Canadian Ocean Literacy Coalition

La coalition canadienne de la connaissance de l'océan

NATIONAL REPORT, JUNE 2020

UNDERSTANDING OCEAN LITERACY IN CANADA

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EXECUTIVE SUMMARY

This report is one in a set of research reports from a Canada-wide study conducted by the Canadian Ocean Literacy Coalition (COLC) to establish a baseline *seascape* of ocean literacy (OL) in Canada. The study's results will be used to co-develop an evidence-based national OL strategy and implementation plan in Fall 2020.

The five regional reports (Pacific, Inuit Nunangat, Atlantic, St. Lawrence, and Inland Canada) represent the heart of this project. To understand OL in Canada, it is essential to learn from the OL stories, experiences, perspectives, and initiatives across Canada that are rooted in place, both coastal and inland, and presented in the regional reports. The momentum of COLC and this Canada-wide study are steeped in its regional engagement, and this is where the success of the emerging national strategy to advance OL in Canada will be determined.

This report offers a high-level summary of the national research efforts to date, key insights learned from a national perspective, and a look ahead towards the National OL Strategy.

ACKNOWLEDGEMENTS:

Partners:

Fisheries and Oceans Canada / Pêches et Océans Canada

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** The above partners directly contributed to supporting the research positions. See Appendix E for complete list of all funding partners.*

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INTRODUCTION

FRAMIING OUR CANADA-WIDE STUDY

Canada has the longest coastline in the world, stretching over 243,000 kilometres of mainland coasts and offshore islands[1]. The ocean area over which Canada has jurisdiction is equivalent to about 55% of the country's landmass[2], some 9,984,670 square kilometres[3]. Of this surface area, about 12% is comprised of freshwater[4], representing one-fifth of the world's freshwater overall[5]. Over two million lakes and more than 8,500 rivers make up Canada's complex landscape of inland waterways[6], which all eventually drain into one of Canada's five ocean watersheds: the Atlantic Ocean, Hudson Bay, the Arctic Ocean, the Pacific Ocean, and the Gulf of Mexico[7].

For the 6.5 million Canadians living in a coastal zone[8], the ocean is deeply embedded in the fabric of community livelihoods, food security, and well-being. Across Canada, the ocean is a major economic driver, the backbone of weather and climate systems, and a recreational playground for millions of Canadians and global visitors. Ocean conservation is increasingly highlighted as a priority, as signaled by Canada's push to establish marine

protected areas covering 25% of our ocean waters and species' habitats by 2025 and 30% by 2030[9]. By that same time, the global ocean economy is expected to be valued at $3 trillion, and within Canada today, nearly 350,000 Canadians work in the ocean economy, contributing $36 billion to the country's gross domestic product[10].

And yet, the ocean space is not just about species and industries; it is also about people, livelihoods, relationships, and identity. Regulations and policies are critical to ensuring ocean and community health, sustainable ocean economies, and social equity, but so too is fostering a knowledgeable, empathetic, and engaged citizenry. With over 80% of the Canadian population based inland, how does the ocean shape our national identity? What sort of differences and commonalities can we spot in our relationships with the ocean? And from within these diverse relationships, how can we all effectively learn to value and care for the ocean, and to act with ocean health in mind?

Following the first ever United Nations Ocean Conference in 2017, held in New York, U.S., the Intergovernmental Oceanographic Commission (IOC) of UNESCO recognized the value of engaging citizens towards the development of a "civic relationship with the ocean." This understanding of **ocean literacy** (OL), outlined in IOC-UNESCO's subsequent publication in 2017, *Ocean Literacy for All: A toolkit*[11], was developed on the shoulders of pioneering work done in the United States in the early 2000s. The landmark "Ocean Literacy Essential Principles of Ocean Sciences" guide was first published in 2005, by the U.S. National Oceanic and Atmospheric Administration in collaboration with the National Science Foundation, the Centers for Ocean Sciences Education Excellence (COSEE), the College of Exploration, the National Marine Educators Association, and the National Geographic Society[12]. In this early work, OL was initially defined as **an understanding of the ocean's influence on you and your influence on the ocean.**

The Canadian Ocean Literacy Coalition (COLC) grew out of a collective of organizations from multiple sectors recognizing the need to address OL in Canada, which led to the launch of COLC in September 2018 during the G7 Environment Ministerial Meeting in Halifax. Since COLC's launch, its primary project has been to lead this Canada-wide research initiative to better understand Canadians' varying relationships with the ocean and to examine how OL is understood and practiced across all regions and multiple sectors. The aim of this work is to establish a baseline seascape of OL in Canada, and in so doing, to co-develop an evidence-based national OL strategy and implementation plan. COLC's work to build a national strategy is not being led by any one organization or sector, a process that has created a neutral and trusted space for this national conversation on what OL means and its potential usefulness to Canadians. This neutrality has allowed us to engage in an inclusive process, along with an approach that is rooted in relationships, and a national strategy that is being built from the bottom up.

