

MARINE INSTITUTE

OF MEMORIAL UNIVERSITY OF NEWFOUNDLAND



How Marine Atlases Support Marine Spatial Planning Requirements

March 12, 2020

Geoff Coughlan

Academic Director - Master of Marine Studies
(Marine Spatial Planning and Management)
and (Fisheries Resource Management)
Programs

Marine Institute School of Fisheries
St. John's, NL

Outline



- The Importance of Marine Atlases/Data Portals for MSP
- The Role of a Marine Atlas/Data Portal to meet MSP requirements for Newfoundland and Labrador
 - NL Coastal and Ocean Context
 - NL Coastal and Ocean Policy and Planning Context
 - Local Drivers for MSP (ex. Issues Scan Issues, MPA Network Development and Aquaculture Expansion)

Marine Atlases/Data Portals

Importance of Space and Time



“Some areas of the ocean are more important than others – both ecologically and economically...Successful marine management needs planners and managers who understand how to work with the spatial and temporal diversity of the sea. Understanding these spatial and temporal distributions and mapping them is an important part of MSP.” UNESCO MSP Guide - Ehler and Douvere (2009)

“Spatial analysis lies at the heart of MSP and is surpassed in importance only by stakeholder participation.” Kostantinos and Delevaux (2015)

Kostantinos, A. S. and J. Delevaux. 2015. Data requirements and tools to operationalize marine spatial planning in the United States. *Ocean and Coastal Management*. 116 (2015) pp. 214-223.

Marine Atlases/Data Portals



SeaPlan. 2016. Creating and Using Data Portals To Support Ocean Planning. Challenges and Best Practices from the Northeast United States and Elsewhere.

“As more ocean plans are developed and adopted around the world, the importance of accessible, up-to-date spatial data in the planning process has become increasingly apparent. Many ocean planning efforts in the United States and Canada rely on a companion data portal—a curated catalog of spatial datasets characterizing the ocean uses and natural resources considered as part of ocean planning and management decision-making...”

Marine Atlases/Data Portals



SeaPlan. 2016. Creating and Using Data Portals To Support Ocean Planning. Challenges and Best Practices from the Northeast United States and Elsewhere.

“Data portals designed to meet ocean planning needs tend to share three basic characteristics. They are:

- *ocean-focused,*
- *map-based, and*
- *publicly-accessible.”*

Marine Atlases/Data Portals



SeaPlan. 2016. Creating and Using Data Portals To Support Ocean Planning. Challenges and Best Practices from the Northeast United States and Elsewhere.

“This enables planners, managers, and stakeholders to access common sets of sector-specific, place-based information that help to visualize spatial relationships (e.g., overlap) among various uses and the marine environment and analyze potential interactions (e.g., synergies or conflicts) among those uses and natural resources. This data accessibility also enhances the transparency of the planning process, arguably an essential factor for its overall success.”

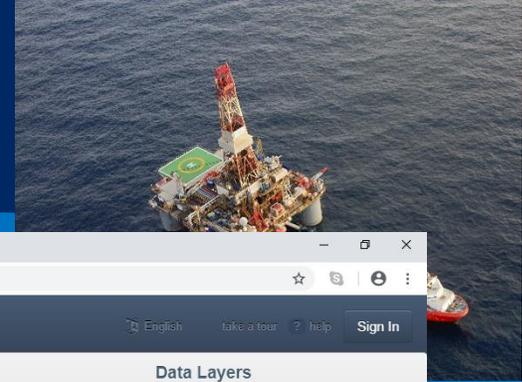
Marine Atlases/Data Portals



Marine Plan Partnership Data Portal

- *“The MaPP [marine plan portal](#), using the [SeaSketch](#) application, is a sophisticated planning tool that allows users to look at many different data layers together to learn more about the MaPP study area. The portal has more than 250 data layers including administrative boundaries, species, habitats and marine uses.*
- *The portal is called a “decision-support tool” because it displays information that is used to support, or inform, discussions and decisions related to the implementation of marine spatial plans. These discussions include ways to avoid spatial conflicts between marine uses and activities, and how to maintain the ecological integrity of marine ecosystems.”*

