



CIOOS  
CANADIAN INTEGRATED  
OCEAN OBSERVING SYSTEM

# STRATEGIC PLAN 2026–2031

Canadian Integrated Ocean  
Observing System

June 2026

# Table of Contents

---

Introduction	3
Context	4
Strategic Analysis	5
Identity and Mission	7
Vision	8
Strategic Aims	9
Strategic Directions	12
Strategic Directions & Key Objectives	13
Strategic Aims, Directions and Key Objectives	15
Appendix — The CIOOS Model within Ocean Observing Systems	16

# Introduction

## CIOOS's New Strategic Plan

The Canadian Integrated Ocean Observing System (CIOOS) is a national program that facilitates access to ocean data from diverse sources, including government agencies, academic institutions, industry partners, and Indigenous communities. Operating collaboratively through its regional hubs — Pacific, Atlantic, and St. Lawrence — CIOOS empowers marine research, policy development, and environmental stewardship by offering open-access, user-friendly tools for exploring and visualizing ocean observations.

With its previous strategic plan concluding in 2026, CIOOS entered a period of reflection aimed at renewing its vision and amplifying its impact. The planning process included a series of individual interviews, meetings with regional directors and valued partners, and a two-day in-person workshop held in Québec City from October 1st to 2nd, 2025.

The resulting strategic plan, shaped by these collaborative efforts, aims to address emerging challenges and opportunities, positioning CIOOS as Canada's backbone for ocean data.



# Context

## The Ocean: A Critical Life-Support System

The ocean is **fundamental to life on Earth** and to human well-being. It regulates the climate, supports biodiversity, and underpins social, cultural, and economic systems worldwide.

### Climate Regulation

The ocean absorbs over 90% of excess heat generated by greenhouse gas emissions and plays a central role in regulating global climate systems through currents and heat redistribution.

### Food, Livelihoods & Economies

Marine ecosystems support fisheries, aquaculture, shipping, energy production, tourism, and coastal economies, sustaining millions of livelihoods in Canada and globally.

### Biodiversity & Ecosystem Services

The ocean hosts vast and diverse ecosystems that provide essential services, including carbon sequestration, nutrient cycling, and coastal protection.

### Cultural & Societal Importance

For Indigenous Peoples and coastal communities, the ocean is deeply interconnected with culture, knowledge systems, identity, and stewardship practices.

**Understanding, protecting, and sustainably managing this life-support system depends on long-term, coordinated, and accessible ocean observations and data.**

# Strategic Analysis

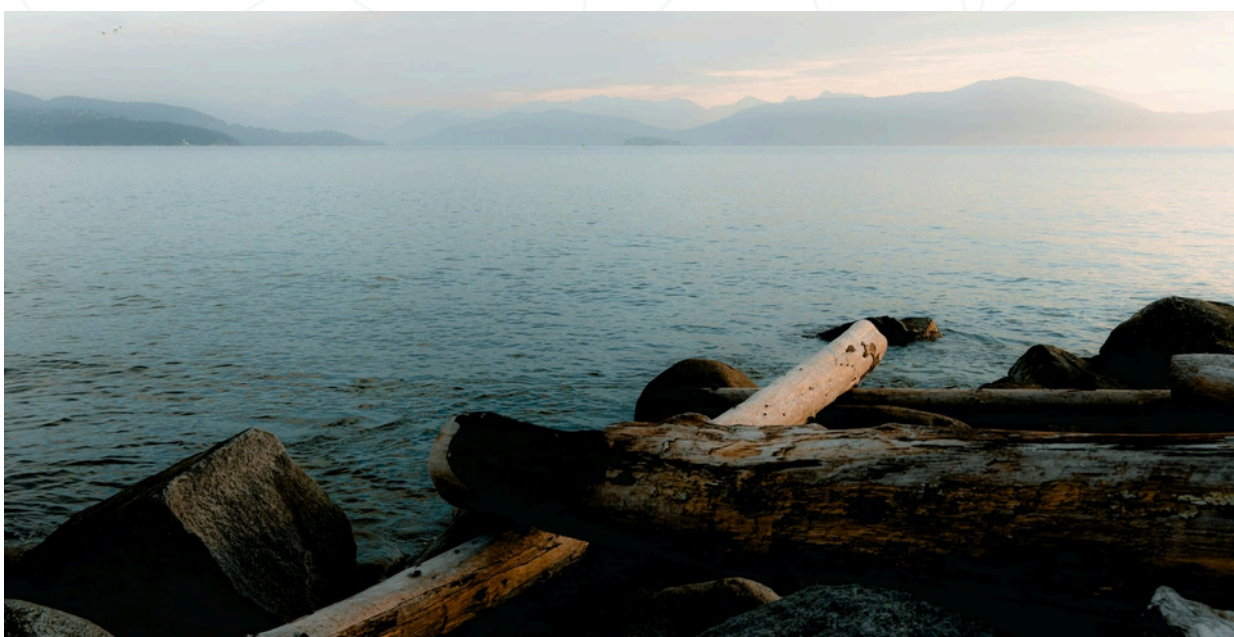
## Analysis: The Changing Ocean Environment

