



A Development Plan:
Building a Canadian
Ocean Literacy
Strategy



A recommended plan for establishing
and implementing a national strategy
to advance ocean literacy in Canada

APRIL 13, 2018



To send feedback on this document and/or to join the coalition, please email:
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This document is a working draft intended to catalyze discussion and collaboration. Initial coalition partners came together on this project with the shared intention to collectively advance ocean literacy in Canada. The group recognizes the need for a deeper group of leaders with diverse expertise, as well as stakeholder and geographic representation, to make this document and related conversations effective. All interested parties are invited to join these emerging efforts to advance a national ocean literacy strategy for Canada.

This document will be reviewed and vetted through the April 26, 2018 development plan consultation workshop linked to ORCA, as well as through additional stakeholder consultation throughout May. The intention is for a revised draft to be collaboratively produced by the end of May, 2018.

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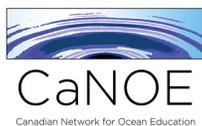
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1. ABOUT THIS DOCUMENT

In June 2017, a small and informal coalition of self-identified, ocean literacy-oriented organizations was established in Canada. This group recognized the increasing importance of, and need for, a coordinated approach to ocean literacy in Canada. In particular, they noted that the creation of a national ocean literacy (OL) strategic plan would be a helpful tool to mobilize the diverse number of organizations and stakeholders and to improve the efficacy, capacity and reach of new and existing ocean literacy initiatives in Canada (see more on the need for a national ocean literacy strategy in section 3.4).

In January 2018, Fisheries and Oceans Canada (DFO) provided funding for a nine-week project to create a draft development plan on how to collectively establish a National Ocean Literacy Strategy for Canada - one that integrates a diverse range of Canada's disciplines, sectors, stakeholders, geographic regions and cultural perspectives. The overall ambition of the longer-term strategy, as currently foreseen, is to improve the level of ocean literacy among Canadians and Canadian residents.

Given the limited consultation group and timelines for development (nine weeks), this draft of the development plan should be viewed as a working document/discussion paper (see section 1.2 for limitations of this document). The authors highly recommend further consultation and vetting before this document is finalized and ready for broad circulation and input from the wider ocean literacy community and stakeholders (see section 5.1 for recommended process).

Coalition members involved in this nine-week project include: Jason Armstrong, Ingenium Corp; James Bartram, Ocean Wise; Tara Donaghy, DFO; Lisa (Diz) Glithero, University of Ottawa/Canada C3 (Development Plan Lead Author); Geoff Green, Students on Ice; Heather Murray, CaNOE; Sherry Scully, Scully Research Consulting (Literature Review Author); Janet Stalker, Ocean School (Development Plan Co-Author); and Anne Stewart, CaNOE (History of OL Author).

1.1 METHODOLOGY

To create a draft development plan identifying key steps for establishing an ocean literacy strategy for Canada, the informal coalition held bi-weekly meetings to provide oversight to four central sub-projects over the nine-week project period. With Janet Stalker serving as project manager for the initiative, these four sub-projects included:

- **Dr. Lisa (Diz) Glithero** gathering input from OL stakeholders (identified by the coalition) through an initial round of consultation, which included one-on-one phone calls and/or email input on a series of nine guiding questions identified by the coalition (see Appendix A for questions), as well as a review of three international OL frameworks and/or processes (see Appendix B for details);
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- **Dr. Sherry Scully** conducting a preliminary literature review on current ocean literacy knowledge/understanding from academic literature, and completing an initial research gap analysis identifying priority areas for additional research (this document will be publicly available online by May, 2018);
- **Anne Stewart** drafting a document detailing the history of ocean literacy in Canada (currently in revision); and
- **Heather Murray** working with DFO and organizers of the Ocean Research Canada Alliance (ORCA) 2018 Symposium (April 24-25, 2018 in Ottawa, ON) to plan an ocean literacy focused session. This will be followed by a one-day working session (April 26, 2018) with coalition members and consultation participants for collective review of the draft development plan (see section 5.1 for more details).

These sub-projects, as well as input from the coalition members and other stakeholders, have/will inform this version and future drafts of the development plan. As previously noted, this draft of the development plan should be viewed as a working document meant to facilitate discussion. The evolving coalition aims to have a revised version of the development plan ready for broad circulation and discussion by end of May, 2018.

1.2 LIMITATIONS

Given the condensed nine-week timeline of the project, the coalition knew it would be limited in the amount of consultation and engagement it could achieve during this period. It also recognized the lack of specific areas of expertise and representation from key sectors, stakeholders, regions and socio-cultural perspectives within the informal coalition.

It is important to acknowledge the likelihood for unintentional cultural, sectoral and/or geographical bias of this nine-week project. Although the informal coalition included representation from the Atlantic and Pacific regions of Canada, as well as from the education, academic, government and industry sectors, it did not include representation from many other key geographic regions, stakeholder groups and sectors in Canada. As a result, the inputs used to create this document may be skewed to more heavily reflect the knowledge and perspectives of Eastern/Western Canada (especially the Atlantic region), non-Indigenous communities and the ocean education sector as compared to the broader range of Canada.

In addition, the involvement of several coalition members in the Atlantic Ocean Research Alliance working group on ocean literacy, and in a growing international community of practice around ocean literacy between Canada, the US and the EU, likely resulted in an international bias towards examples and best practices from North America and the European Union. There most certainly exists other strong OL practices, models and initiatives from other parts of the world that need to be examined.

In recognizing this document as an initial draft of an ocean literacy development plan, it is critical that in moving forward:

- a better balance in project leadership and consultation is sought to ensure strong engagement, expertise and attention from all regions of Canada, as well as from the broad range of Canadian sectors, disciplines and cultures;
- appropriate time and consideration is given to ensure strong engagement of diverse Indigenous groups in Canada as relationship building, context building and honouring protocol take time; and
- a broader review is conducted on what is happening in other parts of the world (esp. Australasia, Asia, the Polar Regions and Central/South America) as to effective practices from which to learn and/or co-align.

More details on key considerations and key recommendations as to next steps with this document are provided in sections four and five.

2. DEFINING OCEAN LITERACY

A definition of Ocean literacy (OL) was first widely circulated in the 1990s by a coalition of ocean science and ocean education leaders in the United States, as seen below:

U.S. Definition of Ocean Literacy (generated in the 1990s)

Ocean Literacy is an understanding of the ocean's influence on you, and your influence on the ocean. An ocean literate person understands:

- the essential principles and fundamental concepts of ocean literacy;
- can communicate about the ocean in a meaningful way; and
- is able to make informed and responsible decisions regarding the ocean and its resources.

This definition has since become informally adopted by most of the international OL community, although some countries have adapted it slightly for their own needs. **In Canada, OL is most commonly defined as the extent to which a person “understands our influence on the ocean, and the ocean’s influence on us.”** Note the purposeful switch in language from “your/you” to “our/us” between the U.S. and Canadian definitions. Regardless of the semantics of the exact definition of OL, ocean literacy sits at the nexus of economic opportunity and stewardship, and is essential to ensuring sustainable livelihoods. The extent to which a society is ocean literate affects:

- social and consumer behaviours;
- economic, policy and governance decision-making with respects to growth, management, planning and conservation;
- individual and collective awareness of the ocean as part of the systems that affect the daily lives of Canadians (e.g., weather, transportation);
- cultural values and dimensions; and
- health, safety and well-being of all species on the planet.

2.1. CONSIDERATIONS FROM INITIAL CONSULTATIONS

There was agreement throughout the initial consultation phase that the widely utilized working definition of ocean literacy works in a Canadian context. It is an easy, accessible, relational and for the most part, all encompassing definition. It also supports the argument that there is only one ocean – an interconnected and indivisible life support system to which we as humans are directly connected. However, several notable considerations for an adapted

definition of ocean literacy for Canada were expressed, including:

- a. a need to acknowledge the notion of ‘change’ and the ‘rate of change’ that we are historically living in;
- b. ensuring that ocean literacy does not simply speak to the scientific and ecological connections between humans and the ocean, but also to the emotional, experiential, cultural heritage, economic, psycho-social and aesthetic dimensions of the human-ocean relationship;
- c. inclusion of Indigenous ways of knowing is essential to the Canadian context. Also as noted by an Indigenous representative that some of the most valued knowledge keepers are ‘illiterate’. Thus use of the word “literacy” creates a perceived barrier to initial engagement/interest for some. Furthermore it was anecdotally noted on a few occasions throughout the consultation phase by both Indigenous and non-Indigenous Canadians that many Indigenous Canadians might find it a foreign concept that a society would need an intervention to help its people appreciate and understand that the land, sea and people are interconnected;
- d. the argument that the use of the word “literacy” suggests a direct and narrow link to education (i.e., curricula), putting it at risk of being a less relevant concept for other sectors (e.g., industry);
- e. a recognition that ocean literacy is best described as a spectrum, meaning that a person should not be considered “ocean-illiterate”, but instead more or less literate among various dimensions of the human-ocean relationship; also related and noteworthy, one can be ocean-literate insofar as demonstrating a relational understanding of/with the ocean, yet lack understanding of the role of the ocean in the larger global environment/climate system (i.e., systems thinking);
- f. a demonstrated tension between those who feel that ocean literacy should include the notion of enabling action (i.e., that it is beyond simply awareness and understanding; that it is ultimately about fostering and enabling behaviour change and thus requires action) versus those who feel that a democratic definition is essential (i.e., activism is a choice, not directed);
- g. a shared recognition that if this definition has been widely accepted and is in use internationally, then Canada should not spend significant time (re)crafting another (e.g., years were lost in efforts to define biodiversity); and
- h. use of the word ‘stakeholder’ or ‘sector’ was questioned in relation to the importance of Indigenous rights when it comes to the ocean; “stakeholder” is a term that many First Nations and Indigenous peoples identify as a business term, and one that is often perceived as offensive. Although it is a term that has been adopted into other areas (beyond business), it comes with history and baggage, and in turn, is being rejected more and more in some dialogue. It should not be assumed that stakeholder engagement is the same as Indigenous engagement.

