

CIOOS PACIFIC

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OceanECO: a new tool transforming long-term monitoring data to information

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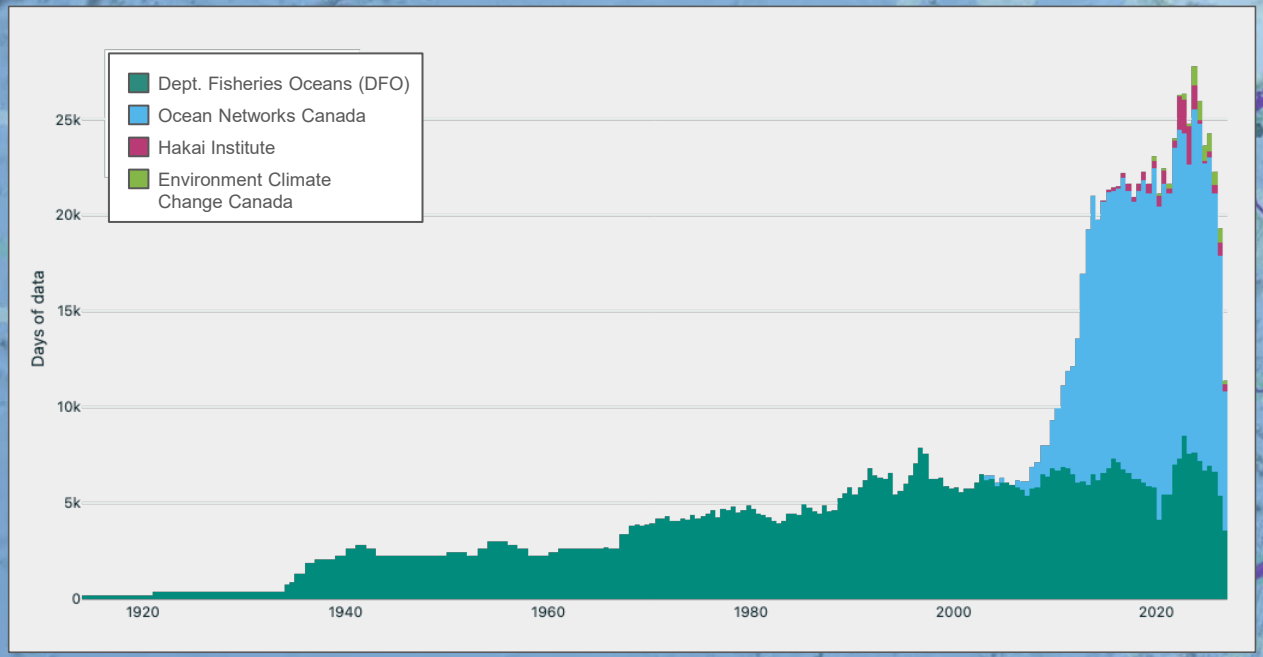
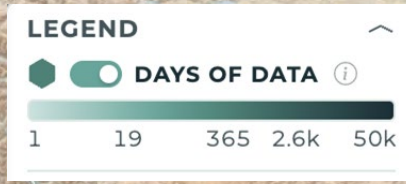
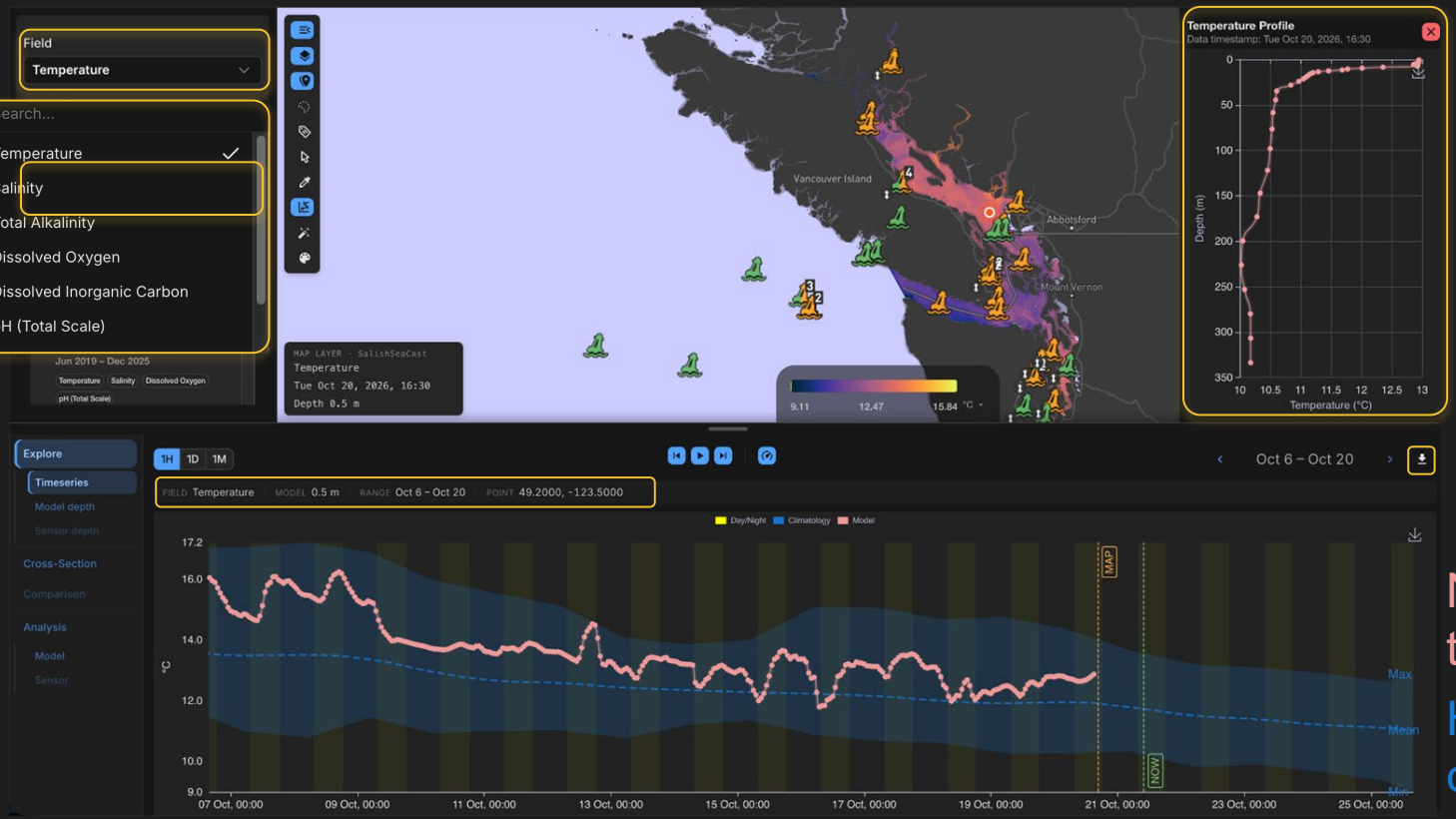
British Columbia's monitoring resources