The rapidly changing nature of the ocean is strengthening the need for new information services to help us understand and respond to its transformations, opening new opportunities and challenges. Beyond responding to rapid ocean change, CIOOS enables broad access to data collected with public funds, maximizes the value of these investments, supports ocean education and literacy, and helps society adapt to a changing world.

The ocean is transforming as a whole system. Rapid changes brought on by climate change are deeply impacting the ocean environment through warming waters, ocean acidification, rising sea levels, deoxygenation, altered currents, pollution, biodiversity loss, and changes in species distribution.

These changes manifest in ways that illustrate ocean connectedness. There is only one ocean, with interconnected basins; changes in one region, such as the Arctic, can have global impacts.

These shifts highlight why nationally-coordinated regional ocean observations and models are essential for understanding and responding to climate-driven change at the national and at the global level.



# Strategic Analysis

## Analysis: The Changing Strategic Environment

As the first phase of its activities draws to a close with the culmination of the 2021-2026 strategic planning period, CIOOS enters a new chapter as it prepares to embrace new challenges and opportunities.

### Climate Change & Energy Transition

Growing awareness of climate change has highlighted the need for comprehensive ocean data, as shifts in temperature, chemistry, and ecosystems affect global food supplies, fisheries, and especially coastal communities. Because changes in one region can ripple across entire ocean basins—through acidification, altered oxygen levels, or shifting species migrations—local observations have global significance.

As Canada accelerates its transition toward renewable energy, the role of ocean data has expanded accordingly. CIOOS supports this transition by providing the datasets that researchers rely on to model and assess offshore wind and other marine-based energy systems.

### Partnerships

Strengthening partnerships is essential to meeting expanding needs. This includes cultivating new collaborations across federal departments as well as building enduring, respectful partnerships with Indigenous communities across the country and the Arctic. These relationships enhance the national ocean data ecosystem while ensuring support for diverse knowledge systems and shared stewardship of Canada's ocean spaces.

### Data Stewardship & New Data Types

Evolving national requirements for data stewardship underscore the need for reliable capacity not only to store data, but to actively manage, curate, and make them usable.

Meanwhile, the scientific landscape continues to evolve, with new measurement techniques and data streams, such as those related to plastics pollution or eDNA, requiring ongoing adaptation.

### National Defence & Maritime Safety

CIOOS is increasingly positioned to contribute to broader government priorities, including defence and marine safety, including in the Arctic. By offering high-quality environmental data that can support or complement classified naval information, CIOOS can help strengthen operational readiness and training.

# Identity and Mission

## Organizational Identity

The organizational identity outlines how CIOOS is structured and how it functions day to day. The strategic identity offers a concise, outward-facing statement that positions CIOOS within the broader Canadian ocean science ecosystem. Finally, the mission statement, sometimes referred to as the organization's purpose, clearly articulates what CIOOS exists to do.

Founded with the support of MEOPAR and Fisheries and Oceans Canada, CIOOS continues to operate through their ongoing commitment. With a national office, regional associations, and national partners, **CIOOS is built from the bottom-up**. Having distinct regions allows each to pursue relevant local opportunities while collaborating with the Coordination Office and the other regions to shape national priorities.

CIOOS's regions have a dual role: internally in managing, processing, storing, and providing access to data and developing tools; and externally in outreach to data collectors and to end users. The national Coordination Office plays a similarly dual role: internally supporting the regions and ensuring alignment; externally representing CIOOS with national and international partners.

## Strategic Identity

CIOOS is Canada's ocean data system, uniting diverse sectors and partners in providing an open, trusted, and high-quality data platform.

