



Global Ocean Observing System

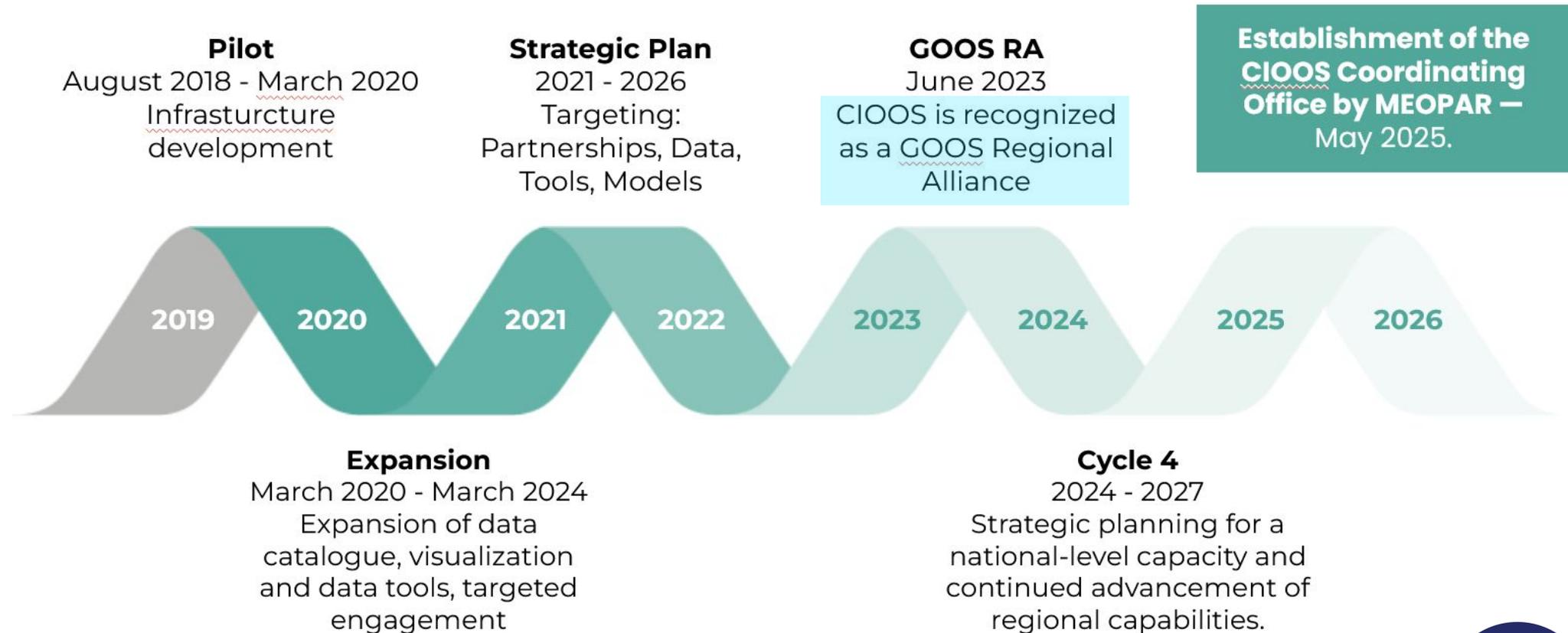


Data Tools - Canadian Integrated Ocean Observing System

GRA Forum XII
Hyderabad, India
March 23, 2026

Presenter: Anne-Sophie Ste-Marie, CI00S Coordination Office Director

A Brief CIOOS History



Fisheries and Oceans
Canada

Pêches et Océans
Canada



- 1. Data Management and Access Tools**
- 2. Information Services Tools**

Data management and training resources

- Living Guide for Ocean Data Management launched in 2025
- Open & evolving: this guide is maintained by the community.
- Access to the CIOOS-recommended Data Management Plan (DMP) template

With upcoming webinars and training sessions.



Data Management Guide

Practical guidance, standards, and tools for FAIR & CARE
ocean data stewardship across Canada.

Why this guide?

Shared practices that make ocean observations more discoverable, interoperable, and reusable.

[Overview →](#)

FAIR + CARE

Apply international FAIR data principles together with CARE to honour collective benefit, authority, responsibility & ethics.

[Explore principles →](#)

Metadata & Standards

Use the CIOOS metadata profile and Darwin Core mappings to structure and describe your datasets effectively.

[Metadata dictionary →](#)

Templates & Examples

Jumpstart your work with reusable templates for documentation and planning.

[Templates →](#)

Resources

Discover tools, vocabularies, registries, and supporting material curated by the CIOOS community.

[Resource hub →](#)

Data Management Plan

Plan for responsible, sustainable data handling across the full lifecycle with CIOOS-aligned guidance.

[Build a DMP →](#)

Regional Associations



Common Ecosystem of Data Tools

Welcome to the CIOOS Metadata Entry Tool.
To get started, please select your Regional Association or browse collaborating organizations.

