



Chatham Strait Predator Study

April 2022

Regional Planning Team Update

Update Overview



Additional Acoustic Data Analysis



Preliminary Isotope Data



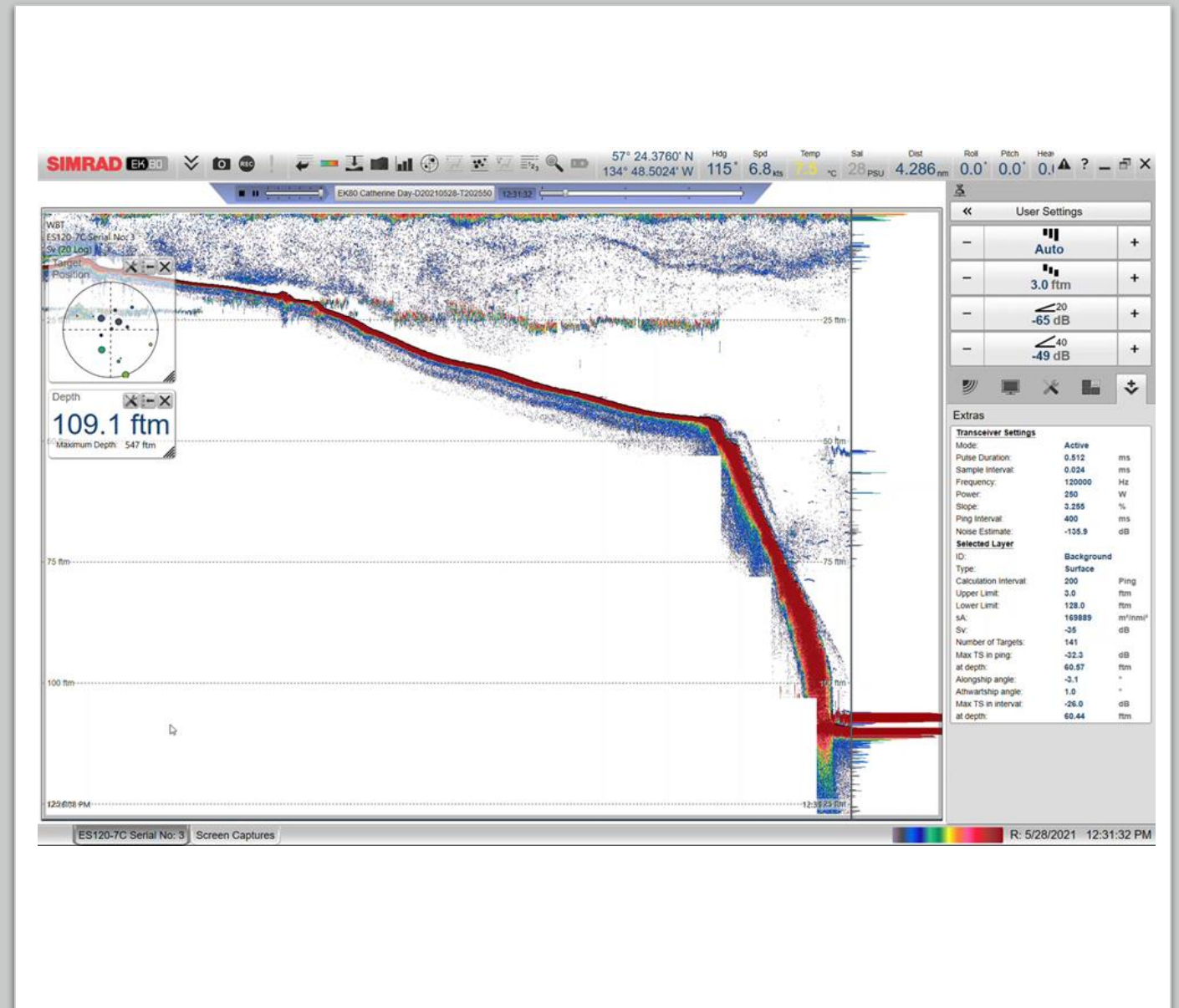