3. CANADA'S OCEAN LITERACY SEASCAPE

3.1. HISTORICAL PROGRESSION OF OCEAN LITERACY IN CANADA

In historical terms, ocean literacy is not a new concept. Many Indigenous cultures and communities in Canada and around the world have long valued and understood the complex and dynamic relationship between humans and the ocean. The term 'ocean literacy' emerged in the 1990s as part of an American movement responding to growing concern about human impact on the global ocean and a void of ocean science competency and knowledge in schools. Specifically tied to a multi-partner U.S. initiative to improve the integration of ocean science into public school and other educational curricula, the term ocean literacy spread to Canada predominantly through the ocean education and ocean science communities. Since then, in Canada and around the world, ocean literacy practitioners have increasingly recognized the important role of society, cultural heritage, and socio-economics in ocean literacy as well, expanding the scope of ocean literacy to far beyond that of just ocean science.

Early Canadian practitioners included groups like the Vancouver Aquarium (1956), Marine Institute of Memorial University (1964), Huntsman Marine Laboratory (1969), Western Canadian Universities Marine Sciences Society (1970), Bamfield Marine Sciences Centre (1972), International Ocean Institute, Canada (1972), International Canada's Centre for Ocean Development (1985), and the Great Canadian Shoreline Clean-up (1993).

With the Gwaii Haanas Agreement (1993), Canada's Oceans Act (1996) and the growth of international activities around ocean sustainability, such as World Oceans Day (1998), the UN Sustainable Development Goals and Education for Sustainability, brought increased visibility to ocean sustainability and ocean literacy in Canada. This was accompanied by a range of conservation, education, advocacy and policy efforts over the next 25 years including (but not exclusive to): Canadian Wildlife Federations' Blue School Project (1998-2002), Students on Ice Arctic Expeditions began (2000), Oceana Canada (2001), WWF-Canada Oceans Programs, Canada's Oceans Action Plan (2004), Ocean Wise Sustainable Seafood started by Vancouver Aquarium (2006), Ocean Networks Canada (2007), Hakai Institute (2010), Ripley's Aquarium (2013), Ocean Frontier Institute (2016), Oceans North (2017), Oceanwise.org (2017) and Royal Ontario Museum's Oceans 2020 Conference and Open Letter (2017-2018).

The Galway Statement, signed by Canada in 2013 was the first international agreement wherein ocean literacy was foundational and crosscutting. In response, in 2014, the Canadian Network for Ocean Education (CaNOE) was launched, marking the first national network in Canada with a primary mandate of advancing ocean literacy. National conferences on ocean literacy have been hosted by CaNOE since June 2015. CaNOE advised on the EU Sea Change Project's International Advisory Group, and co-led the tripartite, Atlantic Ocean Research Alliance's Ocean Literacy

Working Group. Canadians were key participants at the United Nations Ocean Conference 2017 and its ocean literacy side-event in New York and Canada joined the UNEP Clean Seas campaign in 2017. UNESCO published the Ocean Literacy For All toolkit in December 2017, and ocean literacy efforts continue to grow here in Canada in 2018.

Today, the Government of Canada is making strong moves to highlight its growing recognition of the role of the ocean, including launching the Ocean Protection Plan - the largest multi-agency government initiative in Canadian history - and placing the ocean as one of several central themes of the country's 2018 G7 Presidency. In addition, Fisheries and Oceans Canada (DFO) are currently working with partners to establish two Science Enterprise Centres – one in the Atlantic Region in Moncton, New Brunswick (ASEC) and one in the Pacific Region in Nanaimo, British Columbia (PSEC) to enhance and support ocean science research, communication outreach/knowledge mobilization and public education.

3.2. CANADA'S OL STAKEHOLDERS & STRATEGIC LINKAGES

The coalition identified eight initial stakeholder groups/sectors that play a critical role in Canada's ocean literacy landscape. These identified sectors included: (1) Formal Education; (2) Non Formal Education & Youth; (3) Academic & Research; (4) Government; (5) Indigenous; (6) Industry; (7) NGO & Advocacy; and (8) Media. These sectors should not be viewed as exclusive or distinct silos, but rather interconnected allies and partners. However, a more in-depth asset mapping exercise is needed to fully and accurately identify those playing a part in Canadian ocean literacy, and to determine a collective articulation of the myriad of connection points and relational contributions of these groups (see section 5.0 as part of the recommendations).

Figure 1 serves as an initial multi-disciplinary and cross-sectoral schematic highlighting key groups and initiatives in Canada's current ocean literacy landscape. At the core of the figure are the eight multi-disciplinary and multi-sectoral OL stakeholder groups currently identified. In addition, a variety of national and international initiatives, frameworks and calls to action that were discussed throughout the preliminary consultation phase provide clear opportunities for potential strategic alignment insofar as integrating ocean literacy activities within and across some of these identified sectors and stakeholder groups. On a national level, potential strategic linkages include (but are not exclusive to): (1) Truth and Reconciliation Commission's 94 Calls to Action; (2) Conservation 2020 Pathway to Target 1 - Canada's response to Biological Diversity Aichi Targets; (3) Ocean Protections Plan; (4) #NatureforAll Canada; (5) an emerging National Environmental Education Policy; and (6) an emerging National Youth Policy.

Internationally, potential strategic linkages include (but are not exclusive to): (1) United Nation's Sustainable Development Goals – especially number 14 (life below water); (2) United Nation's Ocean Conference Call to Action; (3) International Union for Conservation of Nature; (4) United Nations Declaration for Rights of Indigenous Peoples (UNDRIP); and (5) UNESCO's Education for Sustainable Development.

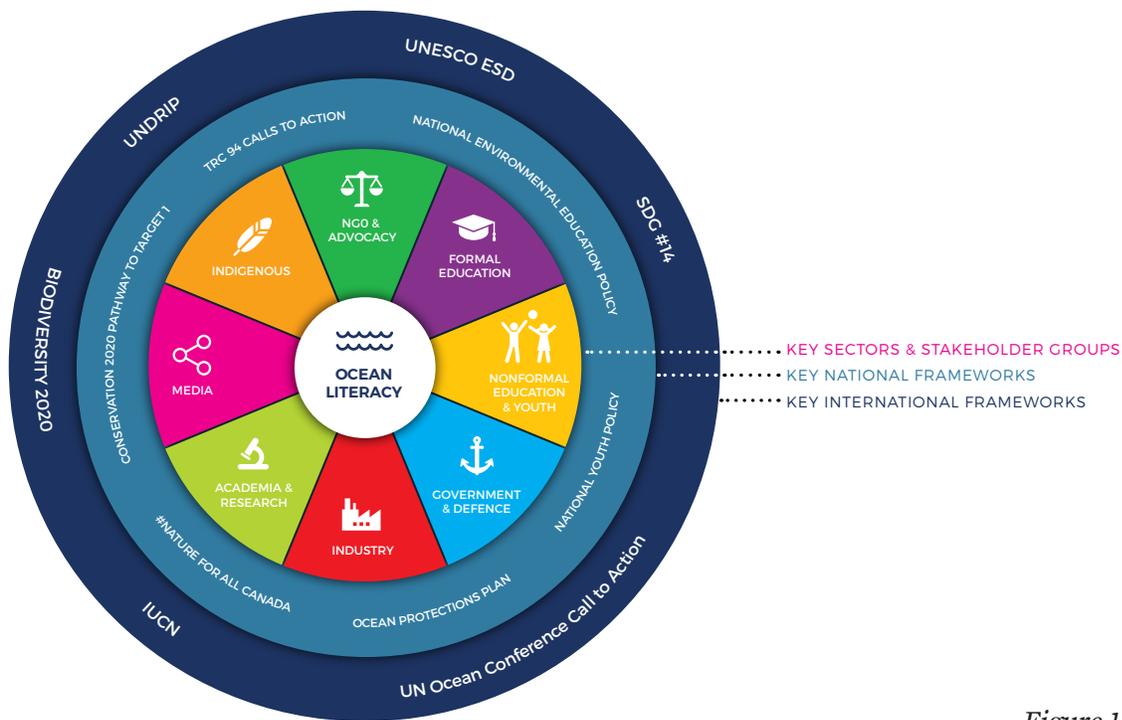


Figure 1

The above schematic is meant to serve as a starting point for a conceptual framework through which each stakeholder group / sector could identify key national and international initiatives, frameworks, commitments and calls to action that are in current or potential alignment with sector thinking, activities, needs and responsibilities. It is envisioned that this draft schematic will evolve into an interactive framework wherein any of the sectors/stakeholder groups could be ‘clicked’ revealing strategic linkages to both national and international initiatives of relevance and priority. Collectively, all linkages form a web demonstrating the interconnectivity and holistic importance of ocean literacy to Canadians and beyond.