CIOOS Regional Associations



CIOOS PACIFIC
REGIONAL ASSOCIATION OF THE
CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM

CIOOS Pacific integrates data from Canada's west coast, from Dixon Entrance to the Strait of Juan de Fuca.



SLGO
St. Lawrence
Global Observatory

SLGO integrates data from the St. Lawrence, from the Great Lakes to the Gulf.



CIOOS ATLANTIC
REGIONAL ASSOCIATION OF THE
CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM

CIOOS Atlantic integrates data from Canada's east coast, from Labrador to Bay of Fundy.

Affiliated Organizations



AMUNDSEN SCIENCE

Amundsen Science is the nonprofit organization responsible for the scientific mandate of the research icebreaker CDSS Amundsen.



University of Manitoba | Centre for Earth Observation Science

CanWIN is the data centre for the Centre for Earth Observation Science (CEOS). We support research and education, and inform management, policy and evidence based decision-making from the Nelson River Watershed to the Arctic.

Metadata Entry Forms

Le Grand Valideur

fichier local / Local file exploration
 Intelligence Artificielle / Artificial Intelligence

et métadonnées
 Validation des données

Détails and instructions

Adresses d'analyse:

URL:
 Date de création des jeux de données:

Métadonnées / Metadata visualization

ouvellement des ressources / Ressources frequency of update

Métadonnées / Metadata URL status

Étendue des données DWC / DWC data scope visualization

des variables océaniques / EOVS density maps

données potentiellement sensibles

Data/metadata transformation/validation tools

ODAP > griddap > Data Access Form

Chlorophyll-a Satellite Data for the Estuary and the Gulf of St. Lawrence:

Title: **CCI, Monthly Mean | Données satellitaires de chlorophylle-a pour l'estuaire et le golfe du Saint-Laurent : CCI, moyennes mensuelles** [RSS](#)

Organization: Fisheries and Oceans Canada (Dataset ID: mpoChloroSatellitesCciMonthly)

[Summary](#) | [License](#) | [FGDC](#) | [ISO 19115](#) | [Metadata](#) | [Background](#) | [Files](#) | [Make a graph](#)

Options:

Start:
 Stride:
 Stop:
 Size:
 Spacing:

Latitude (degrees_north):
 Longitude (degrees_east):

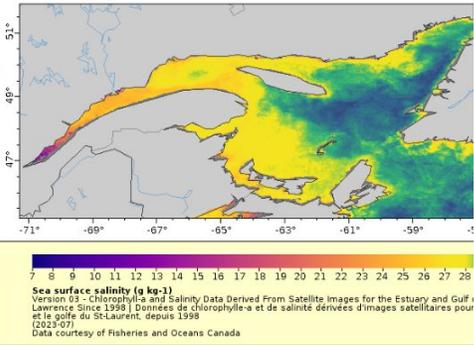
Variables (which always also download all of):

- _Multisat_EOF (Chlorophyll a Concentration)
- _Multisat_OC4 (Chlorophyll a Concentration)
- variance (chlorophyll EOF variance, (mg m-3)²) (Number of values, unitless)

[View a UTF-8 .html web page with the metadata URL:](#)

Generation / Bypass this form

nit (Please be patient. It may take a while)



Sea surface salinity (kg-1)
 Version 03 - Chlorophyll-a and Salinity Data Derived From Satellite Images for the Estuary and Gulf of St. Lawrence Since 1998 | Données de chlorophylle-a et de salinité dérivées d'images satellitaires pour l'estuaire et le golfe du St-Laurent, depuis 1998 (2022-07)

Data courtesy of Fisheries and Oceans Canada

ERDDAPs

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[Fichier local / Local file exploration](#) | [Intelligence Artificielle / Artificial Intelligence](#)

[Métadonnées](#) | [Validation des données](#)

[Details and instructions](#)

Adresses d'analyse:

EDT URL: <https://catalogue.ogsl.ca/>

[Métadonnées / Metadata visualization](#)

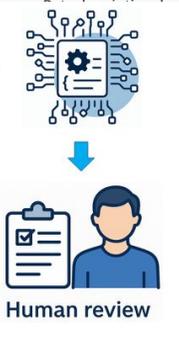
[Mise à jour des ressources / Ressources frequency of update](#)

[Statut des métadonnées / Metadata URL status](#)

[Portée des données DWC / DWC data scope visualization](#)

[Cartes de densité des variables océaniques / EOVS density maps](#)

[Données potentiellement sensibles](#)



Human review

Data/metadata transformation/validation tools

ODAP > griddap > Data Access Form

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Options: [Summary](#) | [License](#) | [FGDC](#) | [ISO 19115](#) | [Metadata](#) | [Background](#) | [Files](#) | [Make a graph](#)

Options: Start: 2019-12, Stride: 1, Stop: 2019-12, Size: 268, Spacing: 30 days 10h 25m
 Latitude (degrees_north): 45.1875, Longitude (degrees_east): -71.3125

Variables (which always also download all of):

