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## **Canadian Science Advisory Secretariat (CSAS)**

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**Maritimes Regions**

### **Proceedings of the Regional Peer Review of the Biophysical and Ecological Overview of the Eastern Shore Islands**

**March 20–21, 2018**

**Dartmouth, Nova Scotia**

**Chairperson: Tana Worcester**

**Editor: Jennifer Ford**

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## Foreword

The purpose of these Proceedings is to document the activities and key discussions of the meeting. The Proceedings may include research recommendations, uncertainties, and the rationale for decisions made during the meeting. Proceedings may also document when data, analyses or interpretations were reviewed and rejected on scientific grounds, including the reason(s) for rejection. As such, interpretations and opinions presented in this report individually may be factually incorrect or misleading but are included to record as faithfully as possible what was considered at the meeting. No statements are to be taken as reflecting the conclusions of the meeting unless they are clearly identified as such. Moreover, further review may result in a change of conclusions where additional information was identified as relevant to the topics being considered, but not available in the timeframe of the meeting. In the rare case when there are formal dissenting views, these are also archived as Annexes to the Proceedings.

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## SUMMARY

The Maritimes Regional Peer Review of the Ecological and Biophysical Overview of the Eastern Shore Islands focused on presenting the Eastern Shore Islands as an Area of Interest (AOI) for potential Marine Protected Area (MPA) designation under *Canada's Oceans Act*. The meeting was held on March 20–21, 2018, at the Delta Hotel, Dartmouth, Nova Scotia. Participants presented and discussed the key physical and biological components, known sensitivities, key uncertainties, knowledge gaps and conservation priorities of the Eastern Shore Islands ecosystem. Participants included representatives from Fisheries and Oceans Canada (DFO) (Science, Fisheries and Aquaculture, and Ecosystem Management), Canadian Wildlife Service (CWS), Nova Scotia Departments of Fisheries and Aquaculture, Environment, and Natural Resources, environmental non-government organisations, academic researchers, Indigenous communities/organizations, fishing associations, Nova Scotia Salmon Association, Atlantic Salmon Federation and other invited experts. The results of this meeting will be used to assess whether the Eastern Shore Islands AOI should be designated as a MPA.

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## INTRODUCTION

The chair, Tana Worcester, welcomed everyone and thanked them for coming. Participants introduced themselves and their respective affiliation, while a sign-in sheet was passed around the room (Appendix C). The Terms of Reference (Appendix A) for the meeting was reviewed, along with the Agenda for the meeting (Appendix B), and an overview of the science peer review process was given.

## ASSESSMENT

### PROCESS FOR SELECTING THE EASTERN SHORE ISLANDS

Presenter: Tanya Koropatnick

A brief overview was presented regarding the selection process for the proposed Eastern Shore Islands Area Of Interest (AOI) and how it relates to the Federal Government's commitment to marine conservation and coastal Marine Protected Area (MPA) network planning. Maritimes Region is divided into two MPA planning areas and include Coastal/Bay of Fundy and Offshore. Long-term monitoring exists within the offshore area, but long-term monitoring within inshore areas is sporadic and lacking information. A total of 54 Ecologically and Biologically Significant Areas (EBSAs) were identified, but not all will become MPAs. The Eastern Shore Islands AOI was narrowed down based on feasibility and a large number of potential conservation priorities. Invitations to serve on the advisory committee for research and monitoring, management, outreach, surveillance and activity approval will be sent out at a later date.

#### Discussion

There was a discussion on how the Eastern Shore Islands AOI may contribute to ecotourism and sustainable fishing but these discussion topics expand beyond the scope of this science peer review meeting.

In regard to conservation value, it was mentioned that Rockweed should have been included in the presentation.

It was recognized that the current Eastern Shore Island AOI study area was "fuzzy" with potential to change. This process is just the first step to capture what is important within the area.

There was discussion on how this potential MPA would compare with other potential MPAs and how choosing such areas are consistent across the country while being effective through monitoring. Reviewing EBSAs is the start to choosing such AOIs. This potential MPA, in particular, would aim to protect the entire ecosystem and ecosystem processes to ensure viability of long-term protection of biodiversity rather than protecting one particular species.