3.3. INTERNATIONAL MOMENTUM

Internationally, the importance of ocean literacy is demonstrated by the growing number of organizations, collaborations and initiatives integrating ocean literacy, including: the Sea Change and ResponSEable projects in the EU (see Appendix B); national marine educator associations in the European Union, United States, Canada and Pacific Ocean regions; the trilateral Atlantic Ocean Research Alliance Ocean Literacy Working Group (United States, EU, and Canada via DFO & CaNOE); and a variety of international ocean literacy collaboration and strategic planning activities, such as the three year ocean literacy roadmap currently in development by the Intergovernmental Oceanographic Commission of UNESCO.

3.3.1. OTHER EXAMPLES OF OCEAN LITERACY PROGRAMS AROUND THE WORLD

- a. Research Center for Marine Education through UTokyo's Ocean Alliance (Japan) reaches 10 million elementary and junior high school students and three million high school students through their Marine Education Literacy Program;
- b. Two Oceans Aquarium (Cape Town, South Africa) works with school groups, has a mobile aquarium program, provides job shadowing programs and trains restaurants in sustainable sea food practices;
- c. Ciência Viva (Portugal) builds upon the Ocean Literacy initiative to make the Ocean Literacy principles relevant to the Portuguese context;
- d. Save our Sea (Bangladesh) has turtle, shark and marine debris programs focused on initiating and advancing marine literacy across Bangladesh; and
- e. Oceano Azul Foundation (Portugal) has a goal to reach all school children between five and nine years old in Portugal to bring awareness around ocean sustainability.

3.3.2. OTHER EXAMPLES OF OCEAN LITERACY GOVERNMENT PARTNERSHIPS

- a. The College of Exploration (United States) works with government bodies to provide review and pilot-test support for their ocean literacy curriculum and other curriculum;
- b. The Environmental Protection Agency (United States) put in place a Gulf of Mexico Ocean Literacy project to reach underserved and underrepresented middle school teachers and students.

3.3.3. UN OCEAN CONFERENCE CALL TO ACTION

Of particular importance, the concept of ocean literacy is fundamentally rooted in the goal of establishing a sustainable human-ocean dynamic. Strategically developing ocean literacy activities in Canada, and around the world, is essential for making progress towards almost all UN Sustainable Development Goal 14 targets. The “Our Ocean, Our Future: Call to Action” put forward at the UN Ocean Conference in June, 2017 (NYC, USA) specifically cites “supporting plans to foster ocean-related education, for example as part of education curricula, to promote ocean literacy and a culture of conservation, restoration and sustainable use of our ocean” as one of the urgent actions recommended to conserve and sustainably use the ocean, seas and marine resources.

3.4 NEED FOR A CANADIAN OCEAN LITERACY STRATEGY

Canada is an ocean nation. The ocean is deeply embedded in the fabric of Indigenous and Canadian communities and cultural heritage; it is a major driver of our economy, the backbone of our weather and climate systems, and a recreational playground for millions of Canadians and global visitors. Ensuring that these vital roles become part of the consciousness of all Canadians underscores the essential role of a National OL Strategy. The ocean, and our inextricable link to it, needs to become a more significant part of Canada's national narrative.

This preliminary consultation and review process revealed a wide perception that ocean literacy is uncoordinated and has a fragmented approach in Canada. As Canada moves towards meeting key national and international commitments that are directly or indirectly linked to ocean literacy, having a uniquely Canadian strategy would support strategic engagement across five key regions— Pacific, Arctic, Atlantic, Great Lakes/St. Lawrence and In-land Canada— including strong Indigenous leadership. Key mobilization and engagement activities within these identified regions could feed into a coordinated pan-Canadian vision - one that celebrates our regional diversity and that would foster a more ocean literate citizenry in Canada. Having a unified national vision and strategy would also enable Canada to take on a more significant leadership role in the growing, international community of practice focused on advancing global ocean literacy.

Strong linkages between ocean literacy and sustainable economic opportunity were also common across the consultations. Particular linkages were made with respects to knowledge mobilization activities within Innovation, Science and Economic Development Canada— especially via programs of the tri-council agencies (NSERC, CIHR and SSHRC)—and by the inclusion of a focus on the ocean “both as a precious part of our natural heritage and as a source of sustainable economic opportunity” as part of the five themes of Canada's 2018 G7 Presidency. Growing time and financial investments in ocean infrastructure (e.g. Churchill Marine Observatory; Ocean Networks Canada), intra-governmental initiatives (e.g. Ocean Protections Plan) and science-industry initiatives (e.g. Ocean Supercluster in the Atlantic Region; Northern Marine Transportation Corridors Initiative) underscore the strong economic opportunity presented by the ocean and ocean literacy.

Specific to workforce development, for example, the *Marine People Partnership* report, an extensive report on Canadian workforce development in the marine industry, cited “improving ocean literacy of our young people by building interest, engagement, awareness and knowledge base” as a strategic recommendation for strengthening the size and capabilities of Canada's marine industry workforce.

Further attention was drawn to the essential role ocean literacy plays in supporting the translation of science to knowledge and understanding that informs policy and decision makers, as well as the general public, insofar as values, attitudes, behaviours and action. In prioritizing ocean literacy, value is then placed on knowledge mobilization, effective communication and outreach efforts across and between sectors, as well as to the general public. In turn, enhanced communication, dissemination and outreach catalyzes understanding, opportunity and engagement that can then lead to actual behaviour change.

4. KEY FINDINGS AND CONSIDERATIONS

Following the analysis of (a) 36 consultations, (b) three existing international frameworks/processes and (c) a formal literature review, several key findings and considerations for developing a Canadian Ocean Literacy Strategy emerged. This section simply lists these key findings and considerations. Key recommendations, including actions items and projected timelines, are provided in section five.

4.1 KEY NEEDS IDENTIFIED

Through the initial consultation and research process, a variety of important insights were provided on key needs in order to develop a Canadian Ocean Literacy Strategy, including:

- a. establishment of a formal pan-Canadian and multi-sectoral national ocean literacy coalition, including a National Coalition Council and sectoral working groups to develop the National Ocean Literacy Strategy;
 - b. establishment of a much broader consultation process;
 - c. establishment of a multi-sector OL Community of Practice;
 - d. creation of a national communication strategy around OL, including a prospectus/toolkit on OL in Canada to broaden, diversify and scale up partner organizations and overall public engagement (e.g., infographics, fact sheets, videos, success stories, upcoming events, links to partner organizations, etc.);
 - e. creation of a digital platform for coordination, communications, shared resources, shared messaging and overall collective impact;
 - f. establishment of multiple strategic OL mobilization activities that run in parallel to one another (as opposed to sequentially);
 - g. identification and establishment of diverse streams of multi-year funding to support efforts to advance OL;
 - h. establishment of mechanisms/effective modes to leverage and amplify upcoming events that directly or indirectly relate to advancing OL efforts (e.g., collaborate to amplify OL in Canada through World Oceans Day).
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4.2 KEY CONSIDERATIONS IDENTIFIED

4.2.1 PROJECT MANAGEMENT

No one organization ‘owns’ or ‘leads’ OL efforts in Canada. Instead, a coalition approach is recommended for collective impact. It cannot be a Government-led initiative, although Government must be a key partner. There exists a clear need to avoid a slow, bureaucratic and high level process, as well as to ensure project stability despite changes in government, political and agency leadership. Furthermore, there is a need for multidisciplinary expertise and leadership across diverse sectors, as well as a need for multiple entry points through which all stakeholders—big or small organizations; corporate, public, private, NGO; individuals or groups—can identify a place and role for them in the project/process. Common across the consultations was the call for a national and neutral platform through which all current and emerging OL stakeholders across diverse sectors could contribute, connect and catalyze.

