Marine Protected Area Network Development in the Scotian Shelf/Bay of Fundy Bioregion

Gulf of Maine Council
Gloucester, Massachusetts
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Glen Herbert
Oceans and Coastal Management Division
Fisheries and Oceans Canada (Maritimes Region)
Outline

1) Background on MPA network development
2) Process for MPA network analysis/design
3) Current and planned contributions
4) Timelines and next steps
What has Canada committed to doing?

“By 2020, at least... 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures...”

- Aichi Target 11, Convention on Biological Diversity (CBD), 2010
“…increase the proportion of Canada’s marine and coastal areas that are protected – to five percent by 2017, and ten percent by 2020…”
MCT Five Point Strategy

- Finish what has been started
- Protect large areas
- Implement bioregional MPA networks
- Advance “other effective measures”
- Improve MPA establishment process
Federal MPA Programs

Fisheries and Oceans Canada
• Marine Protected Areas (*Oceans Act*)
• Conservation Areas/Fisheries Closures/Marine Refuge (ia) (*Fisheries Act*)

Environment & Climate Change Canada
• National Wildlife Areas (*Canada Wildlife Act*)
• Migratory Bird Sanctuaries (*Migratory Birds Convention Act*)
• Critical Habitat (*Species at Risk Act*)

Parks Canada
• National Marine Conservation Areas (*NMCA Act*)
• National Parks (*National Parks Act*)
The National MPA Network

Main goal:

To provide long-term protection of marine biodiversity, ecosystem function and special natural features.
What is an MPA network?

A collection of individual marine protected areas

- different shapes and sizes
- a range of protection levels
- connected through biological or ecological processes

Overall result: More effective and comprehensive protection than can be achieved by any single site.
Why an MPA network?

Protect biodiversity…

…provide greater certainty to resource users…
MPA networks are being developed in five priority bioregions.
Conservation Objectives for the Scotian Shelf Bioregional MPA Network

1. Protect unique, rare, or sensitive ecological features in the region
2. Protect representative examples of identified ecosystem and habitat types in the region
3. Help maintain ecosystem structure, functioning and resilience within the region
4. Contribute to the recovery and conservation of depleted species in the region
5. Help maintain healthy populations of species of Aboriginal, commercial, and/or recreational importance in the region
Conservation Priorities

• Conservation Priorities are the species, groups of species, habitats, communities, ecological processes or other ecological features that an MPA network aims to protect

• 2 Categories:

<table>
<thead>
<tr>
<th><strong>Coarse-filter</strong></th>
<th><strong>Fine-filter</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Broad-scale features</td>
<td>• Discrete, smaller-scale features that are important for a species or the broader ecosystem (e.g., biogenic habitats, important habitat for species at risk)</td>
</tr>
<tr>
<td>• Seek to capture a representative example(s) from the full distribution of a feature (e.g., seabed feature types, coastal eco-units)</td>
<td>• Typically assigned higher targets</td>
</tr>
<tr>
<td>• Typically assigned lower targets</td>
<td></td>
</tr>
</tbody>
</table>
Two Planning Areas:

1. Offshore
Two Planning Areas:

2. Coastal/Bay of Fundy
Offshore Design Process

1. Identify **Offshore Conservation Priorities** and set **Targets**
2. **Initial Ecological Analysis** (*Marxan*)
3. **Incorporate Fisheries Data** to minimize overlap (*Marxan*)
4. Consider **other ecological and human use information** (e.g., offshore EBSAs, oil and gas)
5. **Identify and roughly delineate areas** for inclusion in the draft MPA network design
## Offshore Conservation Priorities and Targets

<table>
<thead>
<tr>
<th>Offshore Conservation Priorities</th>
<th>Target (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coarse-filter Feature Examples</strong></td>
<td></td>
</tr>
<tr>
<td>Oceanographic units (e.g., Eastern Scotian Shelf oceanographic unit)</td>
<td>16%</td>
</tr>
<tr>
<td>Geomorphic units (e.g., Shelf Bank geomorphic unit)</td>
<td>10%</td>
</tr>
<tr>
<td>Scope for Growth and Natural Disturbance classes (e.g., High Scope for Growth)</td>
<td></td>
</tr>
<tr>
<td>Functional Groups (inverts, fishes, seabirds) (e.g., seabirds: plunge-diving piscivores)</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Fine-filter Feature Examples</strong></td>
<td></td>
</tr>
<tr>
<td>Biogenic Habitats: Significant concentrations of large gorgonian corals</td>
<td>100%</td>
</tr>
<tr>
<td>Biogenic Habitats: Significant concentrations of <em>Vazella pourtalesi</em> sponges</td>
<td>100%</td>
</tr>
<tr>
<td>Depleted species (cetaceans): Critical Habitat for Northern Bottlenose Whale</td>
<td>100%</td>
</tr>
<tr>
<td>Depleted species (cetaceans): Critical Habitat for North Atlantic Right Whale</td>
<td>100%</td>
</tr>
<tr>
<td>Depleted species (fishes): Important habitat for Atlantic cod</td>
<td>70%</td>
</tr>
<tr>
<td>Depleted species (fishes): Important habitat for white hake</td>
<td>50%</td>
</tr>
<tr>
<td>Depleted species (fishes): Important habitat for cusk</td>
<td>30%</td>
</tr>
<tr>
<td>Areas of High Biodiversity: Areas of high larval fish species richness</td>
<td>40%</td>
</tr>
<tr>
<td>Areas of High Biodiversity: Areas of high invertebrate species richness</td>
<td>40%</td>
</tr>
</tbody>
</table>
Coastal/Bay of Fundy MPA Network Analysis