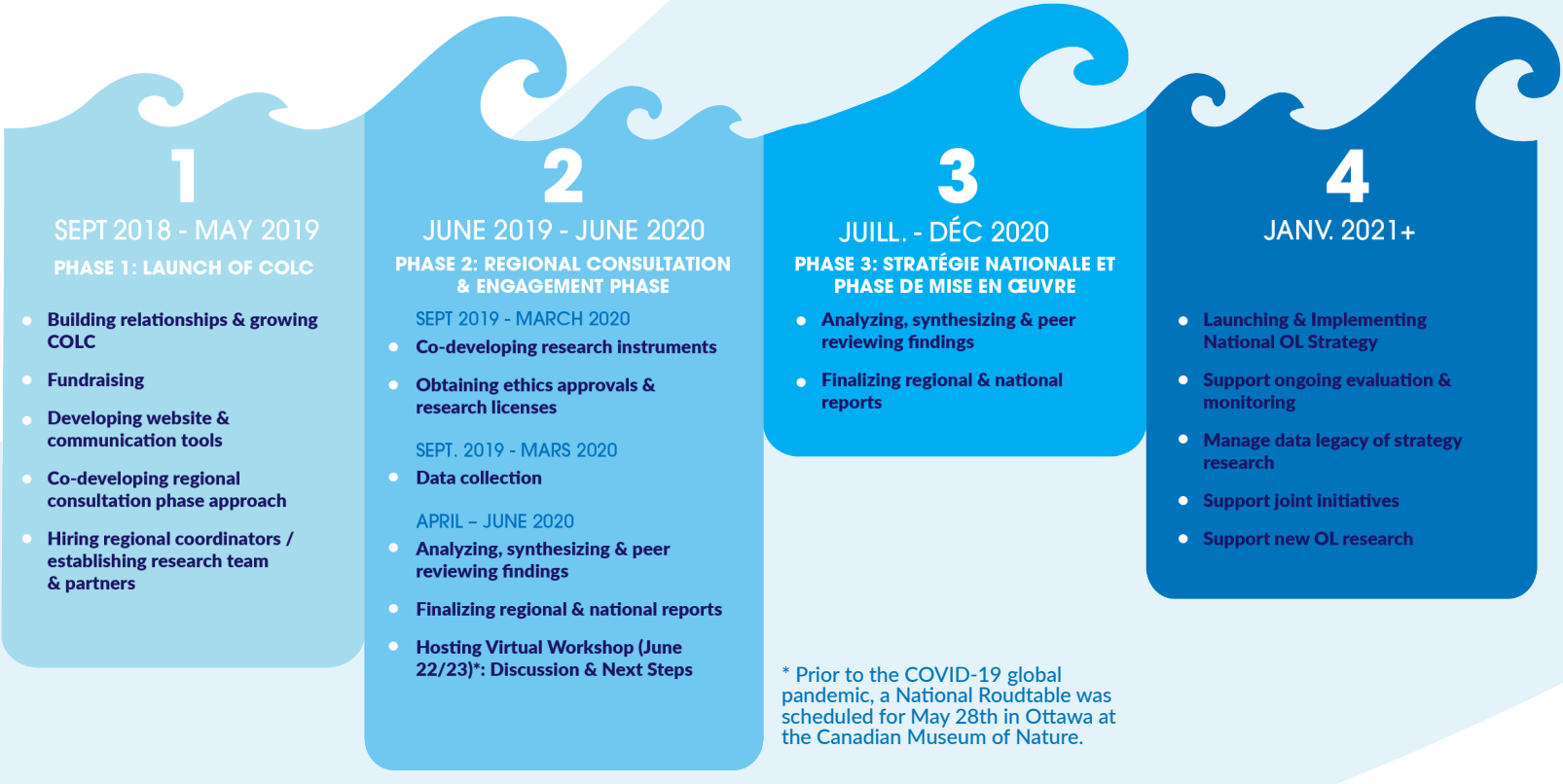


Figure 1: COLC's Project Phases & Timeline in building a National Ocean Literacy Strategy

WHAT WE DID

OUR APPROACH

Through a collaborative research approach, and drawing on qualitative and quantitative methods, the study focuses on five Canadian regions (Pacific, Inuit Nunangat, Atlantic, St. Lawrence, and Inland Canada), as well as a national overview. The study moves beyond an examination of OL in the context of formal education and youth engagement to consider the practice of OL across nine sectors: Government, NGO and Advocacy, Academia and Research, Industry, Education, Community, Media, Cultural Heritage, and Health.

Data was primarily collected between September 2019 and March 2020 from participants who are directly engaged in OL, or in other ocean- or water-related work that:

1. advances **ocean knowledge** systems (i.e., scientific, Indigenous, local, etc.)
2. strengthens **ocean values** (i.e., life-sustaining, economic, personal, communal, etc.), and/or
3. implements **ocean actions** (i.e., individual behavioural change, social justice actions, policy changes, etc.).

OUR RESEARCH QUESTIONS

1. What is the current understanding and state of OL in Canada?
2. What are the current strengths and barriers of OL in Canada?
3. What are the key recommendations to advance OL in Canada?

5 REGIONS

9 SECTORS

3 DIMENSIONS OF OL

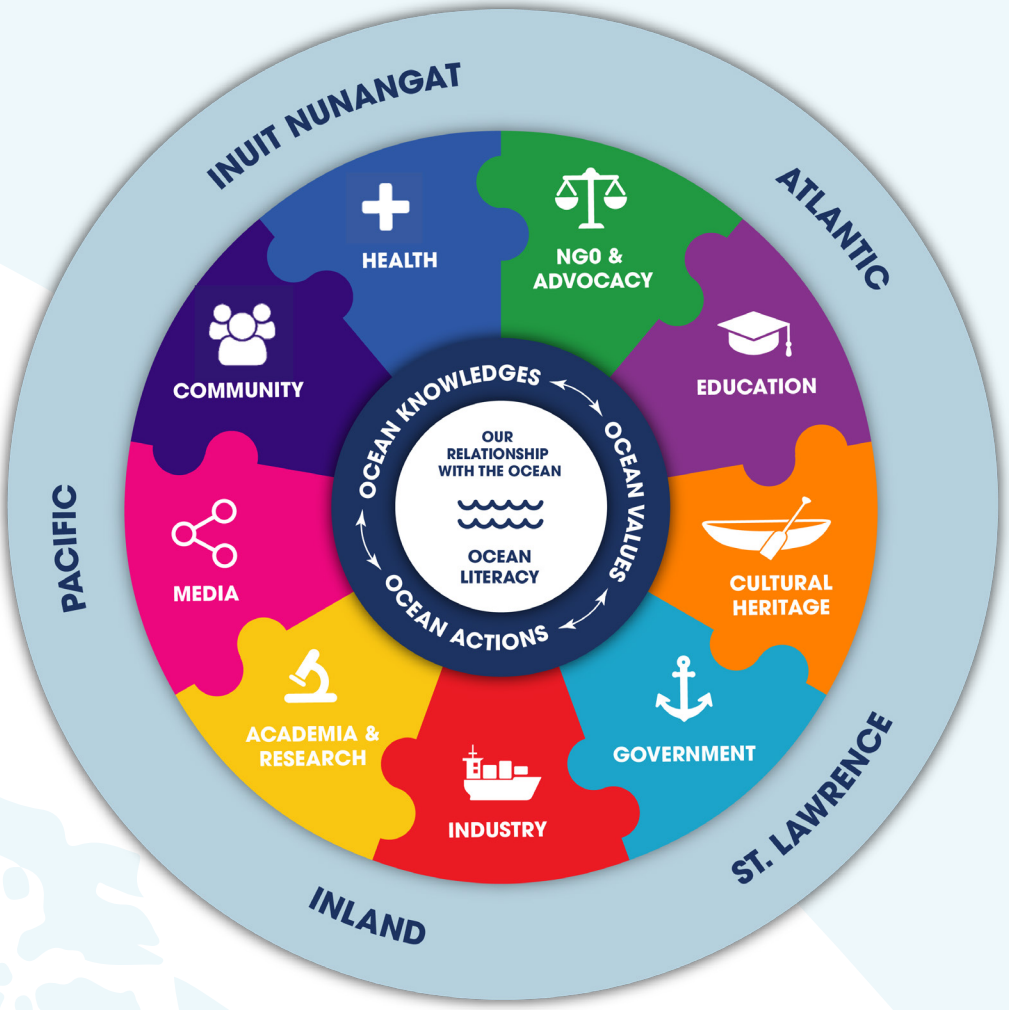


Figure 2: COLC's conceptual framework for the Canada-wide OL study, integrating the five regions, nine sectors, and three dimensions of OL.