4.2.2 STRATEGIC ALIGNMENT

In addition to the national coalition, ocean literacy needs to be effectively inserted and/or aligned with current processes and that have existing or growing capacity, broad engagement and momentum. For example, Canadian Wildlife Service is currently developing Canada’s submission for post 2020 Biological Diversity Aichi Targets. Where is OL in this process? Ocean Wise, Canadian Wildlife Federation and other conservation organizations are involved but more key OL stakeholder organizations (or representatives from a united OL national coalition) should be invested contributors. Significantly, the Ocean Protection Plan is the biggest inter-departmental investment of the Federal Government. Another example is the Indigenous-led National Indigenous Guardians Network in Canada that develops and employs Guardians across the country to “monitor ecological health, maintain cultural sites and protect sensitive areas and species... play a vital role in creating land-use and marine-use plans.” With ocean literacy being inherent to Indigenous knowledge, strategic alignment in the context of this example would enable non-Indigenous coalition partners to learn effective practices from the Guardians Network.

4.2.3 COMMUNITY OF PRACTICE

In bringing together the many players in OL towards a well-connected community of practice in Canada, effective and sustainable models should be considered, and some important questions should be addressed. For example, what OL-related networks currently exist in each sector and in turn, how could they effectively come together to meaningfully contribute to a cross-sectoral OL Community of Practice that benefits all involved? What different community of practice models exist for the coalition to consider, both in terms of success and in terms of

strategic alignment? Some suggested models in Canada to explore include:

- a. **Canada Parks Council** – Parks Canada puts out a multi-year RFP for specific deliverables (e.g., convening meetings, advocating for the community of National and Provincial Parks, etc) to which individual contractors bid;
- b. **Coastal Ecosystem Learning Centre Network** – The United States National Oceanic Atmospheric Association (NOAA) has two staff assigned and an approximate budget of \$60K to sustain a community of 22 Coastal Ecosystem Learning Centers through regular conference calls, one annual gathering, and several targeted collaborative projects. In turn, they can and do legitimately claim advancing OL (informally) across a public audience of millions each year. A similar model could easily be established in Canada with the Halifax Discovery Centre, Royal Ontario Museum, Ripley’s Aquarium, Vancouver Aquarium and potentially others;
- c. **The Alliance of Natural History Museums of Canada (NHMA)** – is provided administrative support by the Canadian Museum of Nature in Ottawa, and members each paying a membership fee (approx. \$5K) that contributes to community of practice efforts, as well as travel costs to annual meeting;
- d. **Child and Nature Network (CNN)** – founded in 2006 and initially funded through big philanthropy, hosted a website and a strategic invitation only gathering of 150 people once a year, and engaged in collated research. It has grown to an active network with a 1000+ person open annual conference and a fee-paying membership;
- e. **Oceans Research in Canada Alliance (ORCA)** - in 2016 Fisheries and Oceans Canada (DFO) announced the intent to work with Canada’s ocean science and technology community to establish an Oceans Research in Canada Alliance (ORCA). ORCA is set to improve the coordination of ocean science and technology in Canada. ORCA brings together Canada’s ocean science and technology community to increase collective knowledge, align efforts and forge stronger collaborative ties. The governance model for ORCA includes:
 - i. *Community of practice*: the forum to network the wider community, share information, discuss priority issues and work collaboratively on initiatives related to ocean science and technology in Canada. All members of the ocean science and technology community are welcome to participate;
 - ii. *ORCA Council*: established as a small, leadership body for ORCA, the Council is composed of senior-level officials from across the Canadian ocean science and technology community, whose primary role is one of facilitation, engagement and coordination; and
 - iii. *Secretariat*: currently housed within the Office of Partnership and Collaboration at DFO, the Secretariat provides support to the ORCA Council and Community of Practice.

- f. **Nature For All (NFA) Canada** – a national project under IUCN’s Commission for Education and Communication, NFA is a coalition of 30+ self-appointed, conservation-oriented partners in Canada who have come together to help mobilize a ‘nature for all’ movement in Canada. It is a coalition under a shared brand and an ad hoc community of practice that meets annually to share updates, collaboration opportunities and to develop shared communication/public outreach tools, etc. NFA Canada operates with (approx.) \$100k /year budget, one seconded staff from Parks Canada plus a few short contract and/or youth internship positions.

The rationale emergent from this nine-week project for establishing a Canadian Ocean Literacy Community of Practice included a need:

- to ensure long-term and sustained collective impact;
- to broaden and diversify ocean literacy stakeholders, reach and engagement;
- to strengthen communication across sectors and regions;
- to minimize duplication/overlapping of efforts;
- to strategically coordinate and maximize funding opportunities;
- to meet annually to share, support, mobilize, leverage effective practices, successes, events;
- to co-develop programs, training courses, outreach tools, OL experiences and other resources to support OL;
- to co-create a common set of messages (infographics, videos) and position statements informing policy, decision-making, etc.;
- to establish/implement/monitor effective metrics on efforts to advance OL;
- to develop/amplify social media campaigns/digital platform; and
- to have an active community ready to mobilize and sustain a formal National Ocean Literacy Strategy.

The emergence of a strong and effective Community of Practice is the anticipated outcome of earlier efforts and success in creating a coalition brand and platform with a shared communications plan, broad and diverse partner engagement and co-creation activities. Such momentum in turn supports the more formal process and capacity needed to establish a vibrant and long-term Community of Practice on OL in Canada.

4.2.4 MOBILIZATION ACTIVITIES

The recent *Sea Change Project* in Europe—a three-year, approximately \$5.5M project to advance OL amongst European citizens—was chosen as one case study for review by the coalition. Several OL mobilization activities from this project were identified that the coalition may wish to investigate and possibly adopt (see *Sea Change “Key Achievements”* document for more details). These include:

- creation of a Citizen Science Initiative that was App-based (e.g., Crab Watch; bioblitz);
- public awareness campaign videos, infographics, posters, fact sheets;
- creation of ‘barriers to teaching teens about the ocean’ maps done in 9 countries (i.e., 9 maps);
- creation of a framework to monitor/ track progress of actions (Sea Change Social Innovation, Participation and Process (SIPPs) Toolkit for Education, Citizen Engagement and Governance);
- developed ‘Blue School’ modules for EU Green school curricula;
- creation of a network of experience/youth programming provider partners;
- Ocean Edge Directory (EU database of OL resources);
- OL ambassadors/champions (high profile, diverse); and
- creation of a roadmap on Science-Society-Policy Interface in Ocean Governance in which OL is a tool to help shape marine citizenship.

Further OL mobilization activities such as the EU’s *ResponSEAbLe* initiative (linked with the *Sea Change Project*) – may also hold some promise for Canadian adaptation. Expected outcomes of these emerging activities include:

- development (in progress) of a webinar series to explore OL-related questions and topics with diverse audiences;
- development (in progress) of an interactive electronic manual for practitioners; and
- development (in progress) of ocean literacy tools and testing their effectiveness (e.g., film competition, interactive visualizations and maps).

4.2.5 YOUTH EDUCATION AND CURRICULUM

The bulk of the work on ocean literacy to date has been led by the ocean science and ocean education sectors. As a result, the current resources and focus of most ocean literacy activities relate to ocean science youth education. This is a reflection of the landmark “Essential Principles and Fundamental Concepts of Ocean Sciences” framework launched by the Centres for Ocean Sciences Education Excellence (COSEE) and other US partners (first published in 2002; further expanded to specific U.S. K-12 science curriculum alignment by the National Marine Educators Association in 2010; revised again in 2013 to align with the US National

Next Generation Science Standards). This framework and corresponding OL principles were specifically created to inform ocean science education in the United States but broadly applicable in science generally. Subsequently, the OL principles were adopted or adapted to suit in the EU and some countries such as Portugal worked beyond their science foundation to include geography, social studies, culture art and music in their ocean ‘marinization’ of curriculum. Other countries such as France ignored the whole OL movement and took the Education for Sustainability tack to essentially arrive at the same place.

Much like in Portugal noted above, dialogue with other ocean literacy partners domestic and international, and consultation with Canadian OL stakeholders, has clarified that ocean literacy spans all aspects of human-ocean interaction and understanding (e.g. cultural, economic), and is important for people of all ages and sectors (not just youth). See section 4.2.4 for promising knowledge mobilization activities that are aimed at a broad public audience.

Specific to Canadian public education and youth, engaging all provincial and territorial Ministries of Education to integrate OL into Kindergarten to Grade 11/12 curricula is essential. Adapting the U.S. essential ocean science principles to establish a set of OL principles for Canada that are specific to youth education is encouraged—a process that CaNOE is already planning to lead at their upcoming [National Symposium on Ocean Literacy](#) in July 2018. As a starting point, this project’s consultation analysis revealed wide consideration for additional principles including recognition of Indigenous Knowledge being inextricably linked to the ocean for thousands of years. In short, OL is a relatively new term for something that has always been known, understood and practiced by Indigenous peoples since time immemorial. Furthermore, additional/adapted principles should include a reference to all disciplines, not just science (see Appendix B for current OL principles and suggested considerations relative to Canada).