https://explore.cioos.ca





OceanECO: converting oceanographic data resources into accessible information

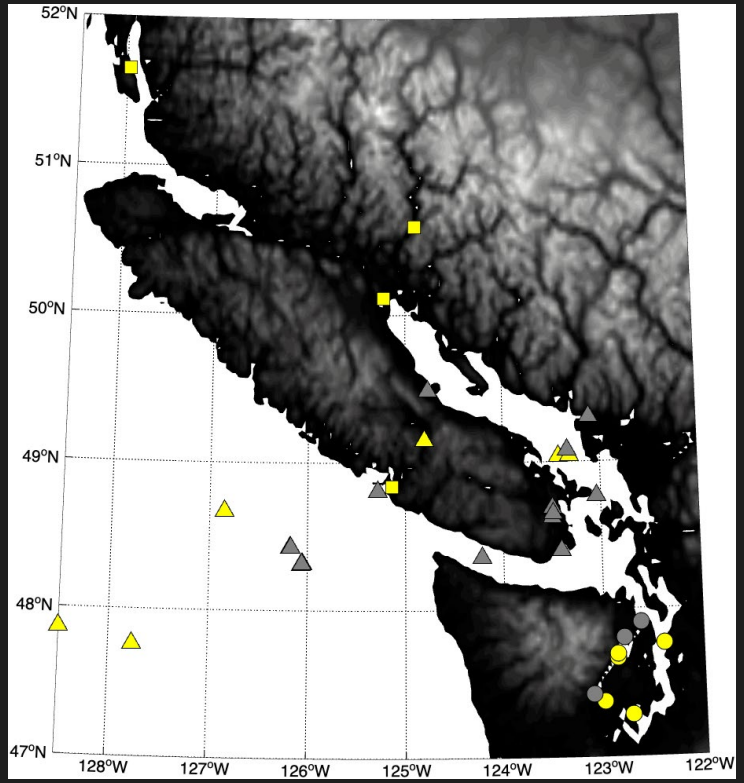


Near real-time

Hourly climatology



Data Inputs: Live Sensor Network



Data live streaming

Historical data

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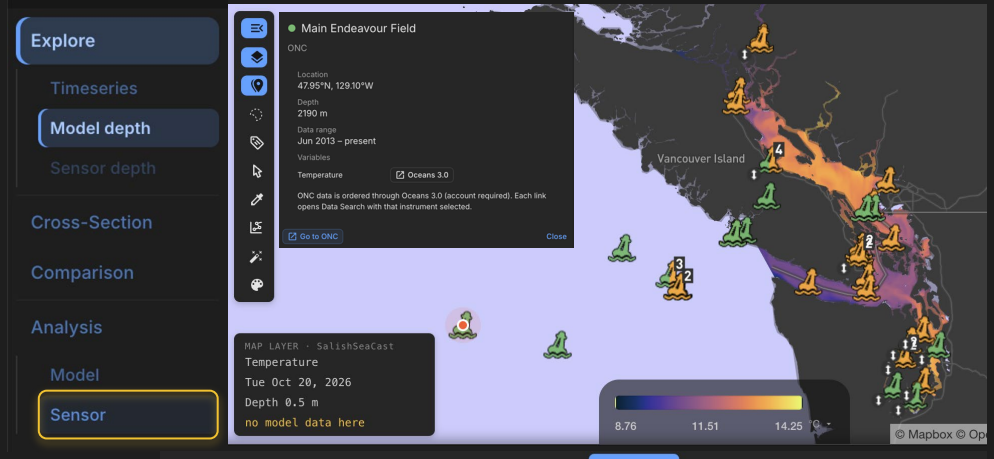
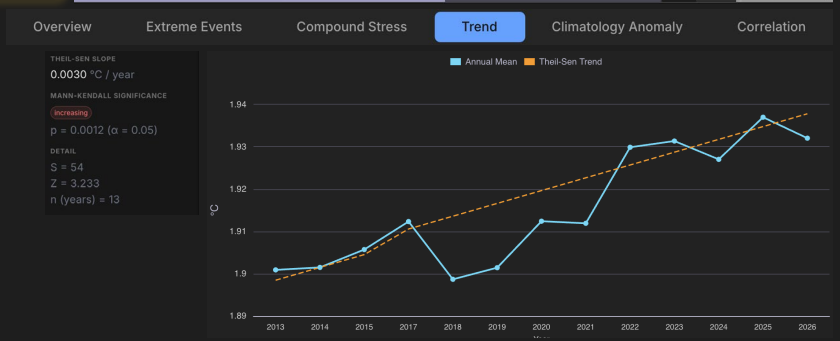
Data Inputs:
Model Simulations

	SalishSeaCast (NEMO)	LiveOcean (ROMS)
Resolution	400-500m horizontal 1-27m vertical (40 depth levels) Hourly	500m horizontal 0.5-15m (30 depth levels) 4-Hourly
Spatial Extent	Salish Sea bounded by Juan de Fuca and Johnstone Straits	Outer coast from Oregon to Northern BC shelf region

Use the network of in-situ sensors to investigate temporal trends at long-term monitoring stations