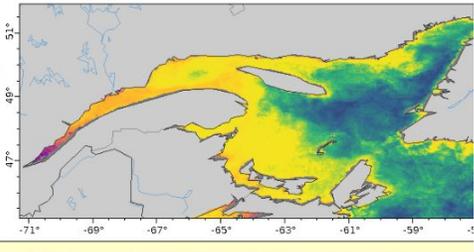
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[More information](#)

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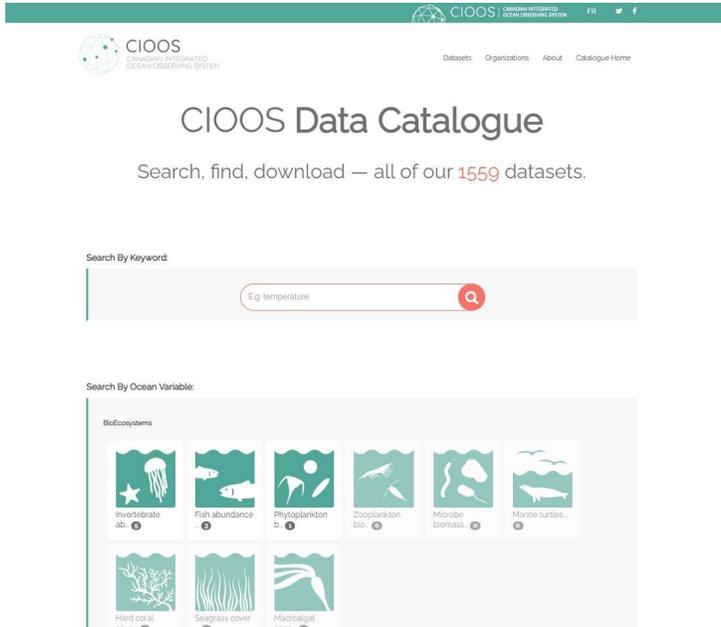
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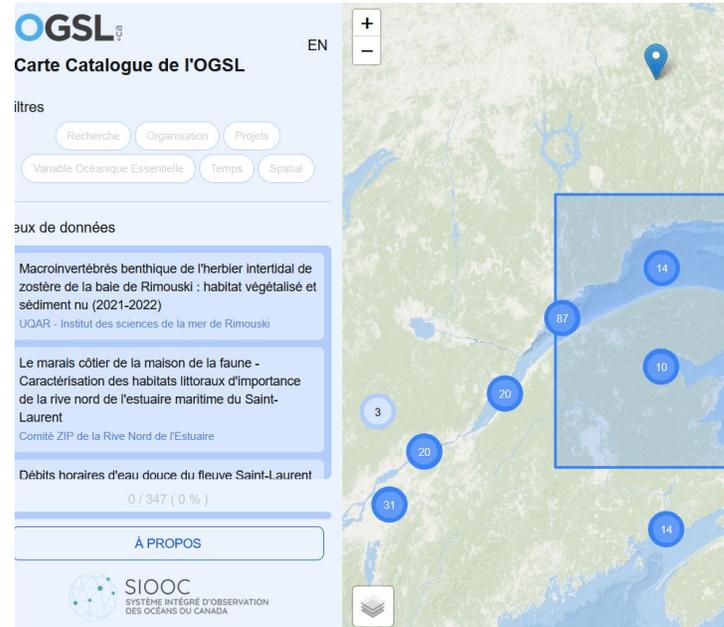
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Data courtesy of Fisheries and Oceans Canada

ERDDAPs

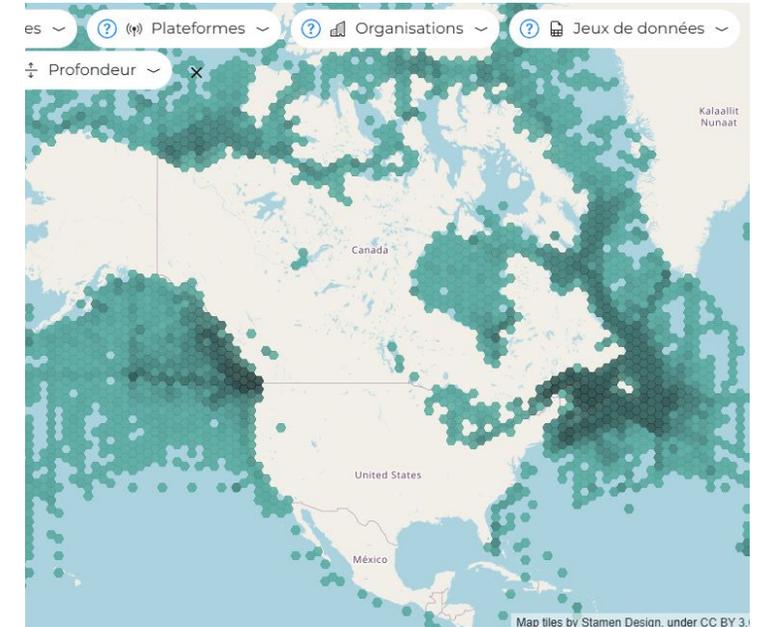
Common Ecosystem of Data Tools



Open Data Catalogues



Catalogue Maps



CIOOS Data Explorer

Common Ecosystem of Data Tools

The image displays four screenshots of data tool interfaces, arranged in a 2x2 grid. Each interface shows a map of a specific region with data points and a sidebar with search and filter options.