Although challenging to ensure a coordinated national approach to integrating emerging OL principles and pedagogical frameworks here in Canada, several parallel processes to advance similar efforts (e.g., environmental education) have proven effective. These include working with:

- Council of Education Ministers
- AFN Directors of Education
- Inuit Tapiriit Kanatami (ITK) and Education Leadership in Inuit Nunangat
- Metis National Council / Metis Nation Education Strategy Leads
- Canadian Deans of Education (Teacher Education Programs)
- Teacher Federations
- Superintendents of School Districts

4.2.6 OCEAN LITERACY RESEARCH

The literature review examines extant literature from peer reviewed journals, industry reports, and NGO websites, conference proceedings and unpublished research, to establish a baseline of what we know, what has been tried, what has worked well and where gaps remain, all to better inform an evidence-based approach to developing a National Ocean Literacy Strategy. Literature was examined in areas relating to public and key stakeholder engagement, communities of practice, Indigenous perspectives, formal and informal approaches to ocean education, and methodologies for assessing impact. Key findings from this review include:

- a. Knowledge holding was found to correlate with numerous factors, however the most significant factor in influencing the shift to knowledge mobilization and motivation to act was trans-situational conditions (i.e. being connected to the issue, seeing the impact of the issue on them and their families/communities);
- b. Findings showed that youth did have an impact and did develop agency through their community and citizen science (CCS) experiences when certain conditions were in place, including having long-term CCS experiences and having repeated experiences to build connections o a place or issue, and having a chance to explicitly contribute to authentic research. Several researchers recognize citizen science as a paradigm for a collaborative approach to tackling broad and complex issues that all into the socio-scientific categories;
- c. Research from Indigenous scholars outlined the necessary components of Indigenous pedagogy for successful programs promoting Indigenous knowledge, and necessary components for integrating Western science into Indigenous environmental education programs. This work emphasised grounding programs in Indigenous philosophies of education and Indigenous ways of teaching and learning, which reinforces the concept that Indigenous knowledge is not only content but also process. The research identifies how traditional ecological knowledge (TEK) reflects the Indigenous connection with land, ocean, resources and culture;
- d. Studies found that social network sites and other digital channels can be effective tools for ocean researchers to reach the public and share recent findings, but that not all sites are effective at building interaction, dialogue and participation from and between users; and
- e. The critical influence of media framing of environmental issues was explored by several researchers. Researchers found that the media tended over-utilize conflict frames, focusing their reporting on polarized stakeholder views, and were not effective at conveying the key issues that were most germane to the public. Research showed that while the public do tend to trust information from the media, the level of reporting left the public poorly informed about the most relevant issues and the science in which those issues were grounded.

The literature and the search for research highlighted key research gaps and opportunities that are essential to supporting an evidence-based strategy for developing an ocean literacy research plan and a National Ocean Literacy Strategy. Some recommendations for further study include:

- f. Research to examine the utility and efficacy of formal and informal curricula and resources in terms of if, and how, they are being utilized by educators, and in turn, the impact on student ocean-positive attitudes, behaviours and activities. Additionally, research into sustained behaviour and attitude change arising from ocean literacy programs, education, awareness campaigns and communication strategies;
- g. Research to develop a more informed understanding of how to match communication channel with message, or channel with stakeholder group in order to increase receptivity of communication. It would also be helpful to understand which channels most readily influence public perception in order to either leverage these channels better with appropriate communication or to monitor these channels for counter-productive messages. And finally, more research is needed to understand how to in-turn influence the media to adopt more productive frames to better leverage their agenda-setting capabilities;
- h. Research that examines learning transfer and integration of scientific and personal knowledge on issues relating to marine and coastal areas, particularly regional or locally relevant issues where personal or community impact can be more readily apparent to determine if the same argumentation skills are applied. It would also be interesting to understand how different stakeholders view and prioritize different socio-scientific issues, and how culture, beliefs, values, demographics and regions influence these perceptions;
- i. Develop a framework and criteria to assess the impact of informal education and awareness programs such as citizen science programs, public talks, youth informal education; digital and online awareness and information initiatives, and inter-sector/inter-stakeholder sharing sessions; and
- j. Examine how individuals and groups make the cerebral to affective leap between science knowledge and awareness into feelings of concern, responsibility, and readiness to act in ocean-positive ways. It would be useful to understand what factors facilitate or mitigate this transfer, and what factors are common to and unique among key stakeholder groups.

5. RECOMMENDATIONS

The coalition recommends establishing a governance and organizational model for the development of a National OL Strategy that includes multi-sectoral leadership, and ensures strong participation and co-leadership from Canada's Indigenous community. The coalition project model requires the establishment of a 'big tent' coalition platform for dialogue, co-creation and mobilization, as well as a high-level Coalition Council that serves as the decision making arm of the coalition.

Based on findings from this nine-week process, the following course for moving forward is recommended. Note that Phase II calls for implementing multiple parallel tracks, or work packages, as opposed to utilizing a linear, sequential approach. Also, the scope of work, objectives and implementation strategy of Phase III will be defined by the Coalition at the end of Phase II. Table 1 highlights this three-phase approach, and is followed by a more detailed description of each phase.

TABLE 1: RECOMMENDED COURSE BY PHASE

Phases	Action	Timeline
Phase I	Review, Vet and Finalize Development Plan	April - May, 2018
	<ul style="list-style-type: none"> • Vet and revise Development Plan; • Finalize vetted plan; and • Circulate vetted plan to a broader circle of stakeholders to spark wider engagement in Phase II. 	
Phase II	Develop a National OL Strategy	18 months
	<ul style="list-style-type: none"> • Establish coalition project model; • Develop a National Ocean Literacy Strategy; • Strengthen ocean literacy collaboration and positioning; • Initiate an ocean literacy research program. 	
Phase III	Multi-Year Coalition Project	4 years
	Engage in a 4-year multi-partner project to implement/advance National OL Strategy.	

5.1 PHASE I: VETTING AND FINALIZING THE DEVELOPMENT PLAN

Phase I is a necessary two-month phase that will involve further vetting and revision of the Development Plan prior to it becoming finalized and ready for broad circulation in late May, 2018. The coalition recommends the following steps to move the Development Plan forward to its final state:

- April 13, 2018: OL Development Plan Draft #1 gets circulated to the coalition, those who have engaged in the consultation process, and those who will be attending the April 26 working session (with efforts to ensure representatives from each major stakeholder group);
- April 26, 2018: working session with three main objectives:
 - vet OL Development Plan Draft #1 together face-to-face addressing the feedback/tensions/gaps;
 - encourage participants/organizations present to sign on as coalition partners with the option of also being listed as supporting authors of OL Development Plan if they wish; and
 - discuss/create a Phase II work plan together (i.e., what/who/when to operationalize it);
- May 11, 2018: Submission of 2nd draft of OL Development Plan to coalition and consultation participants for review and feedback. All feedback due by May 18;
- May 25, 2018: Approval of final plan by the coalition (although the plan should be considered a living document);
- May 31, 2018: Once the engagement plan is vetted and approved by the coalition, circulation of final OL Development Plan (which will be considered a living document) to a broad and diverse circle of stakeholders begins to spark wider engagement in Phase II; and
- May 31, 2018: Discussion begins on if/how the OL Development Plan (and other project deliverables) could be incorporated into the July CaNOE OL Symposium programming.

5.2 PHASE II: DEVELOPING A NATIONAL OCEAN LITERACY STRATEGY

In order to develop a National Ocean Literacy Strategy, four recommended parallel (and interconnected) work streams taking place over a suggested 18-month period are outlined in this section. A minimum of \$200,000 funding commitment by coalition partner(s), including Government, is needed in order to move forward on any aspect of Phase II.

TABLE 2

Phase II Work Streams

A. Establish a Coalition Model and Council 18 months

- establish coalition and project governance model, including nomination and selection process for the Coalition Council (which will be co-led by Canada's Indigenous community and will serve as the decision-making arm of the coalition);
- hire a Coalition Director and a Coalition Coordinator (full-time) for duration of Phase II;
- clarify objectives and performance metrics for the coalition and project;
- establish a shared brand (e.g., Oceans For All) and platform;
- establish a communication strategy, resources and pathways for the coalition project;
- develop sustainable streams of funding for the coalition and related projects; and
- expand and diversify partner organizations to the coalition, and foster the growth of a national community of practice.

B. Develop a National OL Strategic Plan 18 months

The Coalition Council will establish a nomination/selection process to form sectoral working groups and an Indigenous Circle of Experts (see [Conservation 2020](#)). They will also hire a full-time project manager, and a series of split positions embedded in different coalition partners to serve as coordinators for each sectoral group, supporting the working groups to:

- consult with OL stakeholders by sector;
- complete an asset mapping exercise by sector;
- identify key motivations and barriers to OL by sector;
- identify OL opportunities and gaps by sector; and
- identify new and existing opportunities for strategic alignment and integration of OL in current/emerging policies, frameworks, and initiatives by sector.

This information will then be combined with insights from the capacity building and research streams to create the National OL Strategy.

