



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION**  
(of UNESCO)

**Thirty-second Session of the Assembly**  
UNESCO, 21–30 June 2023

Item 4.8.1 of the Provisional Agenda

**CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM (CIOOS)  
PROPOSAL FOR A NEW GOOS REGIONAL ALLIANCE – SUMMARY**

Summary

The Global Ocean Observing System (GOOS) Regional Policy 2013 ([IOC/INF-1308](#)) describes the role and requirements for a regional body to be accepted by IOC as a GOOS Regional Alliance. The GOOS Steering Committee at its 12<sup>th</sup> meeting (GOOS SC-12) in April 2023, endorsed the Canadian Integrated Ocean Observing System (CIOOS) proposal to become a GOOS Regional Alliance. The CIOOS proposal has been evaluated in this document, with a recommendation to accept CIOOS as a new GOOS Regional Alliance. An assessment table of the CIOOS proposal is appended to the document in English only.

Financial and administrative implications: None.

The proposed decision(s) is referenced Dec. A-32/4.8.1 in the Action Paper (document IOC-32/AP Prov.)

## **Introduction**

1. The Canadian Integrated Ocean Observing System (CIOOS) submitted a proposal to become a GOOS Regional Alliance on 25<sup>th</sup> April 2023, which was considered by the GOOS Steering Committee at its 12<sup>th</sup> meeting (GOOS SC-12) in April 2023
2. The GOOS Regional Policy 2013 (IOC/INF-1308) indicates the role and requirements for a regional body to be accepted by as a GOOS Regional Alliance.

## **Assessment of CIOOS Proposal**

3. The proposal was received as three documents.
4. [CIOOS GRA Information: Canada's National Ocean Observing Program](#) (6 pages): This document summarizes the Canadian Integrated Ocean Observing System (CIOOS). It outlines how observing system has been established, developed, and will be sustained. It also provides a vision and mission of CIOOS. It provides an account concerning the procedures for quality assurance, conformance to internally accepted standards and protocols for the measurement, data management and communications. CIOOS Management Structure is also discussed.
5. [CIOOS Strategic Plan, 2021-2026](#) (18 pages): This document outlines the Canadian Integrated Ocean Observing System 2021–2026 Strategic Plan. It provides an overview highlighting that ocean observation is fundamental to Canada's ocean science community providing invaluable information for sound decisions that support the sustainability and economic value of a changing ocean. It provides a background, vision and mission, guiding principles, value proposition, areas of societal impact and pathway forward. Several themes have been identified including: (i) strengthen partnerships for improved ocean observation and service delivery; (ii) improve the discoverability, accessibility and interoperability of Canadian oceanographic data; (iii) converting ocean data into information and knowledge through the development and use of tools, products and applications and increase the ability to understand current states and predict future states of Canada's ocean spaces by supporting modeling efforts and sharing ocean model results. It also provides a governance perspective to ensure the success of a cross Canada and multi-partner initiative.
6. [CIOOS Implementation Plan, 2021-2026](#): Outlines three phases to CIOOS development. It expands on the goals identified within the thematic areas. The plan includes detailed assigned work packets with clear timeline for completion.
7. The documentation was examined by the GOOS Steering Committee in April 2023. The Committee considered that the CIOOS proposal met all the key requirements to become a GOOS Regional Alliance (refer the Assessment Table in appendix to this document).
8. There is no financial and administrative implications.

## **Proposed decision**

9. In light of the endorsement by the GOOS Steering Committee of the CIOOS proposal to become a GRA, the IOC Assembly may wish to consider IOC-32/Dec.4.8.1 in the Action Paper (IOC-32/AP Prov.).

