Gulf of Maine Council on the Marine Environment

Council Briefing Packet

Version 1

Eastland Park Hotel, Portland ME ♦ December 7-8, 2010

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DRAFT AGENDA

Gulf of Maine Council Forum on Transboundary Marine Spatial Planning

December 7, 2010 • Portland, Maine

1:00 pm	**Welcome and Introductions – Mel Cote (EPA) & Jackie Olson (EC)**
1:15 pm	Current Policy and Governance Backdrop for Marine Spatial Planning (Session Chair – Susan Russell-Robinson) *Betsy Nicholson (NOAA) and Ted Diers (NH)* *Tim Hall (DFO) and Russ Henry (NB)* Brief presentation and discussion of current policy and operational initiatives in the US and Canada that support coastal and marine spatial planning.
1:35 pm	**Lessons Learned to Guide Future Bioregional Efforts (Session Chair – Priscilla Brooks)** *John Weber (MA)* *Grover Fugate (RI)* *Glen Hebert (DFO)* *Kathleen Leyden (ME)* A series of 15 minute presentations followed by a plenary discussion. The panelists will summarize their key lessons learned through experience and provide thoughts on how individual initiatives might be linked through a regional process.
3:00 pm	**Health Break**
3:15 pm	**Working Together to Advance Marine Spatial Planning (Session Chair – Betsy Nicholson)** *Transboundary Organization Perspective:* *Linda Mercer (GOMMI)* *John Annala and/or Rob Stephenson (RARGOM)* *Ru Morrison (NERACOOS)* *Manager Perspective:* *Pete Colosi (NOAA NMFS)* *George LaPointe (ME DMR)* *Odette Murphy (DFO)* The panelists will provide their perspectives on how science and fisheries interests can best be considered and integrated in a bioregional spatial planning process.
4:15 pm	**Advancing Marine Spatial Planning in a Transboundary Bioregional Setting (Session Chair – Tim Hall)** This will be a facilitated plenary discussion in which the participants will be asked to consider the transboundary aspects of marine spatial planning in the Gulf of Maine bioregion from a policy and technical perspective. They will then be asked to consider what would be an appropriate role for the Gulf of Maine Council. An anticipated outcome would be the development of a statement on this issue for Council approval.
5:00 pm	**Adjourn**

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PLoS BIOLOGY

Community Page

Making Marine Life Count: A New Baseline for Policy

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From the start, ocean use and resource exploitation by humans proceeded with limited knowledge of marine life and habitats. Even in the last century, biological knowledge of the oceans remained more limited than that of physical ocean processes such as storms, tsunamis from undersea earthquakes and teleconnections, like El Niño. Yet, human exploitation of the oceans is accelerating, reaching greater depths (Figure 1) and having greater impacts on marine life. Many uses interact, as when ports displace fishing, chemical industries contaminate marine life, and greenhouse gases in the atmosphere acidify and warm the oceans. Sustainable, science-based ocean policies that mitigate human impacts urgently need enhanced knowledge of marine life.

The Origin and Work of the Census of Marine Life

Launched in 2000, the decade-long Census of Marine Life partnership (CoML or the Census - http://coml.org) converged with advances in information, communication, genetic, sensory, and acoustic technologies to spur knowledge of marine life. It sought to expand the known, shrink the unknown and set aside the unknowable. The Census received core funding and intellectual guidance from the Alfred P. Sloan Foundation. Its strategic goal was to comprehend the diversity, distribution and abundance of marine life, from microbes to whales. The Census spanned all ocean realms, from coast to abyss, from the North Pole to Antarctic shores, from the long past to the future (Figure 2). It systematically compiled information from new discoveries and historic archives and made it freely accessible. It employed conventional research ships and sampling, divers and submersible vehicles, genetic identification, electronic and acoustic tagging, listening posts and communicating satellites [1].