2022 Study Plan

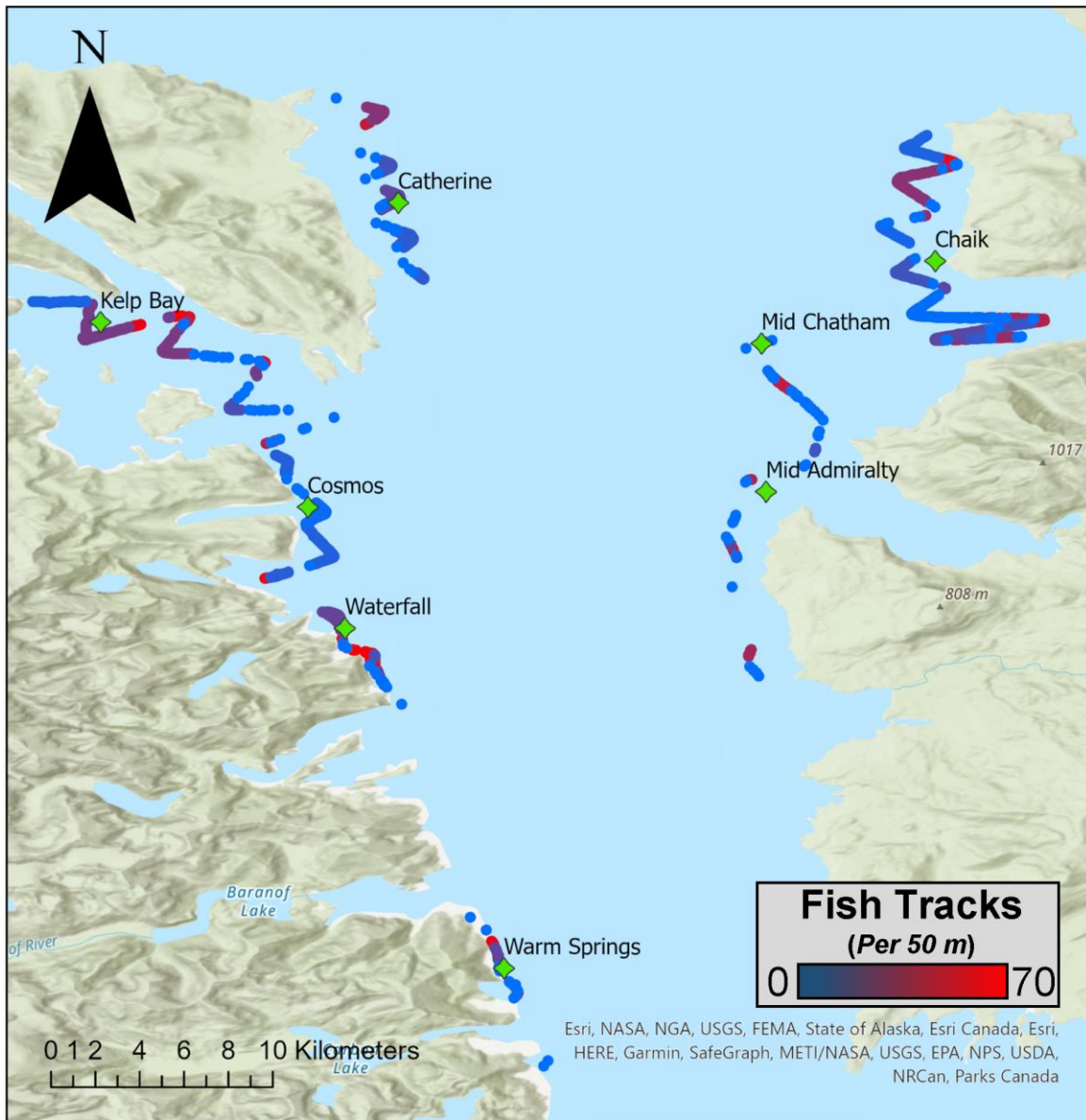


Future Research

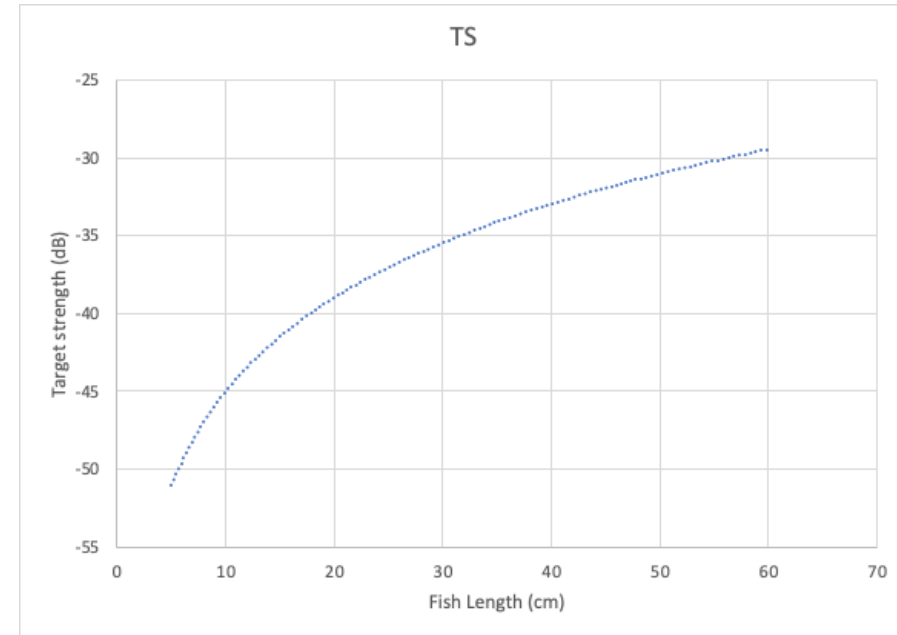
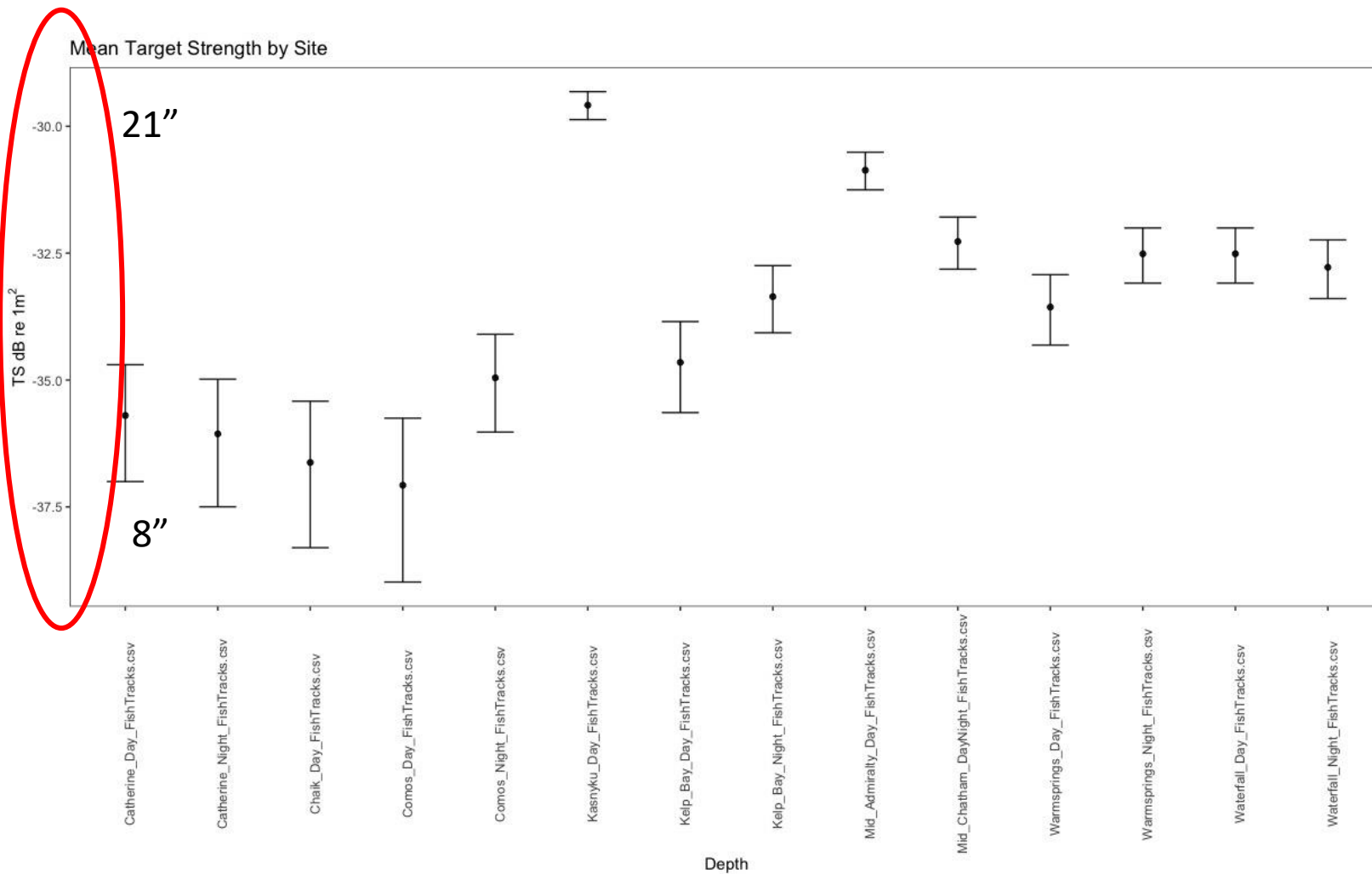
2021 Acoustic Data