OUR METHODS

OVER 3,000 CANADIANS engaged in this study. Eight data collection methods were used. Table 1 provides the sample total for each method, nationally and across the five regions. See Appendix A for further details on research methodology, ethics, and links to research tools.

Table 1: Data Collection and Methods

METHOD	DESCRIPTION	NATIONAL	PACIFIC	INUIT NUNANGAT	ATLANTIC	ST. LAWRENCE	INLAND CANADA
Canadian	Online survey with COLC Network(s) & interested Canadians	1,359 total respondents	341	12 (NU-5; NWT=7)	337 (NL=181; NS=115; NB=35; PEI=6)	150 (QC=150; ON=415[1])	519 (ON=415; AB=38; MB=33; SK=23; YK=10)
Nanos Research Poll	National poll conducted with random sample, general public	1,010 total respondents	153	0	100	251 (QC=251)	506 (ON=309; AM/MB/SK=197)
Document Scan	Documents and reports reviewed for background context	332 total documents (258 regional/ 75 national) *see appedix B	50	41	73	70	24
Interviews	Semi-structured, 45 minutes	188 total participants (158 by regional coordinators; 30 by national) *see appendix C	36	26	52 (NS=25; NL=18; NB=7; PEI=2)	20[2]	24
Ocean Literacy Mapping Survey (OLMS)	Regional and organization- level online survey for OL providers	136 total respondents	53	0	61 (NS=27; NB=14; NL=9; PEI=2)	22	0
Youth Workshops	Researcher facilitated, semi-structured focus groups	3 workshops - 210 youth total	National scale only	National scale only	National scale only	National scale only	National scale only
Arts-based Engagement	Regional public engagement with artwork and research question	5 art works - 250 total responses	1 art work - 42 responses	1 art work - 24 responses	1 art work - 8 responses	1 art work - 52 responses	1 art work - 117 responses
Media & Social Media Scan	Course- scale analysis of topics discussed in Canadian media and twitter	1,253 articles; 77 influential Twitter accounts (800+ followers)	National scale only	National scale only	National scale only	National scale only	National scale only

[1] Data from Ontario respondents (n=415) to the COLSurvey were reviewed by the St. Lawerence Regional Coordinator and the Inland Canada Research Assistants, but only counted once.
[2] An additional five interviews from Inland Canada region were scanned by St. Lawrence Coordinator.

OUTCOMES

A total of 18 research reports emerged from this study:

REGIONAL (14)

- 5 Regional Reports
- 4 Regional OL Asset Map Tables
- 5 Regional Artist's Reports

NATIONAL (4)

- Understanding Ocean Literacy in Canada: National Report
- Canadian Ocean Literacy Survey Highlights Report
- Youth and Ocean Literacy in Canada: Key Findings and Recommendations
- Ocean Literacy in the Canadian Media: Highlights Report

See Appendix D for links to all outcome products.

WHAT WE DID

MAPPING OCEAN LITERACY IN CANADA

Throughout the regional engagement phase, OL organizations were identified and mapped across the five regions. OL organizations were included if they contribute to:

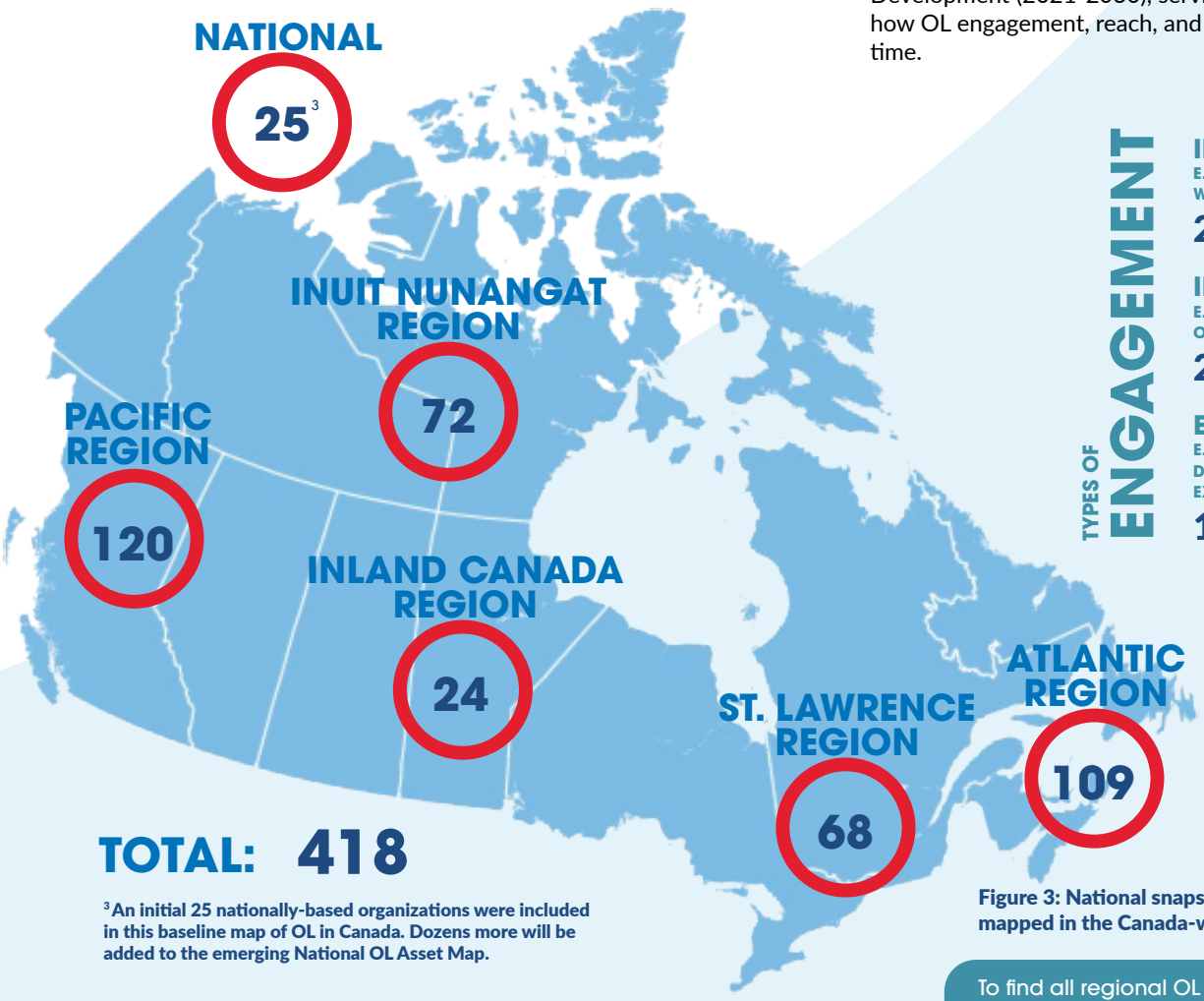
1. mobilizing an increased understanding of the ocean across diverse knowledge systems;
2. strengthening ocean values that are connected with the ocean; and/or
3. implementing personal and collective engagement and ocean actions.