Marine Atlases/Data Portals



Ma

A screenshot of a web browser displaying the MaPP Marine Planning Portal. The browser address bar shows the URL: https://www.seasketch.org/#projecthomepage/50e58ab28aba4075183f8fc0. The page header includes the MaPP logo and navigation links like 'English', 'take a tour', and 'Sign In'. The main content area features a satellite map of the Pacific Northwest coast of North America, with numerous red and purple icons overlaid, representing various marine infrastructure and recreation sites. A 'Data Layers' panel is open on the right side, listing categories such as Infrastructure, Marine Pollution, Marine Renewable Energy, Mining, Oil and Gas, Public Recreation, and Shipping and Transportation. The 'Public Recreation' category is expanded, showing sub-items like 'Dive Sites' and 'Kayak Routes'. The bottom of the screenshot shows a Windows taskbar with the search bar and several application icons, along with a system tray showing the time as 1:25 PM on 1/7/2019.

Marine Atlases/Data Portals

From Joanna Smith



Zoning Design Steps

- Draft a zoning framework: type and objectives
- Identify high priority areas for economic uses
- Identify high priority areas for environmental uses – map stakeholder preferences
- Identify potential areas of overlap between economic uses*
- Identify potential areas of overlap between ecological and other social or economic uses



Se

MaPP Advisory Committees using SeaSketch

- View species, habitats and human-use data layers
- Read descriptions of the data layers
- Review data sources
- Provide suggestions for additional data
- View high-value areas from marine sectors;
- View sub-regional draft spatial plans
- Overlay draft spatial plans with other data layers
- Provide advice to the process of zone designation