- 2021 a learning year
 - 120kHz used in final analysis as 38/200kHz was too inconsistent
 - Target strength had to be estimated to fish size
 - Ground truthing effort needs to be increased



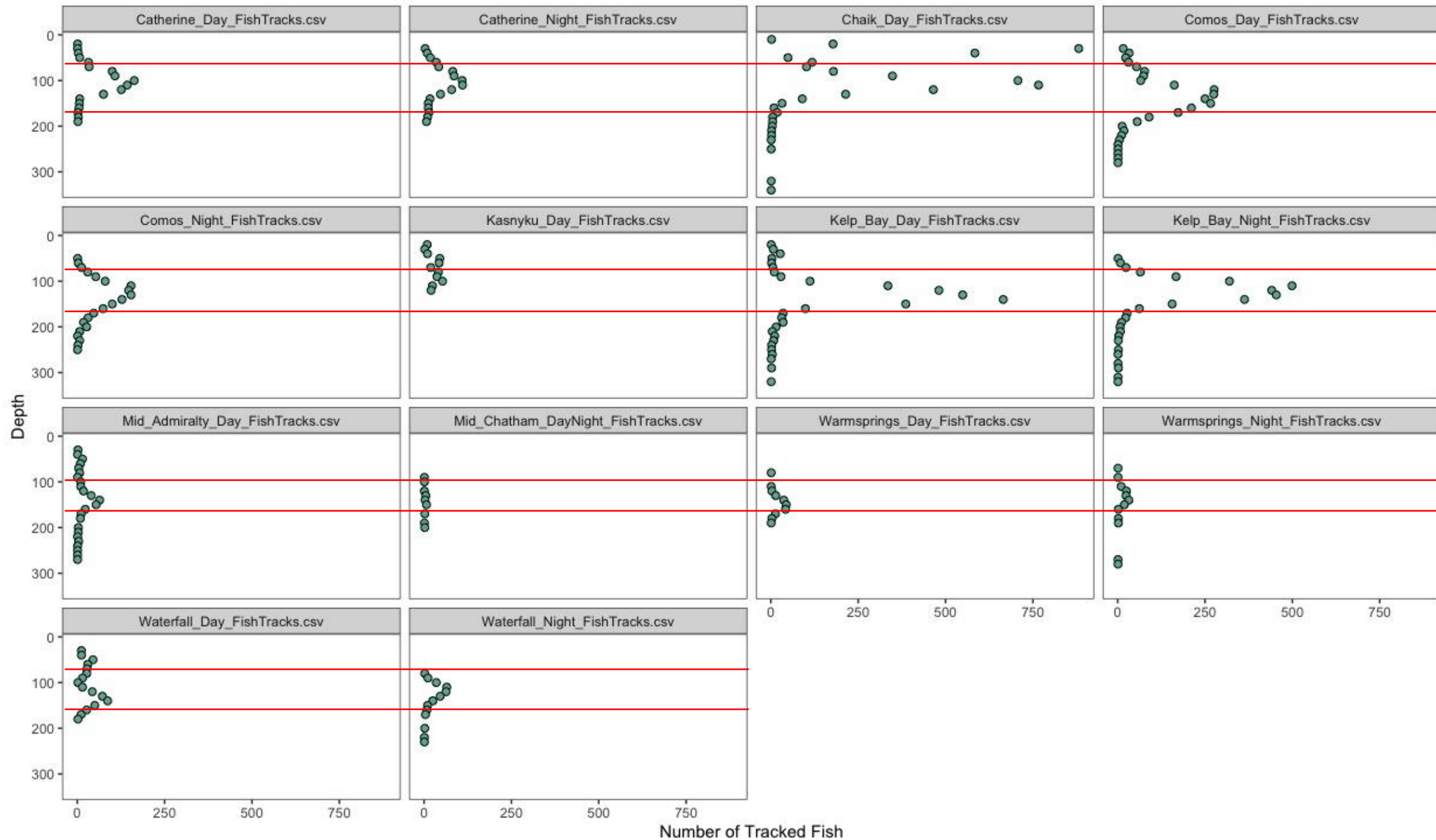


Survey ID	Fish Detected
Catherine Day	818
Catherine Night	692
Chaik Day	4764
Cosmos Day	2185
Cosmos Night	1077
Kelp Bay Day	2863
Kelp Bay Night	2649
Mid Admiralty Day	293
Mid Chatham Day/Night	23
Warm Springs Day	159
Warm Springs Night	120
Waterfall Day	478
Waterfall Night	273

