RBR

Welcome, the RBR Webinar will begin shortly…

RBR

rbr-global.com

Product Overview: RBR*concerto*³ CTD

Candace Smith

Technical Sales Manager

Twitter: @CandaceWithASea

Loggers

OEM

Sensors

Systems

RBR


RBRcoda
RBRconcerto
RBRmaestro
RBRconcerto
RBRbrevio
RBRsolo

RBR

Sensor	Accuracy
Conductivity	±0.003 mS/cm
Temperature	±0.002°C
Depth	±0.05% FS

RBR*concerto*³ C.T.D

240 million readings, up to 32Hz sampling

Available configurations: RBR*concerto*³ C.T.D|fast8, RBR*concerto*³ C.T.D|fast16, RBR*concerto*³ C.T.D|fast32

750m, 2000m, and 6000m ratings

USB-C download

Twist Activation and Wi-Fi

RBR

RBR*concerto*³ C.T.D++

240 million readings

Up to 5 channels combinations: T.ODO, Fl, Tu, pH, PAR, ORP, etc…

750m, 2000m, and 6000m ratings

USB-C download

Twist Activation and Wi-Fi

RBR

RBR*brevio*³ C.T.D

- 4 AA batteries
- Has exactly the specifications as the RBR*concerto*³ C.T.D, sampling regimes (|deep, |fast8)
- Often used for custom vehicle integrations

RBR*maestro*³

- Same logger body as the RBR*concerto*³
- Up to 10 channels combinations: T.ODO, Fl, Tu, pH, PAR, ORP, etc…

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Sensors for integration

RBR*coda*³ T.ODO

Optical accuracy and stability similar to Aanderaa Optode

Standard accuracy: 8 µmol/l

High accuracy temperature measurement

Power consumption: only 36 mJ/sample

Rated to 6000m

Wiper available for |slow

Time constant options

• |fast	1s response (profiling)
• Standard	8s response
• |slow	30s response (moored)

RBR

Fluorescence & Turbidity sensors

Seapoint – turbidity, chlorophyll-a, UV, etc.

Turner – chlorophyll-a, CDOM/FDOM, rhodamine, phycocyanin, phycoethyrin, turbidity etc.

WETLABS – ECOpuck triplet (chlorophyll-a, CDOM, backscatter options), FLNTU (fluorescence + backscatter)

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pH/ORP and PAR sensors

Idronaut - pH and ORP sensors

LiCor – spherical (light from all angles), quantum (wipeable)

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Twist/Wi-Fi

Twist Activation

- Can be used on all Standard (white with red end-cap) loggers
- Shipped with “Twist” activated so you can immediately start sampling
- Twisting also turns on Wi-Fi…

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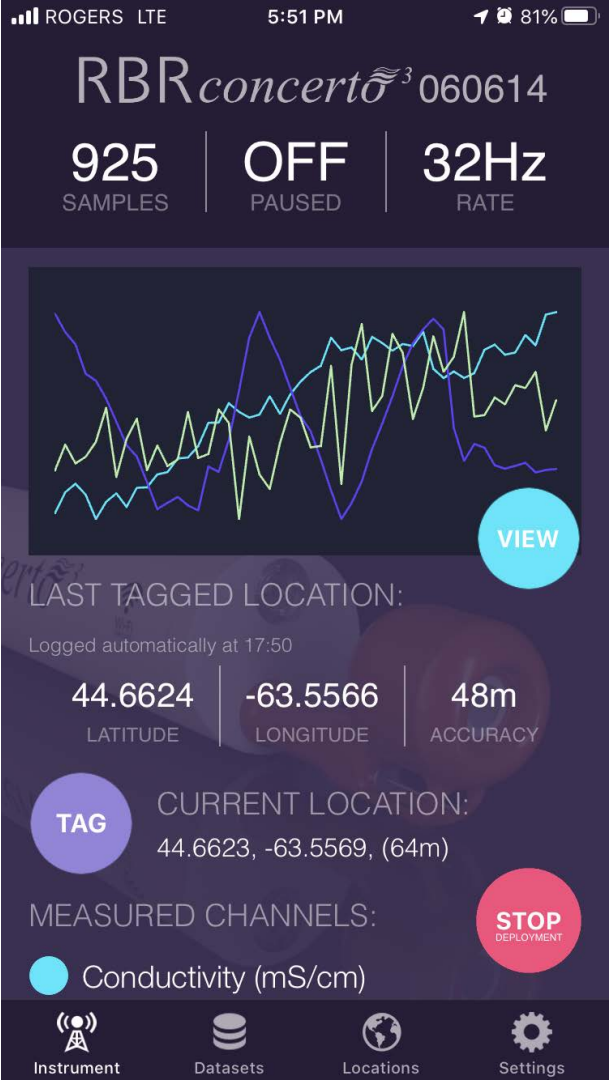
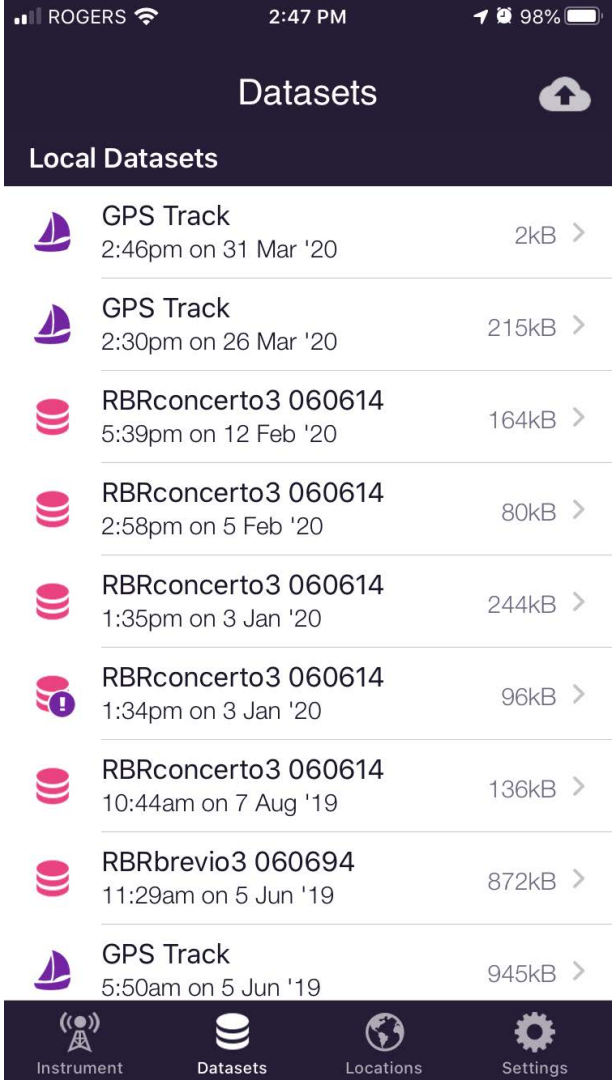
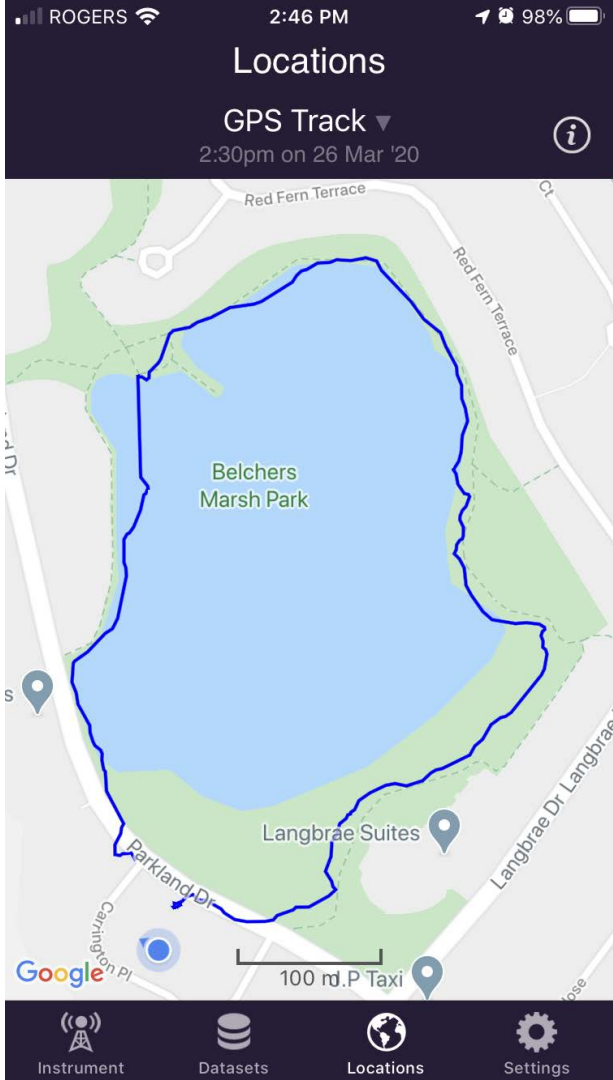
Why Use Wi-Fi?