More than 2,700 scientists from more than 80 nations and 540 scientific expeditions using $650M (est.) from nearly 500 sources of funding and in-kind contributions mobilized around 17 Census and five affiliated projects, each headed by leading scientists. Census governance balanced strategy and coordination with project management that gave experts the freedom to innovate and ensured global reach. The Census, through its international oversight bodies, projects, and 13 National and Regional Implementation Committees spanning the globe (Figure 3), has already contributed 2,600 papers to the scientific literature, many in special editions of specialist journals.

The Census partnership produced results on a scale never before achieved for marine life and created a new baseline of knowledge. From Census specimens, more than a thousand new species, several new genera and a new family have already been named and more than 5,000 new candidates have been collected and are waiting to be named [2–4]. Using acoustic technologies, Census scientists discovered a shoal of herring as large as Manhattan off the coast of New Jersey [5] and tracked Pacific salmon from their natal rivers to Alaska [6]. Amidst the new discoveries, however, are sobering insights into historical depletions. From historic records, the Census showed that people have depleted populations of marine species worldwide over hundreds and sometimes thousands of years, changing the structure of marine-life communities, the profitability of harvesting and the ability to recover [7]. Emerging discoveries on the diversity and distribution of microbes, the largest source of marine biomass [8], will be central to tracking the impacts of more acidic, warmer, low oxygen oceans under climate change.

The Census is bequeathing such legacies as the Ocean Biogeographic Information System (OBIS – http://iOBIS.org), which is now incorporated into UNESCO's International Oceanographic Commission as part of the International Oceanographic Data and Information Exchange (IODE). The Census stimulated ongoing partner projects including the Encyclopedia of Life (a webpage for every

The Community Page is a forum for organizations and societies to highlight their efforts to enhance the dissemination and value of scientific knowledge.

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Competing Interests: The authors are members of the Census of Marine Life partnership through its Scientific Steering Committee (members and ex-officio members), International Secretariat and projects. The Public Library of Science has also received funding from the Alfred P. Sloan Foundation, to develop a Biodiversity Hub, which will feature some content from the Census of Marine Life.

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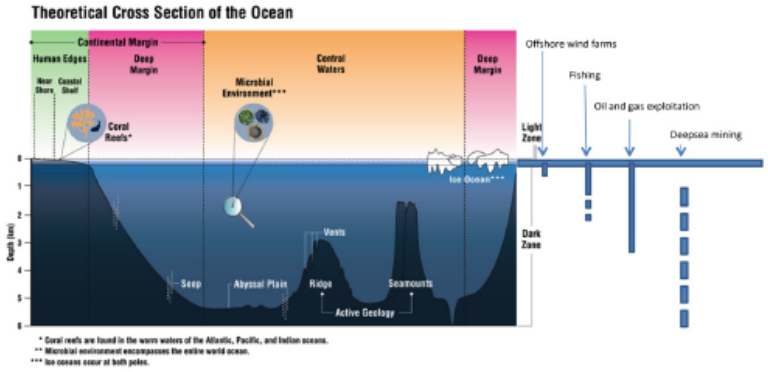

Figure 1. Schematic cross-section of the ocean indicating ocean realms and current (solid line) and proposed (broken line) depths of exploitation for fishing, oil and gas, deep-sea mining, and wind-farms. Wind farms: to 220m, plus offshore floating turbines anchored at greater depths (http://en.wikipedia.org/wiki/Wind_farm, accessed 25 May 2010). Fishing: current commercial fishing occurs between 1000 to 1400m; fishing deeper than 1500m is not constrained by technical limitations and vessels could modify equipment to suit. (F. Chopin, FAO, personal communication). Oil and gas: 3,000m (*The Economist*, March 4 2010). Deep-sea mining: 1,000–6,000m (*Technical Study No. 2*, International Seabed Authority 2002). Image: CoML and Meryl Williams.
doi:10.1371/journal.pbio.1000531.g001

species), the Barcode of Life (short DNA identifiers for every species), and the Ocean Tracking Network (observations of animal movements spanning the globe). Some Census field projects will continue in different forms. For example, two animal tracking projects have joined forces and provided prototype technology for the Ocean Tracking Network; the six deep-sea projects have collaborated on the Synthesis of the Deep-sea projects of the Census of Marine Life (SYNDEEP); and the Gulf of Maine Area Program has borne an offspring called Canada's Healthy Ocean Network. The History of Marine Animal Populations has spawned a new field of study that integrates scholars in social and natural sciences and humanities, and the work of the Future of Marine Animal Populations will continue through