**APPENDIX – REVIEW OF DOCUMENTS / EVALUATION**

GOOS Regional Policy 2013 (IOC/INF-1308)	ACTION	ARTICLE(S)	EVALUATION	REF
(3)	<b>QUALIFICATIONS</b>	3.1A GRA is formed via recommendation or by agreement by IOC Regional Subsidiary Bodies, and/or between participating countries, and/or national organizations, and/or international bodies (Regional monitoring networks, Regional Fishery Bodies, Regional Seas Conventions, etc.). Membership should be chosen to best serve the data and information needs of organizations that use, depend on, or are responsible for the management of the marine environment and its resources in the region.	The Canadian Integrated Ocean Observing System (CIOOS) is a national GRA. It was established in 2019 to address siloed ocean data and the lack of a formal coordination and collaboration mechanism for the ocean observing community in Canada. CIOOS engages locally, <u>connects regionally</u> , and coordinates nationally to elevate Canada’s ocean monitoring to the global stage.	
		3.2 To be recognized as a part of GOOS, a GRA must show that it conforms to GOOS Principles and guidelines.	<p><b>Conforms to GOOS Principles and guidelines</b></p> <p><b>Yes</b></p> <p><b>Management, Integration and Data Sharing</b> In the four years since inception, CIOOS has implemented best practices to manage, integrate, and share physical, biogeochemical, and biodiversity data, based on the 31 variables identified as essential to monitor our oceans by the Global Ocean Observing System (GOOS). CIOOS has also engaged experts to guide the development of an ocean data management system which is nationally and internationally interoperable and consistent with international standards,</p> <p><b>Reporting and Aligning CIOOS activities with GRA Council, OCG, GOOS 2030 Strategy, GOOS IP and FOO</b></p> <p>CIOOS has worked to ensure alignment with the Global Ocean Observing System, including having representatives on the GOOS Regional Council, participating in bi-annual GOOS Regional Fora, providing</p>	

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			<p>annual reports of CIOOS activities to the GRA council, contributing to the Observations Coordination Group (OCG) and aligning CIOOS activities with GOOS Implementation Plans. CIOOS has strong alignment with several of the GOOS 2030 strategic objectives, including advocacy and communications, partnerships, strengthening knowledge and exchange, and open and quality-controlled data.</p> <p>CIOOS is developing as a robust system, supporting the FAIR data principles and using best practices for data management and storage to integrate ocean science and observing activities, allowing for development of value-added products and services. Ultimately, CIOOS has ambition to fully realize the Framework for Ocean Observing (FOO) value chain that underlies the GOOS 2030 Strategy Framework.</p>	
		<p>To the extent that the geographic range and activities of a GRA overlap with those of other GRAs, the GRAs involved shall establish formal and informal cooperation to ensure effective use of resources to the benefit of all.</p>	<p><b>Geographic Scope: formal and informal cooperation</b></p> <p>As above (3.1)</p>	
(4)	APPROVAL	<p>4.1 Proposals to be a recognized as a GRA must be approved by the Assembly or the Executive Council of the IOC. Recommendation for recognition will be received through the GOOS Steering Committee (GOOS SC) or from IOC Regional Subsidiary Bodies in consultation with the GOOS SC.</p>	<p><b>GRA must be approved by the Assembly or the Executive Council</b></p> <p><b>-Proposal tabled</b> as a GOOS Action (Dec. A-32/4.8.1/) to be endorsed at the Thirty-Second Session of the Assembly UNESCO, 21–30 June 2023</p> <p><b>-Completed:</b> The Twelfth GOOS Steering Committee Meeting (GOOS SC-12), held in April 2023, endorsed the Canadian Integrated Ocean Observing System (CIOOS) Proposal to become a GOOS Regional Alliance;</p>	

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	<p><b>APPROVAL</b></p>	<p>4.2 Proposals to be recognized as a GRA must include the following:</p> <ul style="list-style-type: none"> <li>Evidence that a <b>management structure is</b> in place that can deliver an integrated and sustained system by linking, enhancing and supplementing existing infrastructure and expertise in the region.</li> </ul>	<p><b>Management Structure</b></p> <p><b>Yes</b></p> <p>CIOOS employs a <b>multilevel governance model</b> that “allows for strong representation and mobility at the regional level, while ensuring a consistent national approach.</p> <p><b>Executive Committee</b></p> <p>It consists of an Executive Committee, with representatives from the regions and national committees ensures a clear and transparent decision-making process, integration across the whole of CIOOS, oversight for a common vision and implementation plan, and enables the sharing of best practices.</p> <p><b>Board of Directors</b></p> <p>At the regional level, a Board of Directors for each Regional Association gathers feedback and ensures regional adaptability for their unique challenges and opportunities.</p> <p><b>Committees</b> containing representatives from each of the regional associations “address more specialized issues and report to the Executive Committee.” These groups “report regularly to the Executive Committee for decision and approvals and can form Task Teams to address specific tasks.” These include a <b>Technical Committee, Communications Committee, and a Science Committee</b></p> <p><b>International Advisory Committee</b></p> <p>There is also an International Advisory Committee for CIOOS, appointed by the Executive Committee and supported administratively by the Project Manager and secretariat team. The role of this Committee is to help give CIOOS a broader voice in the ocean observing community, filling an advocacy role, identifying</p>	<p>CIOOS GRA Information: <a href="#">CIOOS: Canada's National Ocean Observing Program</a></p> <p><a href="#">CIOOS Strategic Plan, 2021-2026</a> (18 pages)</p> <p><a href="#">CIOOS Implementation Plan, 2021-26</a></p>