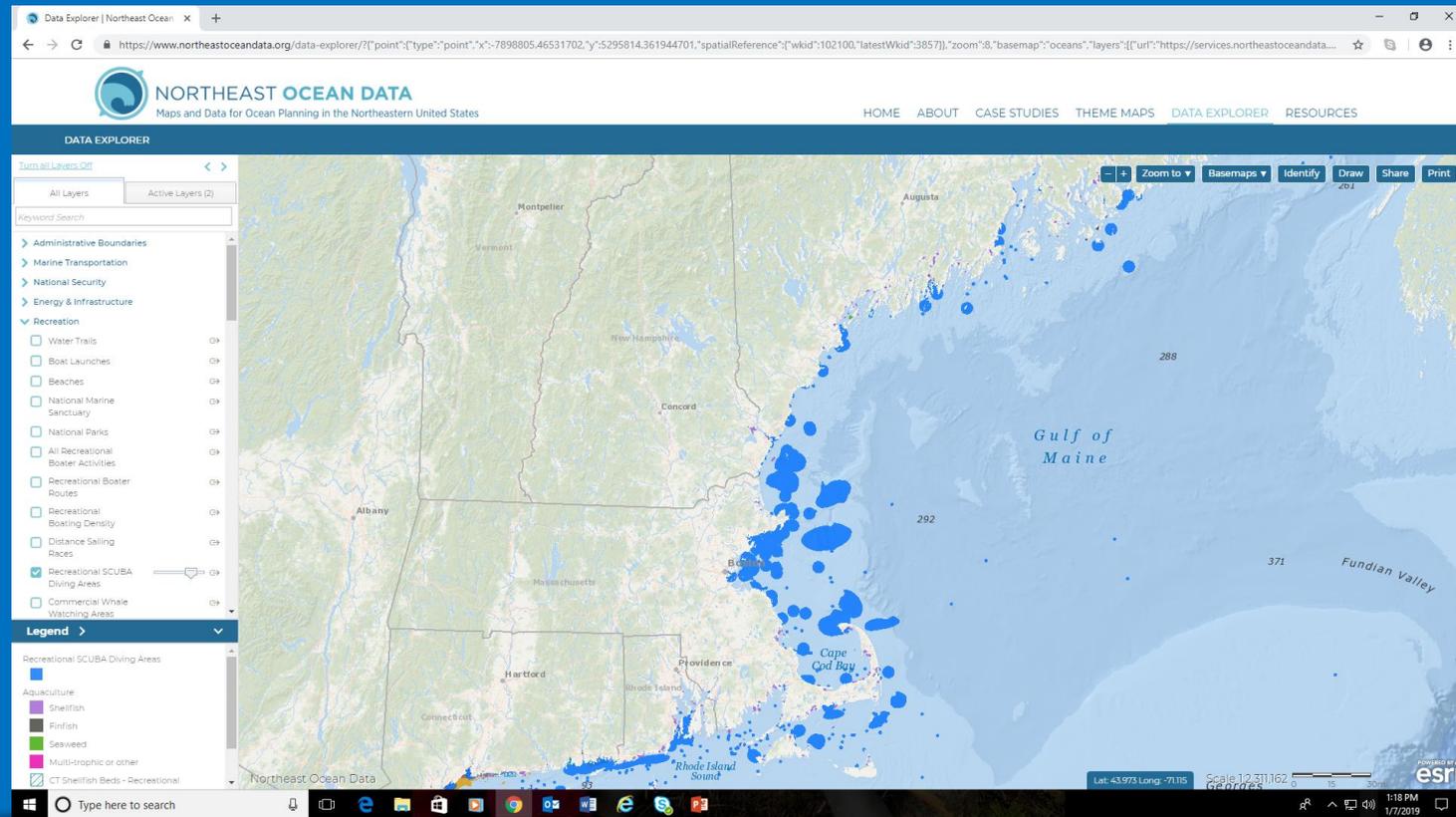
MaPP Planning Teams using SeaSketch

- View species, habitats and human-use data
- View Marxan and other spatial analyses
- Complement GIS and other spatial analyses
- Generate real-time analytical feedback on zoning designs
- Custom reports for EBM framework: ecological integrity, human well-being and governance