It was discussed whether this potential MPA is meant to be inclusive of the islands and if we should be thinking so broadly. It was recognized that we should be thinking broadly and that there is a lot of work to do and a lot of opportunity to work with the province and private land-owners on greater protection. There is a lot to be gained by protecting these islands particularly in relation to birds, which needs to be complimentary with marine protection. It was suggested that an advisory committee meeting would help to establish working relationships between organizations. However, an *Oceans Act* Marine Protected Area only extends to the low tide demarcation and does not include land.

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## **GEOLOGICAL HISTORY OF THE EASTERN SHORE**

Presenter: Ned King

The geology of the study area was presented. There was a push in the early 1990s to see what minerals might be offshore for offshore oil and gas but nothing indicated this would be a viable area for this industry. In the Eastern Shore Islands AOI, things are not changing geologically at a significant scale. Isolated tracts of multi-beam surveys were used to look at seabed topography, but once LiDAR was accessible more information of higher resolution became available. Bedrock, along with different types of tills, is found within the Eastern Shore Island AOI. In addition, more sand and gravel channels were found in this area in comparison to other areas along the coast. Moraines of all different scales are present in the area. Mapping has the potential to contribute to this potential MPA and can provide advice on the placement of cables for windmills, piping, etc. There is no potential for offshore oil and gas, but there is some gold in the area.

### **Discussion**

There was a very large geological feature (Eastern Shore moraine) presented several times but it was clarified that this does not fall within the potential MPA boundaries. However, from a biological standpoint this feature's substrate would be compact and highly variable with the potential for organisms to hold fast.

There was discussion on what terrestrial influences there are and how they relate to the potential MPA. It was recognized that, in most areas, mud lies just inside harbours but in the AOI mud extends far beyond the harbours likely because of the number of islands. As wave action increases, the mud becomes highly mobile and moves around. In addition, the drumlins are eroding and providing gravel to certain areas. In terms of nutrients, they are being recycled and reused. It was described as the balancing of energy levels.

It was recognized that inshore mapping is difficult because of the "patchy" geology. This is representative of the whole inshore area from Yarmouth to Canso.

This potential MPA is sensitive to sea-level rise. It was discussed that as sea level rises, underlying salt marshes and beaches could potentially be destroyed leading to habitat degradation of important species.

## **CLASSIFICATION OF BENTHIC HABITATS – 2007 AND 2017**

Presenter: Arianna Balbar and Herb Vandermeulen

The first presentation focused on the understanding of nearshore benthic diversity. Nine of the research sites fell within the Eastern Shore Islands AOI. For each image examined, 96 points were overlaid and species were classified under each point then divided by the number of points to get percentage cover. A lot of biogenic habitat within the potential MPA was discovered, which is a conservation priority. High variability in percent cover existed among kelp and algae species with turf algae being the most dominant species. Original data were looking at the distribution of two invasive species in the Eastern Shore Islands AOI. Potential changes now exist since these data were from 2007.

The second presentation described recent drop camera work within the Eastern Shore Islands AOI, which was completed in the fall of 2017 (further offshore than the preceding presentation). Island features were used to design transects for camera drops. This study planned 742 drops, which is a fair number given the complex coastline. However, because of various reasons relating to field work, fewer drops took place (n=466). Video data from these drop camera

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surveys are publicly available. Lobster were typically found in the shallower study sites and *Boltenia* were typically found along rocky ledges. Future deep-water research on the Perley and Hudson will take place this year and will hopefully provide more insight into how deep coralline algae go.

## Discussion

### Presentation 1:

It was discussed what invertebrates were found within the kelp. Lobster, crabs and sea stars were found but they are not confident in the invertebrate estimate as species could have been shaded by kelp and the original purpose of the study was looking at only two specific invasive species. It was recognized that it was unusual they did not see any Green Crab but this was attributed to the fact that they may not have been seen due to kelp shading.

Study sites were chosen specifically to study kelp bed presence or absence, and was not designed to look at the distribution of Eelgrass or Rockweed. It's important to discuss the rationale for why these sites were chosen in the document.

It was discussed whether the size of the kelp beds in this study were representative of other regions/areas. The kelp beds were fairly representative of kelp beds in other parts of the Scotian Shelf, including the South Shore where kelp is declining.

Some sites were resurveyed in 2015 and 2016 primarily in St. Margaret's Bay where there seems to be a shift from kelp dominated algae to turf algae. It remains unknown whether there have been similar declines of kelp in the Eastern Shore Islands AOI. Because cooler temperatures exist in the Eastern Shore Islands AOI, a phase shift to red algae may be less likely (or slower) than the South Shore of Nova Scotia because temperature seems to be the primary factor causing the shift.