C. Strengthen Ocean Literacy Collaboration and Positioning **18 months**

- Via the coalition, identify flagship/pilot projects that target different audiences/sectors to trial ocean literacy impact metrics in partnership with the research team (e.g., a summer institute for training educators);
- Via the coalition, coordinate and facilitate a national campaign to underscore the role of the ocean in Canada's economy, society, culture and national identity; and
- Via CaNOE, establish a set of core ocean literacy principles and pedagogical framework to inform K-12 public school curricula in Canada (see section 4.2.5).

Information and insights from this work will be integrated into the final National Ocean Literacy Strategy.

D. Initiate An Ocean Literacy Research Program **18 months**

Under the direction of the Coalition Council, a research advisory committee (co-led by Canada's Indigenous community and supported by a full time research coordinator) will be formed to:

- develop and execute an annual benchmarking process to monitor the state of ocean literacy in Canada;
 - identify and prioritize critical areas for research on ocean literacy, human behaviour, science communication, and other areas essential for the development and iteration of effective ocean literacy programs (using the Ocean Literacy in Canada: Literature Review and Research Gap Analysis as a guide - see section 4.2.6);
 - mobilize resources to carry out high priority research (ideally in partnership with the tri-council agencies and Canada's colleges and universities), including Indigenous research on how to foster an intergenerational culture of sustainability;
 - develop pathways and mechanisms to ensure that research findings are utilized by end-users;
 - utilize research program insights and findings - including recommendations for priority research in Phase III - into the final National Ocean Literacy Strategy; and
 - advocate for additional ocean literacy-related research as a priority area of inter-disciplinary knowledge among Canada's research community.
-

5.2.1. ESTABLISHING A COALITION COUNCIL (STREAM A)

The Coalition Council should be relatively small in size (ideally 10-16 people at most) to ensure it remains effective and responsive. The Council should meet monthly via conference call, and have at least one in-person meeting annually. Council objectives and responsibilities include:

- expand, strengthen and manage the coalition and project;
- oversee and foster the development of a National OL Strategy by managing and supporting all Phase II work, including the synthesis of Phase II project findings and recommendations into the National OL Strategy;
- work closely with the full time Coalition Director and Coalition Coordinator and oversee coalition and project staff deliverables; and
- foster communication within the broader coalition and project working groups, as well as with external stakeholders.

The Coalition Council should be co-led in partnership with Canada’s Indigenous community, and should include representation from the major ocean literacy sectors/stakeholder groups. Gender, language, geographic and ethnic diversity, along with a robust skills matrix, is also essential for the Coalition Council composition.

During the initial consultation period for this Development Plan, several existing board and/or council structures were suggested as models to consider and learn from, including (but not exclusive to): Polar Knowledge Canada as it is a quasi-government department with a stakeholder board structure (see <https://www.canada.ca/en/polar-knowledge.html>); and Imagine Canada (see <http://www.imaginecanada.ca/our-programs/standards-program>).

Recommended composition of the National Coalition Council is provided in Figure 2. Note: eight stakeholder groups were identified by the coalition during the initial consultation phase (see section 3.2). However, in moving forward it is recommended that ‘Formal Education’ and ‘Non Formal Education/Youth’ become one Education Working Group—and that a new stakeholder group is created – Culture and Heritage Working Group. It is recommended that each sector-specific Coalition Council member would also serve as the chair (or co-chair where there is more than one) of the working group for that sector/stakeholder group (see section 5.2.2 for details related to working groups). Where possible, sector-specific Council members should be drawn from sector associations, networks or other representative organizations to maximize representation and reach. It may be necessary for the Council to start with acting/interim members and co-chairs until a formal nomination and selection process to identify the longer- term Council members and co-chairs is completed.

NATIONAL COUNCIL

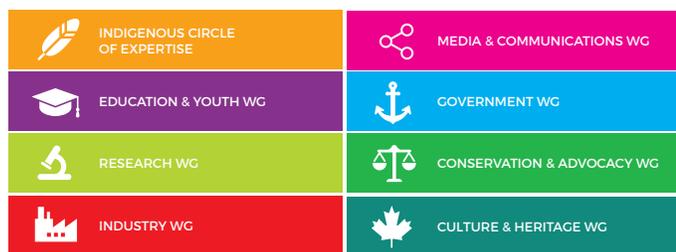


Figure 2

5.2.2 CREATING A NATIONAL OCEAN LITERACY STRATEGIC PLAN (STREAM B)

This recommendation serves as the engine behind the creation of a National OL Strategy. Together with the establishment of the Coalition Council, sectoral working groups are needed to facilitate the broader consultations and sector engagement essential to advancing developing an effective OL strategic plan.

A total of eight Working Groups are recommended – each chaired (or co-chaired) by a Coalition Council member, and each supported by a full time working group coordinator (e.g., split positions embedded in different coalition partners). Each Working Group will be responsible for the following within their designated sector/stakeholder group:

- **Consultation and information gathering:** Each working group will conduct:
 - broad stakeholder consultations;
 - an asset mapping exercise that includes gaps & opportunities analysis, as well as motivation & barriers analysis;
 - strategic alignment analysis of existing Canadian policies, frameworks, strategies and/or events for co-alignment and integration opportunities (e.g. the Ocean Protection Plan); and
 - analysis of all consultation and information gathered into a summary report and set of recommendations for the Coalition Council at the end of 12 month period to be synthesized into National OL Strategy.
- **Pilot project:** Each working group will establish a pilot project to collaboratively work on—something that embodies the coalition/collaboration of OL within the sector/stakeholder group so that this phase is not simply high level bureaucracy building but that momentum ‘on the ground’ in the sector takes place modeling a net gain for sector participants, for the coalition and for Canada (e.g., Education Working Group may collaborate on a two-day Ocean Education Summit for World Ocean Day).
- **National OL Strategy synthesis:** Under the direction of the Coalition Council, the Coalition Director, Coordinator, and Working Group Coordinators utilize information from Streams B, C and D to draft the National Ocean Literacy Strategy. The strategy is then vetted by coalition members and key stakeholders and revised before finalizing.

5.2.3 STRENGTHEN OCEAN LITERACY COLLABORATION AND POSITIONING (STREAM C)

Several initiatives were identified to (a) strengthen existing OL capacity and positioning, (b) to generate new momentum in a relatively short period of time and (c) to demonstrate that the coalition is already active, learning as it goes. Suggestions put forth include:

- **National Pilots / Flagships:** Aspects of current ocean literacy-related programs across the country could be identified as flagship/pilot projects that target different audiences/ sectors to trial ocean literacy impact metrics in partnership with the research team. Furthermore, aspects of existing programs could serve as national pilots to catalyze new programs. Supporting pilots/flagship programs in all regions of the country would be critical, including Indigenous-led initiatives. These pilot/flagship programs should leverage government investment with CSR-Philanthropy and/or NGO funds. For example:
 - ‘Train the Trainer’ Summer Institutes: two-week training institutes in the summer that are open to all sectors could fit within the CPC Conservation Professional Development program and/or the Federal Government DM leadership training program. Potential funding to pilot an OL ‘train the trainer’ summer institute could emerge through a joint agreement with DFO-ECCC, as well as through the larger national NGO community (Nature Conservancy of Canada, World Wildlife Fund Canada, Ocean Wise, Canadian Wildlife Federation).
- **Strengthening CaNOE:** This coalition acknowledges that supporting CaNOE’s growth as a national education network that is focused specifically on ocean literacy should be a priority of the coalition’s efforts. As an international example, EMSEA moved from being a volunteer driven group formed in 2011 to a formally registered charity in 2016 as part of the Sea Change Project. Noteworthy, Sea Change views EMSEA as one of the key components of its post-project legacy. In a similar vein, supporting CaNOE to strengthen their board of directors, improve visibility, grow capacity, scale up conference efforts, etc., would directly serve to advance ocean literacy in Canada.
- **Citizen Consultation Forums on OL:** In the conservation community, organizations such as Ocean Wise, WWF Canada, Canadian Wildlife Federation, and the Nature Conservancy all have significant multiyear national investments in advancing Ocean Literacy. A collaborative initiative could be launched to engage the general public in facilitated citizen consultation forums (townhall/workshop) on OL with diverse audiences across the country (to broaden/extend/contribute to the formal consultations being conducted by sectoral working groups— see section 5.2.2).