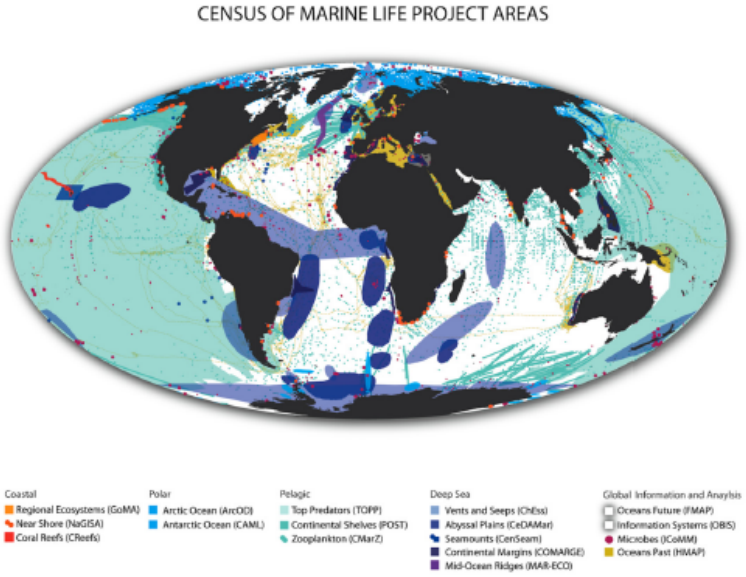

Figure 2. Census of Marine Life project areas. Image: CoML.
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a team at Dalhousie University. Another continuing collaboration is the Global Ocean Biodiversity Initiative (GOBI – http://www.gobi.org), which involves the International Union for Conservation of Nature (IUCN), the German government, several United Nations and non-government agencies, and many Census projects that are identifying places in the open oceans and deep sea deserving protection.

Successful policy acceptance and adoption requires a solid foundation of public awareness. To achieve this, Census discoveries were brought to public notice. The Census made extensive use of new media so that, for example, millions of people watched "great turtle races" tracking turtle migrations on live TV. Aided by press releases, Census discoveries have earned global media attention. The Census cooperated with the cutting edge team of Galátee, Inc., led by Jacques Perrin and Jacques Clouzaud, to produce the film *Oceans*, which premiered in 2010 and is already one of the highest grossing documentaries ever.

What was unpredicted at the start of the Census was the depth of policy interest in the results. Already, the Census results have started to influence policies and management in such bodies as the International Seabed Authority. Three examples of the uses of Census expertise are: (1) assisting the Convention on Biological Diversity (CBD) as it defines potential protected areas in the open ocean and deep seas, (2) supporting marine planning for regions and ecosystems, and (3) contributing marine biology observations for the Global Earth Observing System of Systems (GEOSS) of the intergovernmental Group on Earth Observations (GEO).

Convention on Biological Diversity Addresses the Open Oceans

The Census' discovery, mapping and counting of species measures biodiversity. The international legally binding treaty on biodiversity is the Convention on Biological Diversity (CBD) adopted in Rio de Janeiro in June 1992. A decade later in 2002, the World Summit on Sustainable Development (WSSD) agreed upon 2012 as the target year to establish an international network of representative marine protected areas [9].

