streams in 2019)

Remained consistent since 2013



Repeated Sampling

Sampling Surveys Conducted: 2017-2019



Sampling Goals

- Focus on post-spawn chum salmon
- Base sampling goal of 1000 chum salmon per stream
- More importantly – high percentage of spawners
- Full stream, full run



Field Methods

Data Collection & Recording

- DNA
- Otoliths
- Scales

- Morphometric Data
- Location
- Live & Dead chum salmon



Field Methods Data Collection

Morphometric Data



- Length
- Height
- Sex
- Spawning state
- State of decay

Parentage & Origin



- Otoliths (x2)
- Tissue sample

Age Class



- Scales (x4)

Field Methods Data Recording

Processing area
ID number

Processing Area FINISH SURVEY PROCESSING AREA LIST

ID:

Description:

Processing Area Location:
Location
Lat: 58.3305895734119 Lon: -134.594633461589
Accuracy: 10.25 # of Fixes 8

Sampling Trays

GPS coordinates
of location

Description of
location

Accuracy of
coordinates

Field Methods Data Recording

Sample collection
tray ID number

Location

Fish length

Fish height

Additional notes

9:30 76%

DNA Specimen Card FINISH SURVEY SPECIMEN LIST

Specimen Information:

Species: Chum Salmon
Tray: 0000037265
Processing ID: 1

Cell: 3

Last Specimen

Sex:

Male Female Unknown

Measurements:

MEHLength: 535 mm No Length
Body Height: 132 mm
Morbidity: Grey Gill

Scale Card Information:

Scale Card: 122
Scale Row: 3

Missing:

Otoliths None Missing One Missing Two Missing
Spawn Pre-Spawn Partial Spawner

Sample collection
tray cell number

Sex

State of decay

Scale card ID
Number

Scale card row
number

Challenges of Field Work

Variable returns

2017 – strong

2018 – weak

2019 – average

Variable conditions

2017 – moderate weather

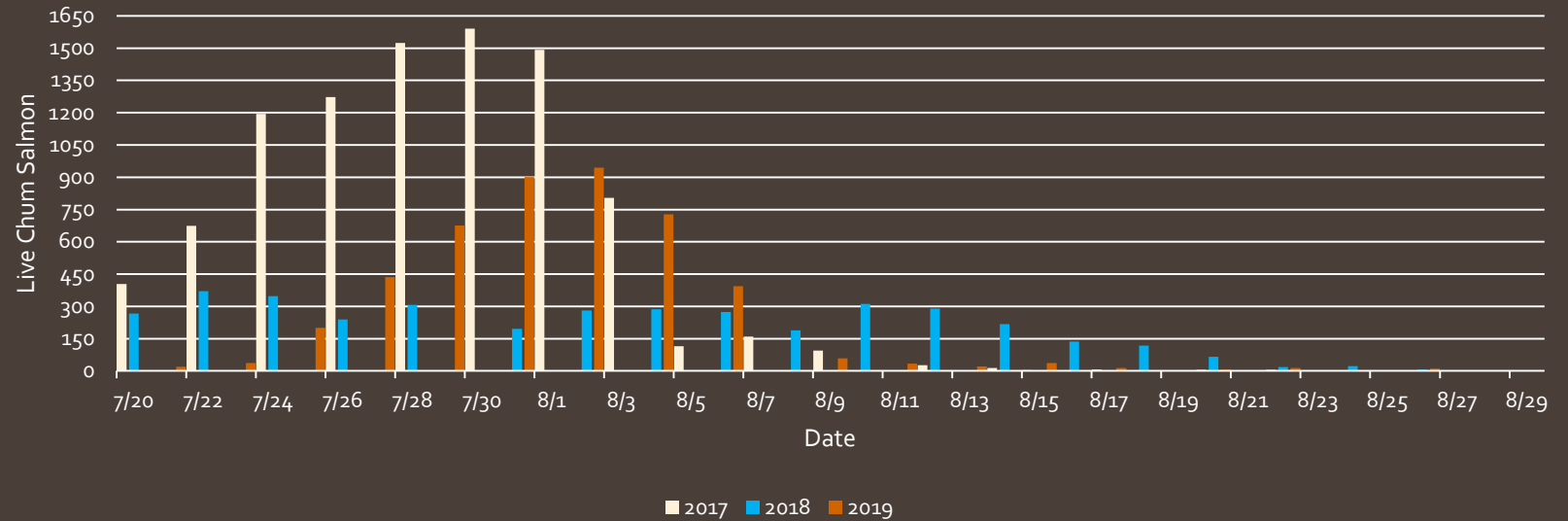
2018 – extremely dry w/ periods of intense rain & flooding