The regional OL asset maps colletively capture, for the first time, a baseline of OL in Canada.

A TOTAL OF 418
OL initiatives were mapped in this study

While this map of identified OL-related organizations (and over a thousand initiatives) is not exhaustive, and is growing even as this report is being published, it highlights the kinds of projects that are currently taking place across the country, as well as who is leading them, with which partners, and in what form. By assembling this preliminary list of OL initiatives, it becomes a point of reference for enabling collaborations and networking, and it also identifies potential gaps and opportunities to be filled by future initiatives.

All regional OL asset maps and tables will be integrated into a digital, National OL Asset Map as part of the National OL Strategy to be completed in late Fall 2020. The National OL Asset Map, once launched, will grow and evolve throughout the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), serving as a useful indicator of how OL engagement, reach, and impact are growing over time.



[3] An initial 25 nationally-based organizations were included in this baseline map of OL in Canada. Dozens more will be added to the emerging National OL Asset Map.

TYPES OF ENGAGEMENT

INFORMATION-BASED
E.G., GENERAL INFORMATION, WEBSITES, PAMPHETS, REPORTS
265

INTERACTIVE LEARNING
E.G., EXPERIENTIAL EDUCATION, HANDS-ON ACTIVITIES
261

EXPANDING CAPACITY
E.G., TRAINING, LEADERSHIP DEVELOPMENT, INTENSIVE MULTI-DAY EXPERIENCES
153

Figure 3: National snapshot of the organizations mapped in the Canada-wide OL study.

To find all regional OL Asset Map Tables, visit
WWW.COLCOALITION.CA/OUR-PROJECTS/REGIONAL-REPORTS/

*This breakdown totals 426, slightly more than the total organizations mapped (n= 418) as some organizations self-identified as being rooted in more than one sector.

WHAT WE LEARNED

COMING TO TERMS WITH OCEAN LITERACY

Although 'ocean literacy' is a widely recognized term internationally, there is limited uptake of the term across Canada. OL appears most often as a term within the non-formal education sector in Canada (i.e., education and youth-based NGOs), as well as in some government agencies (e.g., Fisheries and Oceans Canada, Parks Canada). While it does sometimes appear in ocean science, marine social science, and environmental and climate education research, its use is rare across other sectors (e.g., industry, health, media) and on the ground in Canadian communities and citizen spaces.

Across all study regions, OL was most often considered as an abstract and 'unexciting' term. It was also frequently described as being too 'academic,' difficult to understand, and/or a 'buzzword' that lacks connection to place and action. For many, it was perceived as limiting and problematic, particularly due to the deficit-based and often stigmatizing connotation of 'literacy.' The concept was equally identified as being difficult to connect with, both for inland Canadians, who do not immediately see themselves in ocean terminology, aND for francophones, as there is no commonly agreed upon translation for OL in French.

Within Indigenous cultures, OL was widely found to be irrelevant. Inuit and coastal First Nations have understood the inextricable link between themselves and the ocean (and land) for thousands of years, just as inland First Nations and Métis have understood this inherent connection between themselves and freshwater (and land). Indigenous peoples' relationships with the ocean/water have always been, and continue to be, directly linked to their livelihoods, food security, and socio-cultural well-being.

> **"Over millennia, there has been little need for any formal discussion of "ocean literacy" as Inuit lived, breathed, and ate near or from the ocean and lived in relative harmony with animals and seasons. Inuit language interweaves values and numerous words for elements of the ocean that are based on thousands of years of experience, knowledge, and observations."**
>
> -Mary Simon, OC, QC, Inuit Rights Advocate and former diplomat

> **"Ocean literacy, as a modern term, is not familiar to or used by Heiltsuk. The ocean is an extension of our home. It provides food, employment, and transportation systems that have supported our way of life for eons. We don't own the ocean – we belong to it and, as such, are responsible for its well-being which, in turn, defines and reinforces our well-being."**
>
> -Hilistis Pauline Waterfall, Adjunct Professor, Vancouver Island University, Hailhzaqv Elder

KEY INSIGHT #1 USEFUL FOR SOME, IRRELEVANT FOR OTHERS- LET'S MOVE BEYOND THE TERM

Literacy in all its forms, as applied to the ocean or any other concept (e.g., the environment, nature, water, etc.), has always risked leaving out the local, place-based, and Indigenous knowledge base – essential knowledge, particularly when it comes to ecological and community health. Making OL more inclusive, however, is not as straightforward as including Indigenous Knowledge in established and emerging domestic or global OL work that has its roots in a Western science paradigm. Rather, we must ask: How can we together leverage international OL momentum and commitments to build more diverse and inclusive engagement of all Canadians in better understanding and caring for the ocean (and all water), regardless of what term we use?

Figure 4: Expressions used and shared by participants across the over 400 OL organizations mapped to describe the work and efforts to foster ocean understanding, values, and actions. As shown in this visual, there is much more alignment than difference.

As a recent and inspiring example, on World Ocean's Day, June 8th, 2020, a keynote presentation delivered by Chùk Odenigbo as part of Oceans Week Halifax, and broader Oceans Week Canada events, highlighted the human-ocean health connection and the notion that **"we are all ocean people."** This is OL in its broadest, most inclusive, sense – even though, and perhaps because, nowhere on the mural do the words 'ocean literacy' appear.

Image: Live graphic mural (Drawn by Mo Dresch, Founder of Brave Space) of Oceans Week HFX keynote presentation with Future Ancestors Services. The talk was focused on the importance of intersectionality and anti-racism within ocean advocacy work across Canada (June 6, 2020).

WHAT WE LEARNED

STRENGTHS OF OCEAN LITERACY IN CANADA

REGION	KEY STRENGTHS	DEGREE OF OVERLAP
PACIFIC REGION	- First Nations stewardship and leadership	4
	- Long-running OL initiatives and reach	1
	- Place-based, experiential learning	4
	- Multi-faceted research	2
	- Multi-sectoral partnerships	4
INUIT NUNANGAT REGION	- Inuit leadership and community engagement	4
	- Locally relevant: meeting the needs of communities	4
	- Long-term relationships and investments in people	2
	- Land-based programs	4
	- Adapting technology to support Inuit needs	1
ATLANTIC REGION	- Relationships and collaboration	3
	- Place-based knowledge and experiential learning	4
	- Ocean engagement through plastic pollution awareness	1
	- Women leaders	1
	- Two-Eyed Seeing	4
	- Workforce development	1
ST. LAWRENCE REGION	- Coordinated consultation and dialogue	2
	- Dynamic and accessible knowledge communication	1
	- Multidisciplinary research networks	2
	- Intersectoral collaborations and partnerships	3
INLAND CANADA REGION	- Established community-water monitoring, and data sharing	1
	- Place-based, experiential education	4
	- "Water is life": building land-water stewardship action	4

In each region, key strengths of OL were identifed from the data sets and validated by the regional participants through a draft report review process. Figure 5 highlights the key strengths that each region's interview participants identified, and the degree of overlap of each key strength (e.g., a similar strength was identified in X number of the five regions).