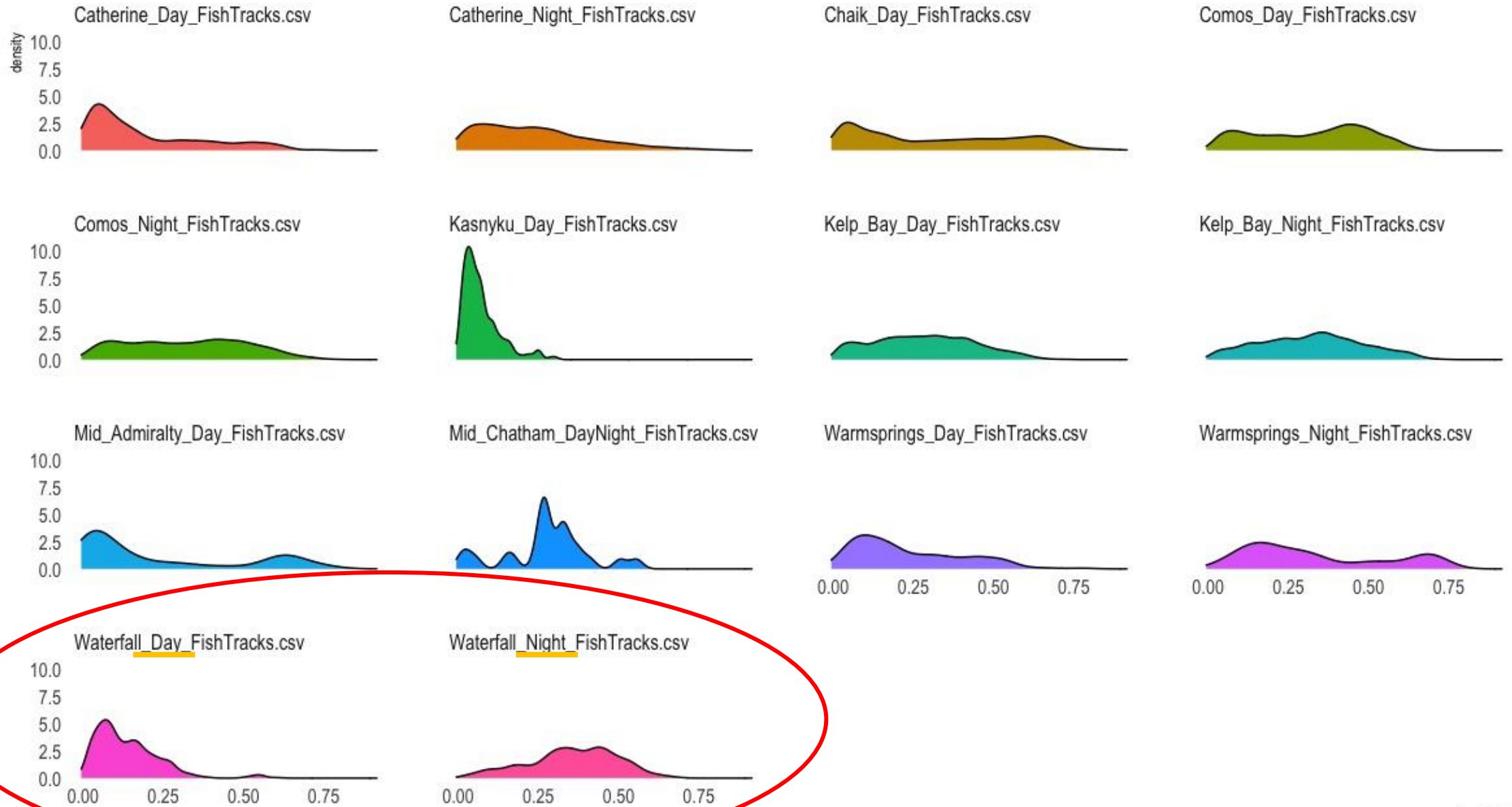


Note: Target Strength distributions represent the acoustic equivalent of size, however its difficult to estimate length precisely without knowing the target composition. Several models relating TS-Fish Length exist and for example one general model indicates a -45dB fish would be approximately 10cm and a -25dB fish would be nearly 90cm.

Number of Fish by Depth



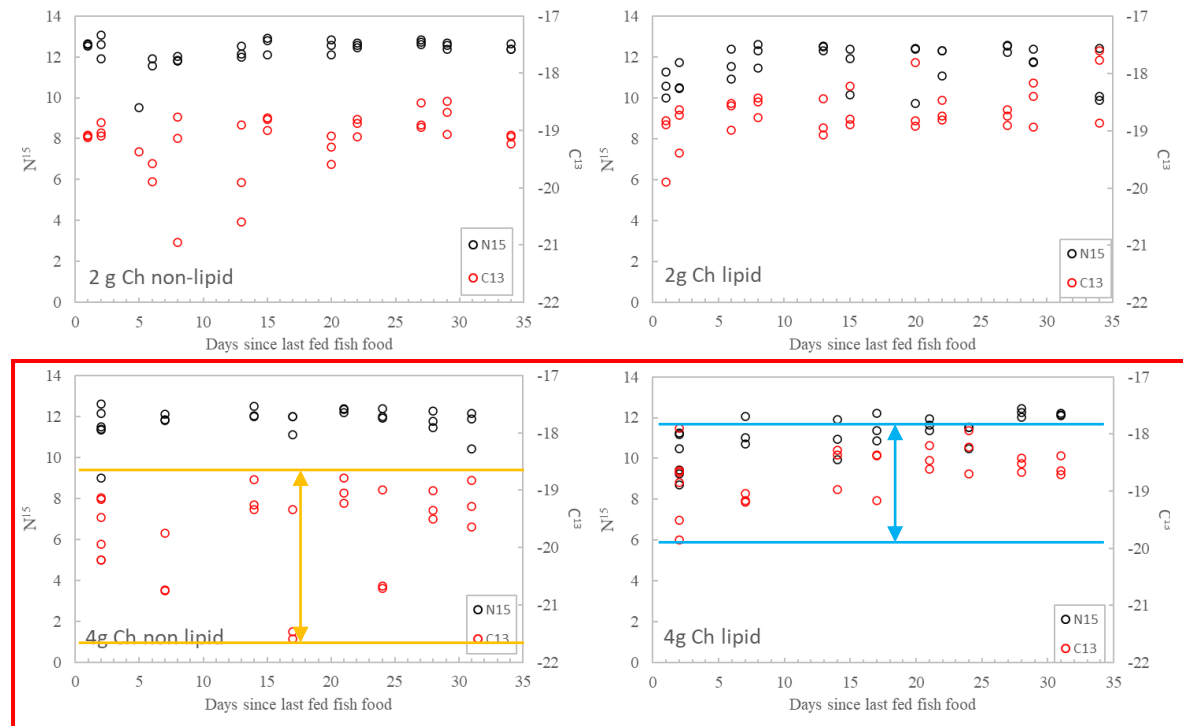
Distribution of fish in water column; 1= surface, 0= bottom



PropDepth

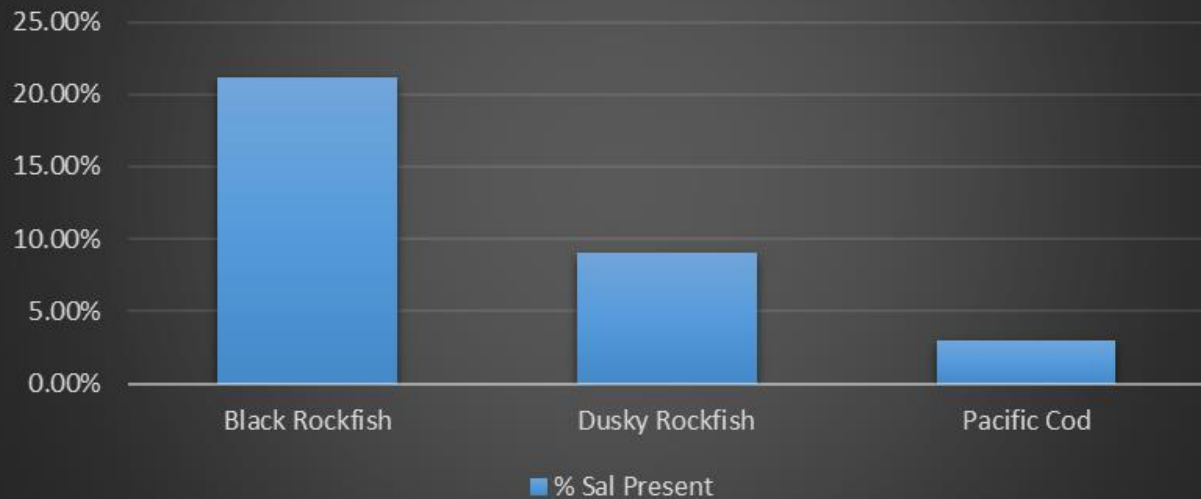
2021 Isotope Results (preliminary)