### Presentation 2:

Participants were curious if fishers catch Jonah Crab and if scallops were observed in the Eastern Shore Islands AOI. It was confirmed by several sources that Jonah Crab are captured, but it is not common. Scallops were noted but they are primarily found in deep water on cobble bottom.

Confidence in the drop camera survey was discussed, and it was noted that presence/absence data were not mapped because of drift but all material found along the bottom is important ecological information in the Eastern Shore Islands AOI even if it changes daily. It was noted that lobster were found in areas with high densities of rolling detrital algae. Bottom type was also examined because biological changes occur as sediment changes.

Bottom substrate was described as being "patchy" or "quilt-like". It was noted that there were about six different patch types observed. The Eastern Shore Islands AOI exhibited a very interesting and rapidly changing bottom that was very dynamic and heterogeneous, which captured a lot of benthic diversity. Because of the high number of reefs and islands, it was possible to be about 15 km offshore and in relatively shallow water.

Concerns were raised regarding the word usage of "pristine" and "undisturbed habitat" because nearby gold mining has undoubtedly contaminated the sediment within areas of the Eastern Shore Islands AOI. However, compared to other areas along the coast, it is considered "highly natural" and "relatively pristine".

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## HUMAN IMPACT METRICS

Presenter: Grace Murphy

Seagrass ecosystems are impacted by humans. Eight human impacts, expected to negatively affect the ecosystem, were examined at the bay scale and seagrass bed scale. Petal charts were used to show the extent of individual human impacts within each study site.

Rockweed canopy height was found to be less within the Eastern Shore Islands AOI in comparison to other areas. This could be caused by lower productivity based on cooler temperatures in this area. Higher fish and animal benthic abundance was found in Rockweed in the Eastern Shore Islands AOI possibly because they are healthy and have yet to be harvested. Overall, the Eastern Shore Islands AOI is an area with low human impacts relative to other areas along the coast of Nova Scotia. This is a unique opportunity to protect an area of such high naturalness.

### Discussion

It was noted that Rockweed has been harvested for the last three years within the Eastern Shore Islands AOI, as well as in the 1990s. There was discussion on Rockweed biomass in the Eastern Shore Islands AOI versus Southwest Nova Scotia. It was suggested that biomass in the Eastern Shore Island AOI is higher in comparison to Southwest Nova Scotia, where others thought it was higher in Southwest Nova Scotia because of higher productivity. It was recognized that there are no exclusion zones in Southwest Nova Scotia, and, therefore, it may not be representative of biomass. The levels of human impacts were not related to Rockweed harvest but this should be mentioned in the report.

Attribution to biomass changes should be addressed because there are reasons outside of human impact metrics that influence Eelgrass abundance. Including aquatic invasive species as a metric in the future was discussed, but it was mentioned that Green Crab are not an indicator species for Eelgrass abundance and this species was not included in the metric because of limited access to data. Anecdotal evidence suggests the fishing industry may be negatively impacted by Green Crab contributing to declining Eelgrass beds. The relationship between Eelgrass decline and geese is well known and a reduction in Eelgrass may negatively affect bird species including geese.

It would be useful to add how this study and the metrics used may contribute to information about other species groups. In addition, from a science perspective, what metrics can be added to provide advice on indicators and decision making.

Intent for human uses/impacts within the Eastern Shore Islands AOI will have a different process with consultations spanning over a year. Other documents will be generated to characterize these issues that will need to be addressed. When discussing human impacts, it's important to use common language and terminology to describe threats. The International Union for Conservation of Nature (IUCN) presents a document with such terminology and definitions. This may be useful information to have leading up to the Risk Assessment.

It may be difficult to characterize baseline information in terms of what is considered a healthy Eelgrass bed. Eelgrass beds in this area are numerous but sporadic and vary in size. No known large extensive Eelgrass beds exist in the Eastern Shore Islands AOI. It's important to determine the level of comfort people have when characterizing Eelgrass in this area.

Overall, there is a lot of opportunity for studying Eelgrass in the Eastern Shore Island AOI. As more information becomes available, a better understanding of what to protect may become clearer.