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			<p>emerging opportunities and providing strategic leadership and oversight to the Executive Committee. Membership consists of experts within and outside of the ocean observing space.</p>	
		<ul style="list-style-type: none"> <li>• <b>Provision of an acceptable plan that has been endorsed by stakeholders</b> (data providers and users) from the region and describes the procedures by which the observing system will be established, developed, and sustained. This must include procedures for quality assurance, conformance to internationally accepted standards and protocols for measurements, data management, and communications.</li> </ul>	<p><b>Acceptable Plan</b> <b>Yes.</b> CIOOS has an Implementation Plan, 2021-26 (25 pages).</p> <p><b>Endorsed by stakeholders</b> <b>Generally, Yes.</b> CIOOS was established since 2019 and has been involved in consultations with the ocean observing community regarding scope and recommendations</p> <p><b>Yes</b></p> <p><b>Procedures by which the observing system will be established, developed</b></p> <p><b>Yes.</b> CIOOS is not directly engaged on ocean observation. It does not itself collect data, but provides users an online platform to discover, access and visualize high-quality open data. However, three regional associations of CIOOS have strong existing networks of ocean observation. In the four years since inception, CIOOS has implemented best practices to manage, integrate and share ocean data based on 31 variables as essential to monitor our ocean by GOOS. CIOOS has also engaged experts to guide the development of an ocean data management system which is nationally and internationally interoperable and consistent with international standards and has worked to increase communication and collaboration with existing initiatives across all sectors. CIOOS relies heavily on the existing strengths of the Canadian ocean community to support its work, and to date has worked with partners to integrate more than 1,500 datasets across its three regional associations.</p>	<p>CIOOS GRA Information: <a href="#">CIOOS: Canada's National Ocean Observing Program</a></p> <p><a href="#">CIOOS Strategic Plan, 2021-2026</a> (18 pages)</p> <p><a href="#">CIOOS Implementation Plan, 2021-26</a></p>

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			<p><b>Quality Assurance Procedures/ Quality Control</b></p> <p><b>Yes.</b></p> <p><b>Quality Assurance / Quality Control:</b> datasets within CIOOS are quality controlled at the source, as this is not a service offered by CIOOS at this time. Datasets are however reviewed to ensure consistent formatting for columns, standard names, and units.</p> <p><b>-Engagement:</b> through meaningful engagement and ongoing communication with a broad variety of stakeholders, CIOOS works to meet the unique needs of local and regional oceanographic communities while harmonizing around best practices at the national level.</p> <p><b>-Metadata:</b> national collaboration was undertaken with CIOOS partners and national experts to develop a metadata profile based on International Organization for Standardization (ISO) 19115:2014 – a common metadata standard that aligns with best practices and allows interoperation with national and international partners. This metadata profile continues to be expanded to support additional variables and platform types and Digital Object Identifiers (DOIs) for datasets. CIOOS requires that data contributors submit metadata files that are compliant with this profile. The use of netCDF (network Common Data Form) files is encouraged, as there is a broad set of netCDF tools available which may be adopted or adapted. CIOOS strives to be compliant with the Climate and Forecast Convention Version 1.6 (CF1.6) whenever possible.</p> <p><b>-Cyberinfrastructure:</b> software utilized by CIOOS is open source and consistent with national and international best practices.</p>	