Marine Atlases/Data Portals



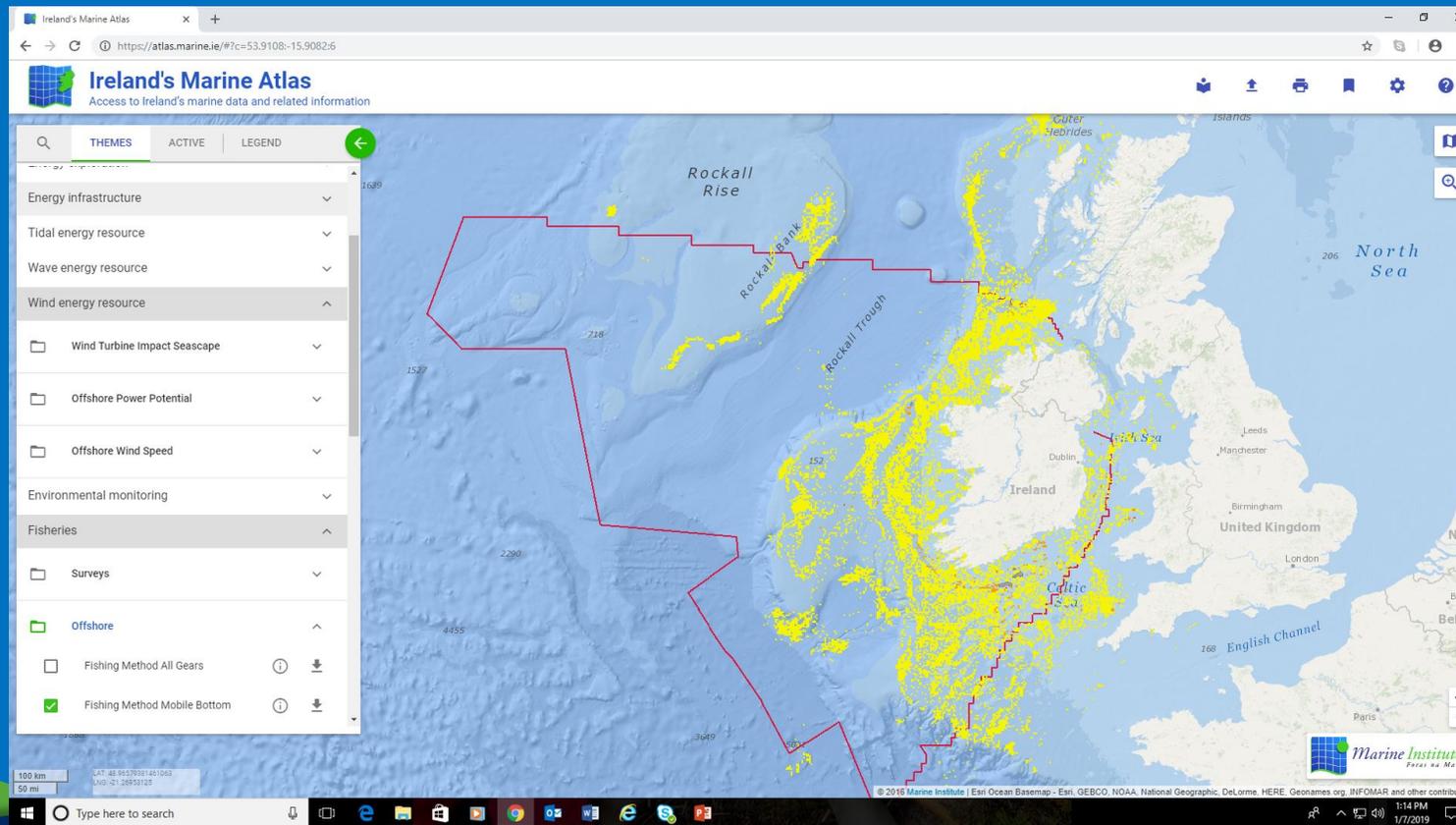
NE USA Data Portal



Marine Atlases/Data Portals



Ireland's Marine Atlas



Why MSP for NL?



NL Coastal and Ocean Context

- Traditional activities - Fisheries and shipping
- Offshore oil and gas production since 1997 with ongoing exploration
- Coastal tourism and recreation growing
- Potential offshore wind project on the west coast (Beothuck Energy)
- Aquaculture established with interest in expansion
- Productive marine ecosystem but decline in resources (past groundfish, present shellfish), aquatic invasive species
- User conflicts and need for environmental conservation/protection (MPA network development)
- Province (via stakeholder input) has identified a number of priority coastal and ocean issues

Why MSP for N



Wind farm investors optimistic about Newfoundland west coast

Danish backers make 1st trip to Stephenville area

Gavin Simms - CBC News - Posted: Nov 01, 2016 1:15 PM NT | Last Updated: November 1, 2016



Lars Thaastrup Pedersen, CEO Copenhagen Infrastructure Partners, tells a Corner Brook business group about his company's plans for wind energy projects on the province's west coast. (Gavin Simms/CBC)

European wind farm investors say they are optimistic about upcoming projects on Newfoundland's west coast.

Executives from Copenhagen Infrastructure Partners (CIP) made their first trip to the island this week.



Mussel farming reaching new depths in Notre Dame Bay



CBC News - Posted: Aug 05, 2013 6:49 AM NT | Last Updated: August 5, 2013



NorAtlantic Processors is hoping research from the DFO will show that farming mussels in deep water produces healthy mussels. (CBC)

The Telegram

A SaltWire Network Publication

News Weather Sports Business Living Opinion Community Obituaries Wheels



Oil exploration should not be allowed in marine refuges: WWF Canada

@thetelegram.com | 1:17 p.m. | 21 a.m.