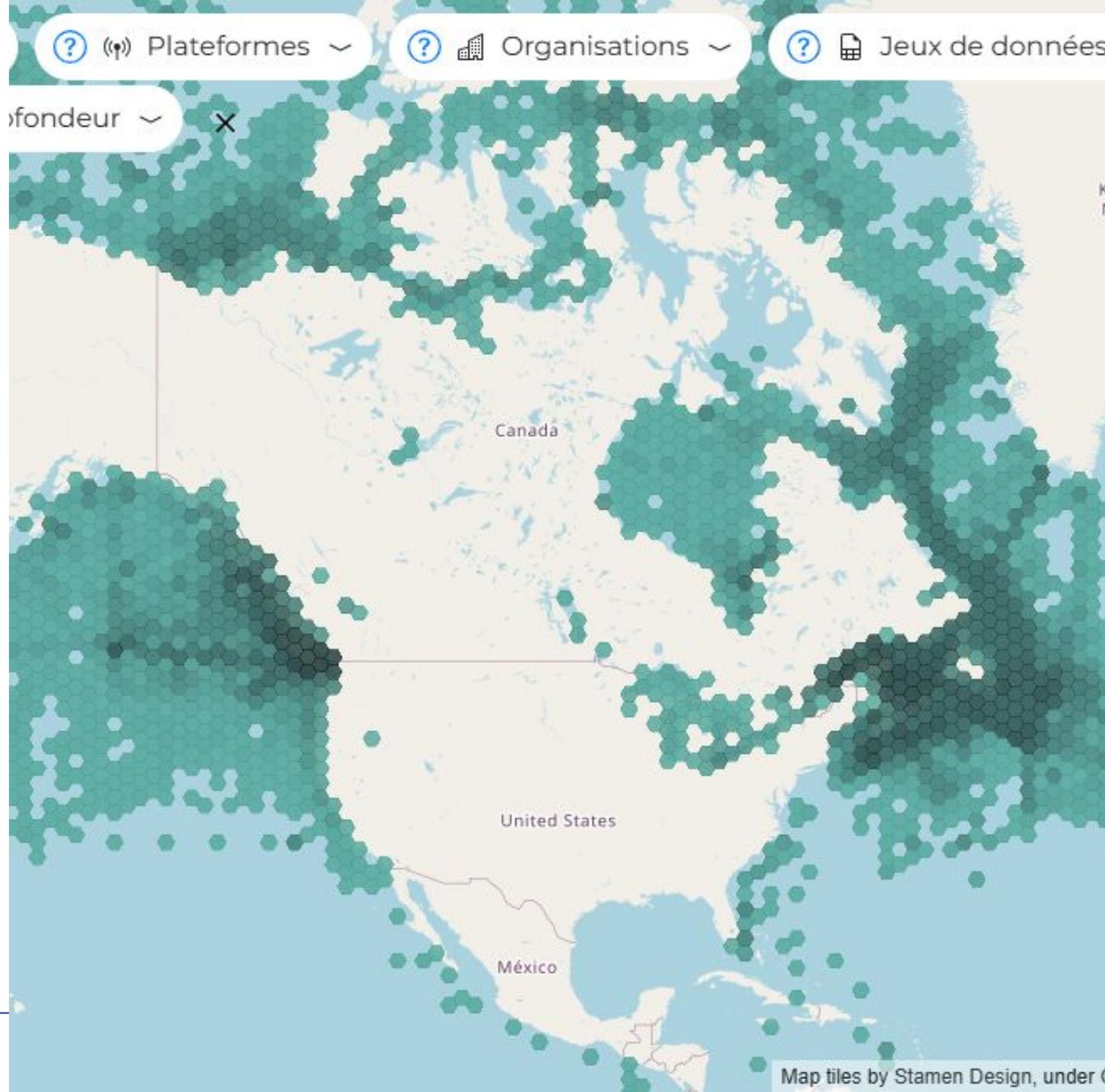
- Top Left: Amundsen Science**
 - Organization: Amundsen Science
 - Project: Essential Ocean Variables
 - Search bar
 - Datasets: 347
 - Dataset 1: Multibeam Sonar Data collected from the COGS Amundsen (2003-2018)
 - Dataset 2: Onshore-offshore surveying and monitoring of selected arctic coastal areas of Nunavut, 2006-2009
 - Dataset 3: Coastal monitoring in Nunavut
 - Dataset 4: CASES 0303-Beaufort Sea CTD data
- Top Right: ArcticNet**
 - Organization: ArcticNet
 - Catalogue: catalogue.amundscience.com
 - License: Creative Commons Attribution 4.0
 - View in Catalogue
 - Description: The CTD data was obtained during the 2007-2008 ArcticNet scientific cruise #0706. The data were collected from September 28 to October 4, 2007, aboard the COGS Amundsen. There were 21 casts, associated to 9 oceanographic stations, in the Northern Baffin Bay.
- Bottom Left: CIOOS**
 - Organization: CIOOS (CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM)
 - Search bar
 - Datasets: 3385
 - Dataset 1: Salmon Scale Data from the 2022 International Year of the Salmon Pan-Pacific Winter High Seas Expedition
 - Dataset 2: Time series of moored current meter measurements archived in the Institute of Ocean Sciences database, 1965 to present
 - Dataset 3: Real-Time Provisional Surface Seawater and Marine Boundary Layer CO2 Observations made from the Kwakwaka Channel (KC) Buoy on the central coast of British Columbia
 - Dataset 4: Mobile Invertebrate Rocky Intertidal Surveys - BC Central Coast - 2016-2018
- Bottom Right: OGSL**
 - Organization: Observatoire global du Saint-Laurent
 - Recherche bar
 - Jeux de données: 400
 - Dataset 1: Données CTD de la mission COR2212 2022 dans l'estuaire du Saint-Laurent
 - Dataset 2: Données CTD de la mission C2023-01 2023 dans l'estuaire du Saint-Laurent
 - Dataset 3: Macrofaune, caractéristiques des sédiments et flux biogéochimiques benthiques dans un système de brise-lames côtiers