- 2,000+ tissue samples collected in 2021
- Fry analysis showed lipid extraction method preferred
- Liver samples submitted 1st
 - Fastest tissue turnover rate
 - Alternate tissue types pending
- Processing delays with UAF Stable Isotope Facility

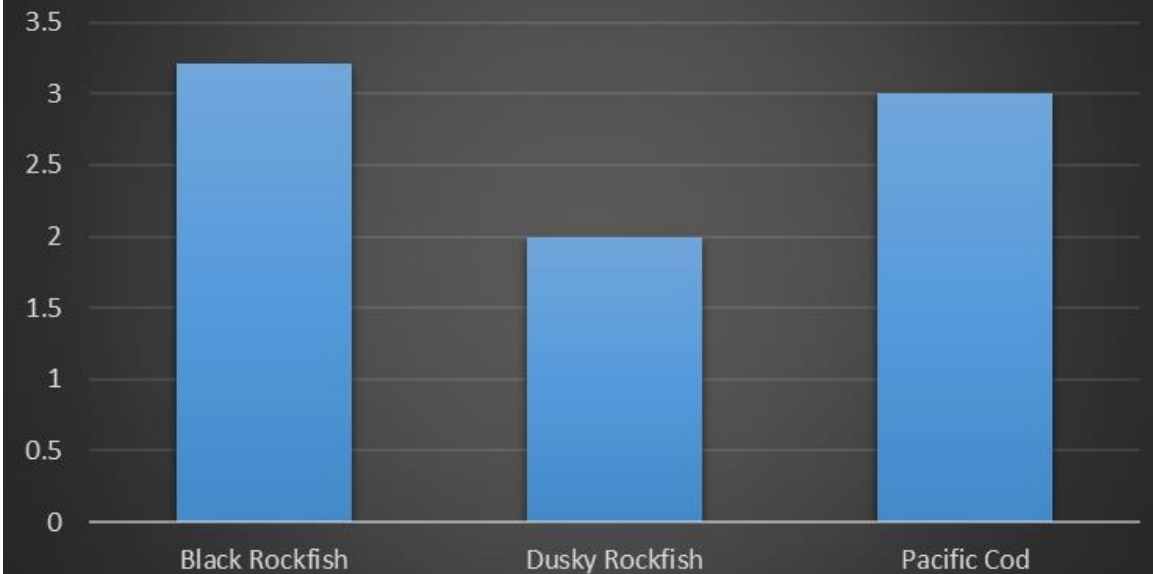


2021 Stomach Contents

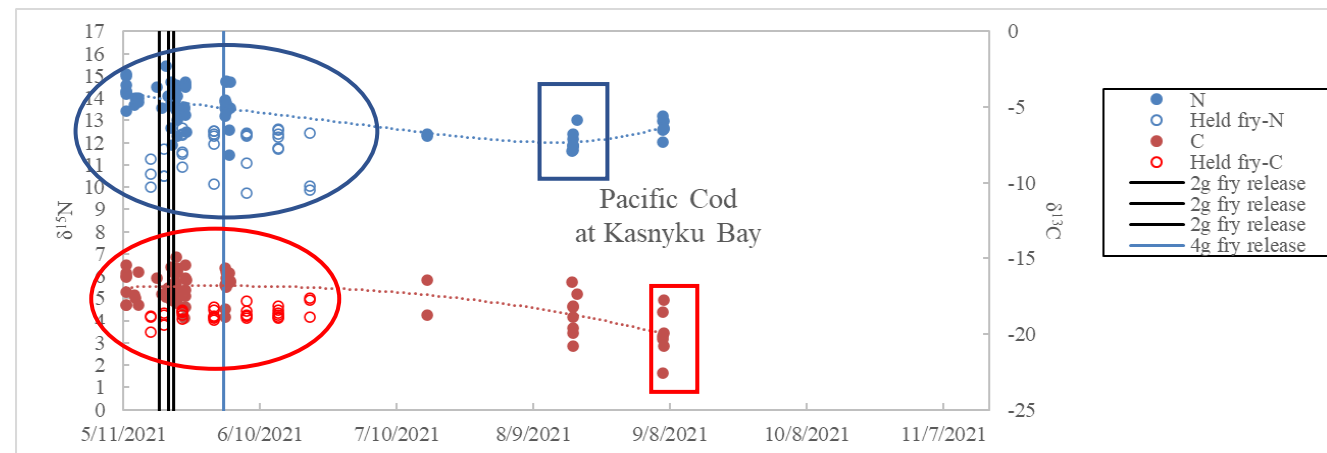
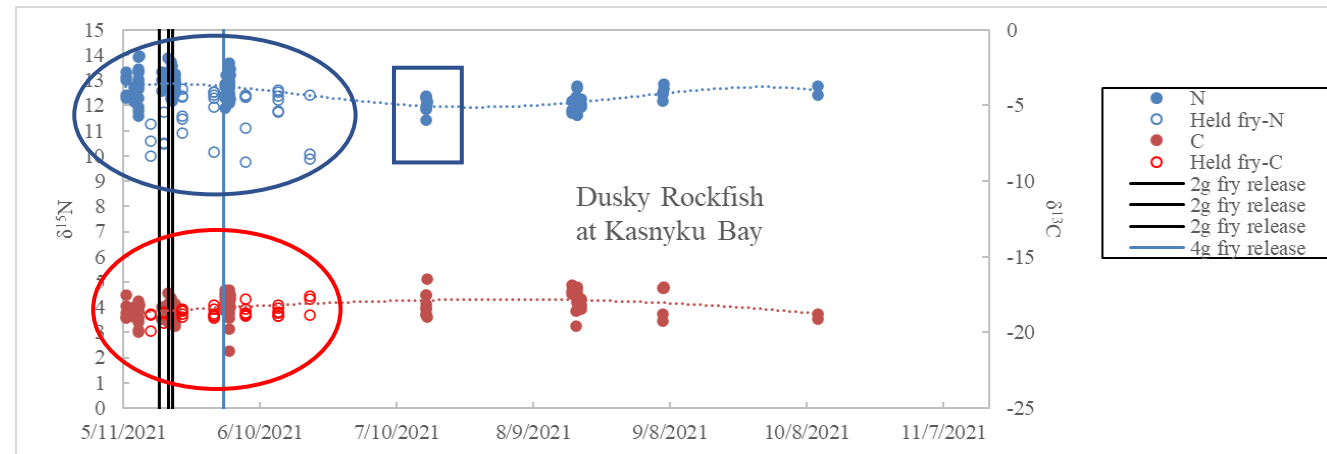
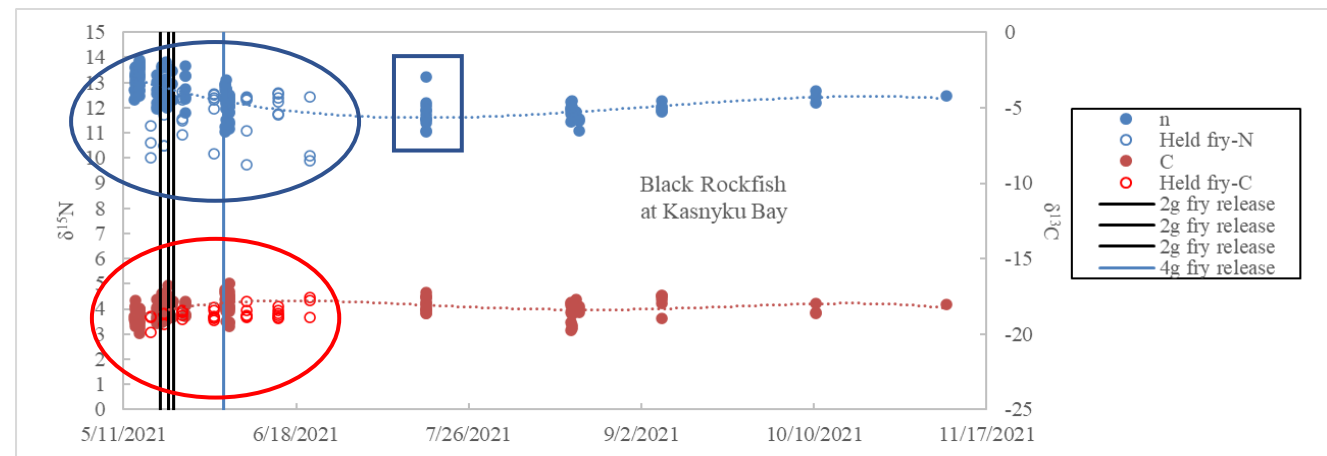
**% of Stomachs w/ Salmonids Present
Post Release**