The CBD enshrined national sovereignty over biodiversity, but this left marine life in the 64% of the oceans outside national jurisdictions largely unprotected. Several regional fisheries management organizations and regional coastal and ocean

Figure 3. Participation by country and region. Countries coded with the same color collaborate in a regional implementation committee and numbers within country borders indicate the number of collaborating Census scientists for that country. Image: CoML
doi:10.1371/journal.pbio.1000531.g003

management agencies have been established in recent decades and are working towards regulating use of shared species and ocean regions, including areas of the open ocean and deep seas. However, marine biodiversity protection is only lately entering the considerations of most of these bodies, often with reference to WSSD [9]. The CBD is also redressing this neglect of biodiversity outside national waters and has established scientific criteria for "ecologically and biologically significant areas" (EBSA) [10]. The EBSA scientific criteria are: (1) uniqueness or rarity; (2) special importance for life history of species; (3) importance for threatened, endangered, or declining species and/or habitats; (4) vulnerability, fragility, sensitivity, and slow recovery; (5) biological productivity; (6) biological diversity; and (7) naturalness. The EBSA criteria were then tested by pilot illustrations for 15 different areas/species.

Here is where CoML comes in. In collaboration with the Global Ocean Biodiversity Initiative, Census researchers contributed several critical pilot illustrations from OBIS and Census-led field and service projects: CenSeam (seamounts), MAR-ECO (Mid-Atlantic Ridge), TOPP (Tagging of Pacific Predators), OBIS, and the Mapping and Visualization (M&V) project.

This pilot exercise demonstrated the importance of organized publically accessible data portals such as OBIS that were able to deliver up the results of over 800 existing, quality controlled data collections, including all the data gathered by Census projects. For example, CBD's Criterion 6 concerning biological diversity defines an EBSA as an area containing relatively more diversity of ecosystems, habitats, communities, or species, or an area with more genetic diversity. To investigate global scale patterns, Census scientists provided the CBD with analysis of the more than 22 million records then in OBIS. They estimated several biodiversity indices corrected for intensity of sampling and for broad global patterns of marine biodiversity already known (Figure 4). EBSA Criterion 7 (naturalness) used the example of the southeast Atlantic seamounts. This illustration combined inputs from Census projects, such as seamount and historical trawl fishing locations from CenSeam, and biological sampling from OBIS/Seamounts Online, with human impact compilations [11,12].

Input from Census researchers was also important in FAO discussions on management of deep-sea fisheries on the high seas, providing background information to national delegates formulating the final set of international guidelines [13,14].

Planning for Regions and Ecosystems

Akin to land and urban planning, marine planning has arisen to provide order and predictability to the multiple ocean uses at scales smaller than those of the global conventions such as the United Nations Convention on the Law of the Sea and the CBD. The ecosystem and precautionary approaches to planning and management have developed to encompass conservation objectives. These approaches are enshrined in recent global instruments, especially the 1995 United Nations United Nations Agreement for the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations Fish Stocks Agreement), wherein article 5f is binding on signatories to maintain biodiversity, and the 2002 Plan of Implementation of the World Summit on Sustainable Development.

Plans for multiple uses and with multiple objectives are displacing simple plans for single uses and objectives, e.g., plans for conserving ecosystems like coral reefs, seamounts, regions like Australia's Great Barrier Reef, the Mediterranean and Baltic Seas, and the United States of America's ocean coasts and Great Lakes have become more common [15]. Ecosystem approaches and marine spatial planning both require useable knowledge of marine-life diversity, distribution, and abundance, coherent across environment and industry decision-making frameworks [16]. The Census approach emphasized validated, geographically and time-referenced biological data, and technologies that capture the dynamics of individual organisms and animal populations throughout seasons and life cycles and through history.