THRESHOLD MODE

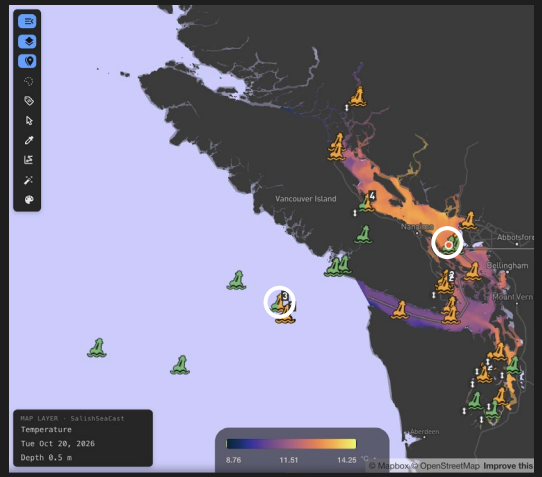
Percentile | Fixed value

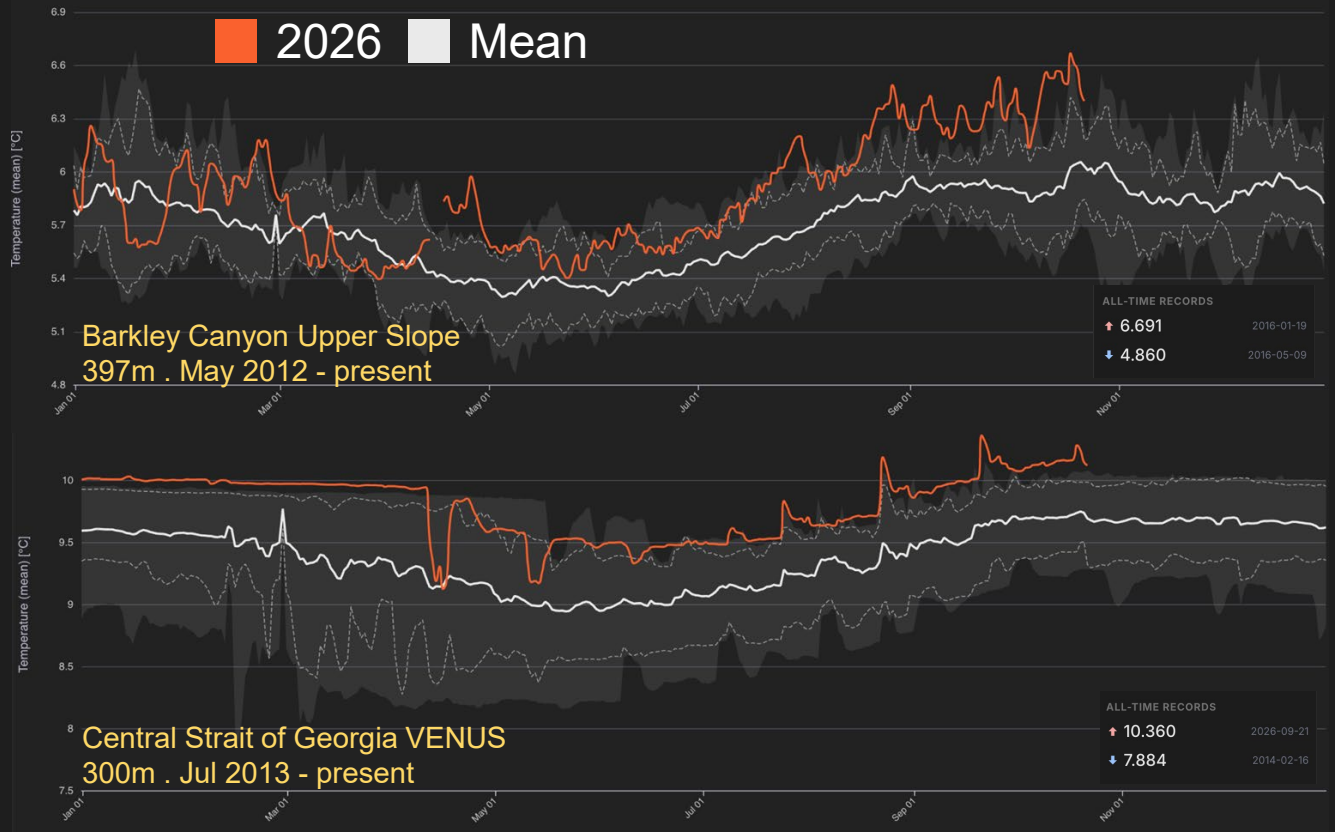
DIRECTION

Above (high) | Below (low)

