



CONSULTATION PLAN  
Sustaining MEOPAR

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**A Strategy** for a New Way Forward

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# Executive Summary

Canada is an ocean nation with the longest coastline in the world, with all but two of its provinces and territories enjoying an ocean coastline, while bordering on three ocean basins, Atlantic, Pacific and Arctic. The overall goal for the ocean science community, and perhaps for the broader ocean community writ large, is for Canada to “punch above its weight.” To achieve this objective, a much more integrated ocean community is needed across Canada than what currently exists. MEOPAR has developed extensive networking skills and demonstrated exceptional collaboration abilities during the past years. These networking skills uniquely position MEOPAR to play a leadership role in the integration efforts and to perform the role of a national integrator or national “glue” across significant ocean challenges and priorities in Canada.

This Strategy outlines various aspects as to how a new organization can move forward with this objective in mind. It is recommended that MEOPAR develop one or more value propositions that will build upon their networking expertise to link the major ocean players together along their respective strengths and to leverage this combined effort to address key challenges. The renewed MEOPAR will need to reach out to a range of clients and funding opportunities with rigor and attention to fulfilling potential client’s needs and priorities. It should be recognized that it is most likely that any new MEOPAR organization will be supported through a mosaic of revenue sources, each with its own criteria and measures of ongoing success.

There are three broad aspects proposed in the Strategy for MEOPAR to reinvent itself:

- Identify and establish relevant value propositions as the central core of the new organization that will address one or more specific priorities or grand challenges in Canada;
- Market and grow the value propositions by establishing core administrative and operational capacity and building the national integrator capacity across the Canadian ocean sectors of government, industry, academia, institutes/institutions and others; and
- Expand and build-up the value propositions with Canadian ocean sectors beginning with government, industry, academia, institutes/institutions and expanding to coastal communities, Indigenous communities and organizations and others.

Looking ahead, MEOPAR will be needing to reinvent itself in a post-pandemic environment. It is likely that, notwithstanding potential stimulus funding, federal and provincial/territorial budgets will be tightly constrained to meet the high priority policy agenda(s) of the respective jurisdictions. This implies that any hope of successfully renewing the MEOPAR organization will demand an agenda that is rigorous and clearly in direct support of major policy commitments outlined by government(s).

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With the March 31, 2023 deadline of the end of current funding looming, potential new opportunities should be sought immediately without waiting for the final months of NCE funding. It is in the organization's best interests to initiate discussions as soon as possible, to allow ample time for the development, negotiation, and funding of possible new arrangements.

In addition to the three broad aspects proposed for MEOPAR to move forward, the Strategy also discusses relations between the new organization and various sectors (e.g. government, industry, academia, institutes/institutions, Indigenous communities, and coastal communities) and potential opportunities for networking and collaboration with each sector. Considerations relating to both governance and resources are also presented in the Strategy.

Finally, three potential value propositions are recommended within the Strategy for immediate action. These are described in Annex 1.

## Strategy Recommendations

### RECOMMENDATION #1

It is recommended that the implementation of this Strategy to renew MEOPAR be initiated as soon as possible to allow ample time for the development, negotiation, and funding of possible new arrangements. Any new program areas would need to clearly be outside of the current MEOPAR mandated responsibilities so as not to present any perceptions of double-dipping.

### RECOMMENDATION #2

It is recommended that MEOPAR consider hiring a Government Relations person as soon as possible to become a key player in the discussions and negotiations with senior level managers in federal and provincial governments.

### RECOMMENDATION #3

It is recommended that MEOPAR develop one or more value propositions that will build upon their networking expertise to link the major ocean players together along their respective strengths and to leverage this combined effort to address key challenges. It is further recommended that value propositions be developed on the topics of: Enhancing the Canadian Integrated Ocean Observing System; Partnering with Fisheries and Oceans Canada on the UN Decade of Ocean Science, as the ocean community partner; and Supporting Environment and Climate Change Canada on Climate Change Science.

### RECOMMENDATION #4

It is recommended that the value propositions from Recommendation #3 be used to negotiate with clients to obtain resources and authority to support the core administrative and operational capacity of the new organization. Negotiations on the value propositions could take place with federal governments, provinces/territories, industry, funding agencies, and others.

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## RECOMMENDATION #5

It is recommended that the renewed MEOPAR build and expand the value propositions from Recommendations #3 and #4 to address key priority challenges facing Canadian ocean science sectors. This expansion should build on MEOPAR's demonstrated track record on networking and their ability to build teams across jurisdictions, across disciplines and across agencies. The value propositions should demonstrate the "national integrator" role of the new MEOPAR and would obtain resources and authority to address the key priority challenges. Negotiations on the value propositions and national integrator capacity could take place with federal governments, provinces/territories, industry, funding agencies, and others.

## RECOMMENDATION #6

To set attractive value propositions for consideration by governments across the country, it is recommended that MEOPAR closely monitor future Speech from the Throne (SFTs), mandate letters, budget speeches etc. to establish and maintain alignment between their activities, expected outputs, anticipated outcomes and the Government's stated goals and objectives. In addition, the policy and program intentions of coastal regions, including the provinces and territories, should also be monitored.

# Introduction

The Networks of Centres of Excellence (NCE) MEOPAR was initiated in 2012 and is scheduled to conclude by March 31, 2023. Over the duration of the NCE, the landscape of ocean science, both in Canada and globally, has changed substantially. With the NCE MEOPAR set to end, now is the time to begin strategizing for the future.

This Strategy paper is supported by several other related documents including a *Comparison Matrix of MEOPAR Achievements*<sup>1</sup> which reports out key initiatives undertaken by MEOPAR against the Socio-Economic Challenges and Impacts identified from the MEOPAR 2017-2022 Strategic Plan. The *Comparison Matrix of MEOPAR Achievements* showcases the efforts of MEOPAR and introduces a discussion on its strengths, gaps, and opportunities.

In addition, an assessment of organizations, institutions and programs that are currently active in the ocean community was undertaken. The report, *An Assessment of Ocean Science in Canada*,<sup>2</sup> provides an overview of ocean related activities across the country and provides a backdrop for consideration of what MEOPAR might best adopt as its mandate going forward.

Developing a strategy to examine how MEOPAR might evolve in the future demands active and ongoing consultation with the ocean community that has been involved with significant efforts in ocean science, ocean protection and sustainable ocean use initiatives over recent years. The approach to obtaining input from the ocean community in Canada is described in another document, *Consultation Plan – Sustaining MEOPAR*,<sup>3</sup> and a brief overview of the plan is provided below.

A dedicated Consultation Webinar, scheduled for the wrap up day of MEOPAR's 2020 Annual Scientific Meeting (ASM), represented an important opportunity to hear from the ocean science community. This was followed by an electronic survey involving a series of open-ended questions that were distributed to the webinar participants, to all ASM 2020 attendees, as well as to members of both the MEOPAR Research Management Committee and the MEOPAR Board of Directors. The final component of the consultation was seeking advice from influential and knowledgeable individuals from across the community through one-on-one interviews. At the onset of each interview, it was made clear that success in sustaining MEOPAR will be measured by developing value propositions for the future that are relevant and impactful and, most importantly, that will attract sufficient resources to sustain the organization.

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1 Excel Sheets: Comparison Matrix of MEOPAR Achievements, MEOPAR, November 2020

2 Report: *Assessment on Ocean Science in Canada*, MEOPAR, November 2020

3 Report: *Consultation Plan—Sustaining MEOPAR*, October 2020

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Finally, the results of implementing the Consultation Plan are captured in a document, *Consultation Plan, Sustaining MEOPAR – What We Heard*.<sup>4</sup> This document provides an analysis of common themes and recommendations, both on what should be kept in a new MEOPAR organization if at all possible and what might be added to the agenda in an effort to establish value propositions. The value propositions should address priorities of governments and industry and be centered on a challenge that both academia and established institutes and institutions (Ocean Networks Canada (ONC); Ocean Frontier Institute (OFI); ArcticNet, Réseau Québec Maritime (RQM); and others) would be willing to partner with in an integrated effort to advance ocean science across the country.

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<sup>4</sup> Report: *Consultation Plan, Sustaining MEOPAR – What We Heard*, MEOPAR, February 2021

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## Context

The environment in which MEOPAR currently operates is not the same as when it was launched almost a decade ago and undoubtedly further changes will unfold as time goes by, both in the near term (from the present day until March 31, 2023 when NCE funding will expire) and in the longer term of a multi-year planning horizon for the organization to renew itself.