## Mission Statement

A clear and concise description of what CIOOS does and of the value it brings:

**As Canada's backbone for ocean data, CIOOS drives impact, generates insight, and fosters collaboration.**

# Vision

The strategic vision statement is a projection, in light of our strategic analysis, of where we see ourselves in a medium to long-term horizon, what role we intend to play and how we will have successfully positioned ourselves within the ocean science ecosystem.



***In 2036...***

**CIOOS has established itself as Canada's ecosystem for ocean intelligence, deepening our understanding of the ocean while powering informed decision-making and sustainable innovation.**

# Strategic Aims

This visual element summarizes the descriptions on the following pages of organizational aims for CIOOS's strategic development. Based on a collective exercise during the Québec City workshop, these aims are organized into three main buckets to structure conversations around each one. The results subsequently fed into the formulation of the strategic directions and key objectives presented.

## Organizational Development

- Build a resilient funding model ensuring long-term stability
- Expand mechanisms for collaboration
- Encourage greater data contribution



## Infrastructure Design & Tools

- Provide reliable, accessible tools that enable meaningful engagement with ocean information
- Transition to Canadian-owned data infrastructure
- Develop AI strategy, explore a digital twin, and enhance the data-to-information pipeline



## Heightened Recognition

- Directly support public ocean literacy and contribute to the quality of climate-related policy information
- Broaden the number and diversity of its partners
- Improve capacity to respond to stakeholder requirements

# Strategic Aims

## Organizational Development

---

CIOOS aims to strengthen its internal capacity by advancing organizational systems, diversifying resources, and improving coordination across the national network. Building a **resilient funding model** is an ongoing priority, enabling long-term stability and the ability to invest in emerging opportunities. Strengthening internal coordination between regional offices and the national coordination office is central to creating a cohesive, efficient, and well-aligned organization.

CIOOS plans to establish **mechanisms for collaboration** in support of this strategic aim. An annual in-person Directors' meeting is proposed as an important forum for strategic alignment, relationship-building, and coordination across regions, recognizing the geographic distances and national scope of the organization. Dedicated partnership engagement will also be formalized, with clear responsibility assigned to ensure sustained outreach and relationship management.

Encouraging greater data contribution remains an important focus, reinforcing CIOOS's impact and expanding the breadth of information available through the system. CIOOS will **strengthen its presence in priority geographic areas**, including the Great Lakes and the Arctic, to ensure national relevance and comprehensive coverage. **Highlighting successful use cases** will play an important role in demonstrating the value of CIOOS's services and inspiring broader participation.

## Infrastructure Design & Tools

---

CIOOS aims to strengthen its national data infrastructure by developing a sovereign, capable, and widely adopted system that serves as the **primary platform for key ocean datasets** and for delivering **data-to-information services** that support research, policy development, and community needs. A core element of this aim is ensuring that the infrastructure empowers communities by providing reliable, accessible tools that enable meaningful engagement with ocean information.

Progress toward this objective will be supported by **leveraging major initiatives** such as Transforming Climate Action (TCA) to expand collaboration with the academic sector, deepen engagement, and reinforce CIOOS's role as a trusted partner in climate-related research.

Transitioning to **Canadian-owned data infrastructure** is another central component that requires careful planning and consideration, as it will require operational support to ensure the system remains secure, sustainable, and aligned with national priorities. This objective also includes developing an **AI strategy**, exploring the potential for a **digital twin**, and enhancing the **data-to-information pipeline** to support more sophisticated and scalable services.

# Strategic Aims

## Heightened Recognition

CIOOS aims to strengthen its national profile by consolidating its role as a recognized leader in ocean data and a foundational component of large-scale research in Canada. A central objective is to position the organization more firmly within national decision-making processes, ensuring that its data and services **directly support public ocean literacy** and contribute to the **quality and reliability of information used in policy**.

Achieving this aim requires meeting a wide range of needs across government, academia, industry, and the public. CIOOS intends to **broaden both the number and diversity of its partners** while improving its capacity to **respond to their requirements**. CIOOS aims to better understand and address the needs of the users it aims to serve across government, academia, industry, and other sectors while assessing gaps in public awareness and community engagement. Expanding engagement with industry and enhancing the organization's visibility within government institutions are key elements of this approach, contributing to greater legitimacy and a stronger national and international presence.