- Download data without opening logger
  - Avoid moisture getting inside logger
  - Process cast data on cruise
  - Get months of data off logger
- See data in real-time/quickly
  - Community science groups
  - Fisheries
- Flexible
  - Can use Wi-Fi with Ruskin Mobile app (phone, tablet, iOS, Android)
  - Can use Wi-Fi with Ruskin Desktop (Mac and PC)

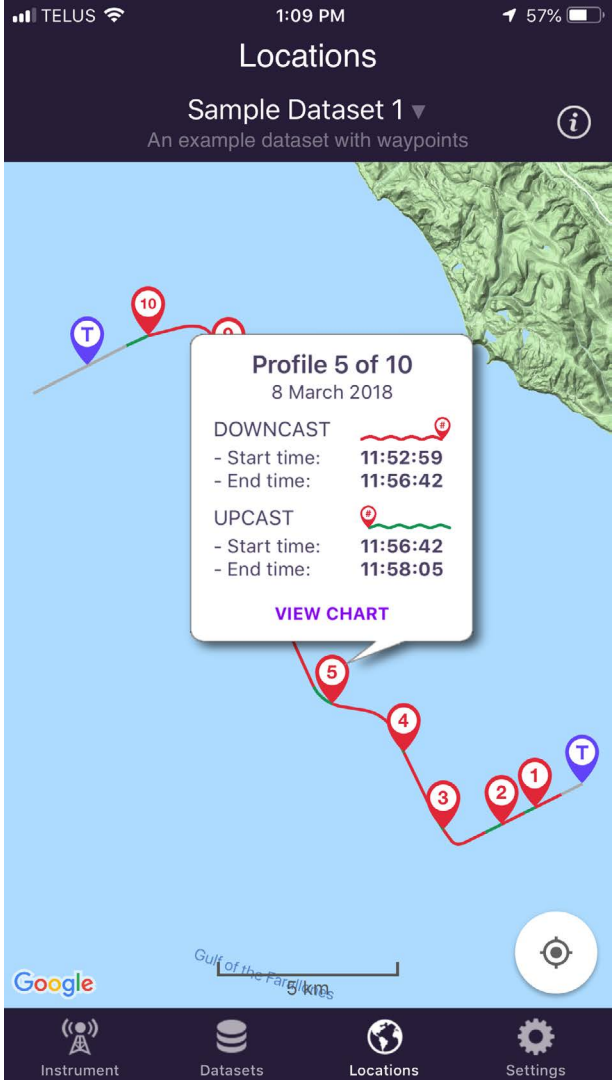
RBR


ROGERS LTE
5:51 PM
81%
RBRconcerto³ 060614
925
SAMPLES
OFF
PAUSED
32Hz
RATE
VIEW
LAST TAGGED LOCATION:
Logged automatically at 17:50
44.6624
LATITUDE
-63.5566
LONGITUDE
48m
ACCURACY
TAG
CURRENT LOCATION:
44.6623, -63.5569, (64m)
MEASURED CHANNELS:
STOP
DEPLOYMENT
Conductivity (mS/cm)
Instrument
Datasets
Locations
Settings


ROGERS
2:47 PM
98%
Datasets
Local Datasets
GPS Track
2:46pm on 31 Mar '20
2kB
GPS Track
2:30pm on 26 Mar '20
215kB
RBRconcerto3 060614
5:39pm on 12 Feb '20
164kB
RBRconcerto3 060614
2:58pm on 5 Feb '20
80kB
RBRconcerto3 060614
1:35pm on 3 Jan '20
244kB
RBRconcerto3 060614
1:34pm on 3 Jan '20
96kB
RBRconcerto3 060614
10:44am on 7 Aug '19
136kB
RBRbrevio3 060694
11:29am on 5 Jun '19
872kB
GPS Track
5:50am on 5 Jun '19
945kB
Instrument
Datasets
Locations
Settings


ROGERS
2:46 PM
98%
Locations
GPS Track
2:30pm on 26 Mar '20
Red Fern Terrace
Belchers
Marsh Park
Langbrae Suites
Parkland Dr
Langbrae Dr
Google
100 m
P Taxi
Instrument
Datasets
Locations
Settings


TELUS
1:09 PM
57%
Locations
Sample Dataset 1
An example dataset with waypoints
T
10
9
8
7
6
5
4
3
2
1
T
Google
5 km
Instrument
Datasets
Locations
Settings


TELUS
1:09 PM
57%
Locations
Sample Dataset 1
An example dataset with waypoints
Profile 5 of 10
8 March 2018
DOWNCAST
- Start time: 11:52:59
- End time: 11:56:42
UPCAST
- Start time: 11:56:42
- End time: 11:58:05
VIEW CHART
Google
5 km
Instrument
Datasets
Locations
Settings

RBR

Upcoming Webinars

Future Webinars

Robots, RBRs, and Reconnaissance under the Ice

Icefin Team (GIT)

July 29, 2020 at 12PM EDT

Learn the highlights of how the GIT team have used RBRconcertos and other CTDs in the McMurdo Sound, under the Ross Ice Shelf, and the Thwaites Glacier, both on the Icefin and profiling casts through the ice.

Register for the Webinar

Community Science in New England: The CFRF/WHOI Shelf Research Fleet

Glen Gawaekiewicz (WHOI)

August 5, 2020 at 12PM EDT

For many years, the fishing community in Rhode Island has been working with WHOI scientists to collect data over the continental shelf. Learn what their combined efforts have discovered.

Register for the Webinar

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Thank You

Contact Us

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+1 613 599 8900

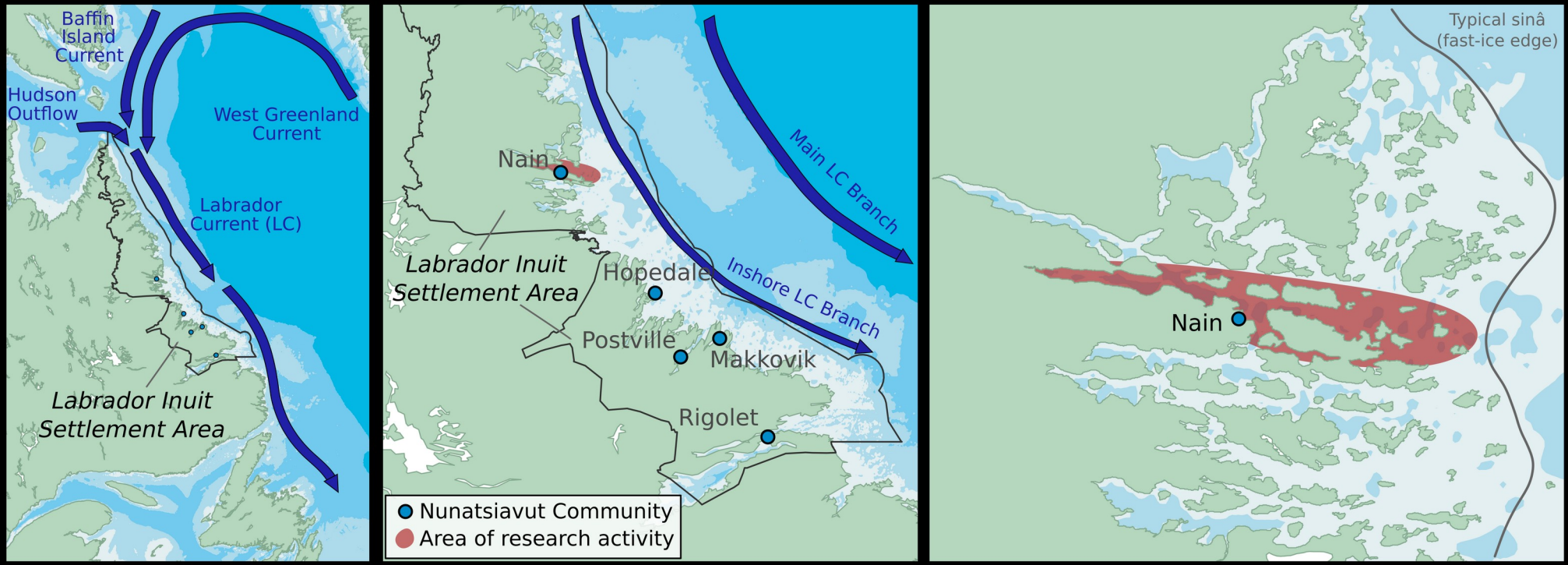
RBR

Community-based observing of the coastal ocean in Nunatsiavut

Eric Oliver
Dalhousie University

Intro and Philosophy

- Ocean and climate in the Labrador region are changing rapidly
- Need to monitor these changes, but observations in coastal Labrador are sparse
- Ice-covered season typically a “shipping hazard”, but for Labradorians the ice facilitates travel, and understanding the ocean during the ice season is important
- Local communities are feeling the effects of climate change directly, and can monitor the ocean state using sea ice as a platform
- **Community-based monitoring**, with external funds & gear, can achieve this, filling
  - Data gap 1: Coastal and inner-shelf zones
  - Data gap 2: During the ice-covered season
- Opportunity for two-way knowledge exchange, and the co-development of research i.e. questions, areas, what/when to measure
- Research should address community concerns, interests, and priorities


Baffin Island Current
Hudson Outflow
West Greenland Current
Labrador Current (LC)
Labrador Inuit Settlement Area
Nain
Labrador Inuit Settlement Area
Hopedale
Main LC Branch
Inshore LC Branch
Postville
Makkovik
Rigolet
Nunatsiavut Community
Area of research activity
Typical sinâ (fast-ice edge)
Nain

Methodology

- Partner with communities in Nunatsiavut, in particular the Nunatsiavut Government
- Perform CTD casts through an augered ice hole, in regions of value
- RBR Concerto3 CTD is used with 16 Hz sample rate – *AA battery powered w/ wifi*
- A fishing downrigger w/ 120 m of 150-lb test line is used to lower and raise the CTD

Pilot Fieldwork – April 2019

Pilot Fieldwork – April 2019

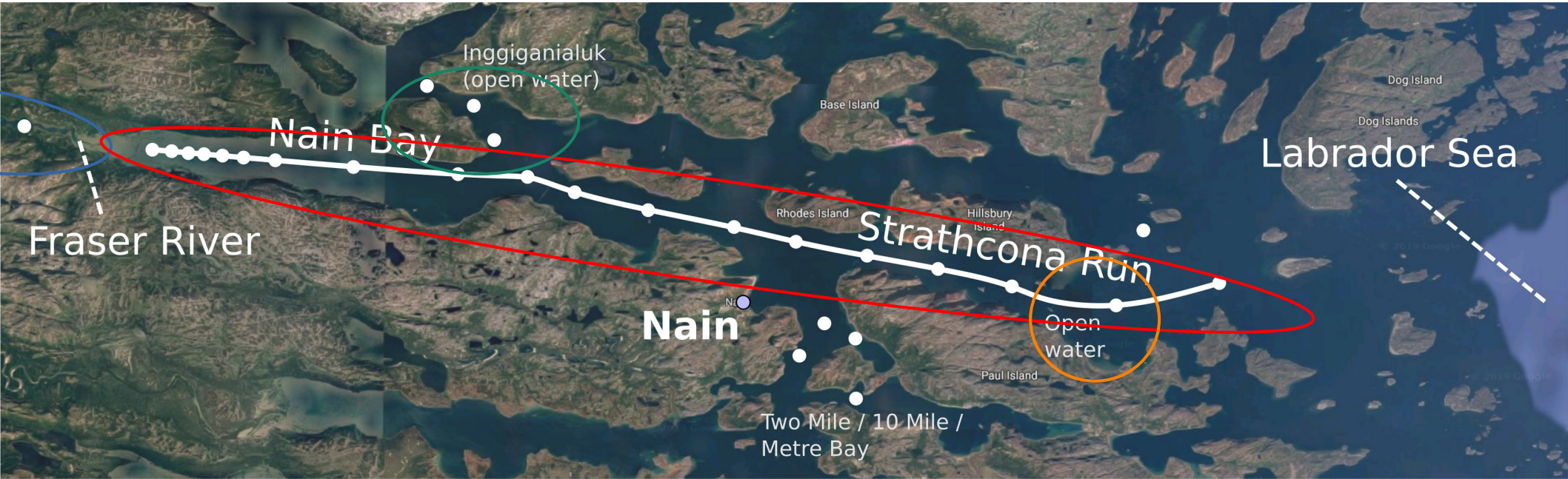
Fraser River - Transect along fresh-to-brackish gradient