- **Open, easy-to-use tools** that are easily replicable
- Contributions from multiple partners:
 - Shared maintenance
 - Collective improvements
- Reduces duplicated efforts
- Facilitates user adoption

CIOOS Data Explorer

explorer.cioos.ca

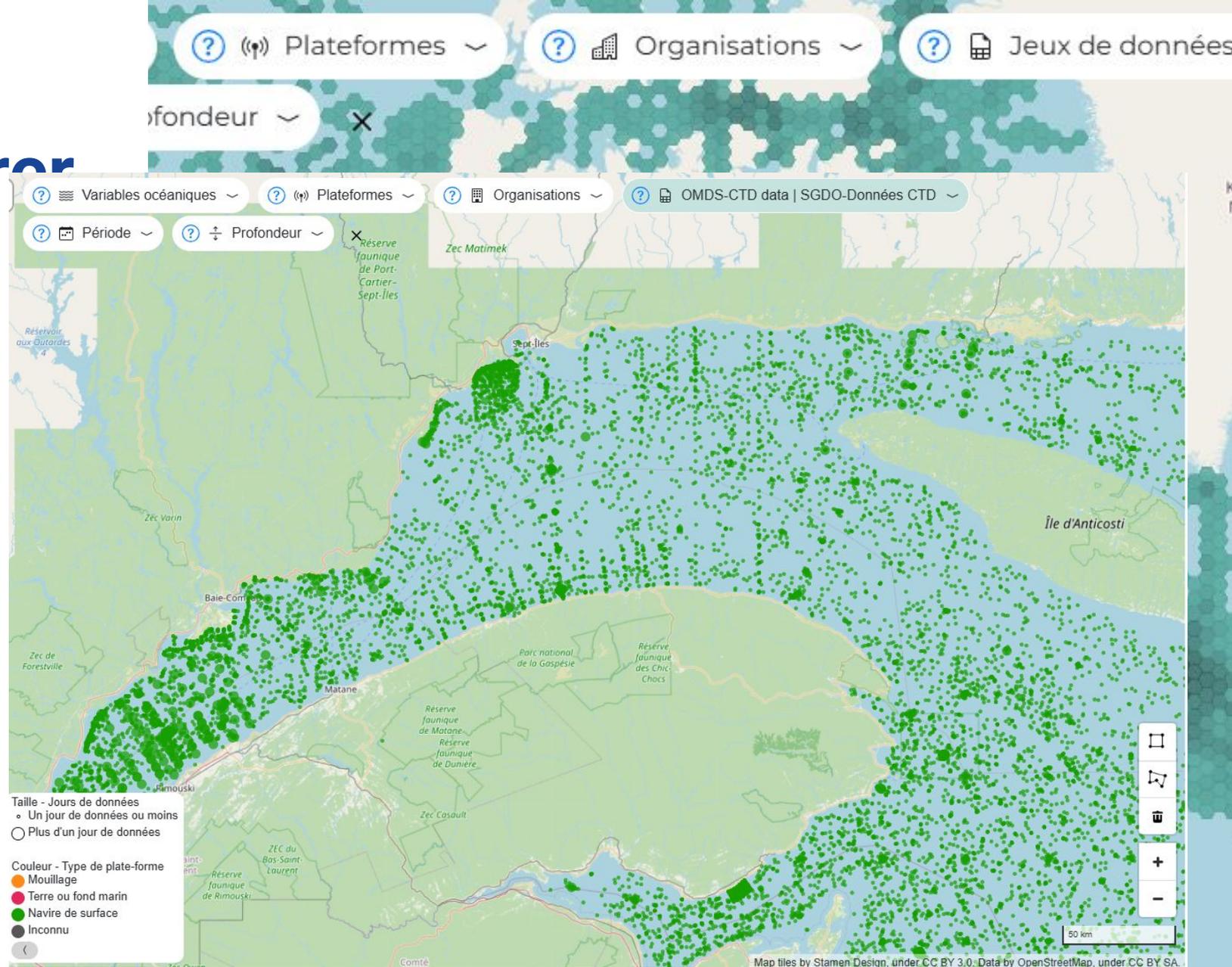
- Connects on multiple ERDDAP servers
- Filter by EOVs, platform, organisations, depth, time...