2019 – dry w/ periods of moderate rain

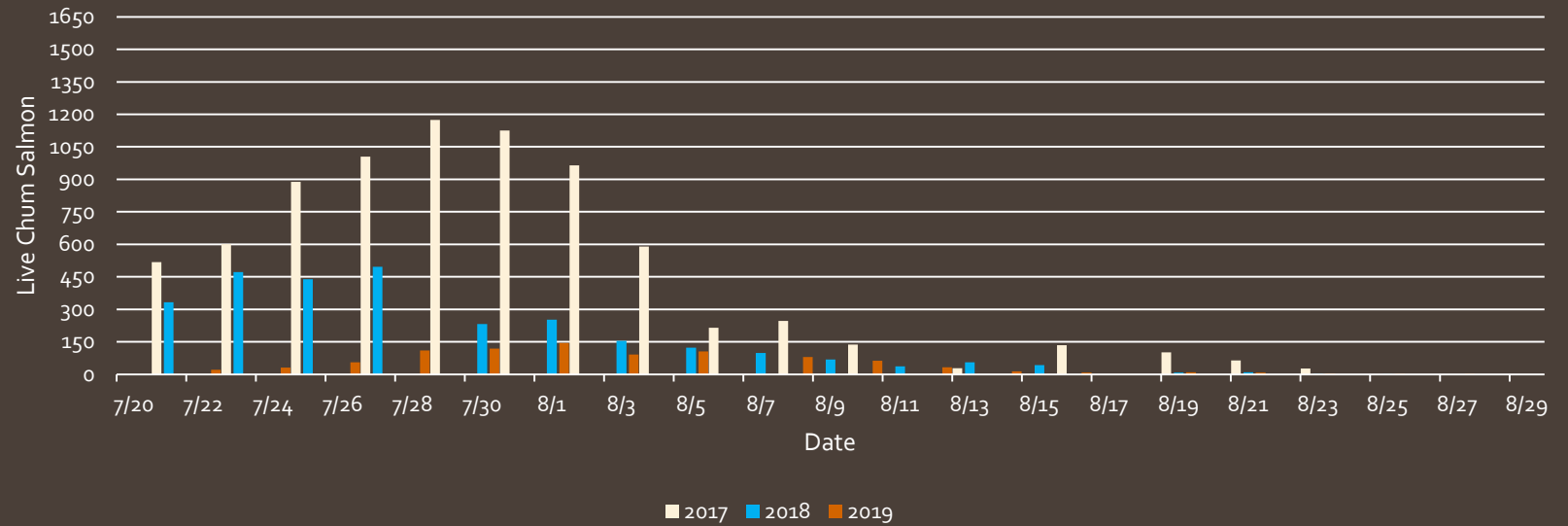
Other factors