Pilot Fieldwork – April 2019

Fraser River - Transect along fresh-to-brackish gradient
Nain Bay-Strathcona Run – Main fjord / estuary transect from brackish to nearly open ocean

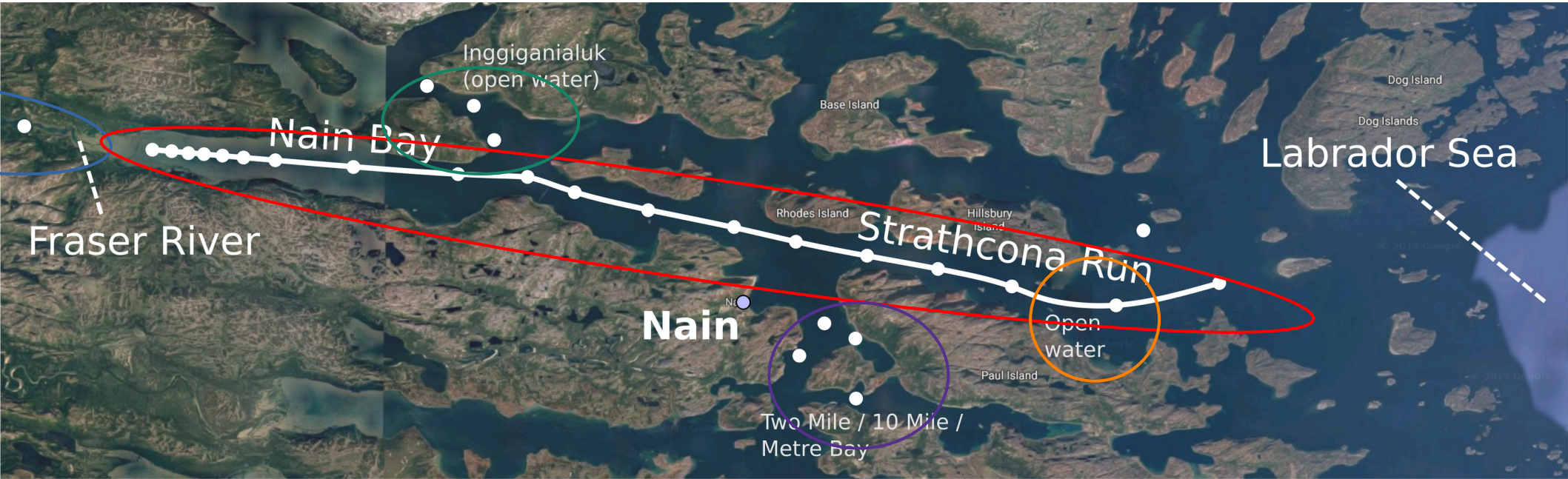
Pilot Fieldwork – April 2019

Fraser River - Transect along fresh-to-brackish gradient
Nain Bay-Strathcona Run – Main fjord / estuary transect from brackish to nearly open ocean
Inggiganialuk – Rattle (polynya), shallow, high flow
Outer polynya/rattle – Shallow



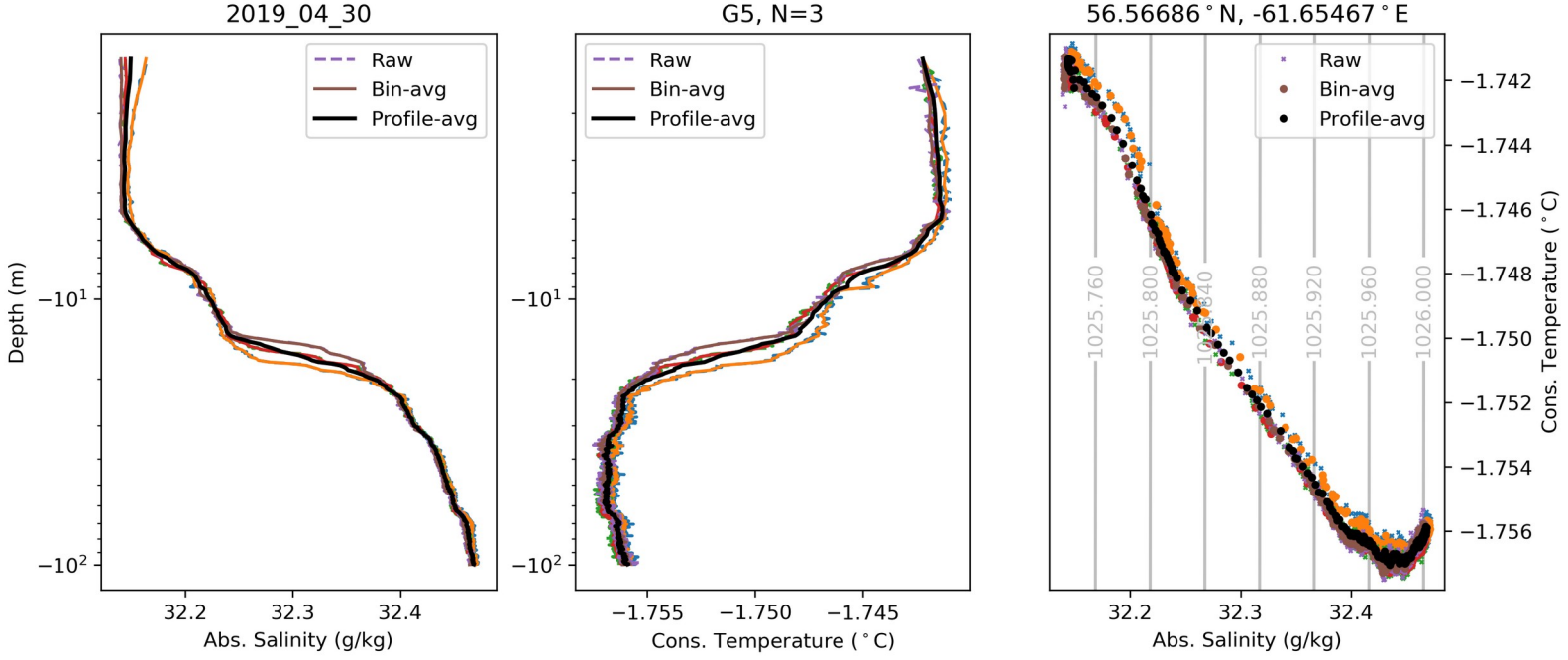
Pilot Fieldwork – April 2019

Fraser River - Transect along fresh-to-brackish gradient
Nain Bay-Strathcona Run – Main fjord / estuary transect from brackish to nearly open ocean
Inggiganialuk – Rattle (polynya), shallow, high flow
Outer polynya/rattle – Shallow
Two Mile Bay / 10 Mile Bay / Metre Bay –



Data Processing

- 3 casts per location, initial QC by eye; No dynamic corrections yet (--)
- Bin-averaged in regular 0.25 m bins (-)
- Averaged across QC'd profiles at each location (-)