5.2.4 INITIATE AN OCEAN LITERACY RESEARCH PROGRAM (STREAM D)

Establishing a robust interdisciplinary research program that includes Indigenous scholars is essential for advancing OL efforts in Canada. In addition to the priority research areas and gaps outlined in section 4.2.6, other recommended actions related to OL research include:

- a 5-10 year commitment to an annual, national survey on OL to see if coalition efforts are moving the needle over time. One suggestion is to include OL in the [National Nature Survey](#). Of further consideration is the need to demonstrate improvements in species and habitats through this work in order to establish any credence. OL must balance knowledge and understanding with empathy and personal actions;
- create quantitative and qualitative instruments that evaluate retention of OL in terms of knowledge and attitude that drive behaviors, including what works for different age groups, cultural groups, socio-economic groups and geographic regions. These tools will be refined within the cohorts of the National Flagships (see 5.2.3) but freely available to the coalition along with the raw data. Such an approach may assist in leveraging Mitacs funding, for example;
- Inuit Tapiriit Kanatami recently launched [Inuit research strategy for the North](#); for far too long Indigenous peoples in the Arctic have been marginalized and kept out of many decisions regarding the research, management, and use of resources (including ocean resources) in their homelands. This is slowly changing but much more needs to be done to ensure Indigenous rights are incorporated into ocean literacy and all aspects of ocean research, management and resource use; and
- Of related interest, the National Science Foundation (NSF) in the United States has recently announced the themes for its “10 Big Ideas” for future investment and one of the ten ideas is called “Navigating the New Arctic” (see <https://www.nsf.gov/pubs/2018/nsf18048/nsf18048.jsp>). Noteworthy, the Arctic is the only regional theme identified on this list of 10, signifying it as an area of great importance and opportunity for more research (e.g., community-based monitoring and larger scale satellite monitoring).

5.3 PHASE III: ENGAGE IN A FOUR-YEAR MULTI-PARTNER PROJECT TO IMPLEMENT/ADVANCE NATIONAL OL STRATEGY

Phase III involves a four-year, multi-partner project to implement and advance Canada’s National OL Strategy (e.g., via a project perhaps similar to the [Sea Change Project](#) conducted in the EU). However, the scope of work, objectives and implementation strategy will be identified in the strategic plan at the end of Phase II. The importance of including (without defining) a Phase III at this preliminary development plan stage, is to reiterate the importance of the coalition committing to operationalizing the strategy, and not just seeing through the process to create the National OL Strategy and then walking away from it. Advancing OL in Canada will require a long-term commitment by a large, active and sustained coalition for years to come.

5.4 ESTABLISHING A LONG-TERM COMMUNITY OF PRACTICE

It is hoped and anticipated that as the coalition project model grows and evolves, a more formal and sustained community of practice will emerge. It is widely acknowledged by the coalition that dedicated capacity is needed to ensure success. However, it is premature at this initial draft of a development plan stage to suggest from where such capacity and resources could emerge. First, the coalition needs to grow, diversify and generate momentum. That said, a few recommended objectives and expected outcomes around an OL Community of Practice came forth in this process, including:

Recommended objectives for an OL Community of Practice include:

- Working together to implement and advance the National OL Strategy;
- Communicating the shared principles, assumptions and objectives of OL in Canada;
- Developing ongoing programs, (training) courses, outreach tools, OL experiences, and other resources to support OL; and
- Establish/implement/monitor effective metrics on efforts to advance OL.

Expected outcomes of a clearly identified Community of Practice:

- Knowledge mobilization across sectors, regions, disciplines and socio-cultural dimensions;
- Continual (re)negotiating of meaningful shared practices through member interactions; and
- Long-term and innovative partnerships and collaborations that extend beyond the initial implementation of the National OL Strategy.

5.5 FINANCE AND GOVERNANCE

The proposed coalition and project model will require partnership and participation by a diverse and widespread number of individuals, organizations, communities and government bodies - including Canada's Indigenous communities. By developing a coalition (likely with a paid, multi-layer membership model to support Coalition activities) that is directed by a Coalition Council comprised of elected representatives from the primary sectors, OL stakeholder groups and geographic regions of Canada, we will ensure a shared leadership approach.

5.5.1. RECOMMENDED FINANCE MODEL

The coalition recommends a three-prong finance model for the initiative, involving:

- a. **Seed funding:** An initial large contribution(s) from key partners (likely around \$2mil) to get the project off the ground, and establish enough momentum and credibility to motivate additional partners to join the initiative and provide further investment;
- b. **Membership funding:** A coalition membership model that includes a financial contribution (cash or in-kind) to the coalition/project that is multi-level to ensure participation of all interested organizations, regardless of their financial capacity; and
- c. **Project specific support:** A pathway for philanthropic and/or project-specific funding from partners within, or external to, the coalition. This funding path will provide options for general investment in the overall coalition project, as well as funds for specific work packages within the project.

5.5.2. GOVERNMENT ROLE IN PROJECT FINANCE AND GOVERNMENT

Partnership, active participation and co-leadership from all levels of Canadian Government is critical for the success of this initiative. The role Government plays through policy, regulation, resource management, etc. holds some of the strongest mechanisms for reducing barriers and fostering motivation for Canadians and Canadian organizations to live and operate in an environmentally sustainable manner, and enact real change in the health of Canada's marine environment. Time commitments from key Government staff and leaders will be paramount to sustain momentum, maximize impact and ensure the long-term viability of the project.

Government financial investment will be required to seed and support the project, **but should not be looked to as a sole source of sustained funding** for the initiative due to the fluctuations of priorities and spending that occur with a change in Government leadership. However, the relevance of ocean literacy to numerous federal, provincial/territorial and municipal departments suggests opportunities to leverage relatively small (and therefore more sustainable) time and financial commitments from a cross-section of Government departments. This could include branches of Canada's Armed Services; federal departments such as DFO, ECCC, TC, Heritage Canada, ISED, INAC and NRCan; provincial/territorial departments such as environment, education, social services, safety and natural resources; as well as municipal departments such as urban planning, waste management and business development.

A coalition membership model could be developed for Government partners that would involve an initial large investment to seed the project, followed by lower, but ongoing, annual investments based on the level of Government. For example, a commitment of \$100,000 annually from Federal Departments, and \$50,000 annually from provincial partners (as well as staff time from key staff) would establish a strong funding base for the initiative.

It is important to also note the need for partnership and leadership from the Government research funding agencies, such as the tri-council agencies, to bolster ocean literacy research activities through the project and in more general terms.

5.5.3. THE ROLE OF OTHER SECTORS IN PROJECT FINANCE AND GOVERNANCE

The Coalition will only succeed if co-led with Indigenous and non-government leaders and practitioners, including those from the industry, academic, NGO and philanthropic sectors. Whether through contributions of time, expertise, resources or funds, the non-governmental partners will need to establish a strong base for the project to succeed. In order to attract non-government investment it will be important to demonstrate reciprocity with education, economy, national identity and the environment. This has to be about a celebration and empowerment of all regions and the diversity of Canadians.

Industries that clearly benefit by a more ocean literate Canada are the obvious place to start. For example, by engaging one or more of the National Shipbuilding Strategy shipyards, as ocean literacy directly impacts workforce development for the marine industry. If combined with the development of ocean literacy programs for industry leaders, managers, and/or workforces, the impact of industry involvement will grow even stronger.

The academic community is also well positioned to contribute to the governance and finance of the initiative, especially in respect to developing and implementing a research plan to improve our collective understanding of ocean literacy, and methods for improving the efficacy of OL programs, policies and initiatives. Ocean literacy is an inherently interdisciplinary subject, and research related to this project will likely span a wide variety of the natural sciences, engineering, education, social sciences, health sciences, humanities and arts disciplines. It will also be important to integrate the colleges, trades and other research and/or training programs across the country into this project, and to liaise closely with Government research agencies, such as the tri-council agencies of ISED.

The authors note the need to expand dialogue with other key stakeholder groups to better outline the roles of other critical sectors and stakeholders - such as conservation organizations, NGOs, education organizations, cultural heritage organizations, and Indigenous communities - in the financial and governance structure of the Coalition Project.

5.6 OTHER STRATEGIC RECOMMENDATIONS

Throughout the consultation process, several upcoming events in 2018 were identified by/for the coalition to consider leveraging and/or co-aligning with (see Appendix C for calendar). Additionally, several existing ocean literacy (related) initiatives were identified by/for the coalition to keep updated on, and in communication with, in moving forward. These include: (a) International Ocean Literacy Survey; (b) Canada's Oceans Towards 2020: Beyond 2020: Open Letter on Ocean Priorities for the Canadian Government (<http://www.canadasoceans2020.a/>); (c) Outcomes of [G7 Ocean Youth Innovation Challenge](#); (d) Intergovernmental Oceanographic Commission of UNESCO ocean literacy roadmap project; and (e) planning for the next UN Ocean Conference on SDG 14 (2020 in Portugal).

APPENDIX

NOTE: This section will be fully assembled following further vetting and consultation, and will be provided as part of the final development plan in May, 2018.