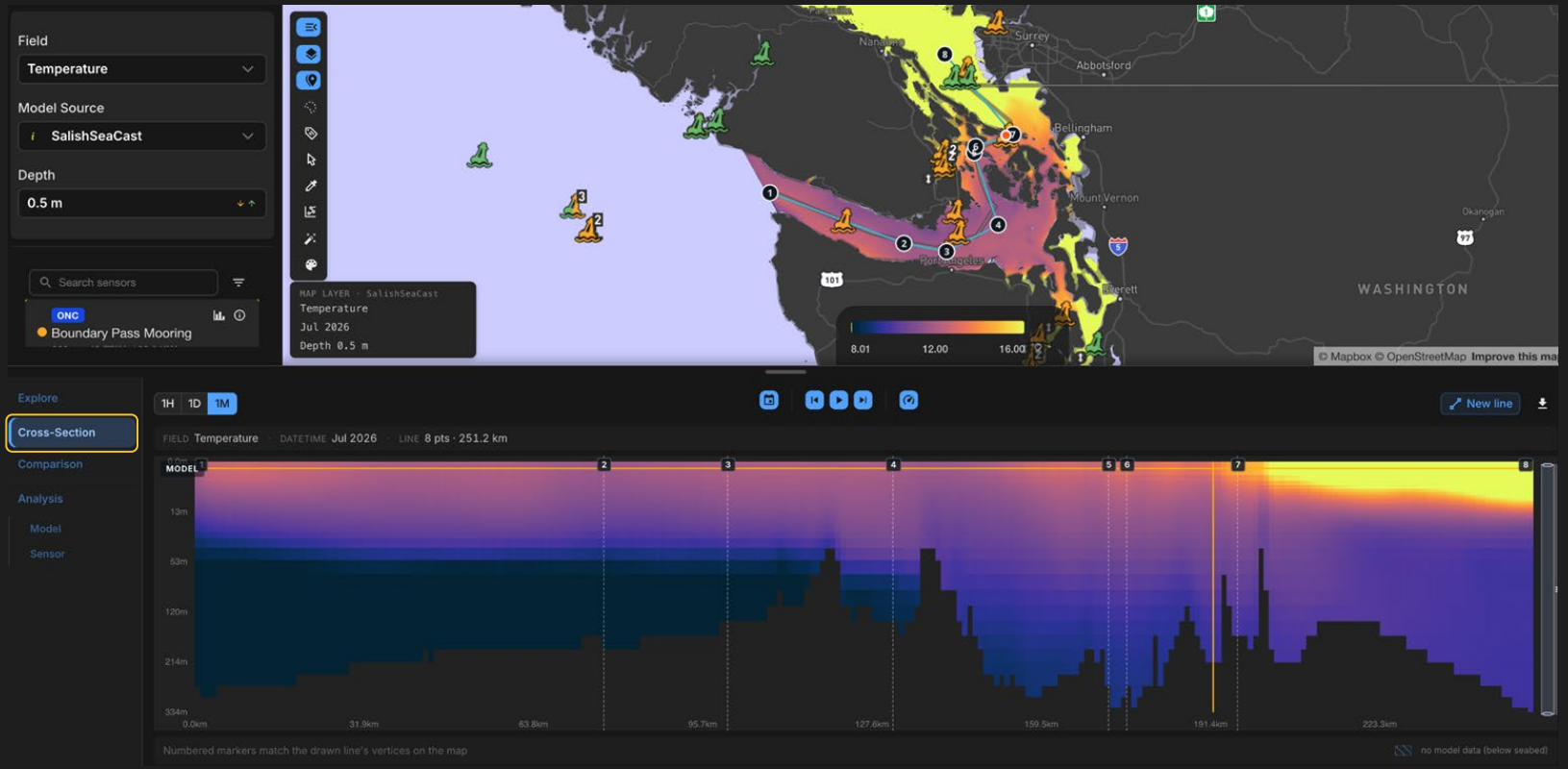
Start	End	Days	Peak (°C)	Peak Δ (°C)
2025-08-30	2025-09-19	21	1.964	0.048
2025-11-24	2025-12-24	31	1.961	0.046
2025-01-03	2025-01-17	15	1.962	0.044