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## GROUP DISCUSSION

### Discussion

It was mentioned that what lies outside of the proposed boundaries should be considered. The St. Mary's and the Musquodoboit River are two of the largest watersheds in Nova Scotia that fall just on either side of the proposed boundary. These rivers play an important role to Indigenous, commercial and recreational fishers, and diadromous fish that integrate across habitats. It's important to mention these features exist nearby, their importance, and that they are currently excluded from the proposed boundaries. The current network plan may have sites that are currently developed in these areas but it's not out of the question to consider boundary changes based on social, economic, and biological impacts. Broadening the boundaries may not contribute to anything substantial as EBSAs lie all along the coast but it's important to collect more science information to draw on the linkages between freshwater and marine environments and the diadromous species that use them.

The Eastern Shore Islands AOI boundary was originally drawn to include the archipelago and will be defined by a number of different priorities. If the study area changes, another process will have to happen to determine other considerations and biological factors that may come into play.

## OVERVIEW OF KEY FEATURES

Presenter: Nick Jeffery

The Eastern Shore Islands AOI is representative of habitats found along the Maritime coastal region but contains a unique archipelago. The area is relatively natural and includes a high diversity of habitat types and species. This area tends to exhibit colder water temperatures which may lead to fewer aquatic invasive species. Precipitation tends to be higher in this area relative to other parts of Nova Scotia. The Eastern Shore Islands AOI is comprised of complex bathymetry that can increase biodiversity through different habitat types. There is a high density of salt marshes, which form an important connection between the marine and terrestrial ecosystems.

Information was gathered about species that exist in the area, including plankton, zooplankton, kelp, aquatic invasive species, lobster and other invertebrates, and diadromous fish, and marine fish but information is lacking on many of these species, and there is a great opportunity to learn more about them.

### Discussion

In the Eastern Shore Islands AOI, turf algae were commonly seen but this was not discussed much despite being important for some species. It generally occurs after the kelp canopy is lost. Red Turf Algae are taxonomically and ecologically complex and are important for a variety of reasons.

It was noted that referring to Rockweed was confusing throughout the document. There are two different types commonly found, *Fucus* spp. and *Ascophyllum nodosum* in this area, and it is important to clarify which type the document is referring to.

It was discussed that the information gathered is preliminary and people may not want to see DFO deriving conclusions from lacking data/information. When making decisions, DFO uses a precautionary approach. Decisions are based on conservation priorities and on existing information. Currently, no decisions are being made; instead existing information is being described. Based on this existing information, the area is highly natural with diverse species but

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the extent of which is unknown. There are studies to suggest that moving forward with a decision is still OK given little information. Despite information in this area being sparse, there is a fair amount of data within the document. It will be necessary to prioritize research recommendations that will come forth from future decisions

It was discussed that Lobster Fishing Area (LFA) landings should be relative to the season because different LFAs vary based on temporal factors. It was noted that lobster catch per unit effort may actually be similar to Southwest Nova Scotia based on the number of fishing days. Aside from lobster, other commercially important species exist within the Eastern Shore Islands AOI including a gillnet Herring fishery and other traditional fisheries.

Fishers have a direct investment with many livelihoods depending on the fishing industry that exists in the Eastern Shore Islands AOI. Other activities in the area, such as aquaculture, could bring economic value and growth to and around the Eastern Shore Islands AOI. After this science meeting, a year of consultations will follow and it's important for people to communicate these concerns to DFO at the appropriate time. It is difficult to avoid economics during a science peer review but it was recognized by DFO that it is challenging to discuss science in parallel with fishers because stakeholders often feel left out. One consideration is to include stakeholders in the ecosystem as part of the conservation priorities.

## **MARINE BIRDS**

Presenter: Karel Allard

Seabirds are indicators of ecosystem health and productivity. The Eastern Shore Islands AOI is, and has been, very bird focused. Birds are important to this area because of the colonies which exist due to the number of islands. Islands are a very important component of bird habitat. There are over 100 multi-species colonies of birds in the Eastern Shore Islands AOI all relying on different prey. The Eastern Shore Islands AOI is very important to many different bird species for habitat, overwintering and feeding. For example, Roseate Terns frequent the archipelago as foraging protection, Common Eider Ducklings use the canopy of Rockweed and Canada Geese are associated with Eelgrass. Canadian Wildlife Services (CWS) cares about threats to the marine environment including spills from oil/fuel, blowouts at rigs, competition for forage prey and stock, climate change, invasive and other problematic species, and pollution from head, sound, light and plastic. This potential MPA would provide a lot of opportunity for birds.