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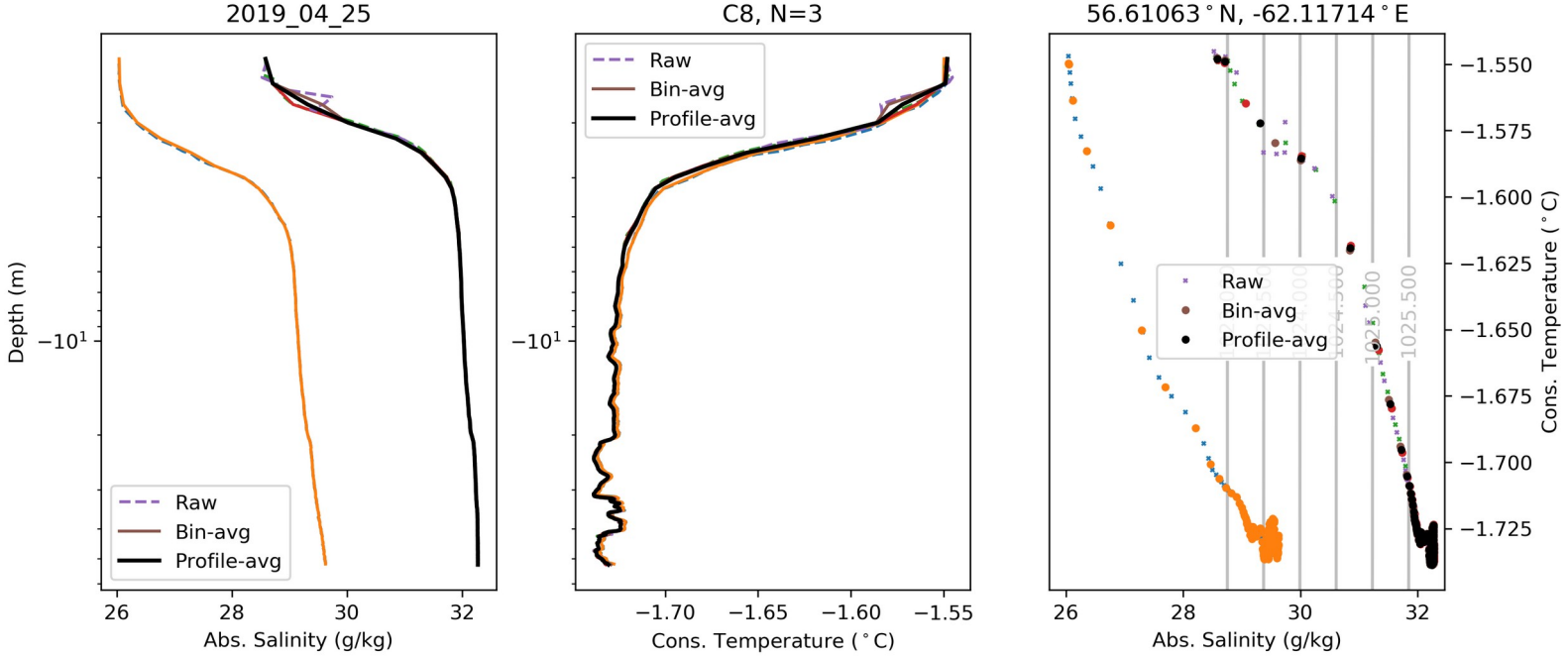
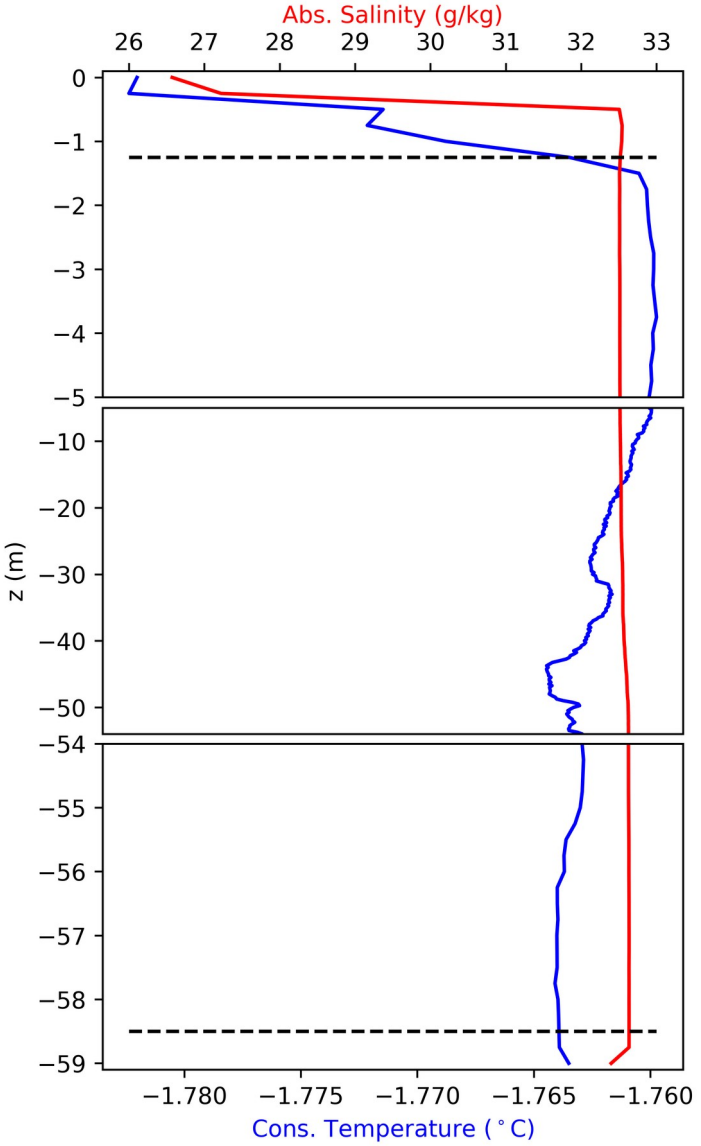
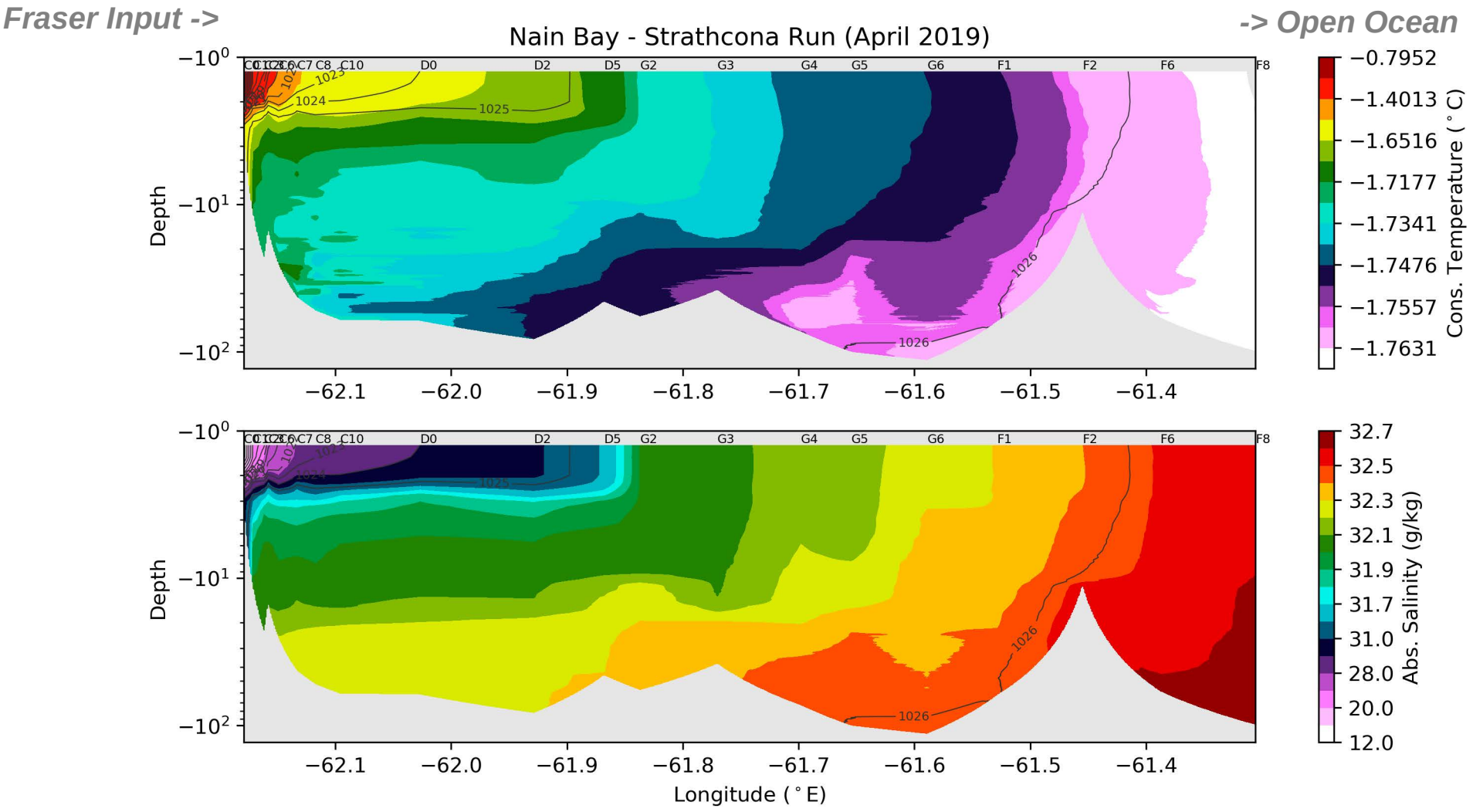


Data Processing

- Trim top 1.25 m, bottom 0.50 m
  - Low salinity values in top 1-1.5 m due to “churning in” of ice from the augering process
  - Bottom values affected by “drop into bottom” method
- Method fixes
  - Top: Cut hole day before
  - Bottom: Longer guard



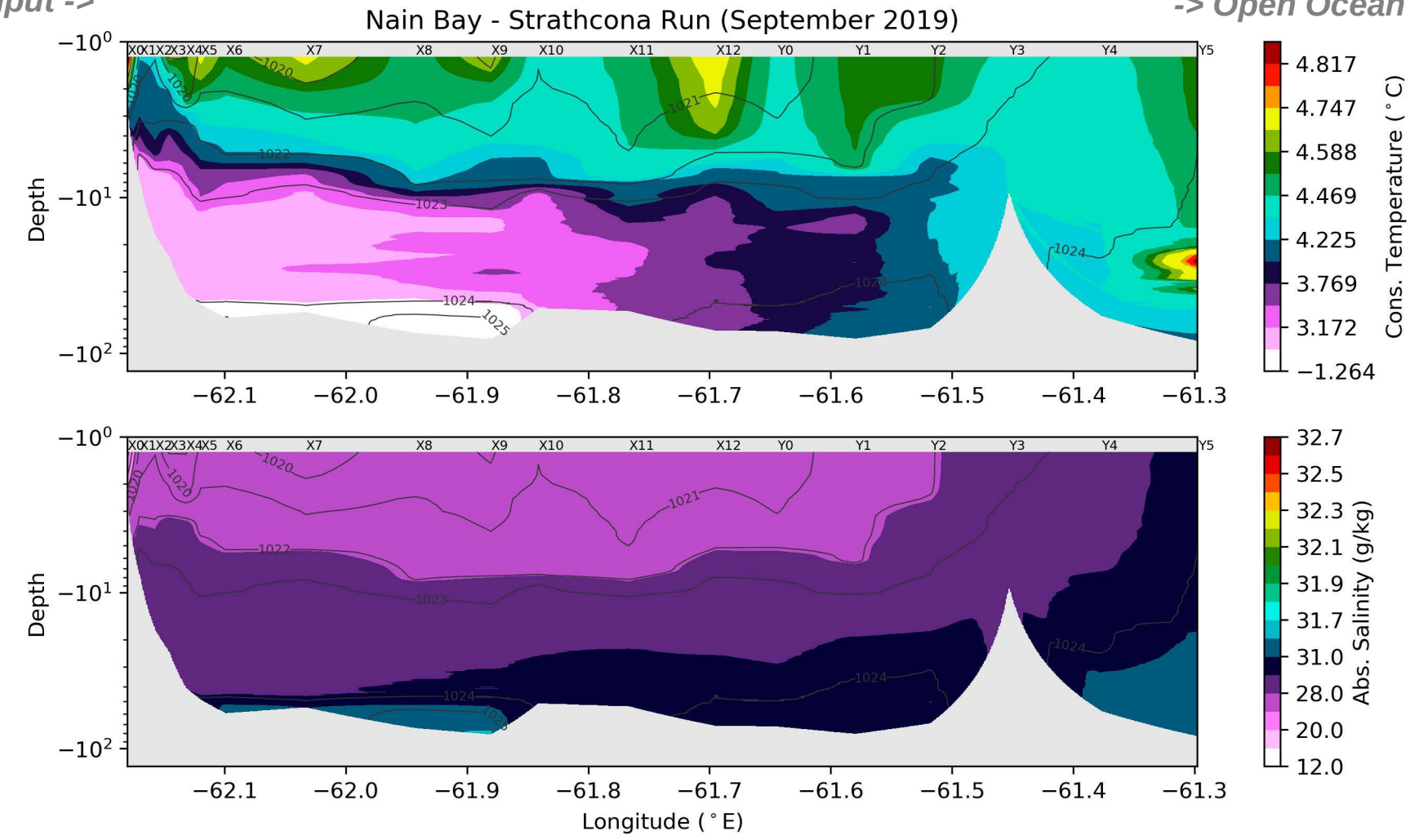

Fraser Input ->
-> Open Ocean
Nain Bay - Strathcona Run (April 2019)
Depth
Longitude (°E)
Cons. Temperature (°C)
Abs. Salinity (g/kg)
C0 C1 C2 C6 C7 C8 C10 D0 D2 D5 G2 G3 G4 G5 G6 F1 F2 F6 F8
1023
1024
1025
1026
−62.1 −62.0 −61.9 −61.8 −61.7 −61.6 −61.5 −61.4
−0.7952 −1.4013 −1.6516 −1.7177 −1.7341 −1.7476 −1.7557 −1.7631
32.7 32.5 32.3 32.1 31.9 31.7 31.0 28.0 20.0 12.0