1. Identify Coastal Conservation Priorities and set Targets
2. Assess “Conservation Value” of each EBSA
3. Identify and roughly delineate areas for inclusion in the draft MPA network design
4. Assess Feasibility (social, cultural, economic considerations)
## Coastal Priorities

### Special features
- Highly natural ecosystems
- Areas of high productivity
- Areas of high biodiversity
- Complex or unique geomorphology
- Persistent unique or rare oceanographic characteristics

### Biogenic Habitats
- Marine plants and macro-algae:
  - Eelgrass
  - Saltmarsh
  - Kelp
  - Rockweed
  - etc.
- Invertebrates:
  - Horse mussel reefs
  - Stalked tunicate fields
  - Habitat-forming sponges
  - Oyster beds
  - Erect bryozoan turf

### Important Areas for Species or Species Groups
- Areas important for sensitive life history stages of:
  - Fish
  - Birds
  - Whales & dolphins
  - Invertebrates
  - Culturally important species
- Important areas for depleted species

### Representative features
- Coastal eco-units
- Coastline classes
Coastal Ecologically and Biologically Significant Areas

- Buzeta 2014
- Hastings et al. 2014
Representation: Coastal Eco-Units

This map shows all 54 EBSAs overlaid on the coastal eco-unit classification.
<table>
<thead>
<tr>
<th>Coastal Conservation Priorities</th>
<th>Target (Amount)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coarse-filter Features</strong></td>
<td></td>
</tr>
<tr>
<td>Coastline classes</td>
<td>Protect at least 2 representative examples of each</td>
</tr>
<tr>
<td>Coastal eco-units</td>
<td>Protect at least 2 representative examples of each</td>
</tr>
<tr>
<td><strong>Fine-filter Features</strong></td>
<td></td>
</tr>
<tr>
<td>Highly natural ecosystems</td>
<td>Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td>Areas of high productivity</td>
<td>Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td>Areas of high biodiversity</td>
<td>Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td>Complex or unique geomorphology</td>
<td>Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td>Persistent unique or rare oceanographic characteristics</td>
<td>Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td><strong>Biogenic habitats: Invertebrates</strong></td>
<td></td>
</tr>
<tr>
<td>1) Large sponges, stalked tunicates, horse mussel reefs</td>
<td>1) Protect all known significant concentrations</td>
</tr>
<tr>
<td>2) Other habitat-forming invertebrates (lemon weed, oyster beds)</td>
<td>2) Protect at least 1 example in each eco-unit</td>
</tr>
<tr>
<td><strong>Biogenic habitats: marine plants, algae</strong></td>
<td></td>
</tr>
<tr>
<td>1) Eelgrass</td>
<td>Protect at least 1 example of each type in each eco-unit</td>
</tr>
<tr>
<td>2) Saltmarsh</td>
<td></td>
</tr>
<tr>
<td>3) Kelp</td>
<td></td>
</tr>
<tr>
<td>4) Rockweed, etc.</td>
<td></td>
</tr>
</tbody>
</table>
# Federal Contributions to 2017 Target in the Scotian Shelf Bioregion