Living Opinion

Living Opinion

TON: Business

Executive



Update

The Telegram

A SaltWire Network Publication

News Weather Sports Business Living Opinion Community Obituaries Wheels

All News Local Regional Now Atlantic



Northern cod stocks show steep decline in

RIGHT NOW St John's TEMPERATURE: -6° FEELS LIKE: -15° WIND: 37 km/h

Nfld. & Labrador

FFAW vows to stop oil and gas exploration in crab fishing area



'If we've got to do it, we'll go out with our vessels and we'll get in the way,' says union exec

Peter Cowan - CBC News - Posted: Sep 05, 2019 2:17 PM NT | Last Updated: September 5, 2019



Fish, Food and Allied Workers president Keith Sullivan says fishermen should be consulted before the offshore oil regulator allows oil companies to explore prime fishing areas. (Todd O'Brien/CBC)



Weather by Day

GET FORECASTS TWICE DAILY

Subscribe E-Edition Newsletters Contact

RIGHT NOW St John's TEMPERATURE: -6° FEELS LIKE: -15° WIND: 37 km/h



Top Stories



E-Edition Contact



Top Stories Local

Fogo Island residents want traditional dialysis unit in the area, tired of travelling to Gander for treatment 44 views

If you can't clear snow and ice from your property, you need to find someone who can, lawyers say 17 views

Cabot Ford Lincoln, president to pay \$90K in fines 13 views

A look at back at Central, N.L.'s headline makers for 2018

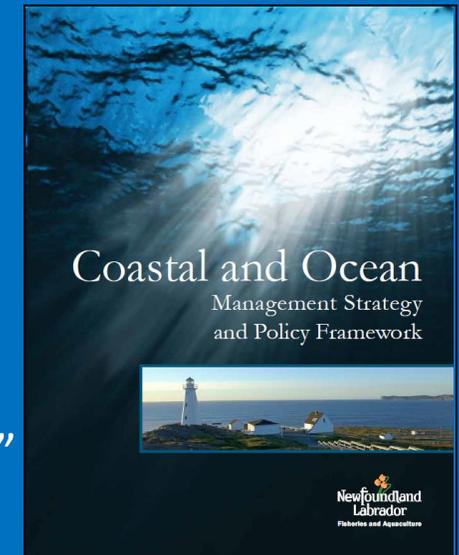
Policy and Planning Context



At the provincial level, the Government of Newfoundland and Labrador’s Coastal and Ocean Management Strategy and Policy Framework recognizes the need for integrated approaches, the use of mapping and geospatial technology and identifies specific goals and objectives to work collaboratively to bring together coastal and ocean data and information.

The document also specifically refers to the need for “greater coordination of marine activities” and “effective planning” as a means to achieve a balance between environmental and economic sustainability.

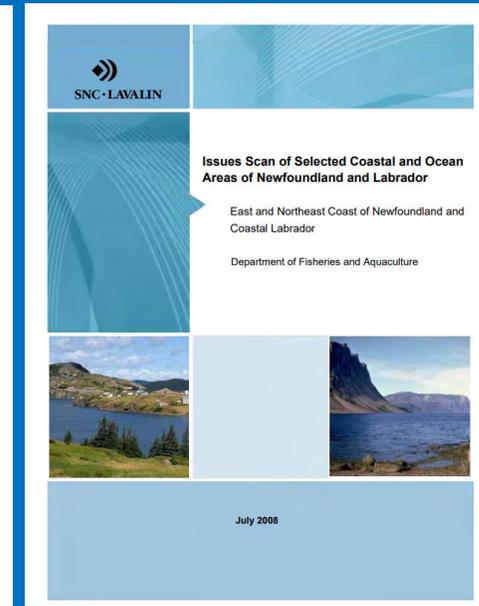
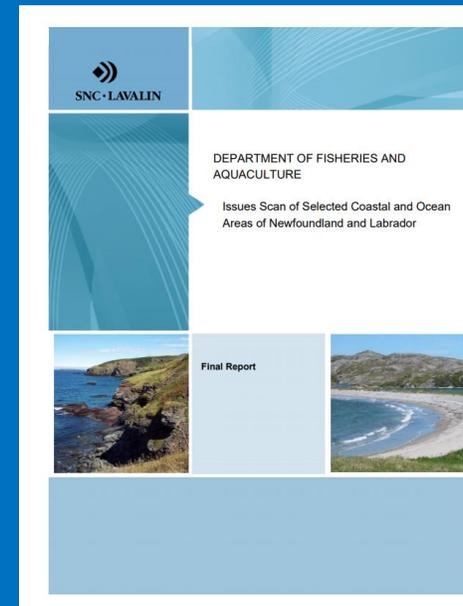
“Policy development will focus on areas of jurisdiction of Gov of NL”