In December 2018, the Government of Canada announced the termination of the NCE funding program stating that currently funded networks (e.g. MEOPAR) would continue to be funded until the end date of their grant but that there would be no further opportunities available for renewal. This announcement dramatically changed the future of MEOPAR with the realization that funding could not be renewed through to 2027 which would have been possible under the previous NCE format. Following the NCE announcement, a new end date of March 31, 2022 was established for MEOPAR. An extension, with no new funding, was subsequently provided until March 31, 2023. The strategic planning of MEOPAR had been based on a 15-year funding horizon under the NCE program; this was suddenly and unexpectedly shortened. A new way forward is going to have to be considered for the organization.

The need for organizations such as MEOPAR, with its extensive networking and collaboration abilities, was articulated in a review of Canada's ocean research capacity by an Expert Panel of the Council of Canadian Academies (CCA), 2013,<sup>5</sup> which found ocean science in Canada was “organized into a network of regional clusters of diverse organizations with different research interests and capacities” which created “challenges for certain kinds of collaboration, alignment of research strategies, and coordination and use of large-scale infrastructure investments.” Overall, the Expert Panel identified three main deficiencies in ocean science in Canada: a “vision gap” which reflected the lack of a national organization to develop and guide a strategy for ocean research; an “information gap” with respect to keeping track of research activities, infrastructure, and other ocean science capacities for the entire country; and a “coordination gap” reflecting the need for enhanced collaboration at local, regional, national, and international levels, and across disciplines and sectors, in order to address complex issues of the modern ocean environment. While the CCA report of 2013 is looking back, it is included here as part of the context for MEOPAR looking ahead. Consultations on the future of MEOPAR reinforced the idea that the vision gap, the information gap, and the coordination gap, while having been worked on by many, still demand significant attention.

The need for enhanced collaboration and increased coordination is one of the lessons learned from the ongoing global COVID pandemic. Governments have observed first-hand the necessity of an integrated scientific response to public health decisions made during the pandemic. The COVID-19

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5 Council of Canadian Academies, 2013. Ocean Science in Canada: Meeting the Challenge, Seizing the Opportunity. The Expert Panel on Canadian Ocean Science. <https://cca-reports.ca/reports/ocean-science-in-canada-meeting-the-challenge-seizing-the-opportunity/>

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experience has shown governments the value of getting timely access to all-available and integrated science to support major policy decisions. There is growing recognition that our innovation system is badly fragmented and that this same situation is apparent with other major files, beyond public health. As a result, there is an increasing push from government for the development of “integrated hubs of expertise” where capacity, capability, and Highly Qualified Personnel (HQP) can all work together to a common objective. The goal of such integrated hubs of expertise is to have academia, industry, institutes / institutions and the public service all working seamlessly together in this hub design. Government funding agencies (e.g. Canadian Institute on Health Research, Natural Science and Engineering Council (NSERC), and Social Sciences and Humanities Research Council (SSRHC)) are all expected to move in this direction.

Another changing face of public funding is an increasing need to demonstrate value for investment. The term “value proposition” is a concept well developed in the private sector and with growing support in the public sector. Traditionally, a value proposition refers to the value a company promises to deliver to customers should they choose to buy their product or use their service. In a nutshell, a value proposition is a clear statement that addresses relevancy (e.g. how your product or service solves a problem/challenge or improves a situation); quantification of the value to deliver specific benefits; and differentiation as to why the client should work with you and not someone else. These same principles can also be applied to a value proposition in the public sector.

Looking ahead, MEOPAR needs to reinvent itself in a post-pandemic environment. It is likely that, notwithstanding potential stimulus funding, federal and provincial/territorial budgets will be tightly constrained to meet the high priority policy agenda(s) of the respective jurisdictions. This implies that any hope of successfully renewing the MEOPAR organization will demand an agenda that is rigorous and clearly in direct support of major policy commitments outlined by government(s). In addition to the Government of Canada policy priorities, all but two of Canada’s provinces and territories have ocean coastlines and so examining the policy and program intentions of all coastal regions will be critical to setting attractive value propositions for the governments across the country. A similar detailed and rigorous approach to understanding the needs of the marine industry as well as coastal and Indigenous communities is equally important.

With the March 31, 2023 deadline looming, it is a recommendation of this Strategy that potential new opportunities should be sought immediately without waiting for the final months of NCE funding. It is in the organization’s best interests to initiate discussions as soon as possible, to allow ample time for the development, negotiation, and funding of possible new arrangements. Of note, any new program areas would need to clearly be outside of the current MEOPAR mandated responsibilities so as not to present any perceptions of double dipping.

The Strategy also proposes that a new position of a Government Relations officer be hired who would be a key player in the discussions and negotiations with senior level managers in federal and provincial governments.

Finally, this Strategy was developed within the context of the current landscape in Canada and represents a snapshot in time in the first quarter of 2021. The actions and recommendations are reflective of this point in time. As MEOPAR looks to evolve over the coming months, constant monitoring for new opportunities will need to take place on an ongoing basis.

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## RECOMMENDATION #1

It is recommended that the implementation of this Strategy to renew MEOPAR be initiated as soon as possible to allow ample time for the development, negotiation, and funding of possible new arrangements. Any new program areas would need to clearly be outside of the current MEOPAR mandated responsibilities so as not to present any perceptions of double-dipping.

## RECOMMENDATION #2

It is recommended that MEOPAR consider hiring a Government Relations person as soon as possible to become a key player in the discussions and negotiations with senior level managers in federal and provincial governments.

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# The Strategy

The overall goal for the ocean science community, and perhaps for the broader ocean community writ large, is for Canada to “punch above its weight.” To achieve this objective, a much more integrated ocean community is needed across Canada than what currently exists.

The renewed MEOPAR will need to reach out to a range of clients and funding opportunities with rigor and attention to fulfilling potential client’s needs and priorities. It should be recognized that it most likely that any renewed MEOPAR organization will be supported through a mosaic of revenue sources, each with its own criteria and measures of ongoing success.

There are three broad aspects proposed in the Strategy for MEOPAR to move forward:

- Identify and establish the relevant value propositions as the central core of the new organization that will address one or more specific priorities or grand challenges in Canada;
- Market and grow the value propositions by establishing core administrative and operational capacity and building the national integrator capacity across the Canadian ocean sectors of government, industry, academia, institutes/institutions and others; and,
- Expand and build-up the value propositions with Canadian ocean sectors beginning with government, industry, academia, institutes/institutions and expanding to coastal communities, Indigenous communities and organizations, and others.

## Aspect 1: Identify and Establish the Relevant Value Propositions

The first objective is to identify and establish the relevant value propositions as the central core or integrated hub of a new organization. The challenge in identifying value propositions is that they must fill an existing national gap and address a specific grand challenge and/or policy priority in ocean science by bringing the necessary multidisciplinary skills together.

An additional challenge in scoping the value propositions is to find the intersection point or central integrated hub (see Figure 1) where the new organization would serve as the interlocutor with ocean industry, academia, institutes/institutions and government so these other sectors see a return on their engagement and investments. Ideally, the value propositions would intersect with all these major ocean sectors but one or more sectors would be needed as a minimum to establish any given proposition. During the consultation phase leading to the Strategy, it was evident from many respondents that MEOPAR has achieved extensive networking skills and demonstrated exceptional collaboration

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abilities during the past years. These networking skills could be considered as applicable to both research coordination as well as research management coordination across the community. MEOPAR is uniquely positioned within Canada to lead the efforts to establish the necessary value propositions and to develop the central core/integrated hub.