Figure 5: Regional Strengths of OL in Canada

KEY INSIGHT #2 LAND, WATER, OCEAN, SEA ICE: LET'S MOVE TOWARDS AN OCEAN CONTINUUM IN CANADA

While most coastal Canadians who engaged in this study could speak to a direct connection with the ocean, for those who engaged in the 'inland' region and along the Great Lakes and St. Lawrence, connections to water, local waterways, and watersheds were far more prevalent. Also noted, particularly by Indigenous participants, were connections made with the ocean through the land, insofar as seeing land and water as one interconnected concept that hinges on a balance between all elements.

For Inuit in particular, as marine people who have lived in the Arctic for thousands of years, their relationship to the ocean does not exist separately from the land, water, and sea ice.

Clearly identified across all regional data and specific population data (e.g., youth workshops) is a shared belief that advancing OL in Canada – in a country where 30+ million or more than 80 % of the population live inland – will only be achieved by broadening our current understanding of OL. Fostering strong relationships to land, water, the ocean, and sea ice inclusively is essential, as is developing an 'ocean' ethic that reflects this inclusivity. With complex regulatory frameworks that tend toward fragmentation, municipal, provincial, territorial, Indigenous, and national jurisdictions will need much greater integration to shift toward an ocean/water continuum. To understand OL through this broader ocean continuum is to connect a much wider swath of the Canadian population with the OL community and ultimately create space for greater civic engagement and collaboration moving forward.

KEY INSIGHT #3 THE BIG PICTURE: LET'S MOVE TOWARDS AN OCEAN CONTINUUM AS PART OF A LARGER OCEAN-WATER-CLIMATE-NATURE NARRATIVE

The intersection of ocean, water, climate, and nature-based education (both formal and general public) with communication and action was identified by participants across the country. Although the distinct expertise and priorities within each field were recognized, there was broad acknowledgement that many individuals, organizations, institutions, and communities are working towards similar goals, often duplicating efforts and competing for the same funding opportunities.

In a poll conducted by Nanos Research for this study, in which over 1,000 Canadians were surveyed, an overwhelming 77% of respondents indicated learning about the ocean primarily through the media.

In an era of information and media saturation, competing messages often fight for space and attention, and risk getting lost or being unheard. In the multiplicity of relationships that exist with the ocean, and in the face of all the challenges and threats to ocean health, how do we better communicate ocean-water-climate-nature stories and key messages across diverse groups in ways that resonate with them and that ultimately inspire and incite action?

Creating space to align 'literacy' efforts in Canada (e.g., ocean, water, nature, environmental, sustainability, climate, etc.) could allow not only for streamlined key messaging to the public, but also for collaborations on larger joint initiatives and funding proposals, as well as the co-design of innovative monitoring indicators, professional training sessions, and data sharing platforms.

Messaging for ocean mindset and action – check out:

https://heartwiredforchange.com/ocean/

https://frameworksinstitute.org/assets/files/uk_oceans/uk_oceans_impact_brief.pdf

https://frameworksinstitute.org/assets/files/uk_oceans/uk_oceans_turning_the_tide.pdf

https://shift.how/

How can efforts to integrate ocean education into education policy and school curricula co-align with similar climate change and sustainability education, and land-based learning efforts?

Check out:

Learning for a sustainable Future's recent National Climate Change Education Survey

Sustainability Education Policy Network's research and their recently launched Monitoring and Evaluation of Climate Change Education

Creating Ethical Spaces: Opportunities to Connect with Land for Life and Learning in the NWT (policy paper)

Nunami Sukuijainiq (Science on the Land)

Lawson Foundation - see Youth Environment Research Report and Systemic Review

From the data collected during this study, the call for ocean education in provincial and territorial education systems was clear, as well as needing a national framework to support regional efforts. Beyond "getting more ocean content into school curricula," this presents a compelling opportunity for ocean/water education leaders (in policy and practice) to come together with leaders in climate change education, land-based learning, and nature education and communication. What's more, such an opportunity could be a powerful occasion to integrate some of the current policy, finance, and regulation-focused initiatives relevant to ocean/water, nature, and climate, in order to shape together what meaningful, intersectional knowledge mobilization and citizen engagement could look like in Canada.

WHAT WE LEARNED

BARRIERS TO OCEAN LITERACY IN CANADA

REGION	KEY BARRIERS	DEGREE OF OVERLAP
PACIFIC REGION	- Lack of funding and competition for it - Inequitable access to the ocean and OL initiatives - Fragmented governance - Disconnect from nature	5 2 2 3
INUIT NUNANGAT REGION	- Funding and logistical challenges to living/working in the Arctic - Technology and integration with life in remote communities - Access, ownership, and storage of data - Jurisdictional, institutional, and systemic barriers	5 1 2 1
ATLANTIC REGION	- Lack of funding and competition for it - Conflict and lack of trust due to siloed relationships - Overcoming human separation from coasts/ocean - Gap in human and ocean health connections	5 2 3 1
ST. LAWRENCE REGION	- Insufficient, short-term, and competitive funding - Disconnection from the regions' waters - Access to the ocean and its resources - Language constraints	5 3 2 1
INLAND CANADA REGION	- Lack of funding and restrictive guidelines - Limited access and capacity sharing - Lack of frameworks and policies for ocean/water literacy	5 2 1

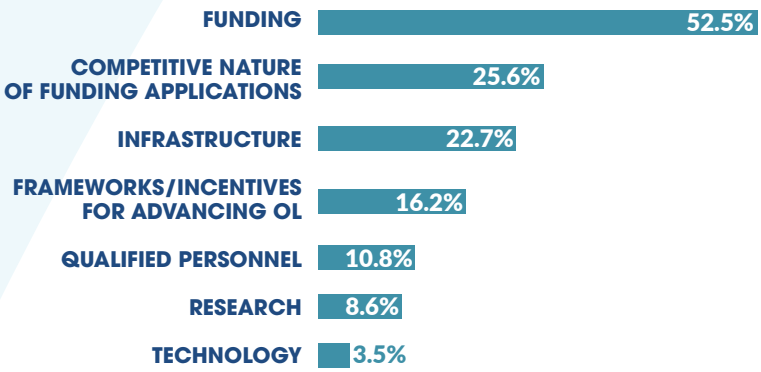
Figure 6: Regional Barriers to OL in Canada

Key barriers to OL were also identified in the study. Figure 6 highlights these key barriers by region, which were validated by the regional participants through a draft report review process. The degree of overlap of each identified barriers across the regions is noted.