For example, data from Census projects CeDaMar (abyssal plains) and CenSeam (seamounts) fed into designing a "Preservation Reference Area" network in the Clarion-Clipperton Fracture Zone of the central Pacific Ocean by the International Seabed Authority to manage potential mining for polymetallic nodules [17]. Through modeling, Census scientists have predicted the likely distribution of deep-sea corals that are indicator species and highly vulnerable to impacts from fishing or mining [18]. Regional fisheries management organizations, such as the South Pacific Regional Fisheries Management Organization, have used indicator species to predict where habitats sensitive to fishing might occur in data poor regions [19].

Census researchers played a major role in the development of the UNESCO Global Open Oceans and Deep Seabed (GOODS) biogeographic classification. The classification is designed to identify where industrial uses of the ocean are incompatible with biodiversity conservation and to protect representative marine life and ecosystems and thus aids marine planning [20].

International Ocean Observation Systems

The intergovernmental Group on Earth Observations (GEO) is coordinating efforts to build a Global Earth Observation System

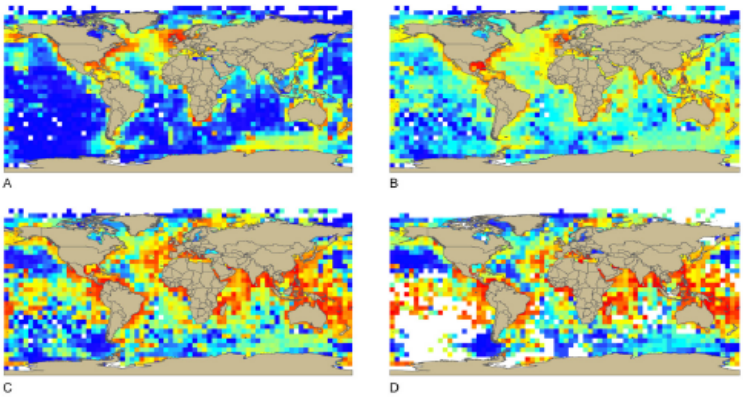

Figure 4. Four maps used for Convention on Biological Diversity Ecologically and Biologically Significant Areas Criterion 6, Biological diversity (Annex of reference 11). (a) total records in OBIS, corrected for differences in surface area between squares on different latitude; (b) the total number of species, corrected for differences in surface area between squares on different latitude; (c) Shannon Index; (d) Hurlbert's Index, *es(50)*.
doi:10.1371/journal.pbio.1000531.g004

of Systems (GEOSS). In 2008, GEO established a Biodiversity Observation Network (GEO-BON) as one of nine Societal Benefits Areas (http://www.earthobservations.org/geoss_bi.shtml) [21]. Effective and efficient observation of more than 200,000 species of marine animals and perhaps tens of millions of types of marine microbes present great scientific and technological challenges. Existing long-time series of marine life are rare and narrow in scope, such as the Continuous Plankton Recorder in the North Sea and North Atlantic (Sir Alistair Hardy Foundation for Ocean Science, http://www.sahfos.ac.uk/sahfos-home.aspx, since 1931), long-term fisheries surveys for North Sea groundfish (the International Bottom Trawl Survey (http://www.ices.dk/datacentre/datras/survey.asp, since 1960), the United States of America (since 1963) [22], and intermittent surveys from the 1920s in Asia [23]. The paucity of biological time series contrasts with the more numerous marine chemical and physical data series captured by remote sensing and such tools as drifting buoys and active float systems.

By making the oceans more "transparent" and accessible, new technologies such as demonstrated by the Census are relieving this deficiency for biology [1,24]. For example, individual Pacific salmon (*Oncorhynchus* spp) were tracked over thousands of kilometers using tags that emit individually coded acoustic pulses to coastal receivers [6]. Via tags, how marine mammals use major oceanic features such as frontal zones under ice has been mapped [25]; new rapid genomic techniques and databases (e.g., DNA barcoding, 454-pyrotag sequencing [26] and MICROBIS – http://icomm.mbl.edu/microbis/) are rewriting knowledge of marine biodiversity and marine-life abundance. The CReefs project of the Census developed a new automated structure, (Autonomous Reef Monitoring Structures (ARMS)), 500 of which are now deployed in the Pacific and Indian oceans and the Caribbean, collecting specimens and ecological data to monitor tropical coral reef biodiversity [27].