### **Discussion**

It was discussed that piscivorous birds forage on important species such as Herring and Sand Lance but these seem to be size selected juveniles. Data collected on what fish species birds were eating showed that birds were not anchored to one prey species. When monitoring there should be some prey availability and stability in terms of the ecosystem.

The idea of using birds as an ecosystem health indicator was discussed. Changes in abundance could mean a big shift in the ecosystem but it's important to keep in mind that activities such as hunting could impact annual fluctuations. For some species, offspring may be a health indicator where for other species growth may be an indicator. This would be a good opportunity to study and monitor health indicators of specific bird species.

The bird surveys that were done are broad, making it difficult to understand relative abundance over time. Targeted seasonal surveys lead to data gaps, therefore any opportunity to mitigate the season pulse of data would be useful.

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## CONSERVATION PRIORITIES RECOMMENDATIONS

Presenter: Nick Jeffery

1. Area of high naturalness
2. Unique and complex geomorphology
3. Area of significance – Eelgrass & Macroalgae
4. Juvenile groundfish nursery (depleted species)
5. Endangered Atlantic Salmon habitat
6. Important bird area – significant breeding / migratory / foraging concentrations, including SARA listed species

Discussion:

### **1. Area of high naturalness:**

A full impact analyses has not been done at this point and it has been recognized that not all of the information has been reviewed at this stage.

The description of “high naturalness” was used by DFO because it is consistent with language used in other documents relating to MPAs and as a conservation priority. The description of “pristine” is more controversial and less accepted by everyone. Another potential term used to describe the area could be “relatively intact” but it then becomes difficult to put into perspective because the Eastern Shore Islands has always been “relatively intact”.

It was discussed that it may not be fair to conclude the presence of fewer aquatic invasive species within the Eastern Shore Islands AOI. However, based on plate studied within the last 10 years there has been very few in comparison to other areas along coastal Nova Scotia and even adjacent to the AOI boundaries. This could be because there are fewer vectors for aquatic invasive species in this area such as lower shipping traffic. This information is inconsistent with personal observations in the area and it’s important to include or incorporate this anecdotal information. A new project is underway to use citizen science in the Eastern Shore to collect more data within this area.

### **2. Unique and complex geomorphology:**

Highly complex habitat results in higher biodiversity. The geomorphology is the foundation in which all of the biological processes sit upon. The biology should be the focus of this section where the geomorphology is a secondary factor.

Wording was discussed and phrases and words such as “unique and complex assemblage of the ecosystem” or “mosaic” may be better suited for descriptions.

Good opportunity to manage what factors may impact sediments and geological features.

## REFERENCES CITED

Hastings, K., King, M., and Allard, K., 2014. Ecologically and Biologically Significant Areas in the Atlantic Coastal Region of Nova Scotia. Can. Tech. Rep. Fish. Aquat. Sci. 3107: xii + 174 p.

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## APPENDICES

### APPENDIX A. TERMS OF REFERENCE

#### Biophysical and Ecological Overview of the Eastern Shore Islands

#### Regional Peer Review Process – Maritimes Region

March 20-21 2018

Halifax, Nova Scotia

Chairperson: Tana Worcester

#### Context

The Government of Canada has agreed to a suite of international biodiversity conservation goals and targets (the Convention on Biological Diversity 2011–2020 Strategic Plan for Biodiversity’s Aichi Targets) and adopted complementary domestic 2020 Biodiversity Goals and Targets for Canada. Both international and domestic targets (Aichi Target 11 and Canada’s Target 1) call for the conservation of 10% of coastal and marine areas by 2020. Further, to highlight these targets as a priority, the Government of Canada identified an interim target of 5% protection by 2017.

The designation of new Marine Protected Areas (MPAs) in Canadian waters has been identified as one part of the national strategy to meet these targets. Under the *Oceans Act*, Fisheries and Oceans Canada (DFO) is authorized to provide protection to areas of the oceans and coasts through the establishment of MPAs, where the identification of an Area of Interest (AOI) is the first step in this process. The identification of this proposed Area of Interest (AOI) for potential MPA designation in the Maritimes Region was first informed by:

- the identification of Ecologically and Biologically Significant Areas (Hastings et al. 2014), which are areas of especially high ecological or biological significance where a greater risk aversion is required in the management of human activities;
- analysis of information at the bioregional scale for the identification of areas that could contribute to MPA network design and/or targets; and
- consideration of the precautionary approach as per Section 35 of the *Oceans Act*.