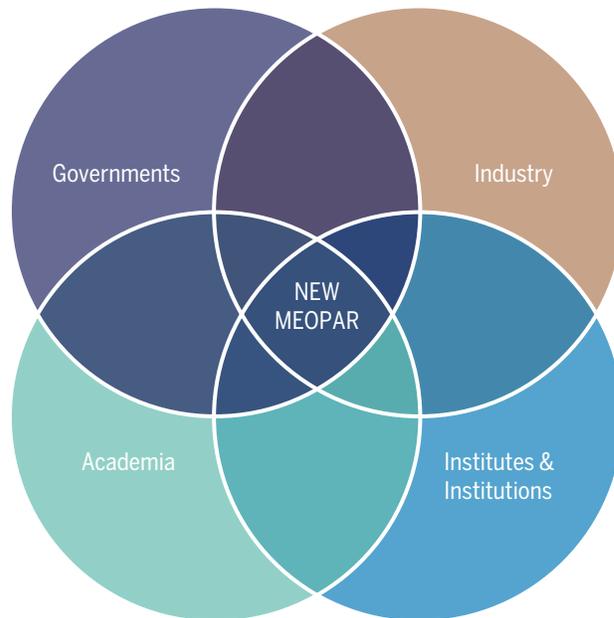
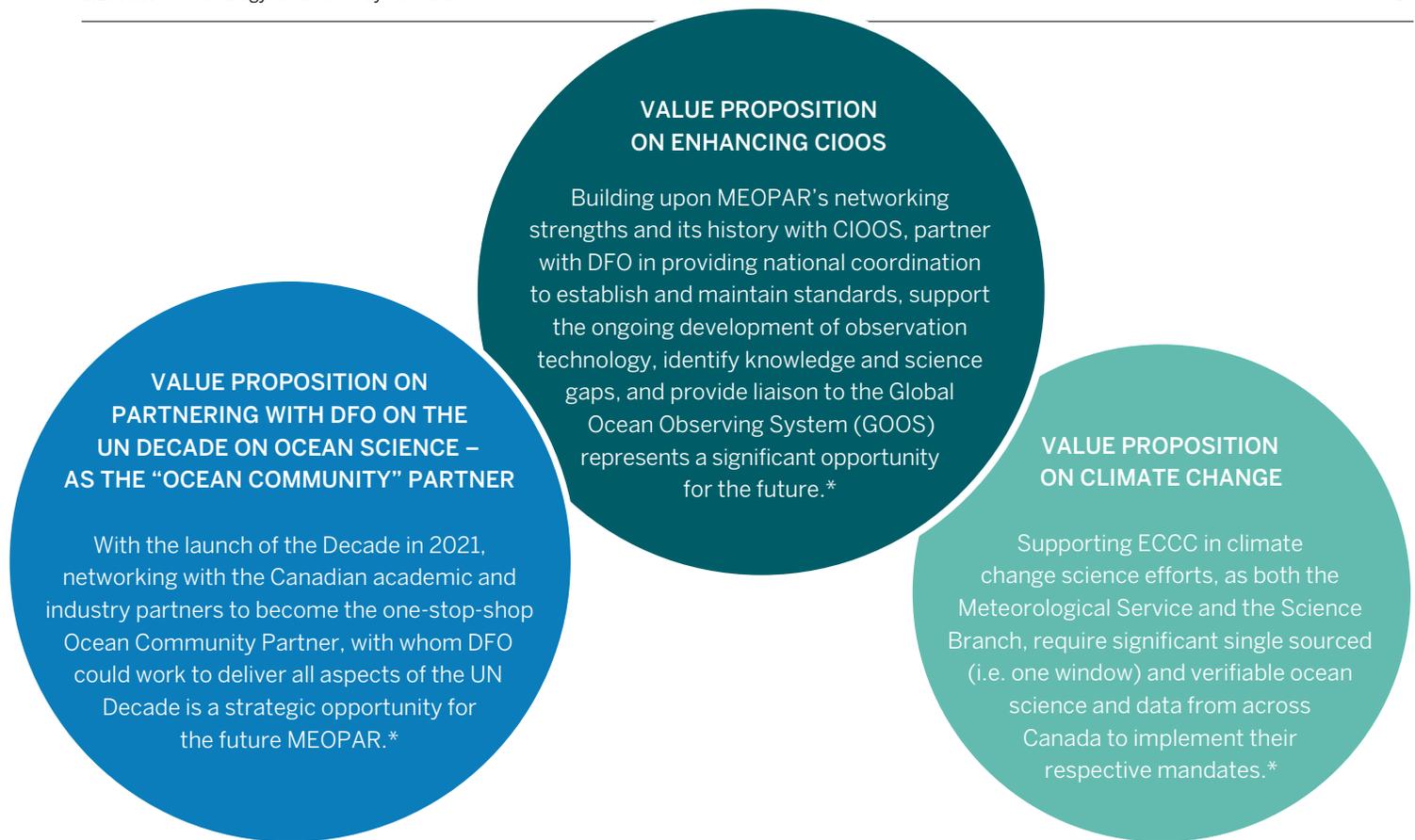


Figure 1: Renewed MEOPAR Organization networking across the ocean community as the “National Integrator”

The means to develop the value propositions is to identify a significant activity that is of interest to government(s), industry, and institutes/institutions and to then build a coalition of the willing to demonstrate what can be achieved together. The work surrounding the value propositions would need to be significant enough to attract resources and at a sufficiently high level so as to result in world leading results. Possible topics are wide ranging and could be found amongst the Government’s big policy challenges or from within industry sector, or elsewhere. There could also be more than one topic that the renewed MEOPAR organization could develop as a value proposition and could expand and build-up further. The most evident possible value propositions at this time relate to the topics of: Enhancing the Canadian Integrated Ocean Observing System; Partnering with Fisheries and Oceans Canada on the UN Decade of Ocean Science, as the ocean community partner; and Supporting Environment and Climate Change Canada on Climate Change Science. Additional opportunities for value propositions will continue to emerge and should be monitored closely. In particular, as the Government works to scope out the Blue Economy agenda over the coming months additional opportunities will likely become apparent (see Relations with Government section below).

### RECOMMENDATION #3

It is recommended that MEOPAR develop one or more value propositions that will build upon their networking expertise to link the major ocean players together along their respective strengths and to leverage this combined effort to address key challenges. It is further recommended that value propositions be developed on the topics of: Enhancing the Canadian Integrated Ocean Observing System; Partnering with Fisheries and Oceans Canada on the UN Decade of Ocean Science; and, Supporting Environment and Climate Change Canada on Climate Change Science.



### VALUE PROPOSITION ON ENHANCING CIOOS

Building upon MEOPAR’s networking strengths and its history with CIOOS, partner with DFO in providing national coordination to establish and maintain standards, support the ongoing development of observation technology, identify knowledge and science gaps, and provide liaison to the Global Ocean Observing System (GOOS) represents a significant opportunity for the future.\*

### VALUE PROPOSITION ON PARTNERING WITH DFO ON THE UN DECADE ON OCEAN SCIENCE – AS THE “OCEAN COMMUNITY” PARTNER

With the launch of the Decade in 2021, networking with the Canadian academic and industry partners to become the one-stop-shop Ocean Community Partner, with whom DFO could work to deliver all aspects of the UN Decade is a strategic opportunity for the future MEOPAR.\*

### VALUE PROPOSITION ON CLIMATE CHANGE

Supporting ECCC in climate change science efforts, as both the Meteorological Service and the Science Branch, require significant single sourced (i.e. one window) and verifiable ocean science and data from across Canada to implement their respective mandates.\*

## Aspect 2: Market and Grow the Value Propositions by establishing core administrative and operational capacity and building the national integrator capacity

### ESTABLISHING CORE ADMINISTRATIVE AND OPERATIONAL CAPACITY

The next objective, after the identification and establishment of the value propositions, is to secure funding and operational support for the core administrative and operational capacity of the new integrator capacity of the organization. Growing and building the value propositions is a vital step in securing the new organization.

In marketing and growing the value propositions, a first step will be establishing core administrative and operational capacity. The value propositions need to outline what the new MEOPAR organization is both prepared and capable of undertaking on behalf of core Government of Canada clients such as Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), Natural Resources Canada (NRCan) and Transport Canada (TC), and possibly Innovation, Science & Economic Development (ISED) as well. The best scenario would be a consortium of departments based on the value propositions of choice. The offerings will need to be specific enough that potential government clients see direct value in receiving support for their respective mandates and policy

\* See more detail in Annex 1

priorities. The goal is to negotiate an arrangement whereby the renewed MEOPAR receives both resources and operational authority to deliver on the agreed upon activities.

An alternative, to getting direct support for the value propositions through negotiation with Government departments, would be to accomplish the same outcome by applying to the New Frontiers Research Fund (NFRF) in the Transformation category. This approach would be transformational indeed, as the NFRF is set up in a classical “fund the research” mode and is not expressly designed to support a networking style organization seeking core support.

The third opportunity to accomplish this first and most important step is to negotiate directly with Innovation, Science & Economic Development (ISED) for the necessary support. It has been reported during the consultation phase of this project that it has become apparent that core administrative and operational support to third party science organizations is lacking in the suite of programs designed to support science and that this oversight needs to be corrected. ISED, with its “Policy for Science” responsibility will be the most likely organization to initiate any funding opportunity for this requirement. It is not clear how far that discussion has progressed, however, watching for it in future Budgets and being ready to apply would be a good contingency plan.

In establishing core administrative and operational capacity for a renewed organization, consideration should be given to creating a new “government relations” position. The position would serve as the conduit between the science core of the new organization and possible funders within government (e.g. federal, provincial/territorial and possibly coastal municipalities). Skills would be associated with marketing the value and assets of the new organization and dealing directly with policy groups across government at a senior level. Another skill set of a government relations position could be to assist with communications. As indicated in the *What We Heard* report, there was frequent reference of the need for improved communications on the impacts that MEOPAR initiatives were having on the Canadian ocean economy and ecosystems. In a reinvented MEOPAR, consideration should be given to upgrading communications on the work and its impact. For example, more communication efforts are needed to present the value of the science done through MEOPAR to various groups of stakeholders.