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explorer.cioos.ca

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1. Data Management and Access Tools
2. Information Services Tools



CIOOS PACIFIC

REGIONAL ASSOCIATION OF THE
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The CIOOS Pacific team collaborates with partners including:

- The BC Shellfish Growers Association (BCSGA),
- The Ocean Acidification Community of Practice,
- Regional organizations, and
- Researchers

to develop an ocean acidification and hypoxia application.

Launch anticipated for Spring 2026

 **2021** United Nations Decade
2030 of Ocean Science
for Sustainable Development



SLGO

St. Lawrence
Global Observatory

NAUTIL

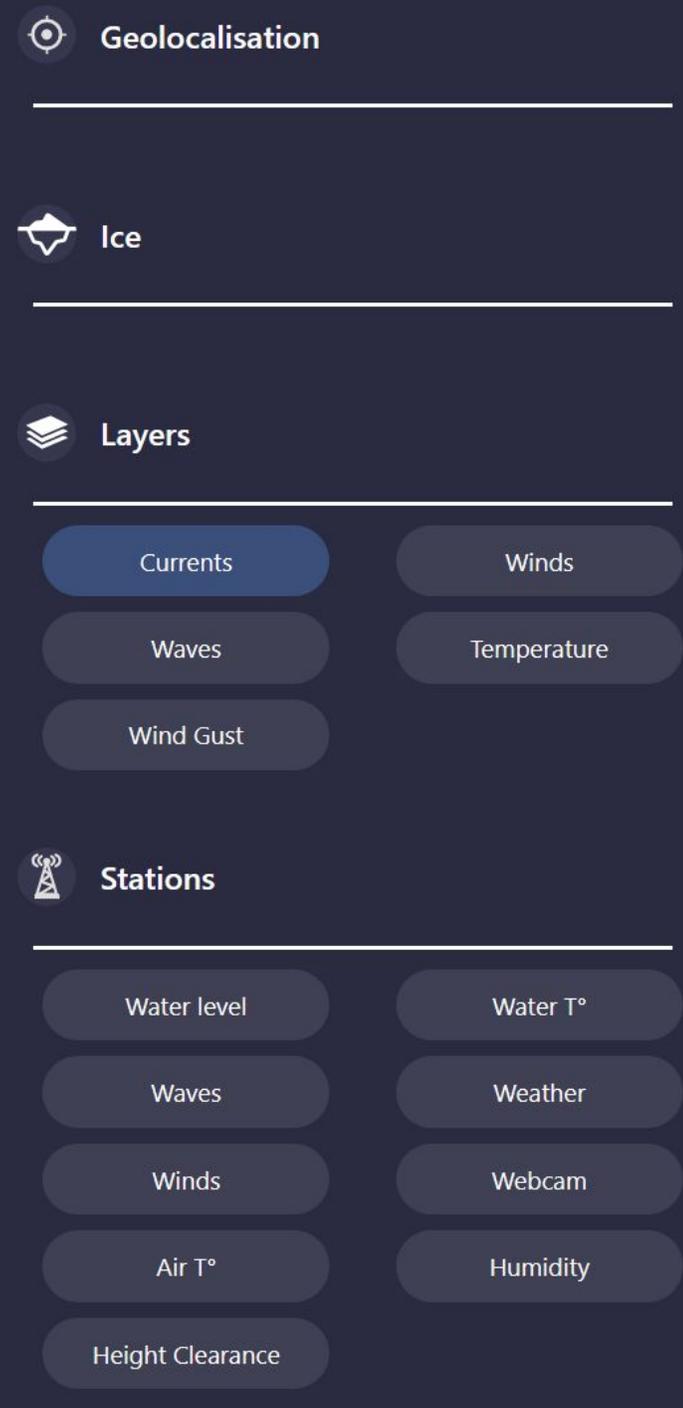
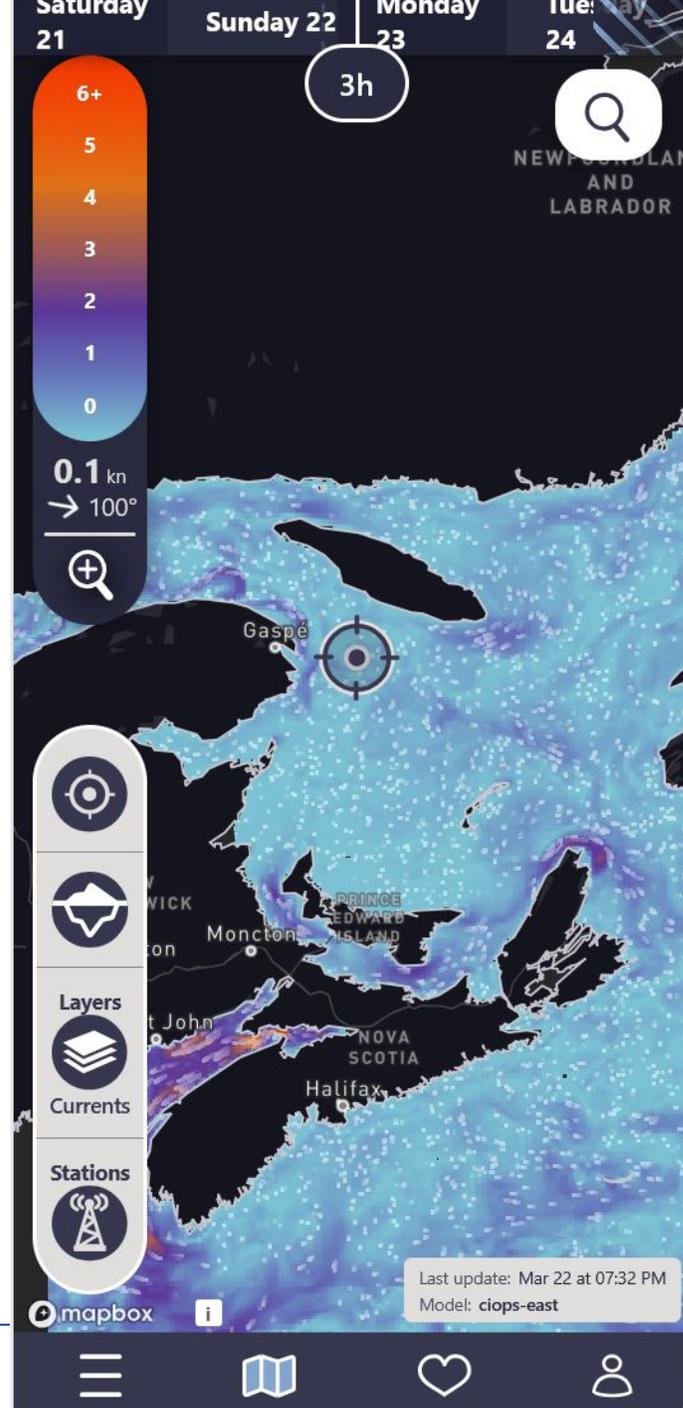
Nautilo a new all-in-one navigation platform for the St. Lawrence River and Gulf.