Following the conclusion of a regional site selection process, the **Eastern Shore Islands** were identified as a proposed Area of Interest (AOI) for potential MPA establishment within the Maritimes Region. Currently, conservation priorities identified for this area include the relatively undisturbed and unique archipelago habitat. This area contains significant concentrations of kelp, eel grass, and salt marsh habitat and has been noted as important for several fish species including Atlantic Salmon (Endangered – COSEWIC), Atlantic Cod (Endangered – COSEWIC), White Hake (Threatened – COSEWIC), Atlantic Herring, and significant concentrations of seabirds and shorebirds.

Once an AOI is identified, detailed information on the key biophysical and ecological attributes of the area, especially as it pertains to its potential conservation priorities and their linkages to other key ecosystem components and processes, is required. A review of this scientific knowledge will provide details on these conservation priorities and may also serve to highlight additional conservation priorities.

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Furthermore, the biophysical and ecological overview will assist in formulating and/or refining conservation objectives, delineating the proposed MPA boundary (and zones if required), and completing an ecological risk analysis to inform the development of the regulatory approach for the MPA. The information contained within will also inform subsequent advice on monitoring protocols and strategies, identification of information gaps requiring further research, and the development of a management plan for the area.

Areas adjacent to the proposed AOI may need to be considered to capture the necessary breadth and scope of the various components of the ecosystem. Therefore, given the geographic scale at which scientific information is currently collected and reported, the study area that has been deemed appropriate for the Eastern Shore Islands biophysical and ecological overview is the nearshore coastal waters (< 100 m depth) along the east coast of Nova Scotia ranging between Halifax Harbour and the port of Canso. A specific focus will be applied to the Eastern Shore Archipelago, which extends along nearly 100 km of coastline between Jeddore Harbour and Liscomb.

The Oceans Management program of the Ecosystems Management Sector has requested DFO Science provide advice and supporting document(s) through this Canadian Science Advisory Secretariat Regional Peer Review to inform the establishment of this proposed AOI as an MPA.

A traditional knowledge study for Eastern Shore Islands will be undertaken separately in spring 2018.

## **Objectives**

The working paper(s) will be reviewed and provide the basis for discussion and advice on the specific objectives outlined below:

1. Evaluate, describe and map, where possible, the identified conservation priorities and other key biophysical and ecological features of the study area, including:
  - predominant and/or unique physical and biological oceanographic characteristics;
  - predominant, unique, and/or sensitive habitat features; and
  - ecologically, socially/culturally and/or commercially significant species; depleted species; and marine mammals and birds

Where appropriate, identify relevance of the study area to the life histories of species of interest, species distribution and abundance (and status and trends where available), and the local abiotic and biotic factors influencing these.

2. Identify known sensitivities, resilience, and recoverability of habitats and species of interest within the study area.
3. Identify key uncertainties and knowledge gaps as it pertains to the current understanding of the existing environment and species of interest within the study area, and recommend measures to address these gaps, where possible.
4. Where appropriate, based on the best available science, recommend the addition or removal of conservation priorities within the study area.

## **Expected Publications**

- Science Advisory Report
- Proceedings
- Research Document(s)

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## **Expected Participation**

- Fisheries and Oceans Canada (DFO) (Science, Fisheries and Aquaculture, and Ecosystem Management)
- Canadian Wildlife Service
- Nova Scotia Departments of Fisheries and Aquaculture, Environment, and Natural Resources
- Environmental Non-Government Organisations
- Academic researchers
- Indigenous communities/organizations
- Fishing associations
- Nova Scotia Salmon Association
- Atlantic Salmon Federation
- Other invited experts

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## APPENDIX B. AGENDA

### DAY 1 (Tuesday, March 20, 2018)

Time	Topic	Leads
09:00–09:15	Welcome and Introductions	N. Jeffery / Chair
09:15–09:30	Process for selecting the Eastern Shore Islands	T. Koropatnick
09:30–9:45	Geological history of the Eastern Shore	E. King
9:45–10:30	Classification of benthic habitats – 2007 & 2017	A. Balbar, H. Vandermeulen
10:30–10:45	<b>Break (Coffee/tea provided)</b>	-
10:45–11:00	Human Impact Metrics	G. Murphy
11:00–12:00	Overview of key features	N. Jeffery
12:00–13:00	<b>Lunch (Not provided)</b>	-
13:00–14:00	Overview of key features continues	N. Jeffery
14:00–15:00	Known sensitivities, key uncertainties, and knowledge gaps	N. Jeffery
15:00–15:15	<b>Break (Hospitality not provided)</b>	-
15:15–16:15	Conservation Priority Recommendations	N. Jeffery
16:15–17:00	Discussion and wrap-up	N. Jeffery / Chair