Policy and Planning Context



PART II – POLICY FRAMEWORK	
Priority Issues:	Strategic Objectives:
Healthy Marine Environments	<ul style="list-style-type: none"> Coastal ecosystems, particularly areas of significant ecological importance, are protected, maintained, and restored where possible. Coastal activities and development do not result in irreversible damage or harm coastal and ocean areas and resources. Coastal water quality allows for ecosystem functioning and sustainable human use.
Social, Cultural and Economic Sustainability	<ul style="list-style-type: none"> Social and cultural values associated with coastal and ocean areas are appreciated, conserved and maintained for future generations. Sustainable economic opportunities pertaining to coastal and ocean areas and resource use are supported.
Coastal Land Use	<ul style="list-style-type: none"> The impact of land use activities on the coastal and ocean environment is better addressed through comprehensive coastal land use initiatives.
Competing Needs and Interests	<ul style="list-style-type: none"> Conflicts pertaining to coastal and ocean areas and resource use are mitigated and avoided through enhanced consultation and communication efforts.
Coastal and Marine Infrastructure	<ul style="list-style-type: none"> Coastal and marine infrastructure needs are identified and addressed through collaborative efforts.
Climate Change	<ul style="list-style-type: none"> The effects of climate change on the coastal and ocean environment, including implications to livelihoods, coastal structures, and coastal activities, are better understood through enhanced research and awareness. Coastal communities and marine industries are more resilient to the impacts of climate change by recognizing vulnerabilities and strengthening the ability to adapt.



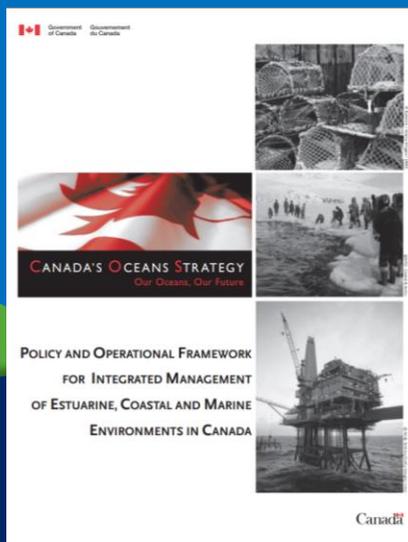
Policy and Planning Context



At the federal level, Canada's Oceans Act and Canada's Oceans Strategy provide Fisheries and Oceans Canada with the authority to undertake MSP.

"IM is a comprehensive way of planning and managing human activities so that they do not conflict with one another, and so that all factors are considered for the conservation and sustainable use of marine resources and shared use of ocean space"(p.7).