Notwithstanding the urgency to monitor marine life, scientists and policy makers have yet to implement a set of core observing systems for a comprehensive "Bio-GOOS" [28]. The outputs from the Census will be a valuable input to such a comprehensive system.

Reflections

With the wisdom of hindsight, what could the Census have done differently for greater policy impact? Two aspects come to mind: the possible effects of earlier policy engagement and earlier globalization.

The Census engaged with end-users relatively late in the decade. As the Census was primarily a discovery program and was not policy-directed, we were surprised at the demand for the Census to help inform policy. The demand partly derived from international commitments such as the growing list of CBD provisions, the 2002 WSSD and national laws that now oblige maritime countries to assess the status and outlook for marine life in their waters and oceans beyond. The other drivers for Census-type information were increased evidence of impacts and raised public awareness. Broader partnerships with bodies outside scientific research agencies are vital in science-policy engagement. For example, the Census partnership with IUCN has been successful on several levels, as has the Memorandum of Cooperation the CBD. These complementary partnerships enabled the Census to stay focused on unbiased science while still being able to link into the policy sphere.

Possibly, broadening the delivery model beyond scientific publications and public outreach could have had earlier impact. For example, Census scientists who engaged in delivering policy-relevant advice on high seas and seamounts fisheries [18] learned the importance of thinking outside their national objectives. They had to look at the bigger picture and access other ideas, other data, and the demands of other than their home countries. To arrive at robust advice, they had to consider generic drivers of ecosystem change on seamounts and more international and global management issues. Further, having started late in deriving the policy relevance of Census results, scientists have had to be creative to explain post hoc the usefulness in policy-relevant terms. However, neither the Census nor other bodies could have readily agreed program policy targets in advance without risking too much dispersion and losing sight of the essential science vision of the Census. Perhaps a breadth of vision in collecting basic knowledge is essential in meeting the future needs of marine management and policy?

The second aspect was underestimating the challenge of moving from expeditionary science focused on global questions delivered by scientists from established institutes to a global initiative that involved scientists from many coastal countries. National and regional scientists will have long-term carriage of policy advice to decision makers. Capacity building was not an explicit objective of the Census and yet a great deal of capacity was built. However, more focus on NRICs, and/or more NRICs, could have led to more lasting policy impacts from the Census.

With these reflections on possible improvements and the overall achievements of the Census, we conclude that investing in scientific knowledge of marine life, new discovery, and monitoring technologies and extensive databases within and across ocean use and conservation helps meet the growing demand for better ocean policies.

Indeed, a significant opportunity remains to continue this work in an international and cooperative manner post the first 10 years of the Census.

Acknowledgments

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Tuesday, December 7, 2010 – Eastland Park Hotel, Portland Maine

1:00-5:00pm	**Council and Working Group** **Gulf of Maine Council Forum on Transboundary Marine Spatial Planning**
6:00-8:00pm	**Council and Working Group** **Reception and Annual Gulf of Maine Council Awards Ceremony – Eastland Ballroom**