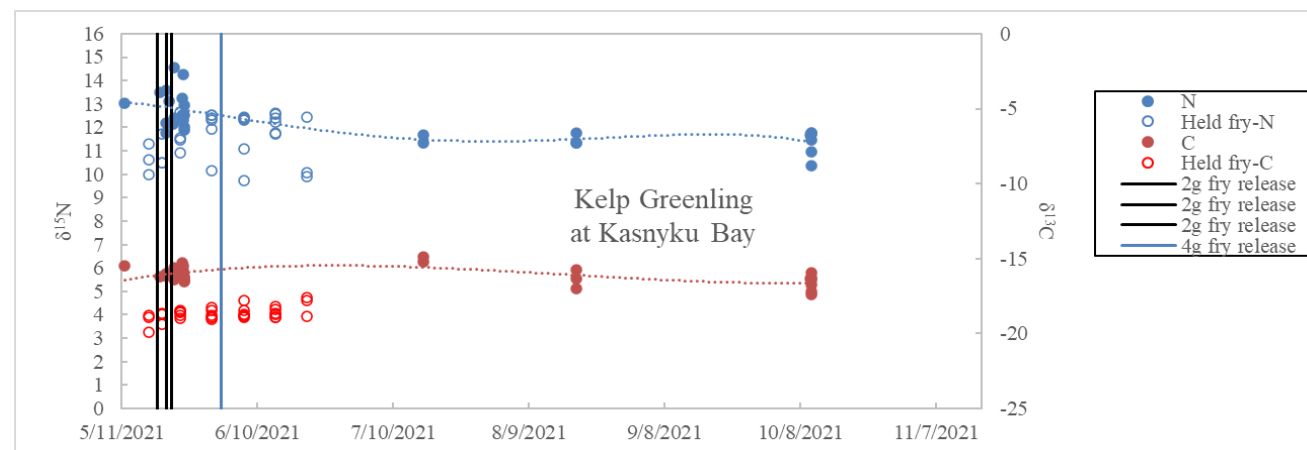
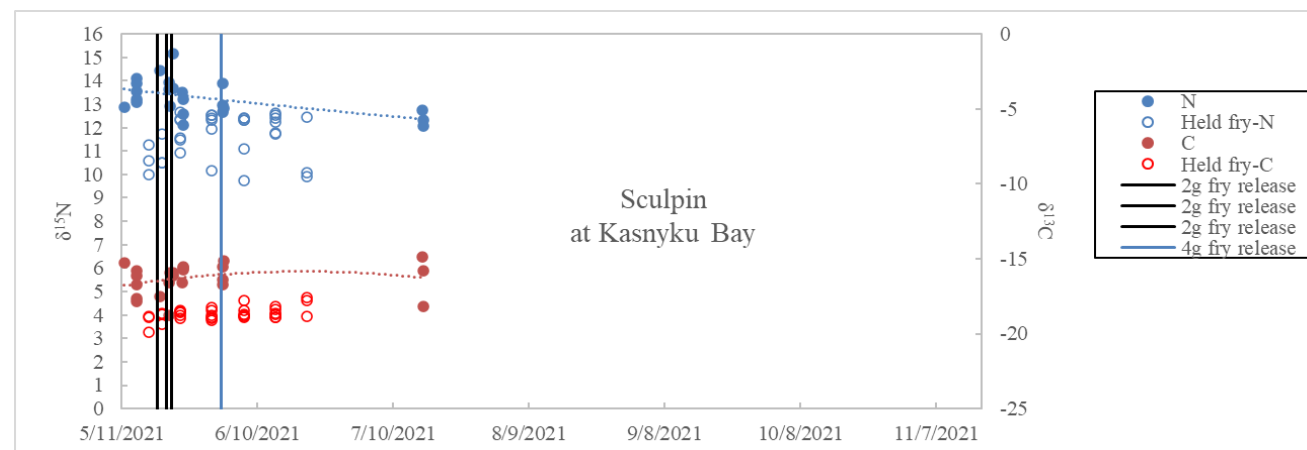
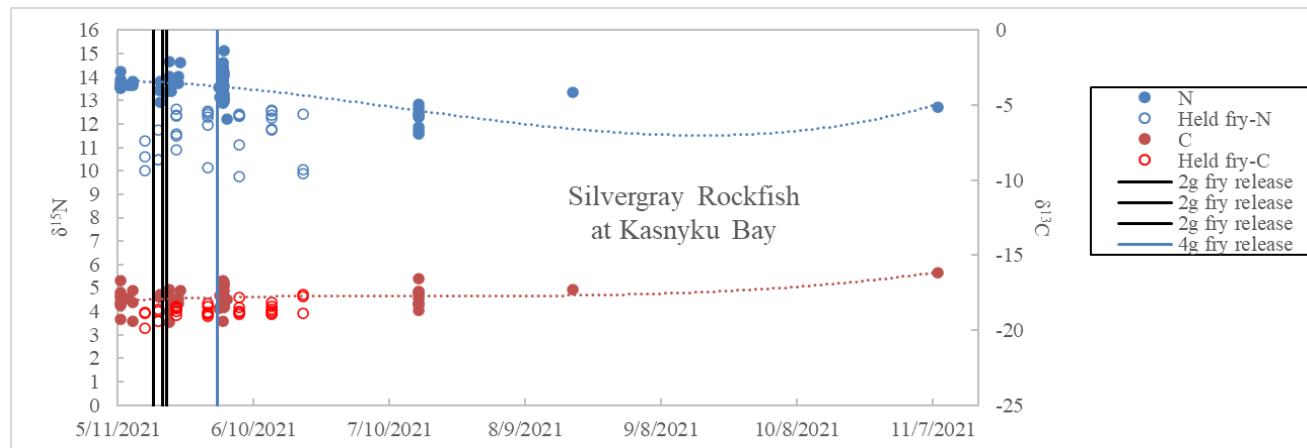
Salmonid/stomach Ave