Chum Salmon Returns

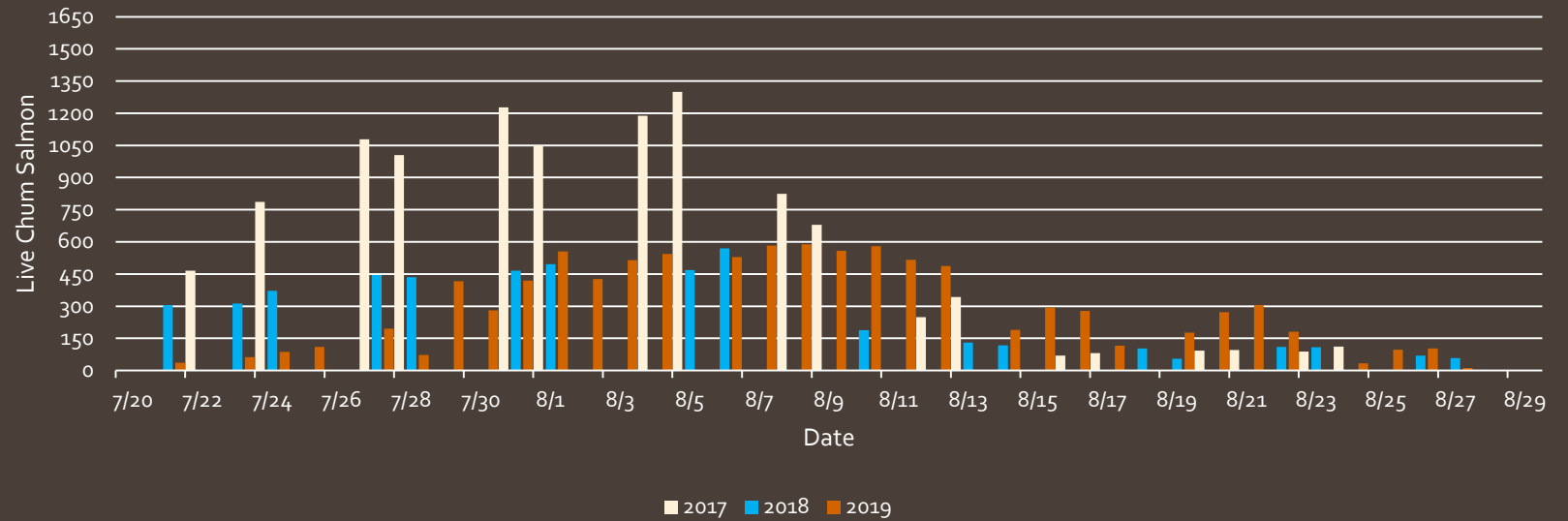
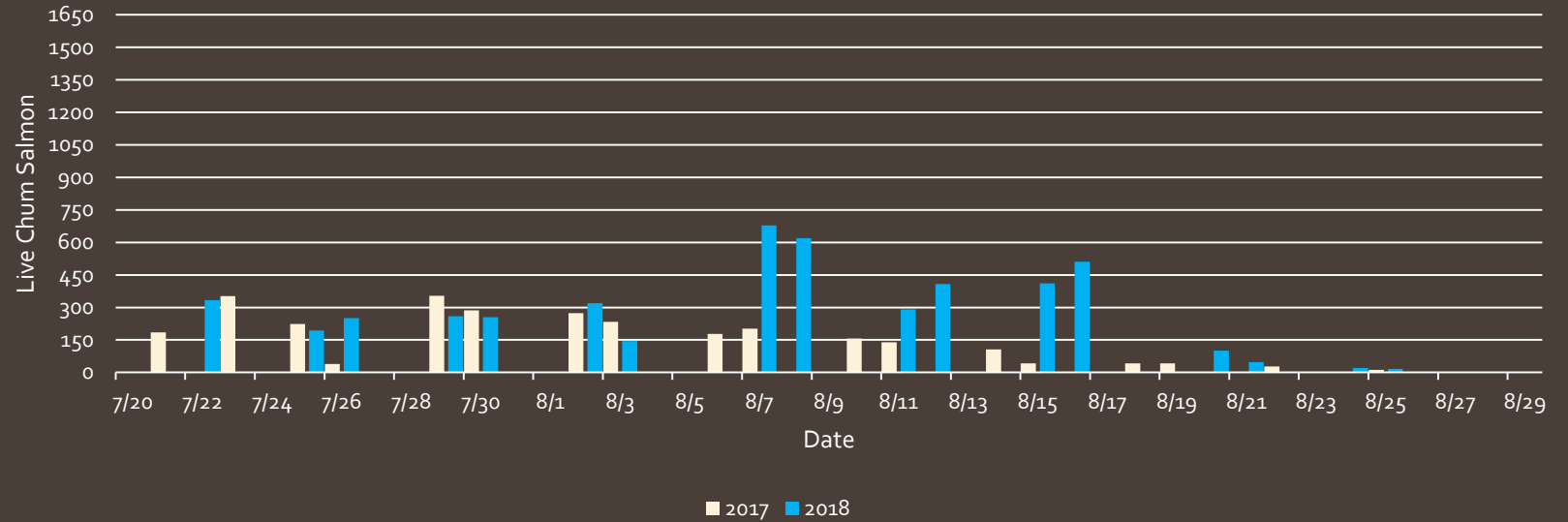