The two previous strategic aims (organizational development and infrastructure design & tools) are in support of these ambitions, through ensuring a cohesive and interoperable system, improving efficiency and strengthening the organization's ability to deliver consistent, high-quality services. Strengthening outreach and community-building efforts will help ensure that the system reflects user needs and that potential partners understand the value CIOOS provides.

# Strategic Directions

## 01 National Leader

Affirm CIOOS's vital role as the trusted national source for key ocean data in Canada.

## 02 Empowering Canadian Communities

Empower ocean research and knowledge, connecting Canadian decision-makers and ocean-connected and Indigenous communities with high-quality, culturally informed, and FAIR and CARE\* ocean data and information products.

## 03 Organizational Development and Structure

Define the organizational structure of CIOOS to include all ocean and coastal bodies of water including the Great Lakes and the Arctic and clarify CIOOS's relationship to its key partners.

## 04 Data Sovereignty

Design or leverage existing, resilient and capable sovereign Canadian digital infrastructure to store, protect and distribute ocean data to the public.

**Note: FAIR refers to the desirable qualities of Findability, Accessibility, Interoperability, and Reuse of digital assets. CARE refers to principles for Collective Benefit, Authority to Control, Responsibility, and Ethics, particularly in the context of Indigenous data governance. Reference: [www.go-fair.org/fair-principles/](http://www.go-fair.org/fair-principles/) and <https://www.gida-global.org/care>.**

# Strategic Directions & Key Objectives

The strategic directions outlined below, along with the key objectives, put into implementable form the strategic aims put forward by CIOOS.

01

STRATEGIC AIM: HEIGHTENED RECOGNITION

## National Leader

Affirm CIOOS's role as an indispensable national partner

- 1.1 Expand contributions of key ocean datasets to CIOOS, as identified by partners and user communities.
- 1.2 Contribute to the development of International Standards and the GOOS.
- 1.3 Communicate impact through Ambassadors and sharing success stories.

02

CORE MISSION

## Empowering Canadian Communities

Empower Canadian coastal and Indigenous communities

- 2.1 Ensure universal access and facilitate integration of core datasets and ocean models.
- 2.2 Advance CIOOS's capacity to engage with Indigenous knowledge and emerging data types in ways defined by Indigenous partners and rights holders.
- 2.3 Provide datasets and information products that are user accessible and actionable for decision makers.

03

STRATEGIC AIM: ORGANIZATIONAL DEVELOPMENT

## Organizational Development and Structure

Define the organizational structure of CIOOS

- 3.1 Maintain, while constantly working to improve, collaboration between regions and with users and data providers.
- 3.2 Build partnerships in the Arctic and Great Lakes regions.
- 3.3 Formalize CIOOS's organizational structure and governance and its relationships with key funding partners.
- 3.4 Stabilize funding through diversification of funding sources.