Real-time observations and forecasts of

- Currents,
- Winds and wind gusts
- Waves
- Temperature
- Ice
- Water Level
- Height Clearance under Bridges
- Etc.

- modern, mobile-first interface.

Officially launching on March 30th



HABs Prediction Visualisation Web App

ORIGINAL RESEARCH article

Front. Mar. Sci., 07 January 2021 | <https://doi.org/10.3389/fmars.2020.608021>



Predicting the Effects of Climate Change on the Occurrence of the Toxic Dinoflagellate *Alexandrium catenella* Along Canada's East Coast

Aude Boivin-Rioux¹, Michel Starr^{1*}, Joël Chassé², Michael Scarratt¹, William Perrie³ and Zhenxia Long³



GeoServer



ERDDAP
Easier access to scientific data



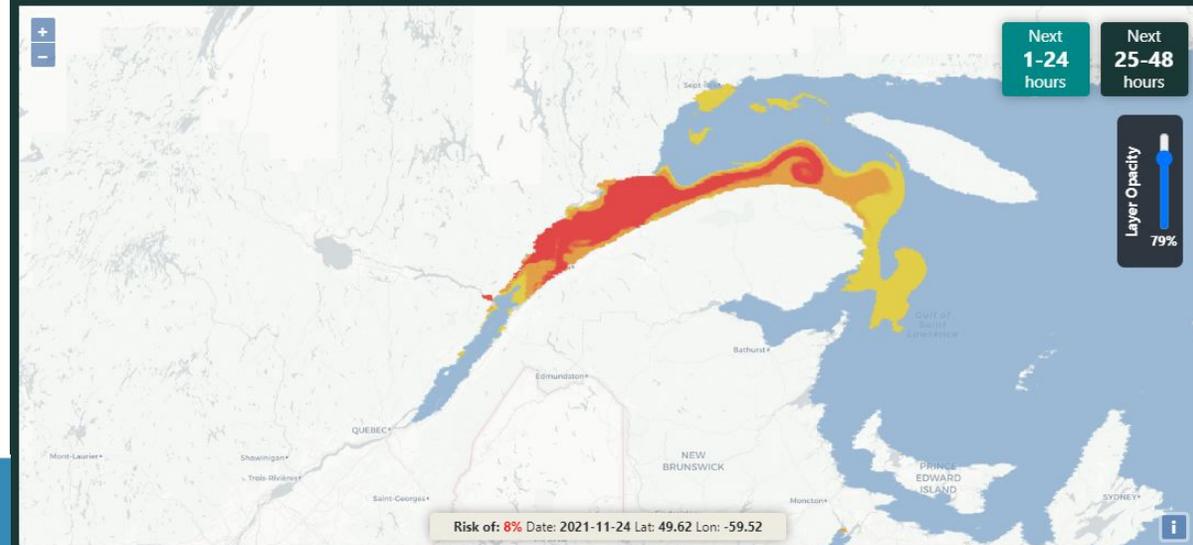
Monitoring des algues toxiques
Alexandrium catenella