Fish Creek

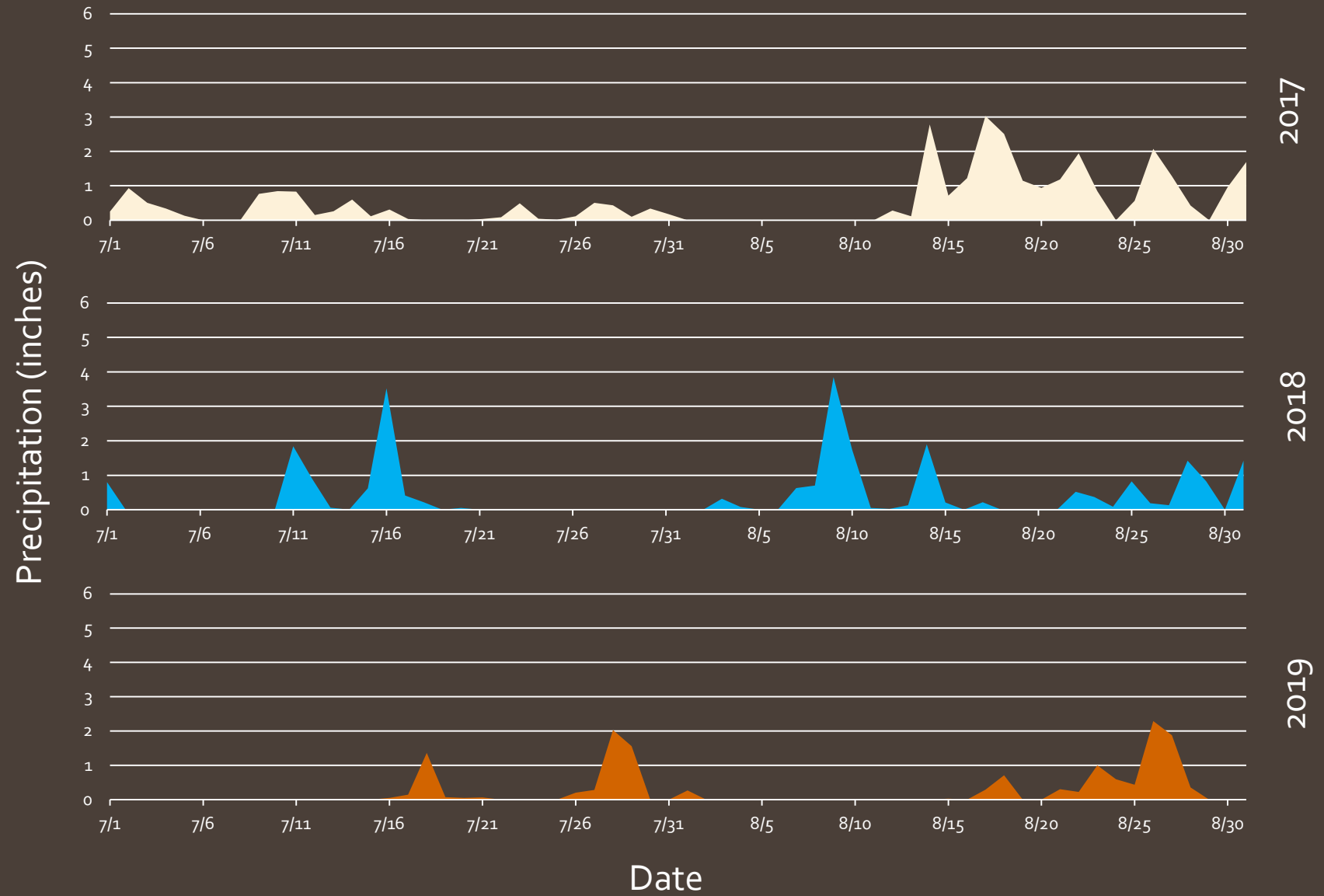


Sawmill Creek

Chum Salmon Returns

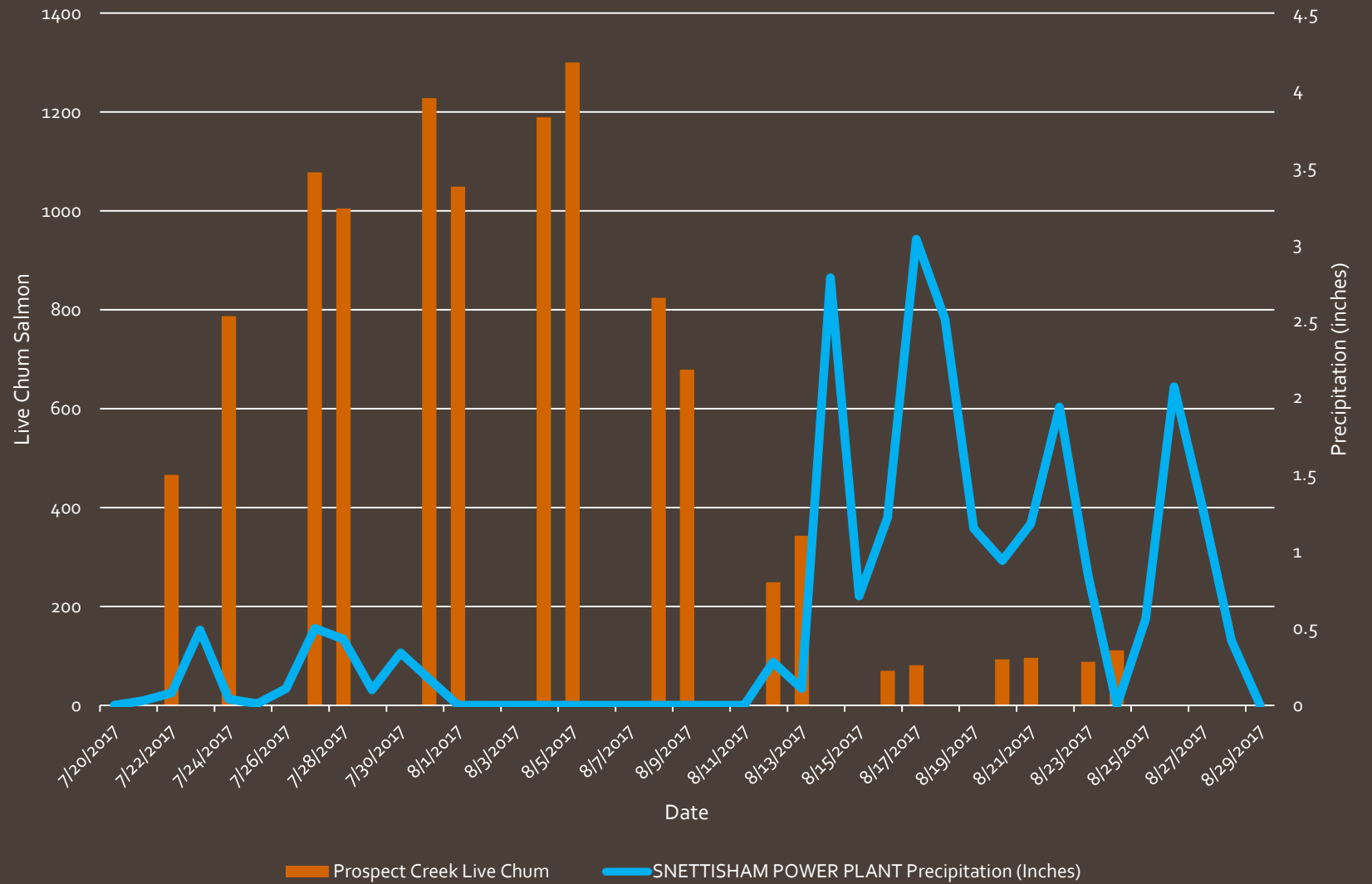


Weather & Flooding