#### ESTABLISH CORE ADMINISTRATIVE CAPACITY

A priority action in this area should be the creation of a Government Relations position to help guide discussions with senior government partners in developing the value propositions and the new organization.

### RECOMMENDATION #4

It is recommended that the value propositions from Recommendation #3 be used to negotiate with clients to obtain resources and authority to support the core administrative and operational capacity of the new organization. Negotiations on the value propositions could take place with possible clients from federal governments, provinces/territories, industry, funding agencies, and others.

## BUILDING THE NATIONAL INTEGRATOR CAPACITY

During the consultation phase in the preparation of the Strategy, the ability of MEOPAR to collaborate across Canada was emphasized, as was the ability to know who is doing what across Canada and who best to talk to in order to get things done. In addition, the collaboration of natural science and social science was cited as excellent within MEOPAR. These widely recognized assets position a renewed MEOPAR to perform the role of national integrator or national “glue.” As resources are secured for the core administrative and operational capacity, the renewed organization would need to begin adding additional resources by building up national integrator capacity around the value propositions. This national integration capacity would see an organization that adds value to the major ocean science players by linking them together around their respective strengths by increasing profile and capacity on any given subject. The role of national integrator or “national glue” would also reduce competition amongst the major ocean science players and play to the respective strengths found in each organization.

This type of synergistic integration effort is typically described as a win, win, win scenario whereby industry gains, the academic sector gains, and the value to Canada through support to policies makes government a winner as well. This winning scenario is often represented by a three circle Venn diagram showing the three wins. During the Strategy consultation process, these three circles were expanded to four—so as to include government, industry, and academia as well as the numerous Canadian network institutes (e.g. ONC; OFI; ArcticNet, RQM; and others) with a renewed MEOPAR organization working in the very centre where all four circles intersect (see Figure 1). Reflecting on the possibilities of further networking with ocean industry, one possible scenario could see OFI, ONC, ArcticNet, RQM and/or academic partners serving as the engines of research, a new MEOPAR organization could serve as an integrator and builder of networks and partnering with ocean industry organizations (i.e. Centre for Ocean Ventures and Entrepreneurship (COVE)) to advance commercialization opportunities.

While the national integrator role is described above as the integration of the various sectors (e.g. government, industry, academia and institutes/institutions), the national integrator role equally applies to the integration of ocean science disciplines (e.g. physical science, social science and more).

Figure 1, A renewed MEOPAR Organization networking across the ocean community as the “national integrator,” highlights the recommendation of the Strategy for the renewed MEOPAR to utilize their networking skills across the ocean science community to build up and strengthen the proposed value propositions and to serve in the capacity of national integrator. The new organization should be situated at the intersection point, and serve as the integrated hub, of the four major players in the ocean science community. The intent is for the new organization to bring strong liaison, facilitation, and networking skills to work with governments, academia, industry, and institutes/institutions in an



integrated way, responding to the policies of governments and the operational needs of the marine industry. It is important that a renewed organization continue to make ocean science in Canada more than the sum of its parts.

Under this model, the renewed MEOPAR would offer no independent programming that was not sponsored by, useful to, or done in partnership with at least one of the four key sectors. Some staff of the new MEOPAR could work on site of one of the partnered organizations, to pursue the national network-building activities

As indicated in the *What We Heard* report, the proven track record within MEOPAR of networking right across the innovation ecosystem was the number one skill set that the ocean community saw as the potential core element of a renewed MEOPAR organization. This ability to build teams across jurisdictions, across scientific disciplines and across agencies was repeatedly identified as still necessary and something that needs to be expanded in Canada. It is recommended that this networking function make up the principal offering in the renewed MEOPAR value propositions.

As they have demonstrated with a strong track-record in the past, the renewed MEOPAR would bring together multi-disciplinary, multi- jurisdictional and multi-agency teams as appropriate to meet the research, science and operational demands of a given objective. The Strategy would be built on that skill set to broaden the reach surrounding the value propositions, both in identifying needs as well as harnessing the skills to respond accordingly across the entire ocean community.

## RECOMMENDATION #5

It is recommended that the renewed MEOPAR build and expand the value propositions from Recommendations #3 and #4 to address key priority challenges facing Canadian ocean science sectors. This expansion should build on MEOPAR's demonstrated track-record on networking and their ability to build teams across jurisdictions, across disciplines and across agencies. The value propositions should demonstrate the "national integrator" role of the new MEOPAR and would obtain resources and authority to address the key priority challenges. Negotiations on the value propositions and national integrator capacity could take place with federal governments, provinces/territories, industry, funding agencies, and others.

## Aspect 3: Expand and Build Up the Value Propositions in Relation with Canadian Ocean Sectors

After the value propositions have been identified, and funds secured to establish both the national integrator capacity and core administrative and operational capacity, the next aspect to be addressed is to continue to grow, expand and build-up the propositions in relation to Canadian ocean sectors. Figure 1, the Venn diagram, illustrates how the four major components of the Canadian ocean community—governments, academia, industry and institutes/institutions—need to come together to meet the major challenges in the Canadian ocean sectors. The value propositions, as described in the central hub or integrated hub at the intersectional point of these four major sectors of the Canadian ocean community, need to expand through negotiations and discussions across the community. The

relationship between a renewed MEOPAR and each major component of the ocean community will differ somewhat, and it is the skill in finding common interest amongst them to develop an integrated solution to the ocean related challenges that is needed.

In the development of this Strategy, extensive consultations were undertaken across the ocean community. The *What We Heard* report provides an analysis of common themes and recommendations, both on what should be kept in a new MEOPAR organization if at all possible and what might be added to the agenda in an effort to establish value propositions. The *What We Heard* report cited many respondents acknowledging the strong networking strengths of MEOPAR with a wide range of partners, which will be invaluable as relations seek to be renewed under a new organization. The report also stated that MEOPAR has been exceptionally effective at tying the many threads of ocean and coastal science together into a cohesive and comprehensive body. From micro-organisms to coastal communities, from ship-based to satellite sensors, from data to policy, MEOPAR addresses nearly every aspect of coastal science in Canada and helps coordinate researchers to address shared goals.

The *What We Heard* report also provided insight into future relations with government, academia, industry, and institutes/institutions that would be valuable in the renewed MEOPAR organization. The following sections of the Strategy address considerations on how the proposed value propositions could be further expanded through relationships with these four important sectors—governments, academia, industry and institutes/institutions. In addition, consideration should be given by the renewed MEOPAR organization to possible relations with coastal communities, as well as Indigenous organizations and communities (many of which are coastal) as they will be on the front-line of climate change. They could be significantly impacted by changes in the coastal ocean environment and should be supported in adaptation needs to these changes.

## Relations with Governments

In regard to the relationship with government, the new MEOPAR organization should aim to become the national integrator or “national glue” within Canada, working closely with the federal government departments with, for example, mandates for enhancing the Canadian Integrated Ocean Observing System, understanding and adapting to climate change, supporting the UN Decade for Ocean Science and other related responsibilities. The role would be to tie all the various ocean science organizations together in support of the major national policy priorities. In the coming months, there will be significant opportunities (e.g. the emerging [Blue Economy](#)) for a future MEOPAR organization to engage in the high priority policy challenges facing Canada and where Canada has made national and/or international commitments. This will involve working with the major government client departments to establish specifically what needs to be accomplished and then facilitating the development of a team from across the science community to deliver accordingly. It will be challenging for governments to achieve these policy goals on their own and organizations like a new MEOPAR will be critical to success in going forward. At the Government of Canada level, these emerging policy challenges include, but are not limited to, the following:

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## OCEAN OBSERVING

Fisheries and Oceans Canada has recently announced funding for the Canadian Integrated Ocean Observing System (CIOOS) that complements the funding from the current MEOPAR NCE and Hakai Research Institute. This combination of financial investment in an open-access national system for ocean observations supports a variety of economic sectors and research efforts to understand, monitor and manage activities in the marine and coastal environments shows a strong federal priority. There are opportunities to further expand and enhance CIOOS, beyond their vision of a fully integrated and sustained online ocean observing system, to provide national coordination to establish and maintain standards, to further develop collaboration and development of observation technology (the current MEOPAR has done some outstanding networking and coordination surrounding ocean glider technology across Canada), identify both knowledge and science gaps and provide liaison to the Global Ocean Observing System (GOOS), all of which is still required. Another area of exploration is the coordination of Canadian ocean observations for real-time predictions and forecasts by the ECCC Meteorological Services of Canada and DFO Ocean Sciences for weather, ocean and climate modelling.

## UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

The United Nations proclaimed a Decade of Ocean Science for Sustainable Development (the Decade), to be held from 2021 to 2030. The Decade will provide a common framework to ensure that ocean science can fully support countries' actions to sustainably manage the ocean and more particularly to achieve the 2030 Agenda for Sustainable Development. In the September 2020 SFT, the Government of Canada spoke of the Decade by saying, "We will leverage the UN Decade of Ocean Science for Sustainable Development and the body of knowledge commissioned by the Ocean Panel to build collective understanding and knowledge of ocean sustainability, ecosystem services and functions, and ensure that science underpins decision-making for building a sustainable ocean economy." The Decade will be another major policy initiative for Canada both at the international level, as well as nationally, on which the new MEOPAR organization could be active given their demonstrated success at networking and collaborating across the Canadian ocean science community.

## CLIMATE CHANGE

Climate change continues to be priority of the Government, and in the September 2020 Speech from the Throne (SFT), the Government of Canada committed to "*Taking Action on Extreme Risks from Climate Change*." Under this broad heading, significant opportunities will open up for contributions from a new MEOPAR organization. In addition, in the fall of 2020, ECCC released the report Climate Science 2050: Advancing Science and Knowledge on Climate Change. There will also be potential opportunities for a new organization to partner with ECCC and its associates to deliver on climate change initiatives.

## BLUE ECONOMY

The Blue Economy is an emerging concept which encourages better stewardship of our ocean or "blue" resources. Again, in the September 2020 SFT, the Government stated that they "will look at continuing to grow Canada's ocean economy to create opportunities for fishers and coastal

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communities, while advancing reconciliation and conservation objectives. Investing in the Blue Economy will help Canada prosper.” The Blue Economy concept is gaining momentum at global, regional, national and local levels. Canada, and the other 53 Commonwealth countries, have signed the Commonwealth Blue Charter that highlights the close linkages between the ocean, climate change, and the well-being of the people. Over the coming months, the Government of Canada will need to move forward on the Commonwealth Blue Charter and other commitments relating to the Blue Economy such as those stated in the 2019 mandate letter to the Minister of DFO stating that the Minister “Lead, with the support of [4 other federal Ministers], and in consultation with provinces and territories, Indigenous Peoples and business stakeholders, in developing a comprehensive blue economy strategy to help guide future government actions and investments that enable Canada to grow its ocean economy to create good middle class jobs and opportunity for coastal communities while advancing our conservation objectives.” As this Blue Economy priority is advanced within governments, opportunities should be sought for collaboration and contribution to the priority.

## HIGH-LEVEL PANEL FOR A SUSTAINABLE OCEAN ECONOMY, MANAGEMENT OF THE ECONOMIC ZONE

Canada’s Prime Minister, along with 13 other heads of state and governments, is a member on the High-Level Panel for a Sustainable Ocean Economy (the Ocean Panel). Representing nations from across all ocean basins, the Ocean Panel has made several significant commitments that represent real opportunities for a future MEOPAR organization. These commitments were released in a document, *Transformations for a Sustainable Ocean Economy: A Vision of Protection, Production and Prosperity*,<sup>6</sup> which was published on December 2, 2020. Within the Government of Canada, the 2019 mandate letters to both the Minister of DFO and the Minister of ECCC addressed the high priority of ocean conservation and provided the following specific action. The two departments were asked to work with one another “to introduce a new ambitious plan to conserve 25 per cent of Canada’s land and 25 per cent of Canada’s ocean by 2025, working toward 30 per cent by 2030. This plan should be grounded in science, Indigenous knowledge and local perspectives.” As the Government moves forward with this ambitious agenda on ocean conservation, opportunities should be sought for collaboration and contribution to the priority.

The above examples from the federal government-level are presented at a high policy level. The more detailed commitments associated with these policy initiatives are often provided in mandate letters from the Prime Minister to his respective Cabinet ministers.

### CONNECTING WITH DEPARTMENTAL SCIENCE ADVISORS

Many science-based departments have recently appointed departmental Science Advisors (e.g. Dr. Paul Snelgrove, DFO; Dr. Shawn Marshall, ECCC) who are working within and across federal departments to promote scientifically informed advice to the policy realm. They report to the respective Deputy Ministers and have a strong working relationship with the Chief Science Adviser of Canada, Dr. Mona Nemer.

Engagement with the Science Advisors would be advantageous in reaching within federal departments as well as connecting with the office of the Chief Science Adviser.

6 <https://www.oceanpanel.org/ocean-action/files/transformations-sustainable-ocean-economy-eng.pdf>, report from the Ocean Panel, <https://www.oceanpanel.org/>, December 2020

These commitments should be followed by MEOPAR to direct the new organization's activities; this will ensure that the new activities are directly relatable and contributing to the various emerging policy and program commitments of the Government of Canada.

In addition to the federal government priorities, attention should also be directed to provincial, regional, municipal and local governments where science-based decisions are required on a range of ocean-related challenges, including sea-level rise; emergency preparedness and response to marine hazards; coastal flooding; new economic opportunities; and more.

## RECOMMENDATION #6

To set attractive value propositions for consideration by governments across the country, it is recommended that MEOPAR closely monitor future SFTs, mandate letters, budget speeches etc. to establish and maintain alignment between their activities, expected outputs, anticipated outcomes and the Government's stated goals and objectives. In addition, the policy and program intentions of coastal regions, including the provinces and territories, should also be monitored. This could be a responsibility of the recommended Government Relations position.

## Relations with Academia

In regard to relations with academia, the new MEOPAR will need to look at continued partnering and collaboration across the ocean science community to deliver required research. This is a strength of the current MEOPAR and the organization will need to build upon the existing MEOPAR academic network, as appropriate, to draw researchers into the major projects that need to be accomplished in responding to the policy needs of government and the operational needs of industry.

The new MEOPAR's role will be two-fold in this relationship: (a) helping to establish the R&D agenda through liaison with all four sectors of the Venn diagram, Figure 1, and (b) helping academics find the resources necessary to undertake the research activities. The term "helping" is intentionally used in the prior sentence as the academic organizations should help with this regard as well as the academic researchers themselves. Academics and their institutions are increasingly concerned in demonstrating their relevance to government policy priorities. This could be assisted via a coordination, liaison, and networking role for MEOPAR. The academics and their respective institutions need to bring the HQP, science infrastructure, tools models etc. needed to accomplish the various objectives.

There may also be an opportunity for a renewed organization to work closely with the academic community in regard to training. It is a strength that the current organization has developed, and one for which a gap continues to exist. During the consultation phase in the development of this Strategy, the training opportunities that MEOPAR offered and facilitated were considered by many individuals as very successful and should be included in a future organization. This suite of actions included coordinating training opportunities and facilitating additional activities beyond the formal training activities such as internships, workshops, supporting travel to appropriate conferences and events, and developing networks (e.g. the Communities of Practices). This work was seen as an excellent and complementary feature to the classical higher education.

MEOPAR has also demonstrated success in the training of students (Bachelors, Masters, Ph.D. and Post-Doc) via their participation in funded research projects. Excellent training opportunities have also

been provided to early career scientists where they have been enabled to work inter-disciplinary and multi-sectoral thereby creating a new generation of scientists. There may be opportunities to include aspects of training under any of the value propositions that would be developed.

Another relationship that could be nurtured by a renewed organization is the training of ocean science practitioners within both government departments as well as industry. These training opportunities would need to be confirmed with other ocean science community players and could be associated with technology associated with new and expanding earth observation technology (i.e. acquisition and interpretation of data from satellites, ocean gliders, etc.); data management and programming; laboratory techniques and more.

The consultations conducted in development of the Strategy frequently referenced the success of the MEOPAR Communities of Practice (CoPs) and their value in the ocean science community. There was support that a future organization could continue to facilitate their growth and development, especially in a national scope. The CoPs are considered as a strength of MEOPAR and have proven to be of real value across the community yet again demonstrating the ability of MEOPAR to network and collaborate with a wide range of partners across space, discipline and sector.

The MEOPAR CoPs have helped to mobilize knowledge, enrich research and encourage collaboration between academics, practitioners, policy-makers and community groups by bringing together ocean science related expertise. They have served as an ideal opportunity to inform MEOPAR researchers about new developments and information gaps.

### COMMUNITIES OF PRACTICE (COPS)

The CoPs created over the past ten years have served as an ideal opportunity to inform MEOPAR researchers about new developments and information gaps. Each CoP operates independently as a grassroots initiative, supported by MEOPAR. The CoPs have been formed to work on a wide range of issues including ocean acidification, climate risk for coastal transportation infrastructure, marine shipping risk, ocean gliders, ocean data management, and more.