Transect revisited – Sept 2019

Adapted method to use small boat (speed boat) in open-water season

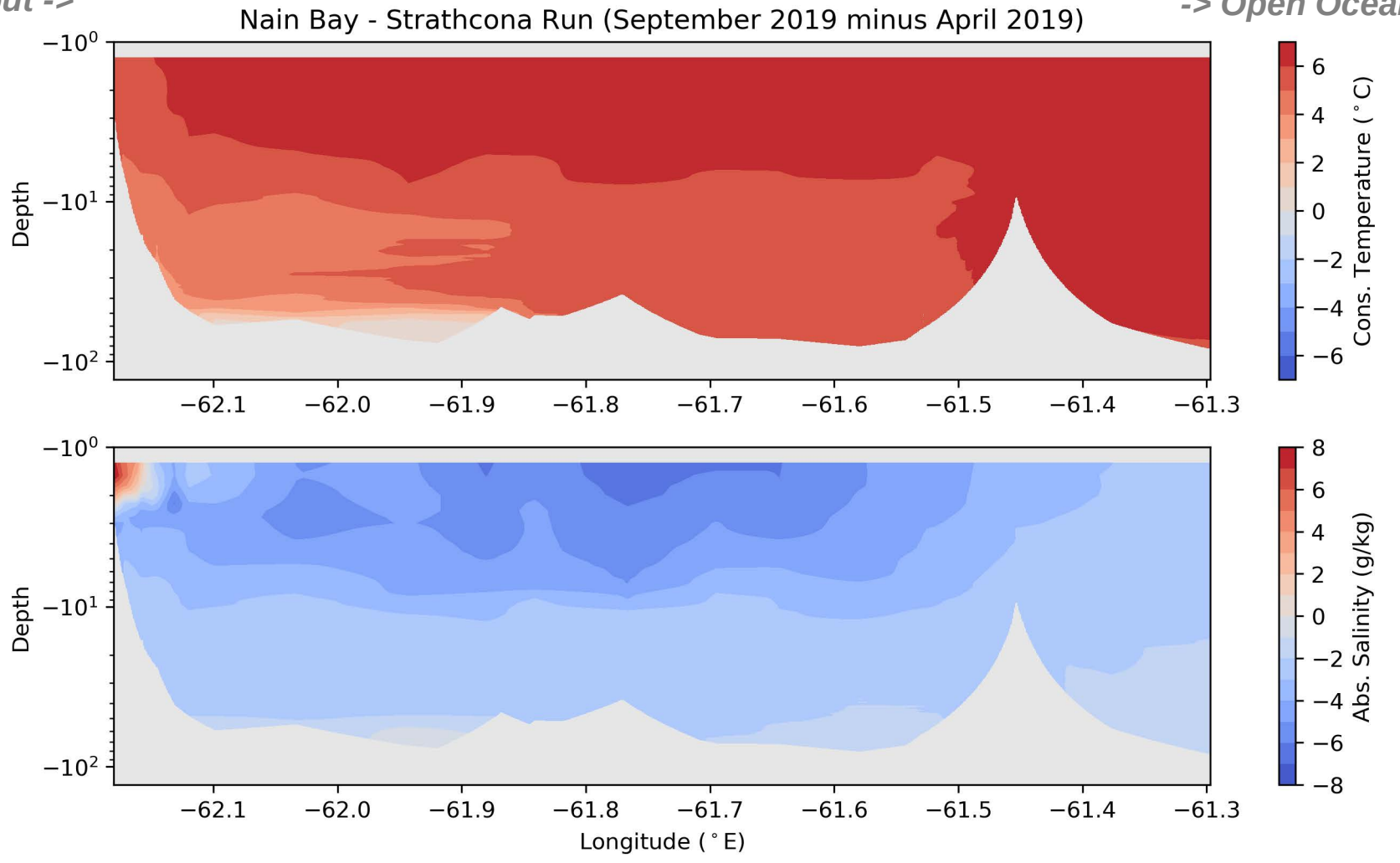
Fraser Input ->

-> Open Ocean



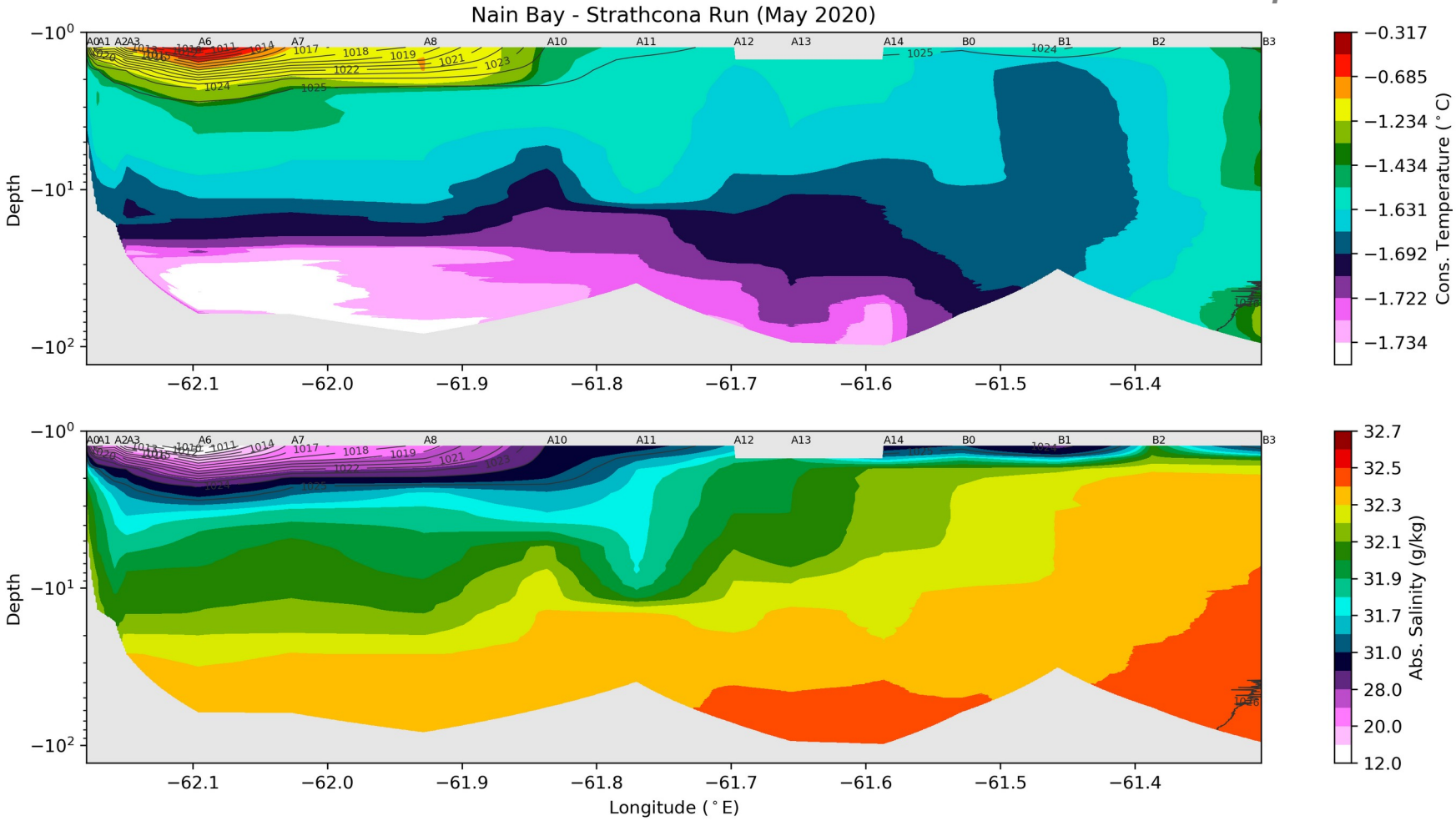
Fraser Input ->

-> Open Ocean