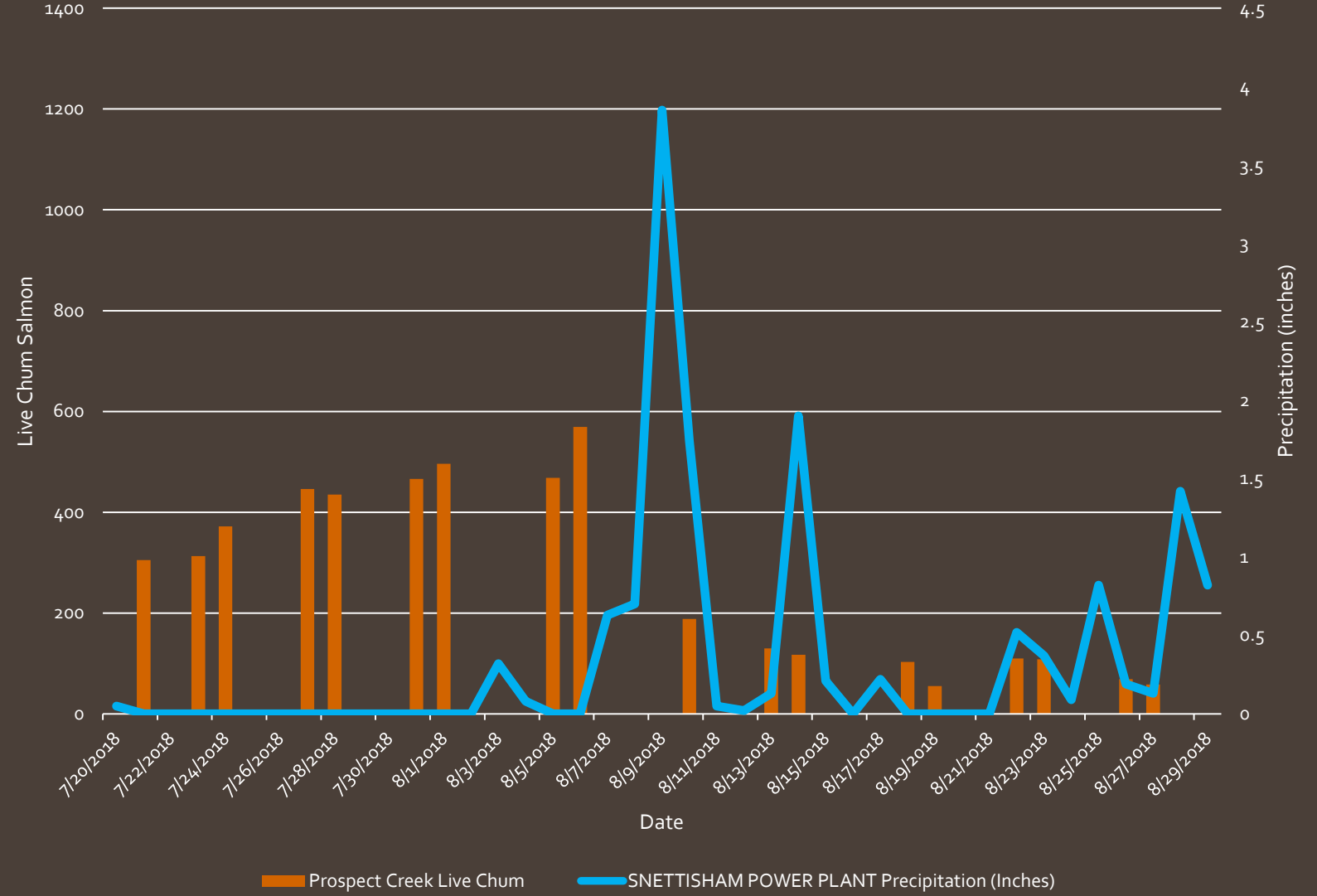


Prospect Creek

2017

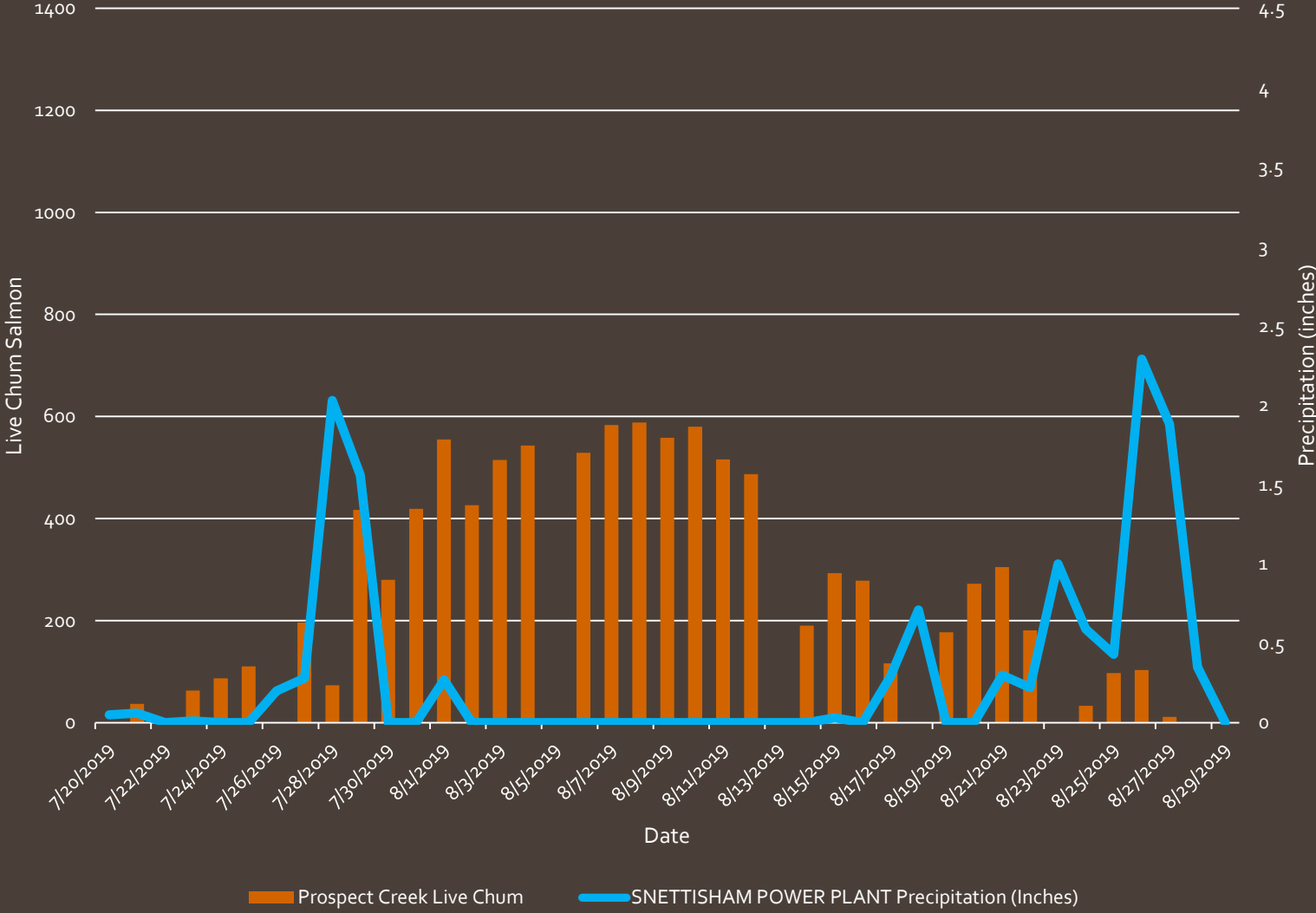


Prospect Creek: 2018



Prospect Creek

2019



Predation

Bears, eagles, gulls, wolves

Other food sources

Abundance of salmon



Success in the Field

Repeated sampling ✓

Collected data from majority of post-spawn chum ✓

Full stream, full season ✓



Summary

- Field work poses unique challenges
- Ready to adapt
- Quality data collected, consistent methods
- 3 challenging & successful seasons