### DAY 2 (Wednesday, March 21, 2018)

Time	Topic	Leads
09:00–09:30	Review of previous day	Chair
09:30–10:30	Review of Science Advisory Report	Chair
10:30–10:45	<b>Break (Coffee/tea provided)</b>	Chair
10:45–11:45	Finalization of Science Advisory Report	Chair
11:45–12:00	Wrap-up	Chair

## APPENDIX C. LIST OF ATTENDEES

Mar. 20 <sup>th</sup>	Mar. 21 <sup>st</sup>	Name	Affiliation
x	x	Allard, Karel	Environment and Climate Change Canada / Canadian Wildlife Service
x	x	Aten, Travis	Ecology Action Centre
x	x	Baker, Lori	Eastern Shore Fisherman's Protective Assn. (ESFPA)
x	x	Balbar, Arianna	Dalhousie University / Oceanography
x	x	Borland, Meghan	Canadian Parks & Wilderness Society (CPAWS-NS)
x	x	Campbell, Chelsey	The Confederacy of Mainland Mi'kmaq
x	-	Connors, Peter	Eastern Shore Fisherman's Protective Assn. (ESFPA)
x	-	Fenton, Derek	DFO Maritimes / Oceans & Coastal Management
x	x	Forbes, Tess	DFO Maritimes / OCMD
x	x	Gardiner, Jordan	Fishermen Scientists Research Society (FSRS)
x	x	Goshulak, Larissa	DFO Maritimes / Fisheries Management
-	x	Greencorn, Gordie	NS Dept. Fisheries and Aquaculture
x	x	Greenlaw, Michelle	DFO Maritimes / Coastal Ecosystem Science (SABS)
x	-	Halfyard, Eddie	Nova Scotia Salmon Association & Dalhousie University
x	x	Heaslip, Susan	Fisheries and Oceans Canada
x	x	Jeffery, Nick	DFO Science
x	-	King, Marty	DFO Maritimes / OCMD
x	-	King, Ned	NRCan
x	x	Koropatnick, Tanya	DFO Maritimes / Oceans & Coastal Management
x	x	Krumhansl, Kira	DFO Maritimes / Coastal Ecosystem Science
-	x	Lantz, Jamie	Mi'Kmaq Conservation Group
x	x	Lauzon-Guay, Jean-Sebastien	Acadian Seaplants, Ltd.
x	x	Lotze, Heike	Dalhousie University / Biology
x	x	MacDonald, Claire	DFO Maritimes / Resource Management



<b>Mar. 20<sup>th</sup></b>	<b>Mar. 21<sup>st</sup></b>	<b>Name</b>	<b>Affiliation</b>
x	x	MacDonald, Teresa	Fishermen and Scientists Research Society
x	x	MacKinnon, David	NS Dept. Environment
x	x	McConney, Leah	DFO Maritimes / Ecosystems Management
x	-	McNeely, Joshua	Maritime Aboriginal Peoples Council (MAPC) - IKANAWTIKET
x	x	Miller, Chris	Canadian Parks & Wilderness Society (CPAWS-NS)
x	x	Murphy, Grace	Dalhousie University
x	x	Rutherford, Bob	NS Salmon Association
x	x	Saunders, Sarah	World Wildlife Fund (WWF) Canada, Atlantic
x	x	Silva, Angelica	DFO Maritimes / Population Ecology Division
x	x	Smith, Tom	Aquaculture Association of Nova Scotia
x	x	Stanley, Ryan	DFO Maritimes / Science / Coastal Ecosystem Science
x	-	Stevens, Lydia	DFO Maritimes
x	x	Tremblay, Isabelle	Aquaculture Association of Nova Scotia
x	x	Vandermeulen, Herb	DFO Maritimes / Population Ecology Division
x	x	Whitman, Bill	NS Dept. Fisheries & Aquaculture (NSDAF)
x	x	Wong, Melisa	DFO Maritimes / Coastal Ecosystem Science
x	x	Worcester, Tana	DFO Maritimes / Centre for Science Advice