Detecting subsurface extreme events extending from the continental shelf to inner salish sea





Examining connectivity between the outer shelf and inner Strait of Georgia using Salish Sea Cast



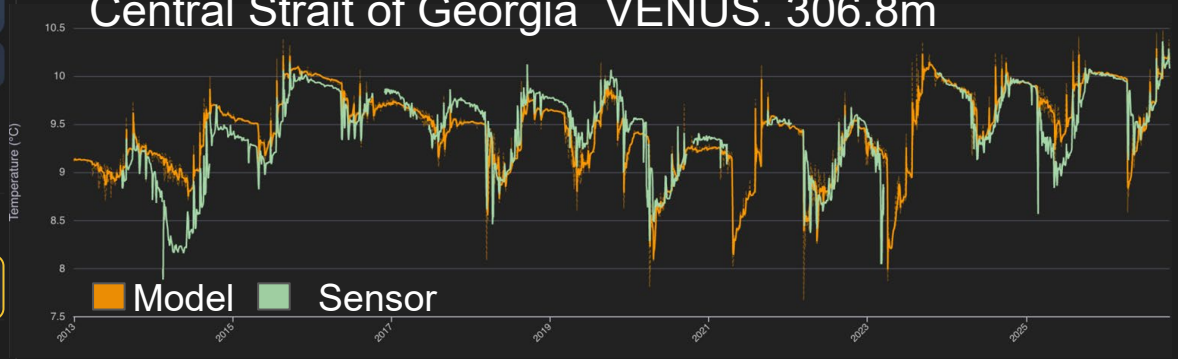
July 2026

Evaluating model performance



- Explore
  - Timeseries
    - Model depth
    - Sensor depth
- Cross-Section
- Comparison
- Analysis
  - Model
  - Sensor

Central Strait of Georgia VENUS. 306.8m



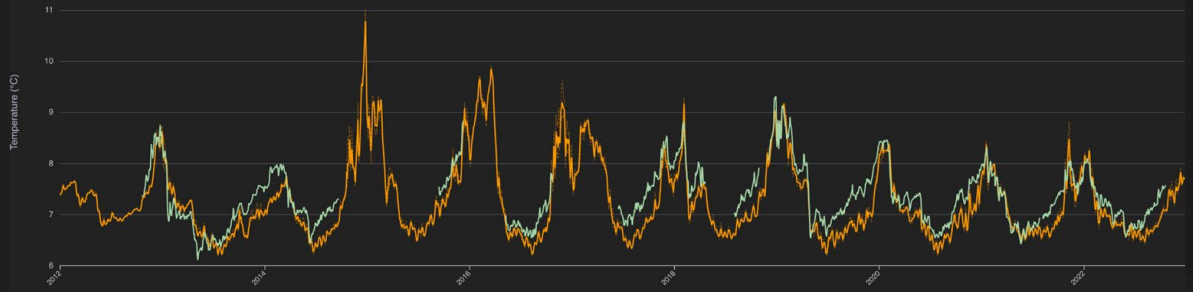
SEASON

All | DJF | MAM | JJA | SON

SUMMARY STATS

Bias (Model–Obs)	+0.043
RMSE	0.240
Pearson R	0.838
Matched days	4188

JFC2 Mooring. 173.1m



SEASON

All | DJF | MAM | JJA | SON

SUMMARY STATS

Bias (Model–Obs)	-0.248
RMSE	0.345
Pearson R	0.912
Matched days	2772

In review: OceanECO enables exploration of complex datasets from multiple sources in a single platform

1. Discovered evidence for deep offshore warming
2. Identified marine heatwaves occuring along the Barkley Slope Shelf and interior Strait of Georgia
3. Examined seasonal and spatial patterns along the thalweg using 4-dimensional Salish Sea Cast model outputs
4. Evaluated the performance of the Salish Sea Cast against in-situ sensors along the thalweg

OceanECO

Feedback

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Acknowledgements

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Fisheries and Oceans Canada

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