## Relations with Industry

Marine industry represents a significant opportunity for a new MEOPAR as it represents a relatively untapped resource of client needs that the organization could effectively respond to. It was noted during the development of this Strategy that the effort to engage industry directly was not a hallmark of NCE success in general and that it would take extra and specific effort by a new organization to achieve this. It was observed in the consultation phase that a new MEOPAR organization would have to be overt in approaching industry from the perspective of understanding and helping to solve their problems rather than looking for industry to support science activity already planned. It therefore means that this approach would require the conversation to become industry-centric rather than R&D-centric.

As indicated in the *What We Heard* report, the most frequently referenced ocean industries included shipping and ports, transportation and ferries, fisheries and aquaculture, tourism and recreation,

offshore resource extraction (e.g. oil industry). The purpose for this partnering was considered by respondents to be for current sea conditions and long-term climate change impacts (i.e. sea level rise, tidal changes, impacts on marine species, etc.) followed by other marine hazard information (i.e. animal contacts) and emergency response (i.e. oil spills), and weather data/storm events. Less commonly cited partnering examples included environmental pollution mitigation and adaptation, tracking ship traffic, and potential impacts to ports, transportation system, logistics in the event of a major coastal hazard event.

A strong possibility for enhanced collaboration with the industry partners relates to ocean science infrastructure. For example, ocean-going research vessels are a key component of marine science research infrastructure. Vessels and their associated equipment play a key role in supporting and enabling ocean and coastal research and monitoring activities. Within Canada and at the international level, challenges such as aging fleet and equipment, and increasing costs of operation, are facing this critical infrastructure. There are now serious limitations in terms of geographical/ temporal availability of vessels, flexibility of use, and multi-sectoral access to available capacity. The renewed MEOPAR could continue in their efforts to address this challenge, including leadership of the National Research Vessel Task Team (NRVTT). The NRVTT has representation from end-users and other interested parties across Canada, and together, they work to propose practical solutions to address the immediate capacity crisis. The efforts focus on the larger vessels required for offshore research and include consideration of the needs of users in academia and the private sector as well as different levels of government.

Another example, that is co-led by MEOPAR with multiple partner participation and that could be expanded in the future, is the Modular Ocean Research Infrastructure (MORI) initiative. The MORI initiative is designed to develop containerized labs that could be placed on “workhorse” industry and possibly naval vessels in order to convert them into sophisticated research vessels on a temporary, as-needed basis. In this way, both ocean industry and/or the Navy could help satisfy their own research needs as well as support the broader ocean science community’s needs. The ability to have mobile research infrastructure that could be placed on workhorse vessels offers a means of supporting modern ocean research by many countries worldwide that do not currently have access to specialized research vessels, including developing countries.

In terms of the future focus of a new MEOPAR, the insurance industry was identified during the consultation phase as a future potential client and partner. The insurance industry could be a key networking partner especially as it relates to risk for coastal communities and issues such as sea level rise, flooding potential, increased storm damage, etc. The Insurance Bureau of Canada could be a contact point to start this conversation.

There are further opportunities in supporting ocean industrial needs for information. This can only be realized through an overt connection with industry associations and companies large enough to be partners in their own right. The approach will have to be industry-centric with the reinvented MEOPAR seeking to understand their needs and developing the necessary resources, both HQP and financial resources,

#### OCEAN SCIENCE INFRASTRUCTURE NEEDS

A renewed MEOPAR is well positioned to expand on their existing collaboration with industry partners via the Modular Ocean Research Infrastructure initiative and the National Research Vessel Task Team.

to respond accordingly. This offers an opportunity to generate revenue and significantly increased profile that could become a self-fulfilling part of the new MEOPAR's business. Depending on the information needed by industry, this could either be done on a project-by-project basis or may lend itself to a subscription approach whereby for so much a month / year, the companies involved have privileged access to the information they need. The Canadian Water Network<sup>7</sup> provides such an approach. A subscription might also give clients a "seat at the table" to help prioritize ongoing work. All options and combination of options should be considered, including either one or both (e.g. project-by-project and subscription/membership) approaches.

In the new relationships with ocean industry, the renewed MEOPAR will need to support industry's needs and should also consider potential commercialization through institutions such as COVE and/or Canada's Ocean Supercluster. Another possibility for consideration is the creation of a partnership with an industry facing organization such as COVE or the Ocean Supercluster to facilitate the commercialization of new products and services from the ocean science community. The partner would be industry-facing and the new MEOPAR would be R&D- facing across the innovation ecosystem in Canada.

### INSURANCE INDUSTRY

In terms of the future focus of a new MEOPAR, the insurance industry was identified during consultations as a potential client and partner associated with risks to coastal communities and sea level rise, flooding potential or increased storm damage.

## Relations with Institutes/Institutions

In regard to the new MEOPAR's relations with ocean related institutes and institutions (including the many networks), there should be an integrated approach to the specified needs in government and industry that play to the strengths of the institutes and institutions such as OFI, ONC, RQM, ArcticNet, Canadian Healthy Oceans Network, etc. As part of their successful networking and collaboration skills, the current MEOPAR has demonstrated success in partnering with ocean science institutions such as ONC and RQM on joint research calls.

In this role, the new MEOPAR could become a virtual organization, with resources responsible to work and liaise with key institutes, such as ONC, OFI, RQM, and Arctic Net, to support programming. Using the language of collective impact, the new MEOPAR organization would become a distributed backbone organization, with sufficient resources to support its management and administrative core. Collective impact is a structured framework that connects different organizations in pursuit of a common goal.

Experience has shown that national-level coordination is difficult; forging and maintaining a network takes time and requires vision and persistence. The backbone organizational component would be based on dedicated and capable staff, possibly embedded, in part, within key partner organizations, funded from new MEOPAR core resources. The distributed staff could plan, manage, and support collective efforts through ongoing facilitation, technology and communications support, data collection and reporting. The model is not dissimilar to the regionally distributed model initiated for CIOOS.

<sup>7</sup> Canadian Water Network, <https://cwn-rce.ca/>

Under a renewed MEOPAR, core funded positions within associated partners could support national integration and deepen regional/disciplinary/sectoral ties.

Under this model, the renewed MEOPAR would offer no independent programming that was not sponsored by, useful to, or done in partnership with one or more of the partnered institutes. Some staff of the new MEOPAR could work on site of one of the partnered institutions, to pursue the national network-building activities.

This structure would allow and encourage involvement of researchers from organizations across Canada, including those not currently involved with the partner organizations. In fact, the purpose of the renewed MEOPAR model is to help resource the partner organizations to pursue further national collaborations and connections with the many marine science and training organizations in Canada.

## Relations with Indigenous Communities

There are opportunities for a renewed MEOPAR organization to build stronger linkages and work closely with Indigenous communities from several perspectives. One area that could be explored is that traditional knowledge from Indigenous knowledge holders is not yet well integrated with western knowledge. As ocean management and decision-making are growing increasingly complex, all-available and integrated knowledge needs to be on-hand to address these broad challenges. The new organization could seek to integrate nascent activities already underway within government and in various institutions to address this need.

In regard to ocean science priorities of Indigenous communities, the *What We Heard* report highlighted that priorities would need to be co-identified and work activities co-designed with the communities. Respondents to survey questions rated several priorities of Indigenous communities in a near equal status - emergency preparedness and environmental response were the top two priorities, followed closely by improved environmental predictions, public safety, and understanding the ocean and ecosystems. Other suggestions for topics included: pilot projects in climate change adaptation planning; sharing knowledge, experiences and science to understand the impacts on their communities and traditional life; as well as opportunities to increase Indigenous research leadership, and the ability to influence policy.

## Relations with Coastal Communities

Coastal communities represent a segment of the Canadian society that could be significantly affected by changes in the ocean environment. In defining who coastal communities might be, the *What We Heard* report described these as including: communities situated near, or reliant upon access to the coasts; communities vulnerable to coastal and marine hazards; and communities focused on tourism and recreation along our coasts. More specifically, they were described as including municipalities (ranging from large cities such as Vancouver, Montreal and Halifax to small coastal towns), local service districts, planning commissions, associations and public or private entities like ports, etc., all of which are interested in the climate and environmental conditions affecting their operations. It was

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noted that the communities vary across the country and so they will have different structures and needs. The *What We Heard* report highlighted various possible needs that could be fruitful discussions in expanding relations with coastal communities. These areas included: better understanding of shared coastal/marine environments; environmental protection; protection of marine transportation and shipping access; preparedness and response to coastal/marine hazards by governments, industry and civil society; job creation and protection as well as risk management, response preparedness, prediction of what might come in the future (prediction) regarding the impact of climate changes on their community. Economic growth and concerns over a healthy environment are important for strong viable coastal communities. Interest is expected to be strong amongst communities in discussions relating to Canada's Blue Economy strategy and ocean-related economic growth. Like industry, this sector will require dedicated effort that is community-centric to fully understand their needs and develop practical solutions.