KEY INSIGHT #4 ADDRESSING THE FUNDING BARRIER THROUGH THE INDUSTRY GAP: LET'S MOVE TOWARDS PROBLEM SOLVING

Throughout the consultation and engagement process led by COLC regional coordinators for this study, funding was identified as the overwhelming barrier to OL initiatives. The majority of funding for OL projects, according to OL Mapping Survey participants across the country, is sourced through government, foundations, research grants, and donations; corporate contributions remain relatively low.

WHAT ARE THE MOST SIGNIFICANT BARRIERS TO IMPLEMENTING OL INITIATIVES?



WHEN ASKED, "WHAT ARE YOUR FUNDING SOURCES?", SURVEY FINDINGS SHOW:

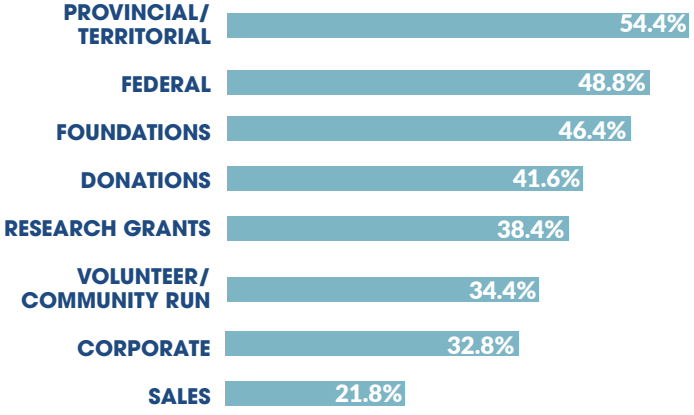


Figure 7: The most significant barriers to implementing OL in Canada and the funding sources of OL work in Canada, as identified by the 136 respondents to the OL Mapping Survey. Note: numbers do not add up to 100% as respondents were invited to select multiple options.

Parallel to industry being underrepresented in funding OL in Canada, within COLC's work to ensure strong intersectoral engagement throughout the project, industry was routinely identified as a notable gap in these efforts.

While many reasons could be cited – small research team, limited time and resources – it remains that, to date, with a few exceptions, limited convincing linkages exist between OL and industry. What is more, efforts have been lagging in developing substantive and well-articulated benefits to industry engaging in and actively fostering OL.

SOME OF THE MOST TOUTED REASONS FOR ENGAGING INDUSTRY IN OL ARE:

1. Developing workforce capability through strengthened experiential training, internships, and formal education programming, including early and mid-career transitions, as well as with underrepresented populations.
2. Addressing the career literacy gap through more effective marketing, recruitment communications, and outreach, as recent studies show that most Canadians are unaware of marine career opportunities[13] and the space for innovation and creativity within growing sustainable ocean economies.
3. Assessing what Canadians may view as "societally acceptable" within the blue economy sphere.

What has been identified in the context of this study is that, quite simply, industry wants to give back, and that there is a need to clearly identify ways to engage industry as a key partner in OL projects. Furthermore, when alignment is strong, industry has the capability of responding rapidly and efficiently to projects and efforts in ways that other sectors cannot, with possibilities for ensuring longevity and guaranteed funding, particularly in local communities.

Already within the OL sphere, there are examples of how some businesses have transformed their operations to support ocean health and sustainability, as well as opportunities for businesses to share these stories. In December 2019, Francesca Santoro, OL lead for the IOC-UNESCO, hosted a workshop in Venice, Italy, specifically for keen industry leaders from around the world to explore the possibility of putting forward an industry-specific OL professional development course.

Ocean Technology Alliance Canada, together with Canada's Ocean Supercluster, recently developed a Canada-wide Ocean Industries Asset map, serving as an "evergreen tool that visually captures the breadth of world-class experience, products, and services that Canadian companies have on offer to the world."

Beyond educating industry on the value of a healthy ocean and their social responsibility, how might the OL community in Canada better engage and develop meaningful partnerships with industry on OL projects? And in so doing, is there potential to reduce funding as the overwhelming barrier identified by OL-related providers across all regions? How can the OL community in Canada partner with innovative ocean industries to harness that energy and capacity to inspire and engage Canadians in communities from coast to coast to coast to better understand, value, and care for the ocean continuum? What safe-guards are required to ensure funding is distributed through impartial, arms-length, and transparent mechanisms to ensure OL initiatives operate without undue influence from industry?

To engage industry in problem-solving, the best approach, as shared by one of the industry participants in this study, is to "make it in the interest of industry to solve the problem."

According to the national poll conducted by Nanos Research as part of this study, Canadians are five times more likely to 'strongly agree' that the ocean plays an important role in the Canadian economy than to 'strongly agree' that the ocean directly influences their day-to-day activities. With this finding in mind...

OTHER PERSPECTIVES SHARED BY INDUSTRY PARTICIPANTS ON THIS FRONT INCLUDE:

- Often OL proponents take a qualitative conversation approach, sharing why it is important for industry to engage, making for long and often empty outcomes; but there is also a quantitative benefit. This benefit needs to be made more explicit;
- OL can be "divided into Ocean Understanding and Ocean Care." As the former is improved, the desire for the latter will increase. Recruit industry to the first and society will recruit (or force) industry to the second;
- Industry has longstanding presence on all of Canada's oceans. More than ever, businesses are making efforts to act and be seen to act responsibly. There is no collective and respected forum for highlighting industry's marine activities and the contribution those activities make to Canadian society. For example, the significant amount of research and environmental monitoring that frequently accompanies a regulator's authorization of the activity. An Ocean Industries Education Association may be appropriate.

TWO MORE INDUSTRY PERSPECTIVES AS SHARED BY PARTICIPANTS ARE WORTH NOTING:

- Industry has greater capacity for flexibility and innovation than government or academia; it is also more production oriented. If incented to contribute to improving OL by the attachment of this requirement to an authorization for their planned activity, industry can be expected to be highly motivated and successful.
- Industry reflects the values of those groups that are most immediately influential to a business's success; these include customers, regulators, or empowered stakeholders. It can be difficult to link the broad wishes of eventual customers relatively far removed from primary industries. However, natural resource developers in particular work closely and collaboratively with many First Nations, Metis, and Inuit representatives. Although there are variations in the level of authority among these groups, depending on the status of land claims, many have great influence over commitments industry must make in order to proceed with an activity impacting Indigenous water and land. If promoting OL (or the ocean continuum – land, water, ocean, sea ice) is important to these communities it can by default become the subject matter of discussions around potential developments.