Alexandrium catenella, une algue toxique sous haute surveillance

Carte des prédictions

Les floraisons d'algues toxiques (HABs) peuvent tuer poissons, oiseaux et mammifères marins. Elles peuvent aussi contaminer les bivalves cultivées en eau libre (moules, pétoncles et autres mollusques), forçant ainsi la fermeture de sites de culture et entraînant des conséquences socioéconomiques importantes pour les régions touchées.



Légende détaillée

Hors limite

L'indice de probabilité se situant entre 0 et 35%, la

Peu probable

L'indice de probabilité se situant entre 0 et 35%, la

Probable

L'indice de probabilité se situant entre 0 et 35%, la

Très probable

L'indice de probabilité se situant entre 0 et 35%, la

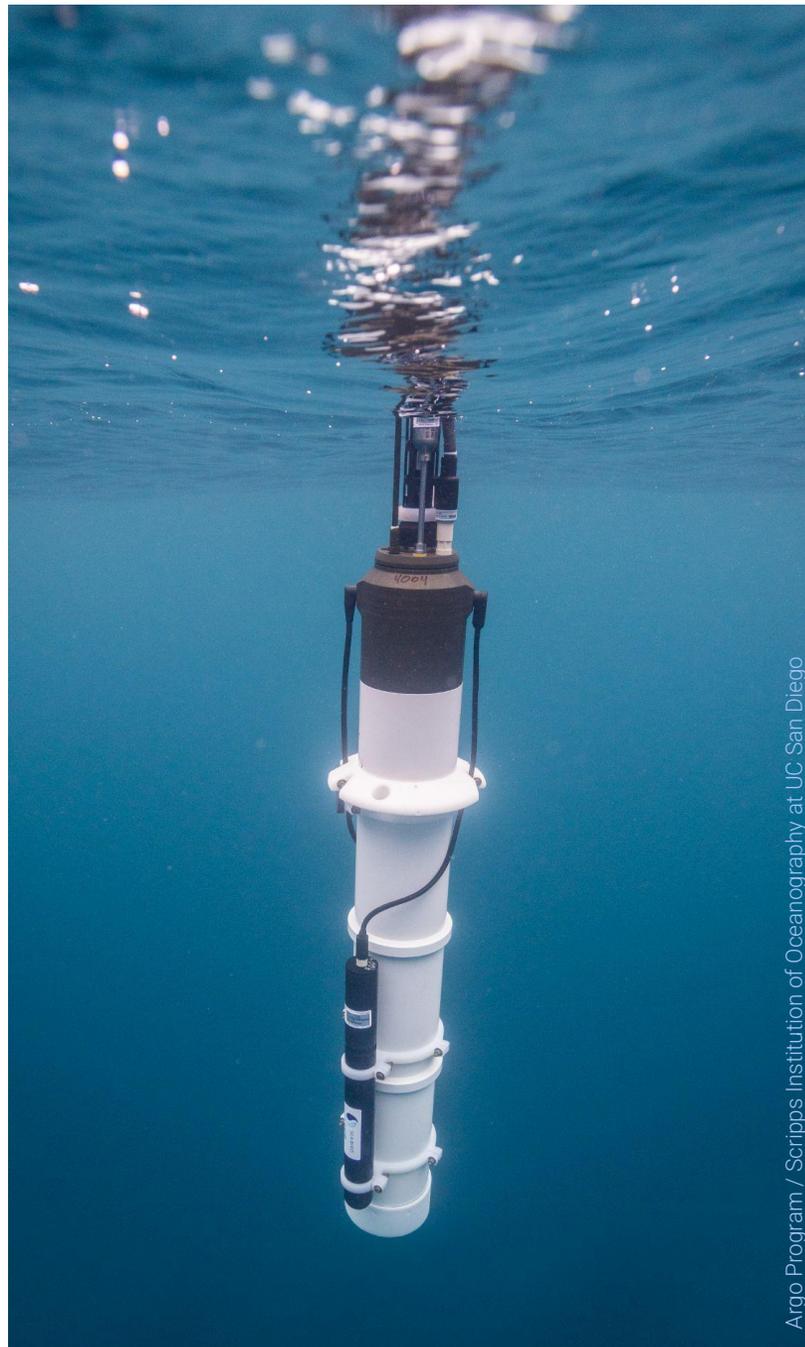
Hautement probable

L'indice de probabilité se situant entre 0 et 35%, la



Thank you

goosocean.org



Argo Program / Scripps Institution of Oceanography at UC San Diego