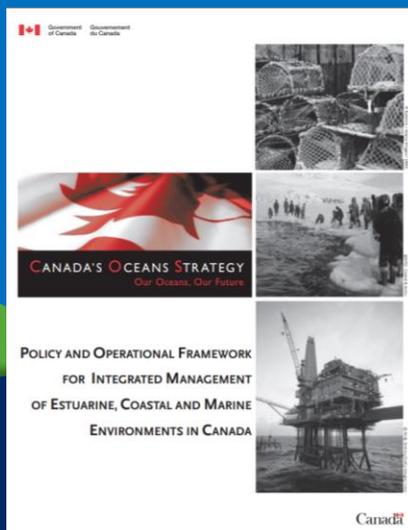
"Spatial and temporal understanding of the human activities is also required to address issues of multiple and conflicting use and aid in the application of ocean-use planning and zoning tools" (p.27).



Policy and Planning Context



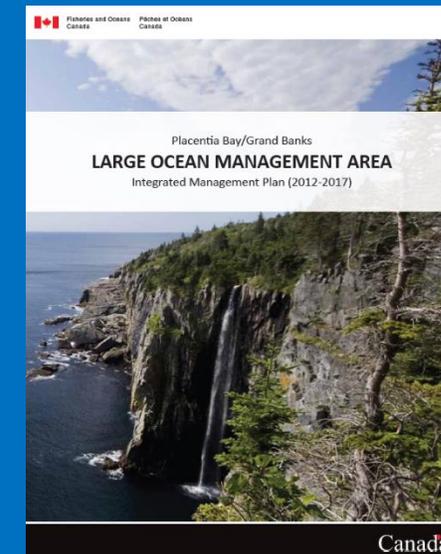
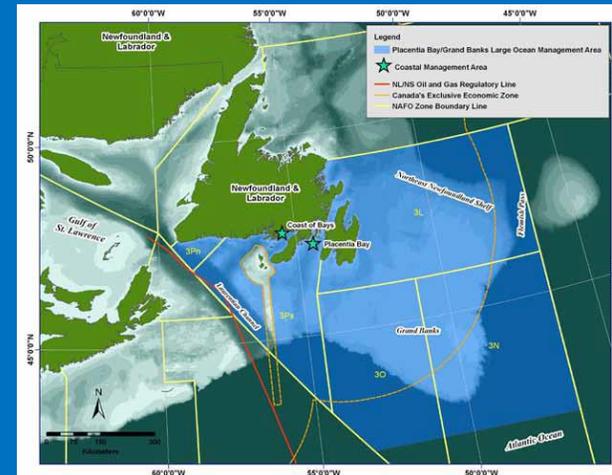
- *“These conflicts may still arise even though the objective in the first place of IM is to proactively plan for ocean space use so that conflict is avoided and ecosystem integrity is ensured.” (p.28)*
- *“The plan will be tailored to the environmental setting and the suite of existing and proposed ocean uses; take into account the specific policies, plans and legislation that apply in the area; and may be presented as a series of recommended management actions directed toward specific ocean uses; or may be presented as a zone identifying areas of preferred ocean use...” (p. 29)*



Policy and Planning Context



“...The Placentia Bay/Grand Banks Large Ocean Management Area IM Plan is presented as a multi-year, strategic level plan for the IM of policies, programs, plans, measures and activities in or affecting the PB/GB LOMA...”



Policy and Planning Context



PRIORITIES FOR ACTION

Healthy Ecosystems

1. Conserve Coldwater Coral and Sponge Reefs
2. Prevent Introduction/Distribution of Aquatic Invasive Species (AIS)
3. Rebuild Atlantic Cod
4. Manage Habitat for Marine Species
5. Protect at Risk Species and Vulnerable Marine Habitats

Collaborative and Effective Governance

1. Conduct a Legislative and Regulatory Gap Analysis
2. Enhance Communication and Awareness
3. Identify and Address Information and Data Needs/Gaps
4. Mitigate and/or Prevent Conflict

Sustainable Use

1. Improve Coastal and Marine Infrastructure
2. Prevent Pollution
3. Assess Linkages, Opportunities and Values to Guide Economic Development
4. Foster Community Engagement
5. Promote Education and Stewardship