# Strategic Directions & Key Objectives

STRATEGIC AIM: INFRASTRUCTURE DESIGN & TOOLS

## 04

### **Data Sovereignty**

Develop sovereign Canadian digital infrastructure

4.1 Explore options for sovereign Canadian data storage.

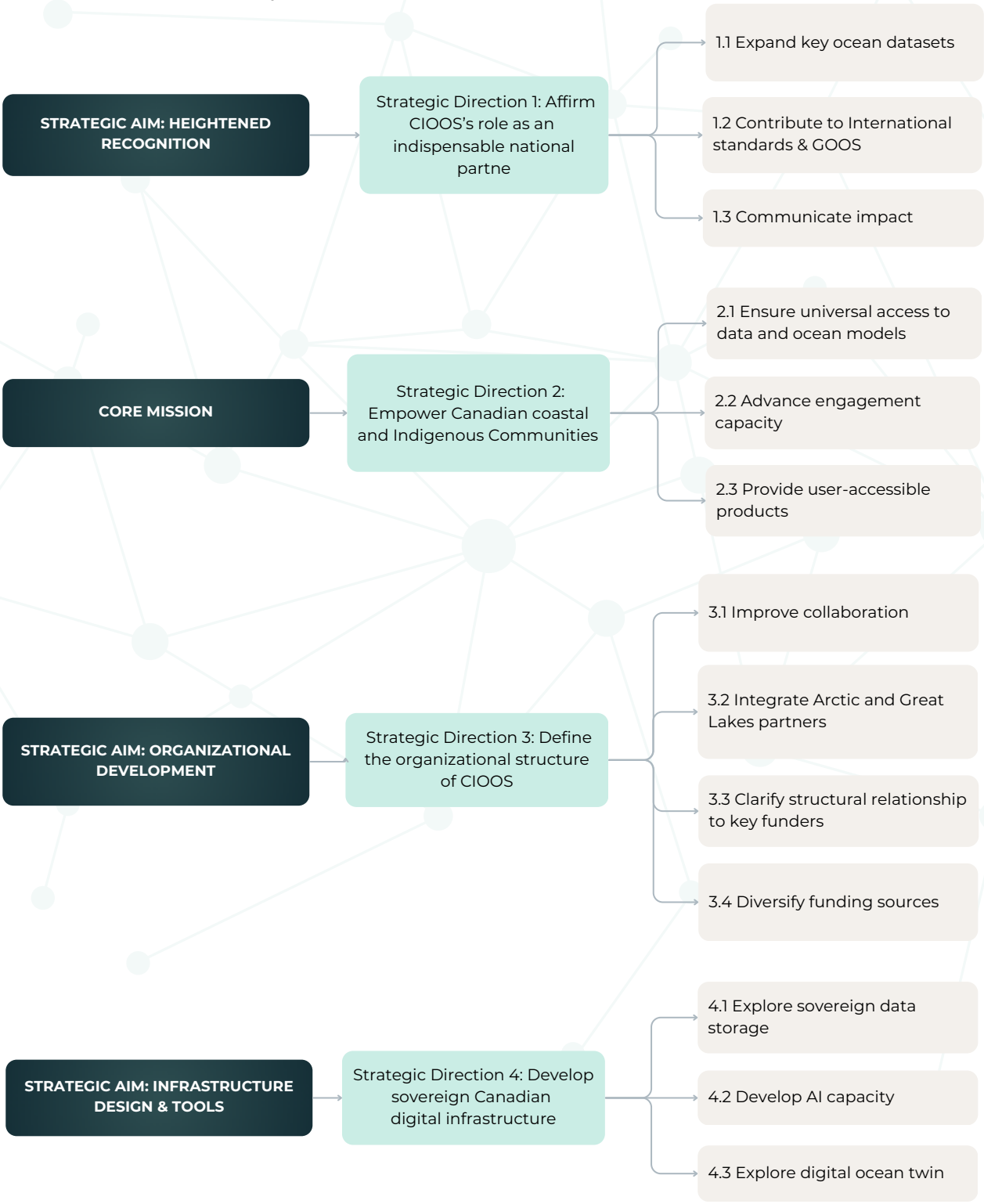
4.2 Develop sovereign AI capacity to manage and support Indigenous and sensitive data.

4.3 Explore expanding towards a digital ocean twin.



# Strategic Aims, Directions and Key Objectives

Together with the strategic directions and key objectives, the elements described layout a roadmap for a coordinated strategy to reinforce CIOOS's role as the central, trusted hub within Canada's ocean data ecosystem.



# Appendix — The CIOOS Model within Ocean Observing Systems

CIOOS operates as Canada's national ocean data integration layer, connecting diverse observations and data systems to users. CIOOS differs from many international Ocean Observing Systems by design:

<b>Does not deploy instruments</b>	CIOOS builds on existing observing efforts, working collaboratively with partners collecting data across Canada and complementing existing programs.
<b>Bottom-up, regionally grounded, nationally coordinated</b>	CIOOS is driven by regional expertise and engagement, while the National Coordination Office provides leadership, coordination, and strategic direction.
<b>Lightweight and replicable</b>	Focus on open-source, low-cost, and adaptable tools increases long-term resilience.
<b>Capacity-building oriented</b>	Partners can become increasingly autonomous, while CIOOS continues to provide national coordination.
<b>Bridging data to use</b>	CIOOS connects observations to models and downstream information products, enabling data reuse across disciplines, regions, and sectors.

**From observations to insight:** CIOOS provides the national, interoperable data foundation — through common standards, shared infrastructure, and coordinated services — that allows observations to be reliably used in models, forecasts, AI applications, and emerging services such as digital twins.

The CIOOS Strategic Plan was created by human intelligence with key input from a wide-ranging number of participants among CIOOS's national and regional directors, and key partners. The planning process was guided and supported by Montréal-based consulting firm Espace Stratégies.

All images sourced from cioos.ca