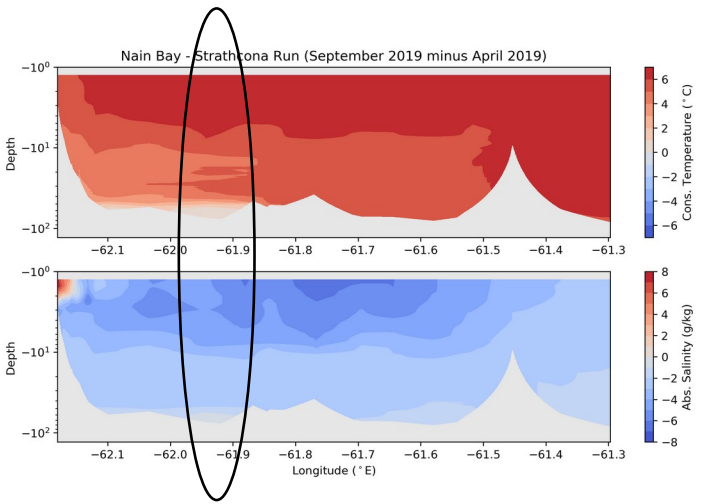


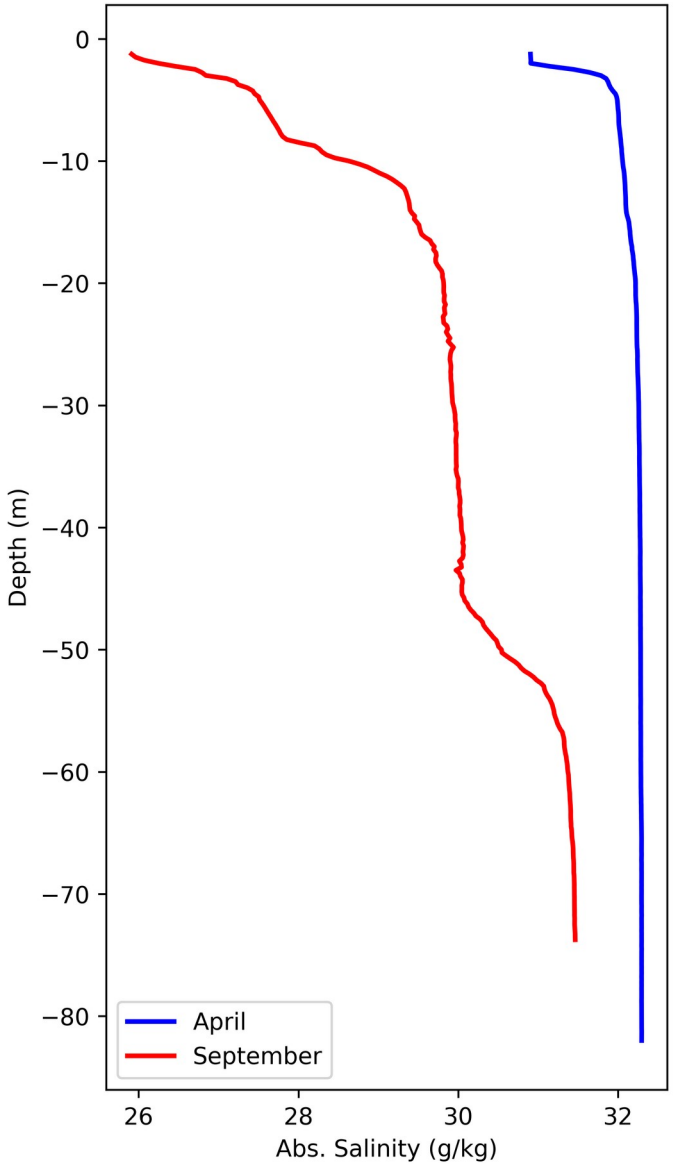
Fraser Input ->

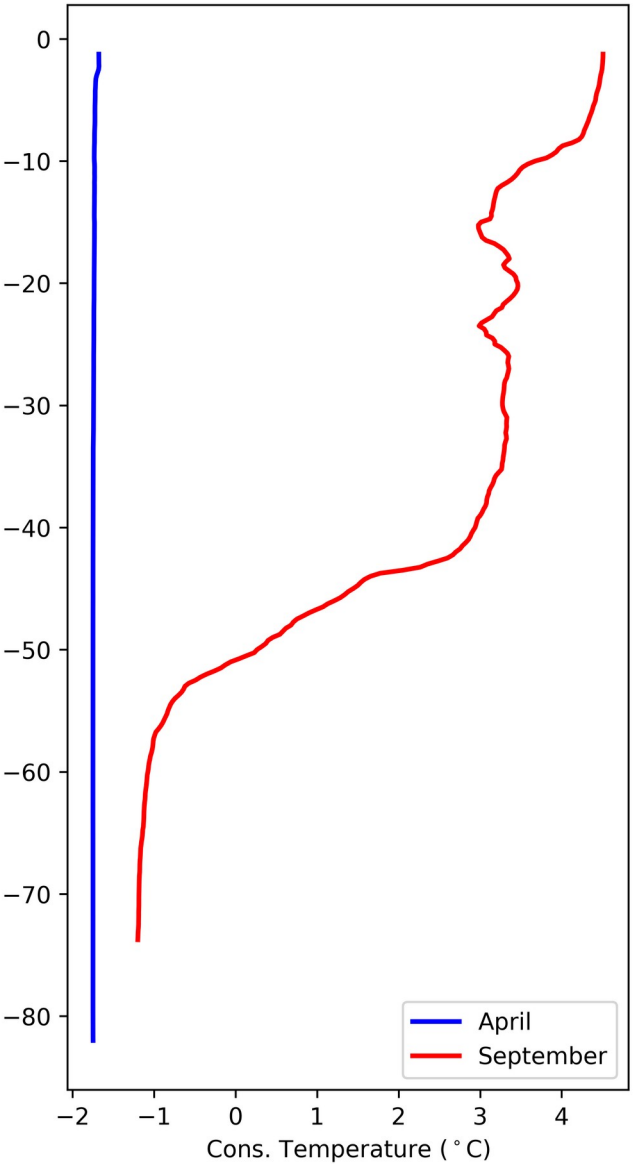
-> Open Ocean



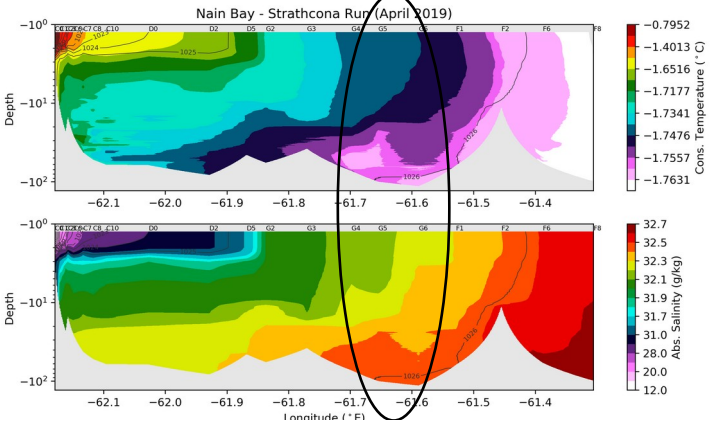
- Storage of cold/salty water in Nain Bay
  - April D2
  - Sept X8