LOOKING AHEAD

LET'S MOVE TOWARDS A NATIONAL OL STRATEGY

From the onset, COLC's objective has been focused on co-developing an evidence-based national OL strategy through a bottom-up approach. Canada is as diverse as it is vast, and it was critical to COLC's mission that regional voices shine through from the beginning to the end of the project to reflect this diversity. There exist hundreds of organizations and initiatives, as this study affirms, that are doing inspiring and important work to incite an ethic of care for the ocean continuum in Canadians from coast to coast to coast.

It is also useful to understand that among the diversity of voices at the OL table, many are loud, and legacies of conflict and distrust (MPAs, fishing, industrial development, etc.) as well as inter-organizational struggles (often related to competition for funding) can make it harder to bring these voices together. Furthermore, many voices are still missing at this table (e.g., Indigenous, newcomers, migrant workers, people of colour, lower income, urban, etc.).

Through our collective efforts to identify what is working well and wherein our challenges still lie, we now have a comprehensive understanding of how OL is understood and practiced across the regions. Basing ourselves on these regional insights, as well as preliminary recommendations on how to remove barriers and move beyond them, we as a broader community are much better positioned to co-develop a national strategy that will support the advancement of OL in Canada.

THE INTENDED GOALS OF THE STRATEGY DOCUMENT ARE TO:

- Respect and celebrate regional diversity, strengths, and needs
- Resonate with and benefit a wide variety of users
- Provide clear action-focused pathways to advance OL in Canada
- Identify the typologies of OL actors and actions
- Target outcomes and opportunities
- Identify clear implementation mechanisms
- Outline impact frameworks for monitoring over time

THE INTENDED OUTCOMES OF THE NATIONAL OL STRATEGY ARE TO:

- Strengthen Canadians' knowledge and values about the ocean continuum
- Foster an ethic of care for the ocean continuum in Canadians
- Change behaviours and incite action
- Influence policy decisions and educate decision-makers
- Advance reconciliation with Indigenous Peoples
- Build bridges and a culture of collaboration within and beyond the OL community regionally, nationally, and internationally
- Raise Canada's voice at the global ocean literacy table

NEXT STEPS

1 Out of the study emerged a preliminary set of recommendations from each of the five regions as to what is needed to help advance OL regionally (see Appendix F). These initial draft recommendations need to be examined, strengthened, and finalized to be incorporated into the National OL Strategy, ensuring strong regional representation. The Virtual Workshops on June 22-23, 2020, will begin this process, establishing and initiating the pathway forward.

2 A working typology of OL actors and actions in Canada will be drafted based on study findings and discussions both during and following the National Virtual Workshop to be held June 23, 2020. These discussions will inform the content and design of the National OL Strategy. It will also inform pathways of co-development to ensure a successful and inclusive strategy through wide engagement and implementation uptake, as well as measured impact indicators over time.

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APPENDIX A

RESEARCH ETHICS AND METHODS SUMMARY

Drawing on qualitative and quantitative methods through a collaborative research approach, the study focused on five Canadian regions (Pacific, Inuit Nunangat, Atlantic, St. Lawrence, and Inland Canada), as well as nationally. As a Mitacs-funded project, the research team included postdoctoral fellows, graduate students, supervising professors at partner universities (Dalhousie University, University of Ottawa, Simon Fraser University, and Trent University), and an extensive network of industry and organizational partners located across Canada.

The team engaged in three central lines of inquiry: (1) reviewed regional ocean-related studies, reports, policies, media, and other publicly available documents for linkages to OL through a focused document scan. This process also contributed to OL mapping; (2) conducted semi-structured interviews and a comprehensive asset mapping methodology to understand the ways in which OL is being interpreted and implemented regionally across nine pre-identified sectors; and (3) conducted a national online ecosystem survey (Canadian Ocean Literacy Survey), as well as a National Poll, conducted by Nanos Research, with the general public. In addition, an arts-based methodology was used, led by a team of artists (one per region), 3 youth workshops (e.g., focus group approach), and a Canadian media content (course) analysis and social media scan.

All interview data was organized by key questions and then coded and categorized into key themes. The findings from the interviews were then examined with findings from the OLM (regional/organizational) Survey and the COL (national) Survey.

A convenience sample of self-identified participants within the COLC network was used along with a snowballing technique to further expand the initial sample (i.e., participants suggested others to interview and participate in the OLMSurvey). The research reports primarily focus on data collected from participants who are directly engaged in OL or in other ocean-related work. Data collected from a random sampling of the general public took place via the national poll conducted by Nanos Research and the arts-based research data.

To view these research tools, please visit:
WWW.COLCOALITION.CA/RESEARCH-TOOLS

All research tools and protocols were approved by Dalhousie Research Ethics, REB# 2019-4891 as the lead (national) research institution. Ethics approval was also received from Simon Fraser University for the Pacific Region (REB# 2019s0334), University of Ottawa (REB# S-09-19-5040) for the St. Lawrence Region, and Trent University IEC/DERC Ethics (#25944) for the Inuit Nunangat Region, along with further protocol approvals granted by Aurora Research Institute (#16679) and the Nunatsiavut Government Research Advisory Committee (#10269769), with exemptions granted by the Nunavut Research Institute and Nunavik Research Centre/ Makivik.

Validation: The regional reports, in-depth case studies, and regional OL Asset Map Tables were sent for review to the participating organizations and individuals. The final research reports reflect this validation process.

APPENDIX B

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APPENDIX C

NATIONAL INTERVIEWS - LIST OF PARTICIPATING ORGANIZATIONS

Along with the 158 interviews conducted across the five regions by the regional coordinators, 30 semi-structured or informal interviews were conducted by COLC's National Coordinator between November 2019 and February 2020.

National interviews (n=25); International (n=5)

ORGANIZATION

1. Canadian Museum of Nature
2. Assembly of First Nations
3. Swim Drink Fish Canada
4. Nature Canada
5. WWW-Canada (Oceans Program)
6. Fisheries and Oceans Canada
7. Canada Parks Council
8. Canadian Parks and Wilderness Society
9. Community Foundations of Canada
10. Oceana Canada
11. Learning for a Sustainable Future
12. Indigenous Leadership Initiative
13. Insurance Bureau of Canada
14. Canadian Coast Guard
15. National Film Board of Canada
16. Canada's Ocean Supercluster
17. Canadian Federation of Municipalities
18. Ocean Networks Canada
19. Earth Day Canada
20. Taking It Global
21. Science Literacy Week Canada (NSERC)
22. Parks Canada
23. Canadian Commission for UNESCO
24. Ingenium
25. MEOPAR
26. SOPHIE Project (EU)
27. Sea Change (EU)
28. ACTeon Environment (EU)
29. Ocean Conservation Trust (UK)
30. Author, The Imperiled Ocean (US)

APPENDIX D

RESEARCH OUTCOME PRODUCTS

A total of 18 research reports emerged from this study. Names and links to reports are outlined below.