## Governance Considerations

The new MEOPAR will need two key components from a governance perspective—firstly resources, and second, a clear mandate from the Government for the “national glue” strategy to be effective. The mandate will need to spell out the government’s expectations of the new organization as well as the authority under which the new MEOPAR is bringing expertise together to find solutions to major policy priorities.

The most likely governance structure will be as a Not-for-Profit, as the current MEOPAR is now; however discussion with Dalhousie University, as the host academic institution, will need to determine if such an affiliation with the university will be maintained and if so, in what fashion. The determination of governance structure will also dictate what “in-kind” contributions to the new organization might be provided from the university.

In a Not-for-Profit model, ISED requirements for incorporation must be adhered to; this will demand appropriate officers of the corporation and a Board of Directors.

The selection of Board members, in addition to the Chair of the Board, are critical decisions and need to reflect the make-up, vision, and mandate of the new MEOPAR. Board members could be made up of the most significant potential partner organizations such as ONC, RQM, OFI, supported by senior staff from key government departments and industry representatives. Other members might include Indigenous, coastal community and academic representation. The Board Chair should be an independent individual not directly affiliated with an existing ocean science organization. Consideration should be given to adding new members to the Board (e.g. members with strategic knowledge of potential networking partners) during the upcoming transition months.

As the organization matures and takes on specific program level coordination activities, additional Directors and staff could be added. Furthermore, there has been discussion that without a specific research agenda of its own within the new MEOPAR, a Scientific Director may not be necessary, possibly to be replaced with a Science Coordinator/Director position with different skill sets.

New governance considerations and requirements will likely be associated with any new collaborative agreements that are negotiated with governments. As Memoranda of Understanding and other formal

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arrangements are negotiated, new considerations will be developed. For example, the receipt of grant funding from programs such as the New Frontiers Research Fund would have specific governance requirements associated with them.

Another consideration with regard to governance of the future new organization is the need to establish a transparent and effective evaluation tool that will assess the impact of the organization. These evaluation tools should be established in the initial days of a new organization so as to orient programming towards measurable impact from the start. The example of the Canadian Academy of Health Sciences framework<sup>8</sup> was referenced during the consultation phase. The Health Sciences framework identifies three impact categories: advancing knowledge, capacity building, and informing decisions. Each category has sub-categories and key performance indicators that could be adjusted to be applicable to a renewed MEOPAR organization.

## Considerations of Revenue Sources

Recognizing that a future MEOPAR will most likely be funded under a range of funding mechanisms with different timelines, unique deliverables and various criteria associated with the funding, the following approaches should be considered:

- Direct negotiation with government departments: ISED, DFO, NRCan, ECCC and TC are all possibilities or better still a coalition with some or all of these departments. It would be considered appropriate to start with DFO given the Department's natural affinity with the Strategy and to then expand to other departments.
- The second priority would be to negotiate directly with ISED recognizing that there is a growing awareness of the need to support administration and management of government funded institutes and institutions and they hold the "Policy for Science" mandate for the Government of Canada.
- Application to granting opportunities should be considered. For example, the New Frontiers in Research Fund, managed by SSHRC, could be a source for platform level funding, particularly the Transformation section of the fund. The Alliance grants, managed by NSERC, could be a funding source for individual project level activities.

*\* NOTE: Both funds could be accessed immediately without waiting until the NCE funds are fully used as long as the applications are carefully crafted to be demonstrably different from activities that MEOPAR is currently responsible to deliver under the NCE program.*

- A subscription or membership strategy, modelling after the Canadian Water Network, could be developed for organizations that want/need regular marine related data and information. These could include Indigenous and coastal communities, provinces and major coastal municipalities and various aspects of the marine industry (shipping, ferry service, fishing fleets, offshore facilities etc.) During the consultation phase in the development of the Strategy, several respondents who had experience with a membership or subscription mode of funding spoke of this model as another possible approach to funding a new MEOPAR organization.

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- Direct support of projects from the marine industry (i.e. payments made for something specific that they need done). This approach could also apply to provinces and territories, as well as individual government departments or agencies - although in this latter case this arrangement would likely be in response to a Request for Proposal (RFP) or the occasional sole source contract.
  - Commercialization of new products and/or services developed as a result of the ongoing work of the organization and its collaborators.

*\* NOTE: Intellectual Property (IP) will have to be negotiated at the outset of any contracting arrangements.*

- Philanthropic and sponsorship opportunities should also be explored in a more aggressive fashion.
  - Crowdsourcing is an emerging means of securing resources and the creation of the Fathom Fund by the current MEOPAR has demonstrated that the Canadian public is willing and able to provide funds to projects which they consider as priority. Further consideration of these types of alternative funding options should continue to be considered.
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# ANNEX 1: Potential Value Propositions

This Strategy recommends that MEOPAR establish one or more value propositions that would be the basis for negotiation with federal government departments in an effort to establish the new organization that will replace MEOPAR as the NCE funding expires. Once the value propositions are established, by building upon existing expertise and capabilities such as networking skills and the Communities of Practice (CoPs), they will need to be marketed and grown so as to create the core management and administrative capability of the new organization. The value propositions and other related activities can then be further expanded as various ocean community clients and partners with their respective needs are brought on board.

Three potential value propositions that could be undertaken by MEOPAR are detailed below. It is recommended that MEOPAR work up all three and that they should be integrated to an appropriate degree. These value propositions would initiate the development of the new organization remembering that they must respond specifically to client and partner needs as well as be activities that MEOPAR is both willing and capable of undertaking. The series of bullets identified with each potential value proposition are intended as “guide posts” that would assist MEOPAR in identifying and developing possible features that could be brought to future partners for development and negotiation.

These three potential value propositions are reflective of the current landscape in Canada and represent a snapshot in time in the first quarter of 2021. As MEOPAR looks to evolve over the coming months, constant monitoring for new opportunities will need to take place on an ongoing basis.

## **Potential Value Proposition: Enhancing the Canadian Integrated Ocean Observing System**

One potential value proposition that appears to be strongly supported across the ocean community, is enhancement of the nascent Canadian Integrated Ocean Observing System (CIOOS). Three regional nodes (Atlantic, Gulf of St Lawrence and Pacific Regional Associations), designed to operationalize CIOOS, are already in place and were recently recipients of additional funding from DFO. In addition to the Regional Associations, current efforts are also being expended on a National Web Presence to address cross-cutting work on cyberinfrastructure, data visualization and related tasks. It is also necessary to provide national coordination to establish and maintain standards, support the ongoing development of observation technology, identify both knowledge and science gaps, and provide liaison to the Global Ocean Observing System (GOOS) as well as all-scale regional observing efforts (e.g. the European Union’s All-Atlantic Ocean Observing System, AtlantOS).

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The future CIOOS value proposition could be framed in the national interest by building upon and then going beyond the current MEOPAR and DFO relationship.

The potential federal government clients for this coordinated approach would certainly include DFO, but also ECCC with both their Meteorological Service and Science and Technology mandates, as well as other federal departments such as Natural Resources Canada and Transport Canada. While it is recommended to start with the federal government departments, other potential clients of an ocean observing system should be explored including provinces and territories, coastal municipalities, offshore energy infrastructure and the marine industry. Each potential client would have specific information requirements depending on their respective mandate and so the provision of services would have to reflect those needs. This approach might also open the opportunity for a subscription-based revenue source for those not already supporting the operations of CIOOS.

It is recommended that a value proposition be developed that would position the new organization as the National Integrator in support of the ocean observing networks in Canada that will bring the existing networks together to address societal challenges. The current MEOPAR has demonstrated skills in networking across science sectors and disciplines and is in an excellent position to carry these skills into observing networks.