APPENDIX A: GUIDING QUESTIONS IDENTIFIED BY THE COALITION FOR CONSULTATION PHASE

1. Starting from a widely accepted and basic definition of ocean literacy as being the extent of peoples' understanding of their influence on the ocean and how the ocean impacts them, how does this definition align with thinking within/across your sector? Any elements missing?
 2. Does ocean literacy matter in your sector? Why (not)?
 3. What is happening in your sector right now that might directly or indirectly relate to ocean literacy?
 4. What are the biggest needs/challenges in your sector right now related to the ocean/ocean behaviours?
 5. What are the biggest opportunities/incentives in your sector right now related to the ocean/ocean behaviours?
 6. Are there indicators relevant to ocean literacy in your sector that (could) help assess/measure related impacts/ outcomes?
 7. What is needed in your sector to advance ocean literacy?
 8. Any recommendations on what would be an effective engagement/ consultation process with stakeholders in your sector? In other words, how best to engage a broad community of stakeholders within this sector? And what kinds of information do you think your sector would value pulling together to advance ocean literacy efforts in Canada?
 9. How does this Ocean Literacy conceptual framework resonate with you? Strengths? Limitations? Missing content/representation? From your sector perspective are there other national or international unifying frameworks/commitments that an emerging National OL Strategy needs to align with/consider?
-

APPENDIX B: INTERNATIONAL OL FRAMEWORKS AND/OR PROCESSES REVIEWED

Although others exist, three international OL frameworks and/or processes were reviewed for the purposes of this development plan. These include: (1) Sea Change; (2) ResponSEable; and (3) NMEA's Ocean Literacy Framework, Campaign and Principles.

1. **Sea Change Project** (see section 4.2.4) and <http://www.seachangeproject.eu/>. Three particular documents were reviewed including:
 - a. Key Achievements http://www.seachangeproject.eu/images/SEACHANGE/Media_Centre/sc_KA_booklet.pdf
 - b. Collective Impact Assessment Framework http://www.seachangeproject.eu/images/SEACHANGE/SC_Results//D8.1public.pdf
 - c. Meta-Analysis of the Consultation Reports http://www.seachangeproject.eu/images/SEACHANGE/SC_Results//Deliverable-3.3.pdf

2. **ResponSEable** is an ocean literacy initiative in the EU that is directly linked with the Sea Change Project. The central aim is the creation of ocean literacy tools or products to foster greater public awareness and engagement. To learn more, visit: <https://www.responseable.eu/>. ResponSEable's main tools/products are outlined in a two-page PDF that has been attached to the end of this document.

3. **U.S. Ocean Literacy Framework, Campaign and Principles**

As discussed in section 4.2.5, the bulk of the work on ocean literacy to date has been led by the ocean science and ocean education sectors. The landmark "Essential Principles and Fundamental Concepts of Ocean Sciences" framework launched by the Centres for Ocean Sciences Education Excellence (COSEE) and other US partners (first published in 2002; further expanded to specific U.S. K-12 science curriculum alignment by the National Marine Educators Association in 2010; revised again in 2013) and corresponding OL principles were specifically created to inform ocean science education in the United States. Two key documents were reviewed for the purposes of this development plan, including:

 - a. Ocean Literacy Principles and Fundamental Concepts <http://www.coexploration.org/oceanliteracy/documents/OceanLitChart.pdf>
 - b. NMEA Special Report #3: ocean literacy campaign http://www.coexploration.org/oceanliteracy/NMEA_Report_3/NMEA_2010.pdf

NMEA's 7 Essential Principles of Ocean Literacy are:

- #1 Earth has one big ocean with many features;
- #2 The ocean and life in the ocean shape the features of Earth;
- #3 The ocean is a major influence on weather and climate;
- #4 The ocean makes Earth habitable;
- #5 The ocean supports a great diversity of life and ecosystems;
- #6 The ocean and humans are inextricably linked; and
- #7 The ocean is largely unexplored.

Some suggested considerations put forth during the consultation process for possible adaptation(s)/extension(s) of these OL principles to serve a Canadian context include:

- The ocean is vulnerable;
- The ocean has and continues to play a critical role in the development of human civilization;
- The ocean plays an important role in Canada's society, culture and heritage;
- A substantial part of Canada's economy depends on the ocean;
- There are a variety of interesting and rewarding careers linked to the ocean; and
- Individual actions matter. There are things that an individual and/or group of individuals, can do to reduce negative impacts on the ocean.



RESPONSEABLE

Products

➔ *The ResponSEable project is producing a diversity of ocean literacy tools. Each targets specific key marine issues and different audiences. Formats vary from films and online games to training of fishermen and platforms on ferries ... All products are being tested and their effectiveness assessed.*

Six short documentary films

These films focus on one of the Key Stories themes (6 in total) of the ResponSEable project. Each film is developed for a multipurpose application in a range of channels, platforms and scenarios and to engage a range of audiences.

Social media campaign

This campaign '7days of summer' targets "Coastal Tourism" key economic actors, tourists and high school or university students. The Facebook campaign runs in Italian (later in French and English) for 5-6 weeks. It makes people dream about their summer holidays in winter, while learning some facts about mass tourism. It builds on numerous activities, including photo challenge with tagging friends.

A short film competition

Connected with the theme of sustainable coastal tourism in the Mediterranean of the social media campaign, this competition targets young people who do not have the capacity or experience of serious film-making. The competition is being launched on Instagram!

Educational packages for professionals

The training course which focuses on enhancing sustainable fishing education at fishing academies in the OSPAR region aims to empower (future) fishermen to protect fish stocks and the sea environment for future generations. Courses have been conducted in the Netherlands, and will be developed for France, Belgium and Spain. In addition, the team is working on educational package on the environmental challenges involved in the installation of wind farms in the North Sea.

Educational package for schools/children

A production of a children's workshop for under 8's that can be used by schools, environmental outreach centres, after schools clubs and aquariums, website and book. It builds on the life of a mermaid called Zaza and her friends.

Interactive Internet Platforms

The Interactive Internet Platforms are installed on ferries and in various types of museums. It is an interactive touch-screen application with a number of interactive ocean literacy modules, incorporating information, games and challenges (initially in English and Norwegian).

Serious Game

An online (serious) game that uses a board game format brings the player through a set of scenarios and challenges based around the Key Stories. The main objective of this Game is to raise awareness and initiate behavior change regarding Ocean and Marine issues.

Interactive Visualisations and Maps

This Interactive Visualization & Maps produce a number of interactive visualisations, allowing the user to navigate through key stories in an interactive way, showing the links between human activities and ocean health.



 *ResponSEable is also producing guidance for practitioners and policy makers*

Electronic manual for Ocean literacy in practice

An interactive document about the process for developing effective ocean literacy, based on ResponSEable approach and experiences, will provide practical recommendations for developing targeted ocean literacy products. *Coming in May!*

ResponSEable Literacy briefs

A series of stories about each of six key marine challenges, where each story is told with the more informed view on a problem, to include all actors, and to show what is not commonly known. *Coming in September!*

 *ResponSEable is also inviting others to join contributing to effective Ocean literacy in Europe*

ResponSEable Workshop on Ocean Literacy

ResponSEable will be hosting a 1.5 hour workshop on ocean literacy at the European Maritime Day in Burgas (June 31 – May 1, 2018). Follow the EMD website for registration to join us!

Series of Webinars

ResponSEable will host series of webinars between May 2018 and February 2019 with the following themes:

1. How do we change behaviour: can better information help or not?
2. Which type of knowledge we need in ocean literacy – what are the gaps?
3. How to do effective ocean literacy *for children?*
4. How to do effective ocean literacy *for adults/consumers?*
5. How to do effective ocean literacy *about agriculture and eutrophication?*
6. How to do effective ocean literacy *about coastal tourism?*
7. How to do effective ocean literacy *about fisheries and aquaculture?*
8. How to do effective ocean literacy *about marine transport?*
9. How to assess effectiveness of ocean literacy products?
10. Towards development of the European OL strategy - live youtube event about issues, inspirations, experiences, lessons and policy implications

Follow our website/social media for the dates and registration (will open soon !)

Coordinator



Partners
















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 www.responseable.eu



APPENDIX C: SUGGESTED EVENTS 2018 CALENDAR TO LEVERAGE OL EFFORTS

Date	Event	OL Objective
April, 2018	Y7 Summit, Ottawa	Discussion on OL to harvest youth perspectives as a valued stakeholder of National OL Strategy process
May, 2018	World Conference on Marine Biodiversity (Montreal, QC)	
May, 2018	Canadian Association of Science Centres Conference (Prince George, BC)	
June 8-9, 2018	G7 Summit, Charlevoix, Quebec https://g7.gc.ca/en/	Support an ocean-themed event/campaign in support of the Summit
June 8, 2018	World Oceans Day	
July 13-15, 2018	CaNOE Ocean Literacy Conference, St. John's NL http://oceanliteracy.ca/2018-ocean-literacy-conference/	Mobilize OL Development Plan within Education sector; Map out Education Sector Working Group; Explore OL principles in Canadian context
July, 2018	National Marine Educators Association Conference (U.S.)	
Oct 9-13, 2018	NAAEE, Spokane, Washington https://naaee.org/our-work/programs/conference	Facilitate a Participatory Action Session at Conference to share Canada's OL Development Plan; harvest conference participants' ideas; build bridges between OL and EE communities across North America
October 18-21, 2018	EECOM, Ktunaxa Nation (near Cranbrook), BC http://eecom.org/eecom-2018/	same as above in Canadian context
October 22-25, 2018	Oceans 2018 Conference and Exhibition (Charleston, SC, USA)	
February 25-27, 2019	Oceanology International Americas (San Diego, CA, USA)	