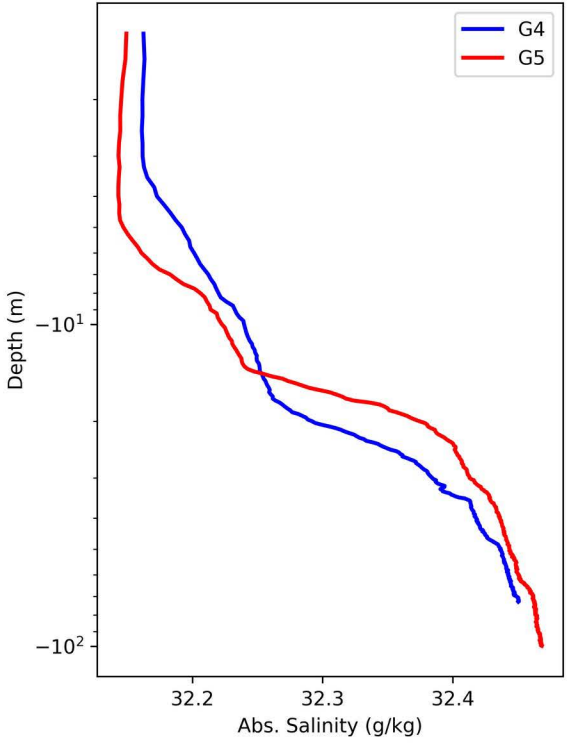


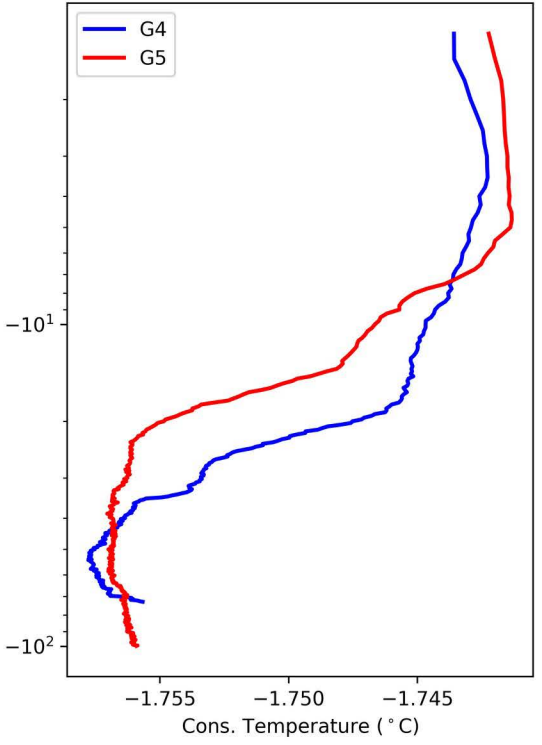


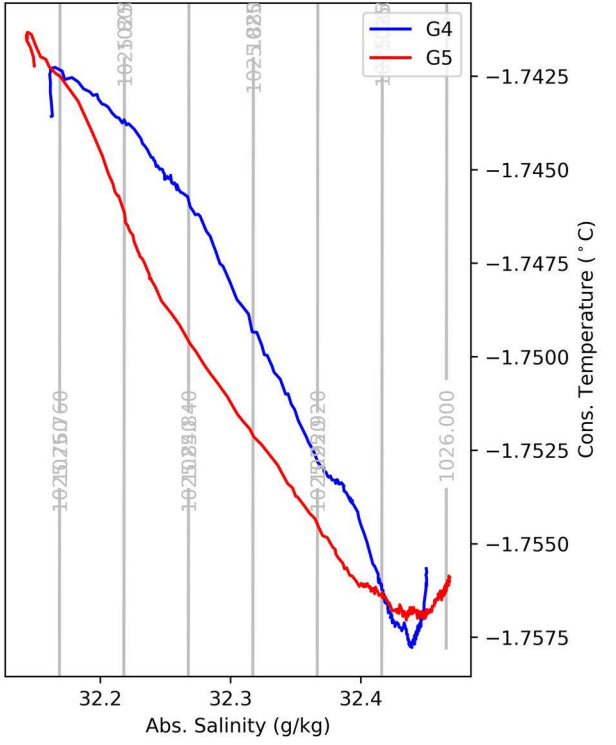
- Atlantic water influence



April







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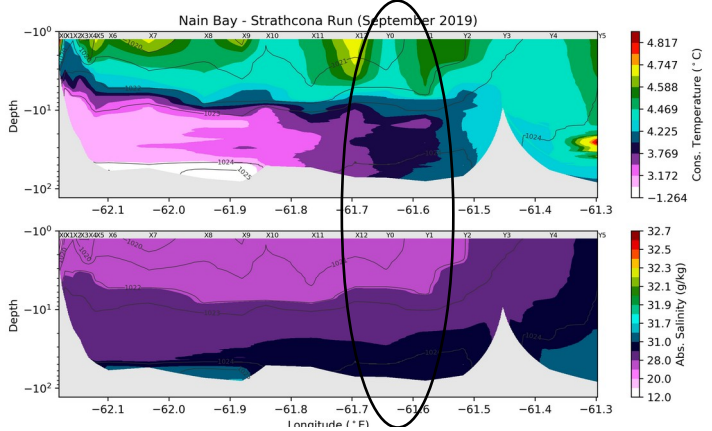
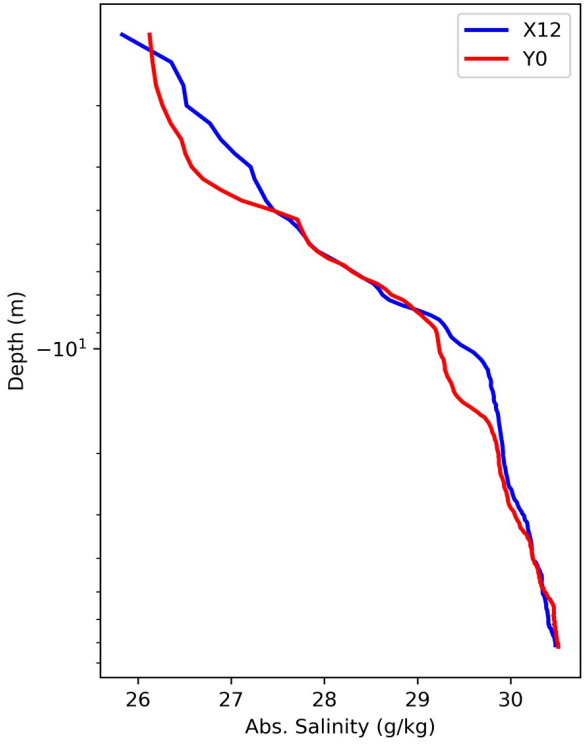
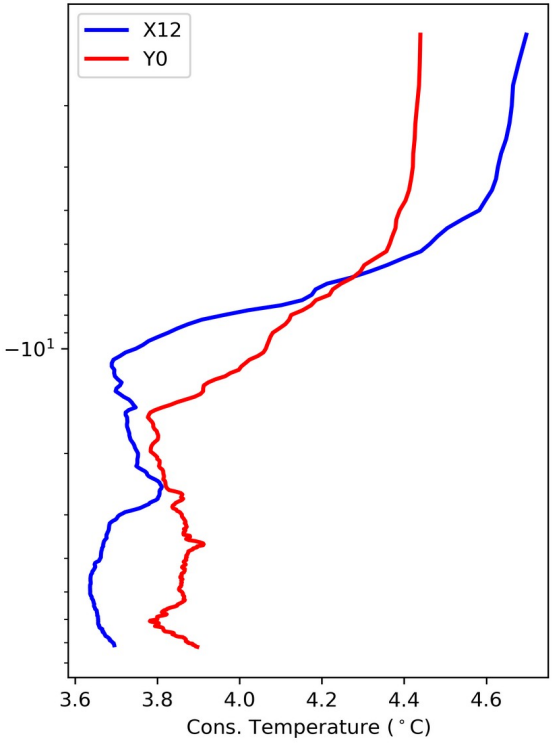
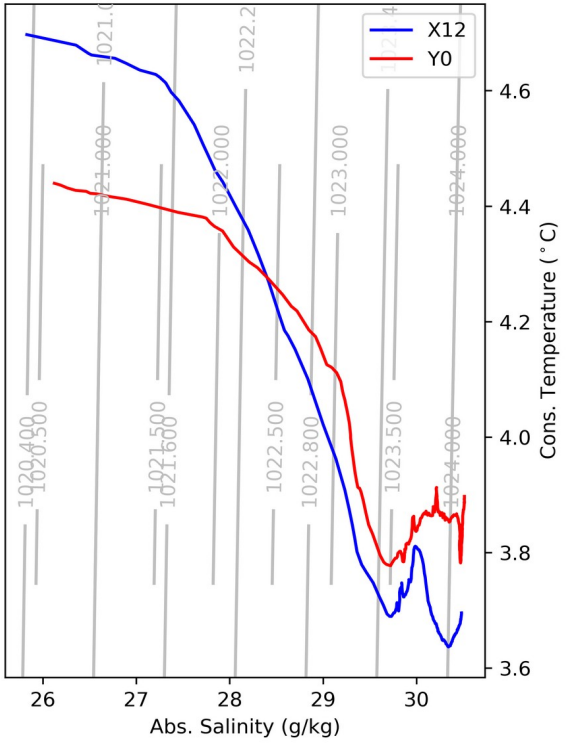


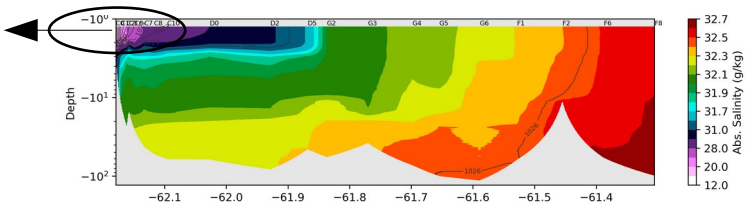
September

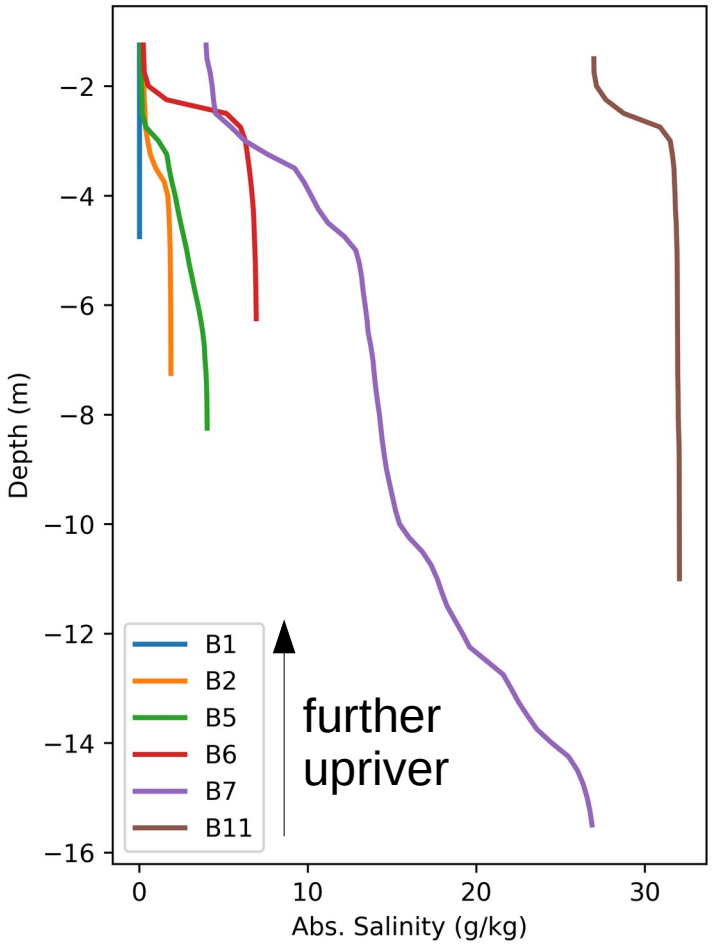


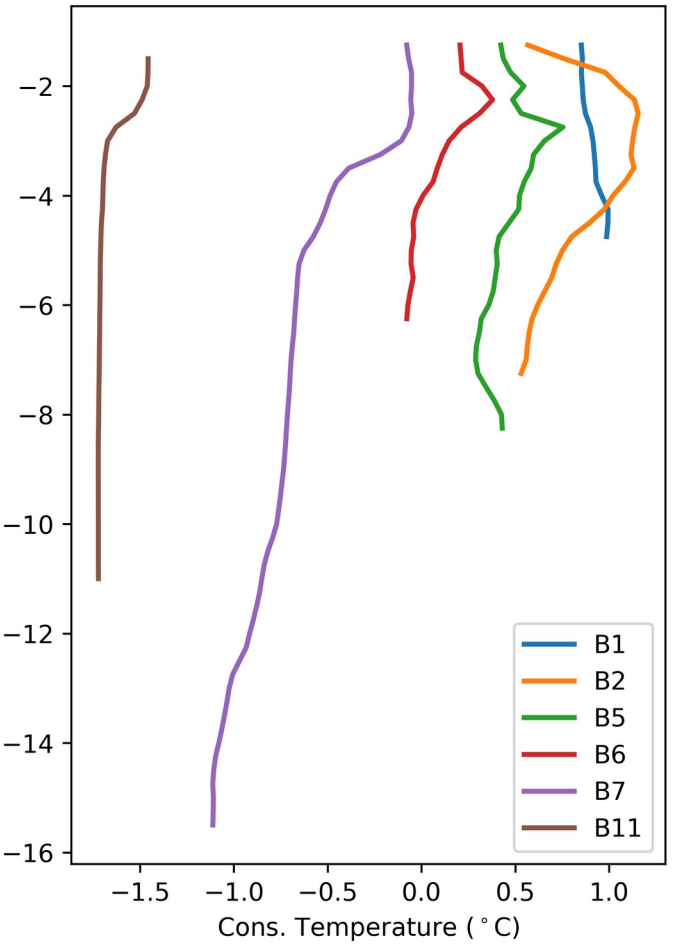




- Salinity influence in the Fraser River
- *Joey Angnatok stated it's possible to "ride the tide over the sills"*