Potential features of such a value proposition could include the following:

- National coordination to establish and maintain standards and support the ongoing collaboration and development of observation technology such as the current MEOPAR has done via the Community of Practice on ocean glider technology across Canada.
  - Deepen the engagement of and contribution from, academic and institutes/institutions (e.g. existing networks) partners in CIOOS through networking with these new partners.
  - Digital knowledge management of ocean data is increasingly being adopted by international organizations (e.g. UNESCO IOC GOOS program, UN Decade of Ocean Science). CIOOS should seek synergies, with organizations such as CANARIE to find new opportunities in moving, accessing, and storing ocean data so that it is available for decision making purposes. MEOPAR could be the facilitator in linking the Ocean Supercluster with the Digital Supercluster to provide a focus on ocean data, with CIOOS as a key partner.
  - Ocean observations are the first step in a logic formula of “Observing drives Predictions which drives Resilience.” CIOOS efforts could expand to predict future changes. The changes give people, municipalities, companies, agencies etc. time to respond to anticipated changes to maintain their resilience: Fishers can continue to fish; communities can protect themselves from increased and more serious storm events; the country, the territories, the communities and the people can all adapt to predicted changes in the Arctic. Predictions can be short, medium and long term—each valuable in their own way in maintaining resilience.
  - Work to address the big data gaps for tactical decisions in the marine industry—for safety, economic and environmental aspects. These also link with the emerging Blue Economy discussions and priorities.
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- Identify both knowledge and science gaps and provide liaison to the Global Ocean Observing System (GOOS), and other regional observing networks (e.g. the European Union’s AtlantOS, the Arctic Council’s Sustaining Arctic Observing Networks (SAON), etc.).
- Coordination of Canadian ocean observations for real-time predictions and forecasts by the ECCC Meteorological Services of Canada and DFO Ocean Sciences for weather, ocean and climate modelling.
- Using ocean observations as the first step, develop “products and services that are fit for purpose.” Collaborate with the CONCEPTS partnership initiated between ECCC, DND and DFO that is focused on addressing challenges such as: what are the products and services; who uses them; what role does the outside government community play; do the products and services fit the purpose for which they are designed.
- Supporting Canada’s input to earth system weather and climate modelling through ECCC’s Meteorological Service to drive predictions that in turn will drive society’s resilience to changing climates.
- Utilizing existing networking skills to expand CIOOS into new regions and creation of new regional Associations (e.g. Arctic).
- Maximizing the benefits of ocean observations for ocean predictions and societal impact, by building upon the needs of potential client mandates (provinces, territories, industry).
- An understanding of the ocean and human health as a new relatively unexplored dimension of ocean science (e.g. possible source of new medicines)
- Ground truthing the use of earth observation satellite data as an ocean monitoring technique
- The use of satellite data to enable ship tracking as a new means to manage marine traffic and any possible associated challenges (e.g. ship spills, emergency response)
- Working in collaboration with other ocean observing efforts to build fit-for-purpose ocean observations relevant to societal challenges
- Linking with international science efforts (e.g. specific science programmes under the UN Decade on Ocean Science, including ForeSea, CoastPredict.org).
- Enhancing capabilities in the social sciences to help both understand policy and operational needs as well as translate results to the user communities

The value proposition would have to identify these and other related challenges and then demonstrate how the new MEOPAR organization would go about developing the solutions through networking, facilitating and collaborating across the ocean community, including academia, industry, government and network institutions.

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## **Potential Value Proposition: Partnering with Fisheries and Oceans Canada on the UN Decade of Ocean Science, as the Ocean Community Partner**

It is recommended that a value proposition be developed that would position the new organization as the National Integrator and Ocean Community Partner to Fisheries and Oceans Canada (DFO) for the purpose of helping facilitate and coordinate Canada's contribution to UN Decade on Ocean Science. The current MEOPAR has strong network contacts across Canada and has demonstrated success in co-designing projects and addressing science issues with academic and community partners across the country, including both individual academic efforts as well as academic-led networks such as Ocean Networks Canada, Ocean Frontiers Institute, Réseau Quebec Maritime and ArcticNet, Canadian Healthy Oceans Network, and more. Working closely with DFO, as the federal lead on the Decade, possible features of the value proposition could include the following:

- Become the one-stop-shop Ocean Community Partner, with whom DFO could work to deliver all aspects of the UN Decade.
- Serve as the liaison between the federal government and the academic-led networks and institutions for both the benefit of the various networks as well as enhancing Canada's contribution to the UN Decade efforts.
- Monitor the development of Decade programs and projects and ensure full and timely engagement from Canadian partners across the ocean community to further the work of Canadian efforts and contribute to the global efforts
- Collaborating with DFO to effectively and efficiently ensure that Canadian academic and ocean community expertise is leveraged into international UN Decade programs and projects – thereby providing Canadian knowledge to the challenges and enhancing the Canadian contributions.
- Collaborating with DFO to communicate Canada's efforts in support of the UN Decade to Canadians and our international partners.

The value proposition would have to identify these and other related challenges and then demonstrate how the new MEOPAR organization would go about developing the solutions through networking, facilitating and collaborating across the ocean community, including academia, industry, government and network institutions.

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## Potential Value Proposition: Supporting Environment and Climate Change Canada on Climate Change Science

*“The ocean influences weather and climate by storing solar radiation, distributing heat and moisture around the globe, and driving weather systems.”*

—Office of Ocean Exploration and Research, National Oceanic and Atmospheric Administration (NOAA)

A combination of the 2019 Mandate Letter and the 2020 Supplementary Mandate Letter for the Minister of Environment and Climate Change Canada state the following:

*“In close collaboration with all colleagues, implement the government-wide climate plan to exceed Canada’s 2030 climate goal, A Healthy Environment and a Healthy Economy. Work with provinces and territories, Indigenous Peoples and stakeholders on advancing climate action.”*

*“Work with the Minister of Fisheries, Oceans and the Canadian Coast Guard to introduce a new ambitious plan to conserve 25 per cent of Canada’s land and 25 per cent of Canada’s oceans by 2025, working toward 30 per cent of each by 2030. This plan should be grounded in science, Indigenous knowledge and local perspectives. Advocate at international gatherings that countries around the world set a 30 per cent conservation goal for 2030 as well.”*

*“Support the Minister of Transport and the Minister of Fisheries, Oceans and the Canadian Coast Guard in implementing the Oceans Protection Plan.”*

Environment and Climate Change Canada recently released the report Climate Science 2050: Advancing Science and Knowledge on Climate Change which, under the heading of Earth system climate science, states:

*“Work is needed to reduce uncertainties related to the magnitude, timing, and impacts of future change and the prediction of climate extremes, floods, droughts, and wildfires. This research will enable a better understanding of the influence of climate change on permafrost, glaciers, oceans, ice (sea, river, lake), and freshwater. It is also central to providing more detailed and tailored sector-based information. Research is also needed to evaluate the effectiveness of mitigation efforts (e.g., short-lived climate forcers, climate engineering).”*

It is recommended that a value proposition be developed that would position the new organization as the National Integrator working in partnership with Environment and Climate Change Canada (ECCC) to respond to the challenges outlined above in both the Minister’s Mandate Letter and the Climate Science 2050 report.

Features to consider in preparing this value proposition for climate change include:

- Consider both mandated aspects of ECCC:
  - The Meteorological Service requires significant ocean data to support both weather and climate predictions for its primary mandate. They work at regional, national and global scales.
  - The Science and Technology Branch will be leading the development of an Implementation Plan to move forward with the Climate Science 2050 report. This Branch should be approached to explore opportunities as they will need ocean science results to support the Implementation Plan.

- There are many gaps in our knowledge of the impacts of climate change on the ocean and vice-versa - the role of the ocean in climate change. As the Government of Canada moves forward with its priorities, opportunities will emerge where the new organization could serve as the national integrator. Possible examples could be new or continued Communities of Practice that might include: ocean acidification (changes in the ocean and impacts on marine ecosystems);
- Changing ocean conditions are influencing global, regional and local weather predictions. The MSC is facing a grand challenge of feeding earth system modelling and therefore having an intense interest in the assimilation of associated data. In a marine context, the importance of data on ocean processes, ocean data itself, ocean-atmosphere and ocean-ice interactions and are all critical elements to this grand challenge at both the national and international (World Meteorological Organization) levels.
- A key to a sustainable ocean future is dependent on good data driving predictive modelling. Improved ocean-based modelling and predictions will be key for that future.
- The Ocean Protection Plan (OPP) is likely to receive a one-year extension in Budget 2021 as a replacement/extension for the OPP is developed. Significant collaboration across ocean science community will be necessary to implement such an extension / replacement program.
- Supporting the 25% and 30% ocean conservation goals will demand physical (e.g. salinity, temperature), chemical (e.g. acidification) and ecosystem (e.g. biological, nutrient) parameters to be identified and measured for success.
- As the Blue Economy Strategy for Canada takes shape, the ability to understand the impact of commercial activities on the ocean's characteristics, biota and ecosystems will be necessary to ensure that blue economy activities are not having a negative effect on the ocean environment (e.g. increased hazard risks, pollution, whale strikes, etc.)
- New initiatives should be monitored (e.g. Nova Scotia Climate Change Centre initiative, Digby, N.S.) to identify possible strategic alignments that could be nurtured and developed.

The value proposition would have to identify these and other related challenges and then demonstrate how the new MEOPAR organization would go about developing the solutions through networking, facilitating and collaborating across the ocean community, including academia, industry, government and network institutions.

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