Known Predators

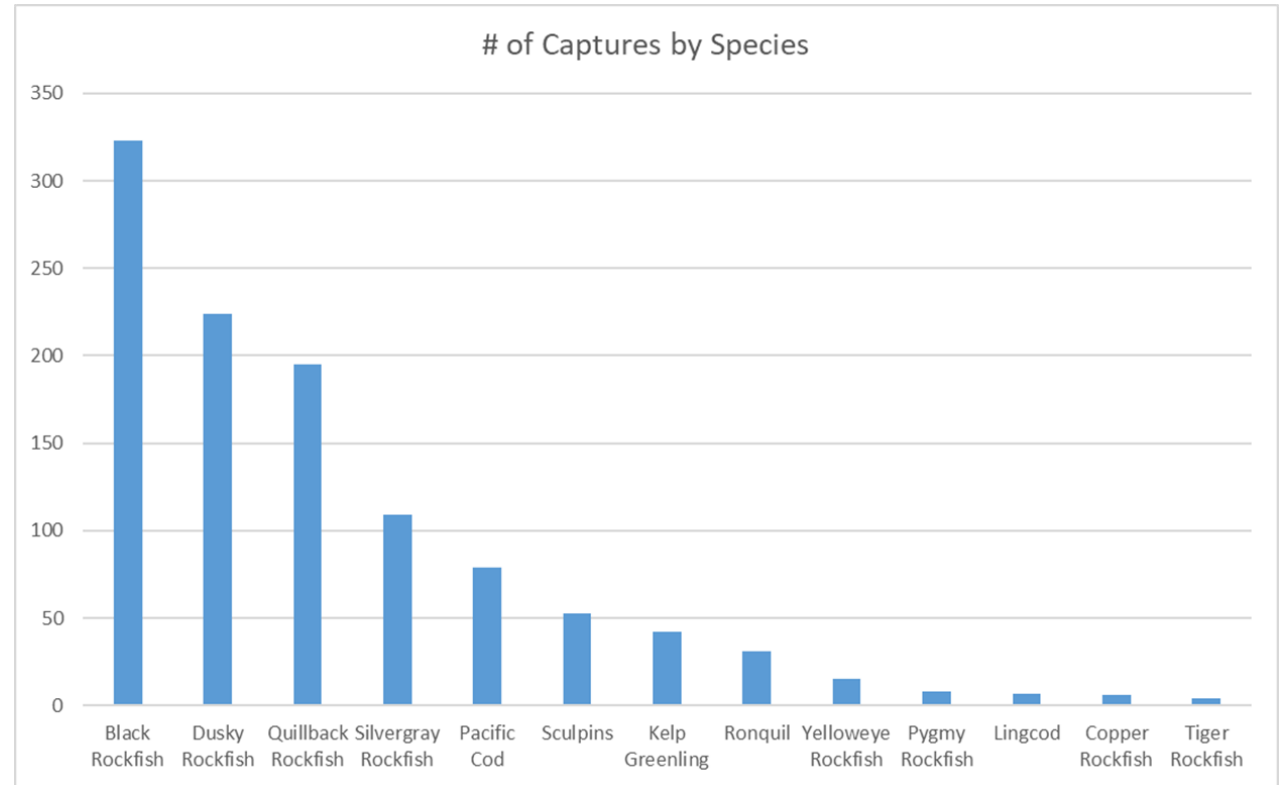


Other Predators?