REGIONAL PRODUCTS (14)

Pacific Regional Report
Pacific Region OL Asset Map Table
Pacific Region Arts-based Research Report
**Find 3 reports at: https://colcoalition.ca/our-projects/regional-reports/pacific-region/*

Atlantic Regional Report
Atlantic Region OL Asset Map Table
Atlantic Region Arts-based Research Report
** Find 3 reports at: https://colcoalition.ca/our-projects/regional-reports/atlantic-region/*

St. Lawrence Regional Report
St. Lawrence Region OL Asset Map Table
St. Lawrence Region Arts-based Research Report
**Find 3 reports at: https://colcoalition.ca/our-projects/regional-reports/st-lawrence-region/*

Inuit Nunangat Regional Report
Inuit Nunangat Region OL Asset Map Table
Inuit Nunangat Region Arts-based Research Report
** Find 3 reports, visit: https://colcoalition.ca/our-projects/regional-reports/inuit-region/*

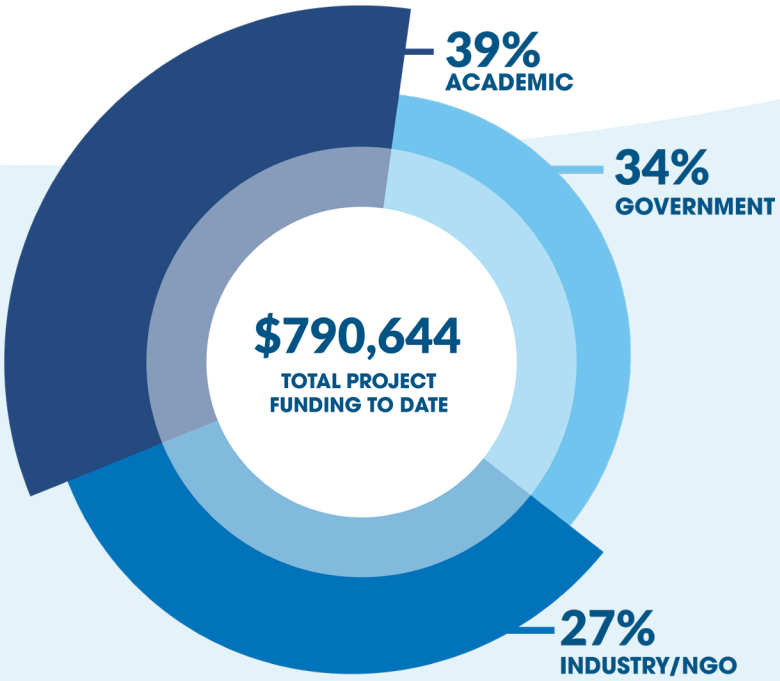
Inland Canada Regional Report
Inland Canada Region Arts-based Research Report
** Find 2 reports at: https://colcoalition.ca/our-projects/regional-reports/inland-canada/*

NATIONAL PRODUCTS (4)

Understanding Ocean Literacy in Canada: National Report
Canadian Ocean Literacy Survey Highlights Report
Youth and Ocean Literacy in Canada: Key Findings and Recommendations
Ocean Literacy in the Canadian Media: Highlights Report
** Find 4 reports at: https://colcoalition.ca/our-projects/national-reports/*

APPENDIX E

PROJECT FUNDING (AS OF JUNE 1, 2020)



COLC is comprised of NGO, government, academic, industry, and philanthropic organizations.

Our funding reflects this collaboration.
Total project budget to date: $790,644*

***An additional hundreds of thousands of dollars of in-kind contributions from dozens of organizations across Canada has been essential to the success of this project.**

FEDERAL GOVERNMENT — $266,630

Fisheries and Oceans Canada	$200,000
Environment and Climate Change Canada	$20,000
Polar Knowledge Canada	$25,000
Science Horizons Internship Program	$13,750
Ingenium (Canadian Museum of Science and Technology)	$5,000
Natural Sciences and Engineering Research Council of Canada	$2,880

INDUSTRY/NGO/PHILANTHROPIC — $220,750

Students on Ice	$63,750
Ocean Wise	$50,000
NIVA, Inc.	$25,000
Clean Foundation*	$25,000
Canadian Commission for UNESCO	$18,000
Stratos, Inc.	$15,000
McConnell Foundation	$10,000
Ocean Networks Canada	$9,000
Baffinland	$5,000

**With Support from Environment and Climate Change Canada*

ACADEMIC — $303,264

Mitacs	$169,664
Ocean Frontier Institute	$80,000
Marine Environmental Observation, Prediction and Response Network	$23,600
Ocean Frontier Institute Seed Fund	$20,000
Marine Institute	$10,000

APPENDIX F

A NATIONAL SNAPSHOT OF THE PRELIMINARY RECOMMENDATIONS FROM ACROSS THE REGIONS TO ADVANCE OL IN CANADA

PACIFIC

- **R1** Invest in OL
- **R2** Foster more coordinated and collaborative action on OL across the region and Canada
- **R3** Respectfully recognize Indigenous Knowledges
- **R4** Include the Ocean as part of school curricula in B.C. and nationally
- **R5** Make better connections between OL and broader issues
- **R6** Foster accessibility and inclusivity for OL
- **R7** Develop a shared ocean identity by bridging inland and coastal perspectives on the value of the ocean to Canadians
- **R8** Expand OL to include the political visibility of the ocean

INUIT NUNANGAT

- **R1** Reframing OL Terminology to Include Inuit Perspectives
- **R2** Long-Term Investments in Programs and People
- **R3** Inuit as Decision-makers (and Keepers of Ocean Knowledge)
- **R4** Increased Connections Within, Among, and Outside of Communities
- **R5** Partnership Support for Locally-relevant, Place-based Ocean Education and Training

ATLANTIC

- **R1** Invest in OL
- **R2** Include the ocean as part of school curricula
- **R3** Make the ocean visible and accessible to all Canadians through a watershed approach

ST. LAWRENCE

- **R1** Provide sustained funding for OL
- **R2** Integrate knowledge and perspectives of First Nations and non-Indigenous coastal communities into the co-production of OL knowledge
- **R3** Support and promote accessible knowledge and science communication tools
- **R4** Create collaborative tools and spaces for OL practice across borders

INLAND

- **R1** Increase Support for and Capacity in Community-Based Water Initiatives
- **R2** Provide Space for Open Dialogue and Collaboration Between Ocean and Water Literacy Experts and Practitioners
- **R3** Develop Regionally-Specific Resources that tie into an Overarching National Water/Ocean Narrative