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Legislation</th>
<th>Year</th>
<th>Area (km²)</th>
<th>% of bioregion</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE Channel Coral Conservation Area (CCA)</td>
<td>Fisheries Act</td>
<td>2002</td>
<td>391</td>
<td>0.082</td>
</tr>
<tr>
<td>Stone Fence (CCA)</td>
<td>Fisheries Act</td>
<td>2003</td>
<td>15</td>
<td>0.003</td>
</tr>
<tr>
<td>The Gully MPA</td>
<td>Oceans Act</td>
<td>2004</td>
<td>2,364</td>
<td>0.498</td>
</tr>
<tr>
<td>Musquash Estuary MPA</td>
<td>Oceans Act</td>
<td>2006</td>
<td>11.4</td>
<td>0.002</td>
</tr>
<tr>
<td>Sambro Bank Sponge Conservation Area (SCA)</td>
<td>Fisheries Act</td>
<td>2010</td>
<td>62</td>
<td>0.013</td>
</tr>
<tr>
<td>Emerald Basin SCA</td>
<td>Fisheries Act</td>
<td>2010</td>
<td>197</td>
<td>0.041</td>
</tr>
<tr>
<td>Jordan Basin CCA</td>
<td>Fisheries Act</td>
<td>2017</td>
<td>49</td>
<td>0.010</td>
</tr>
<tr>
<td>Corsair/Georges Canyons CCA</td>
<td>Fisheries Act</td>
<td>2017</td>
<td>9,075</td>
<td>1.910</td>
</tr>
<tr>
<td>St. Anns Bank MPA</td>
<td>Oceans Act</td>
<td>2017</td>
<td>4,364</td>
<td>0.918</td>
</tr>
<tr>
<td>Western &amp; Emerald Banks Conservation Area</td>
<td>Fisheries Act</td>
<td>2017</td>
<td>10,241</td>
<td>2.155</td>
</tr>
<tr>
<td><strong>DFO total for the Scotian Shelf Bioregion</strong></td>
<td></td>
<td></td>
<td><strong>26,769.4</strong></td>
<td><strong>5.63%</strong></td>
</tr>
<tr>
<td><strong>Other Federal Contributions in the Bioregion</strong></td>
<td></td>
<td></td>
<td><strong>28.6</strong></td>
<td><strong>0.006</strong></td>
</tr>
<tr>
<td><strong>Total Bioregion contribution to National Target is 0.466%</strong></td>
<td></td>
<td></td>
<td><strong>26,798</strong></td>
<td></td>
</tr>
</tbody>
</table>
Looking ahead to 2020

• Anticipated Scotian Shelf Bioregion contributions to 2020:
  – 2 new *Oceans Act* MPAs (1 offshore, 1 coastal)
  – New Conservation Area(s) under the *Fisheries Act*

• Proposed new sites to be announced with the release of the Draft MPA Network Design in 2018
  – Final bioregional MPA Network Plan expected by 2019/2020
Eastern Shore Islands AOI

- Study area size: 2089 km²
- Extent: Clam Bay to Barren Island (near Liscomb point)
- Key features:
  - Highly natural
  - Unique archipelago system
  - Eelgrass, kelp and saltmarsh
  - Juvenile areas for haddock, cod and hake
  - Herring spawning area
  - Important Atlantic Salmon habitat
  - Foraging area for many birds (incl. Harlequin Duck and Roseate Tern)
Fundian Channel-Browns Bank AOI

Ecological features
- Multiple major offshore habitat features (bank, channel, basin)
- Deep sea corals
- Important migratory route (sharks, turtles, whales)
- High productivity
- Important for groundfish (cusk, cod and skates)

Existing conservation
- Northeast Channel Coral Conservation Area
- LFA 40
- Browns Bank Groundfish Spawning Closure
- Hell Hole large pelagics closure
- Georges Bank Oil & Gas Moratorium

Human uses
- Groundfish (fixed and mobile gear)
- Offshore Lobster
- Large Pelagics
- Scallop
- Oil and gas exploration (Statoil license, activity pending)

Size: 7,100 sq km
Timelines for MPA Network Development

Phase 1:
Compile Data & Information

Phase 2:
Design MPA Network

Phase 3:
Implement Plan

Phase 4:
Monitor & Manage

Advance opportunities (MCT)

2015
2016
2017
2018
2019
2020

Consult
Consult
Consult

Release Draft
MPA Network Design

“Final” MPA Network Plan

Consult
Timelines for 2020 Sites

Phase 1: Compile Data & Information

Phase 2: Design MPA Network

Phase 3: Implement Plan

Phase 4: Monitor & Manage

AOI = Area of Interest for MPA designation under the Oceans Act


Announce AOIs & Fisheries Act site

Consult

Designate AOIs & Fisheries Act site
Consultation on the Draft MPA Network Design

Consultation to follow 3 general phases

• **Phase 1:** Prior to public release
  – Meet with the Provinces of NS & NB, First Nations (already occurred/ ongoing)
  – Meet with other Indigenous groups, CNSOPB and key stakeholder groups

• **Phase 2:** Public comment period (following public release)
  – Information made available online
  – Requesting written submissions (online feedback option)

• **Phase 3:** Targeted consultation
  – Follow up meetings with provinces, First Nations and other Indigenous groups, CNSOPB and key stakeholder groups

Feedback received will be used to refine and finalize the MPA network design
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Photo: Scott Leslie