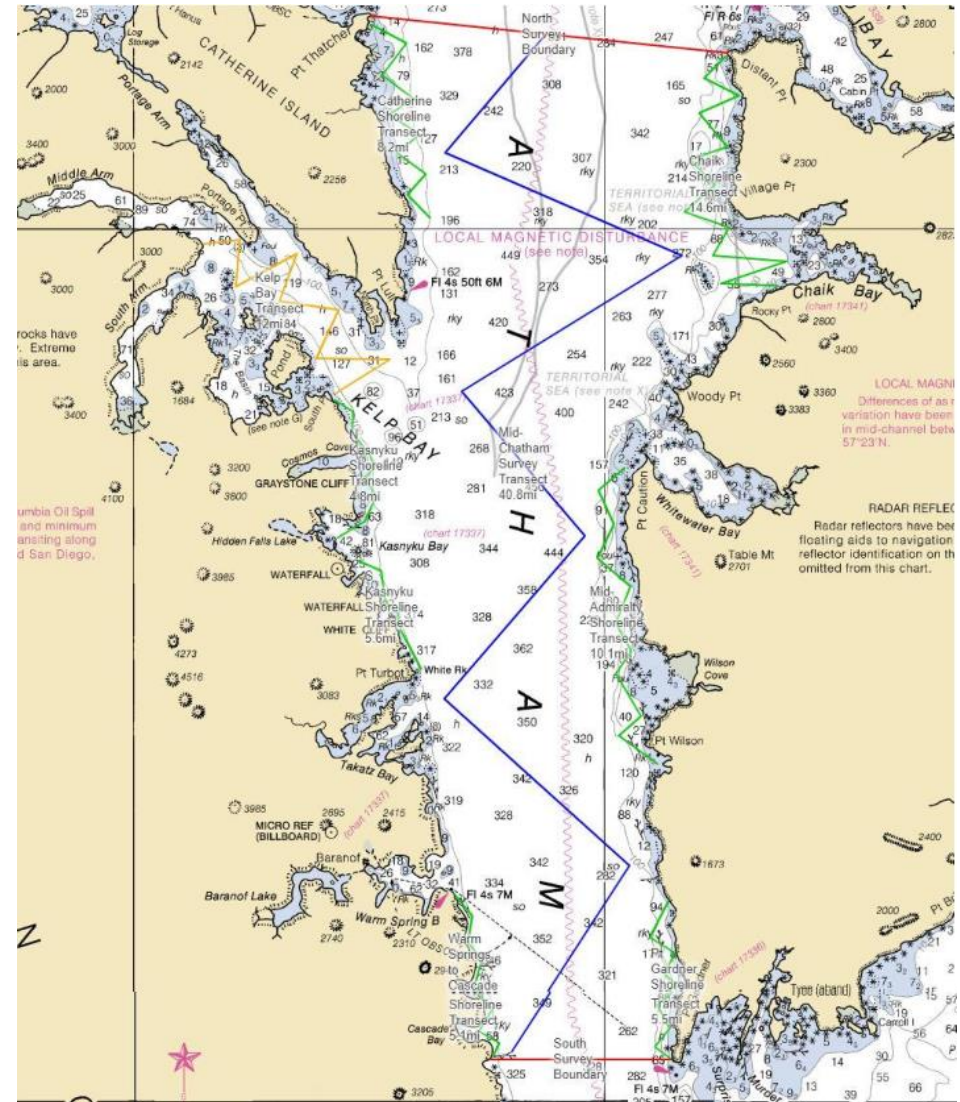
2022 Predator Study Plan

- Duplicate/refine predator capture
 - Use successful methods
 - Species addition request
 - Focused sampling through peak isotope signature (~July-August)
- Improve held fry trial
 - Determine duration of unique fry signature post-release



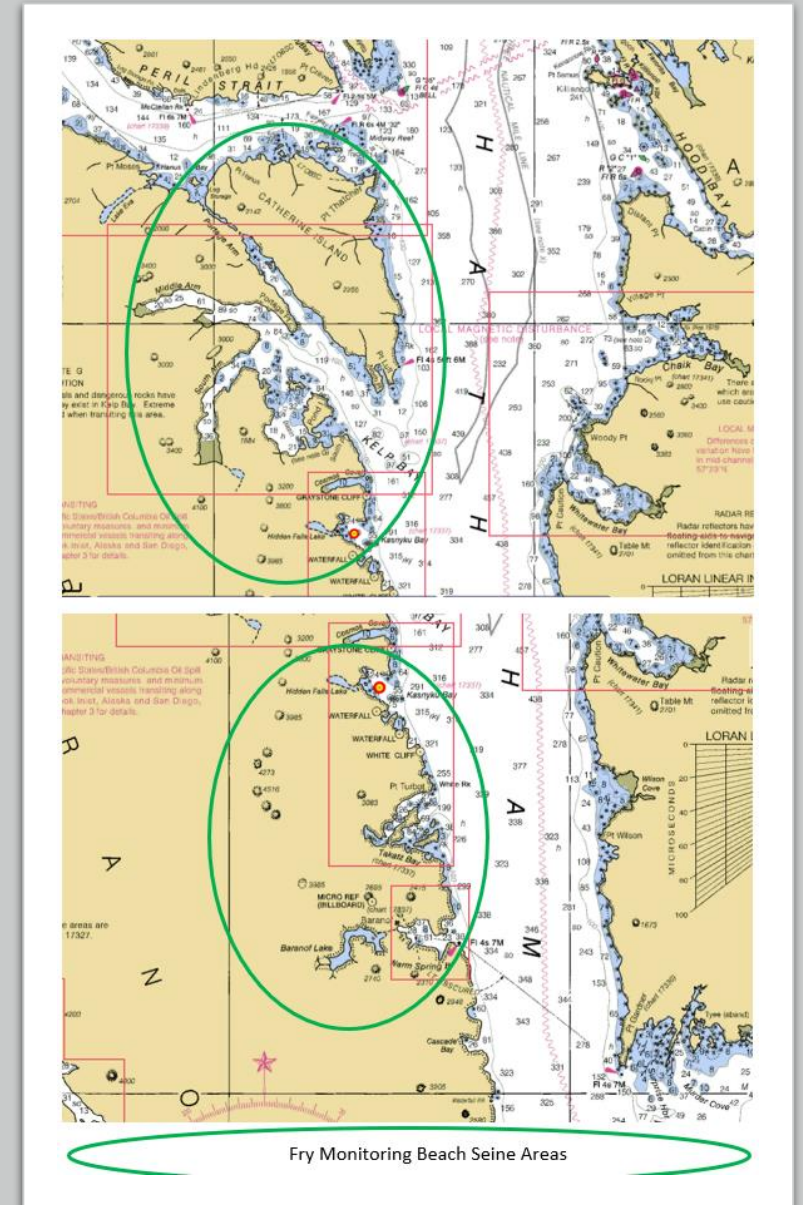
2022 Acoustic Survey

- Duplicate/refine transects and gear
 - Multiple frequencies
 - Real time analysis
- Expand time series
 - Pre-release and post-release
- Ground truthing



2022 Fry Migration Study

- Vessel transport releases
 - Only 0.17% increase in marine survival
 - Why?
 - Do the fry home back across Chatham Strait prior to outmigration?
- Periodic nearshore beach seine capture events
 - North and South of Kasnyku Bay
- Continue post-release until fry migrate out of area or question answered



Future Research

- Captive Fed Predator Study
 - Signature shift correlation to biomass consumed
- Alternate sampling methods and time
 - Tissue variation through time
 - Opportunistic sampling?
 - Commercial bycatch
 - NSEI Longline Sablefish Survey
- Further expansion through time for acoustic surveys
 - Alternate release timing justification?