Policy and Planning Context



The plan's "Mitigate and/or Prevent Conflict" priority includes the following associated strategic objective and management strategies:

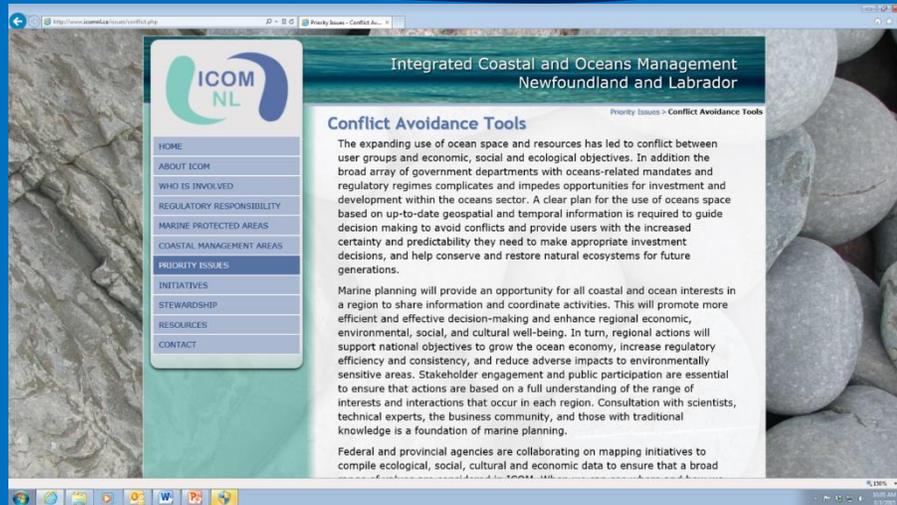
Strategic Objective

Conflicts are mitigated or prevented via the IM Process

Management Strategies

- *Understand existing and potential use patterns, interactions and cumulative effects*
- *Identify and characterize spatial and temporal conflicts*
- *Develop tools or procedures for addressing conflict*

Policy and Planning Context



“The expanding use of ocean space and resources has led to conflict between user groups and economic, social and ecological objectives...A clear plan for the use of oceans space based on up-to-date geospatial and temporal information is required to guide decision making to avoid conflicts and provide users with the increased certainty and predictability they need to make appropriate investment decisions, and help conserve and restore natural ecosystems for future generations...”

Drivers for NL MSP



An additional ROCOM priority, the establishment of a network of marine protected areas (MPAs) in the NL Shelves Bioregion (to meet Canada's commitments under the Convention on Biological Diversity), will require extensive geospatial capacity and engagement to identify and analyze the relationship between areas of high conservation value and high socio-economic value.

Priority NL Coastal and Ocean Issues

Expanding Aquaculture (example)

Case Has Been Made for NL MSP



- Together policy, plans and priorities indicate a requirement to undertake Marine Spatial Planning approaches in Newfoundland and Labrador.
- Operationalize strategic level policy, plans and priorities through MSP
- Existing user conflicts, aquaculture expansion, offshore wind development and MPA network planning are classic drivers for MSP.
- Undertaking MSP triggered by industry expansion, user conflict and environmental protection efforts requires access to and analysis of geospatial and temporal data (administrative, natural environment, human use etc.) housed in a Marine Atlas/Data Portal

Recommendations



It's proposed the initial focus of efforts to identify, access, manage, map and analyze coastal and ocean geospatial data target a specific area and aim to answer the fundamental spatial questions associated with priority issues identified by stakeholders around the province. Also compile additional layers generally for NL coastal areas and offshore waters. Same approach for other areas of Atlantic Canada.

Utilize SeaSketch as it was successful for MAPP and use their 250 layers as a guide/model for population of an Atlantic Canada Marine Atlas. *“No need to build a new house when you can just move your furniture into one that’s already built”*.

Host Atlantic Canada Marine Atlas with an independent entity external to government to avoid potential issues with sustainability, continuity, shifting priorities.



Thank You