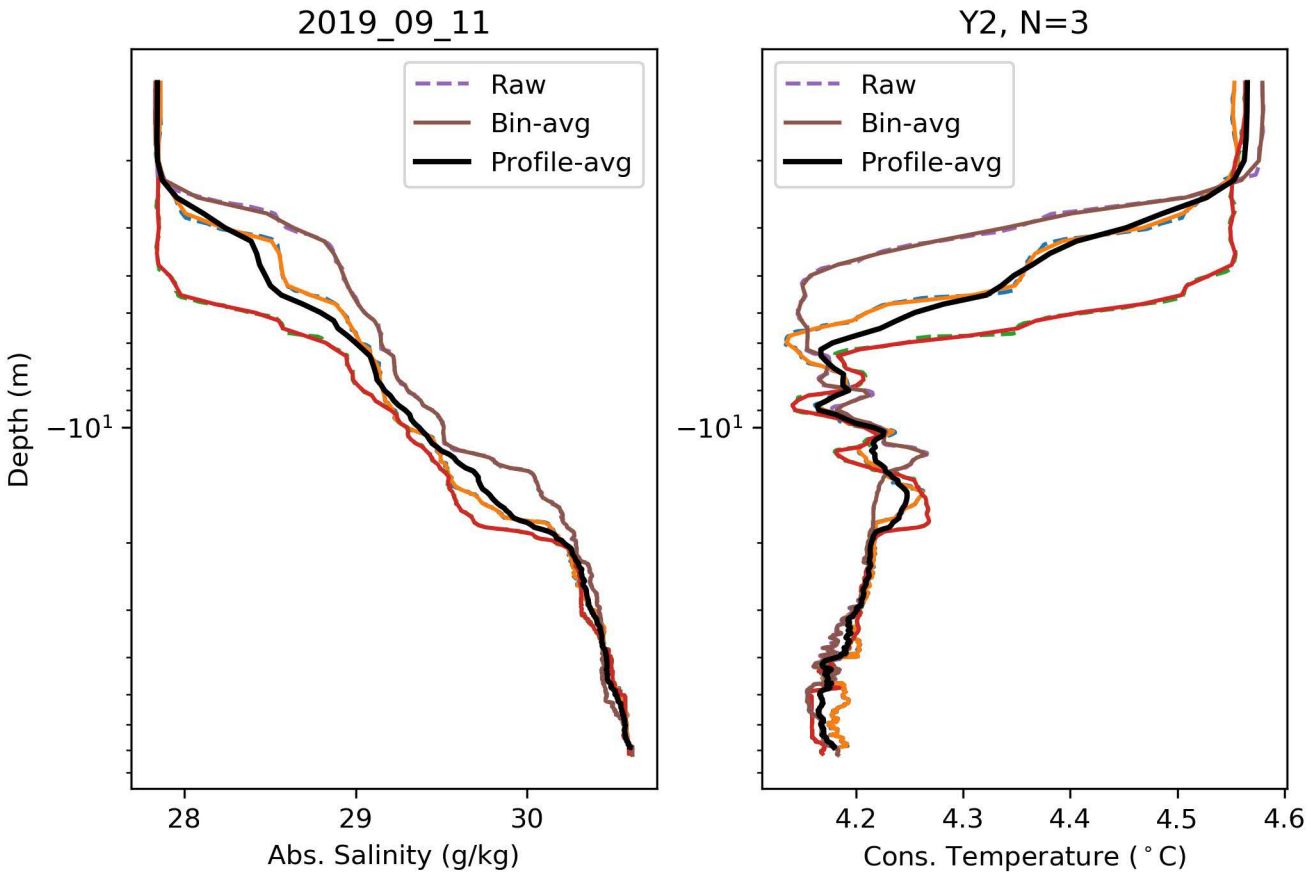






Issues

- Cast-to-cast differences
  - QC vs. dynamics e.g. internal waves
- Descent rate
  - 1-1.5 m/s, less steady by small boat
- Data processing in Python
  - would like to initiate an open-source, community-driven Python code base

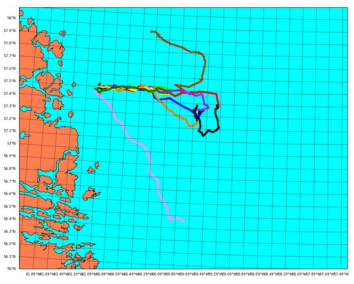


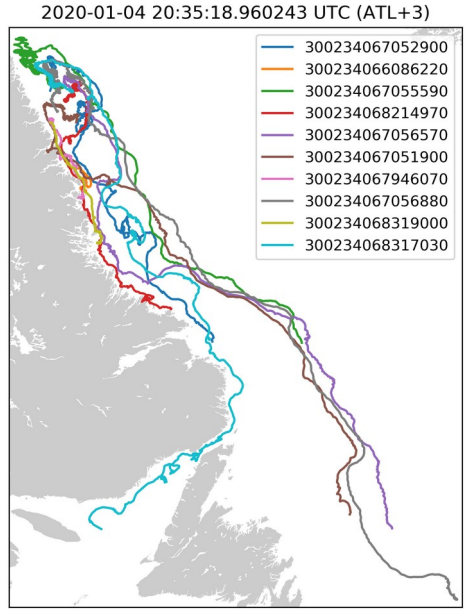
Future Plans

- Will form part of a **major 4-year(+?) project**:
  - Funded by Ocean Frontier Institute, with support from Canada Foundation for Innovation and Crown-Indigenous Relations and Northern Affairs
  - Partnership with Fisheries and Oceans Canada and Nunatsiavut Government and many others
- Refinements and expansions:
  - Add BGC sensors, light sensors
  - Sea ice measurements
  - Collapsible plankton nets
  - ADCP (small boat surveys), Thermistor-string (“ice-moorings”)
  - “End-of-Pier stations” (tides, temp – time series)

Related Projects

- **Surface drifters** (coast and inner shelf)
- **Glider** (northern Labrador Shelf)
- **Inuit Knowledge mapping** (coastal ocean and ice)
- **Numerical ocean modelling** (coastal ocean dynamics)
- *Data available via conoc.ca*





Community outreach – On-the-land workshop with researchers, youth and elders in Sept 2019


Photo: Maria Merkeratsuk


Photo: Maria Merkeratsuk

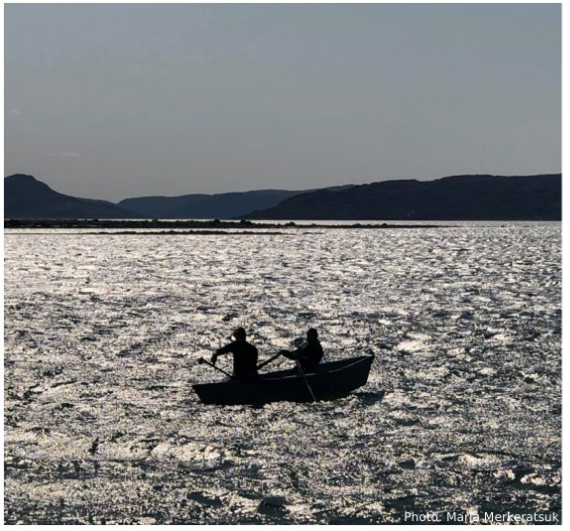


Photo: Maria Merkeratsuk


Photo: Heather Angnatok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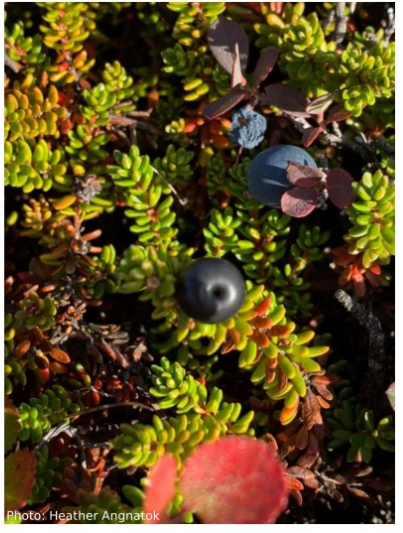
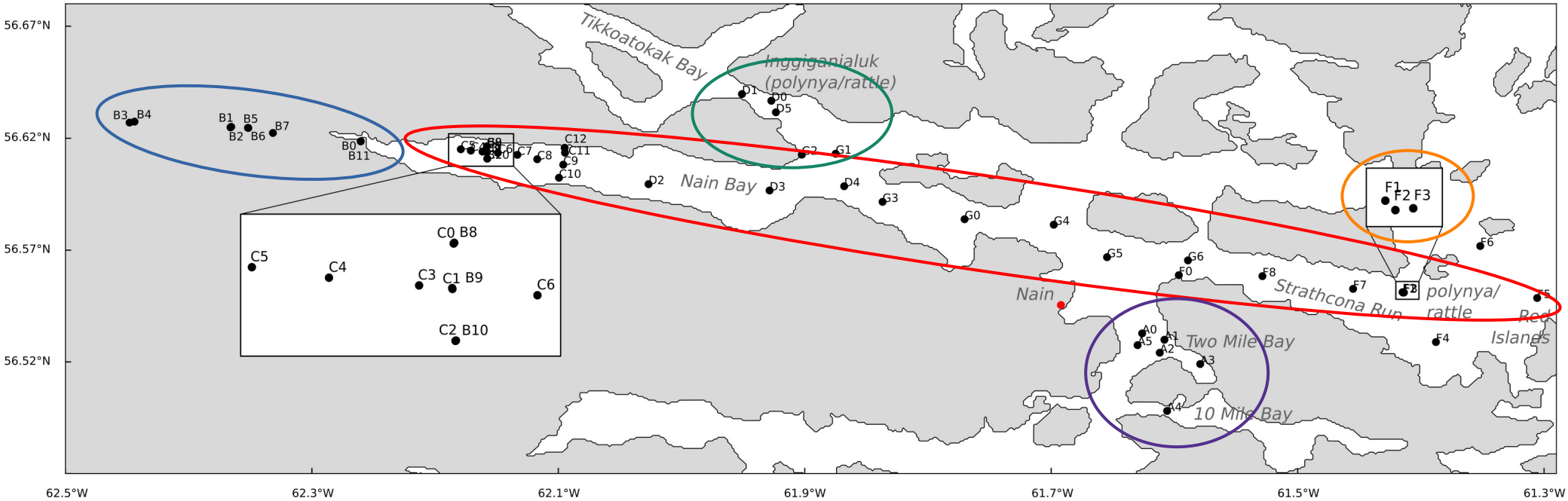


Photo: Heather Angnatok



Fraser River* - Transect along fresh-to-brackish gradient
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Inggiganialuk – Rattle, shallow, high flow
Outer polynya/rattle – Shallow
Two Mile Bay / 10 Mile Bay / Metre Bay – no data for Metre Bay...

All stations visited in April 2019. Nain Bay-Stratchcona Run transect visited in Sept 2019.
All CTD casts (plots and data) available online at **conoc.ca**