Wednesday, December 8, 2010 – Eastland Park Hotel, Portland Maine

7:30 am	**US and Canada Association / Delegation meetings** Continental breakfast provided courtesy of Gulf of Maine Area Census of Marine Life
8:30 am	Welcome, introductions, and overview of objectives for the meeting *Kathleen Leyden, Director, Maine Coastal Program / Maine State Planning Office & Council Chair*
8:45 am	**Guest Presentations and Discussion: Biodiversity Knowledge and its Relevance to Managing Human Uses of the Gulf of Maine** *Lewis Incze, PhD, Director, Aquatic Systems Group, University of Southern Maine and Chief Scientist, Gulf of Maine Area (GoMA) Census of Marine Life; with* *Peter Lawton, PhD, Director, Centre for Marine Biodiversity, Research Scientist, Fisheries and Oceans Canada, and GOMA Co-Principal Investigator*
11:45 am	Lunch on your Own
12:45 pm	**Consent agenda** • Council June 2010 meeting summary • Committee and Subcommittee reports acceptance • Annual indirect rate approval • Approval of Final July 2010-June 2011 Budgets
1:00 pm	**Gulf of Maine Council on the Marine Environment Action Plan: Work Session for Councilors to shape the next five years** *Kathleen Leyden; Theresa Torrent-Ellis, WG Chair; and David Keeley, Development Coordinator*
5:00 pm	**June meeting plans and closing remarks** *Kathleen Leyden*
5:30 pm	**Adjourn**

BIODIVERSITY MATTERS *in the* Gulf of Maine

When we try to pick out anything by itself, we find it hitched to everything else in the universe. – John Muir

All life in the Gulf of Maine is an integral part of a dynamic ecosystem that has been shaped over millennia and is continually adapting to change. Change comes from many causes—both natural and human-driven.

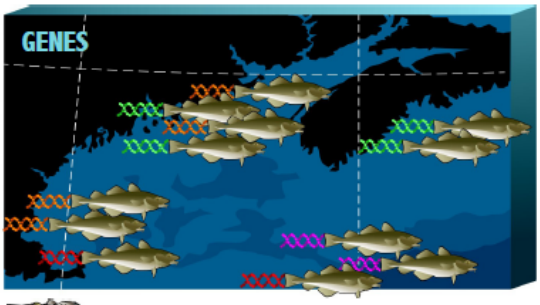
The Gulf of Maine is home to more than 4,000 known species, ranging from microscopic plankton to seventy-foot fin whales. Even in this well-studied area, there may be several thousand species yet to be identified as living here, and some will be new to science.

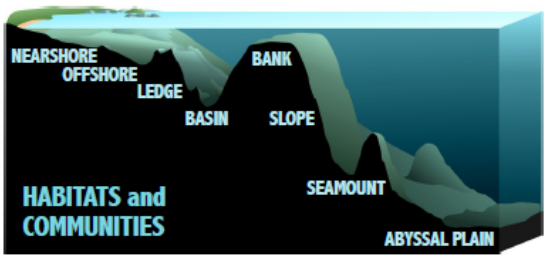
Virtually all areas of the Gulf of Maine, from the intertidal zone to deep basins, have been affected by humans. Some impacts have significant effects on the ecosystem, and have been occurring for decades, and in some cases centuries.

Predicting how ecosystems change over time is difficult, but scientists know that biodiversity plays a vital role in the essential functions provided by marine ecosystems.

Based on global and regional experience, the **conservation of biodiversity needs to be considered in ocean management.**

Biodiversity is the variety of life at all levels of organization, from genetic diversity within a species to the many ways that species interact with each other and with their habitats to form communities.





Multiple levels of biodiversity. The top panel represents **genetic** diversity within a species. The colored strands of DNA illustrate how genetic composition might change in a single species of fish over an area. The genetic structure shown by these patterns may reflect patterns of reproduction and adaptations to local conditions. The middle panel shows an example of **species diversity**, in this case in a coastal environment with sandy-muddy bottom and ledges. In the bottom panel, a cross-section of the Gulf of Maine shows large-scale **habitat diversity**, which supports different **communities** of organisms. Diversity at all three levels is a resource that can increase the capacity of a population, a community, or an ecosystem to persist and adapt over time.

The Census of Marine Life is a 10-year global initiative to assess and explain the diversity, distribution, and abundance of life in the oceans—past, present, and future. The world's first comprehensive Census of Marine Life was released in October 2010. The Gulf of Maine Area program is a joint US/Canadian project studying patterns of biodiversity and their role in marine ecosystem processes in order to inform ecosystem-based management of the Gulf of Maine region.

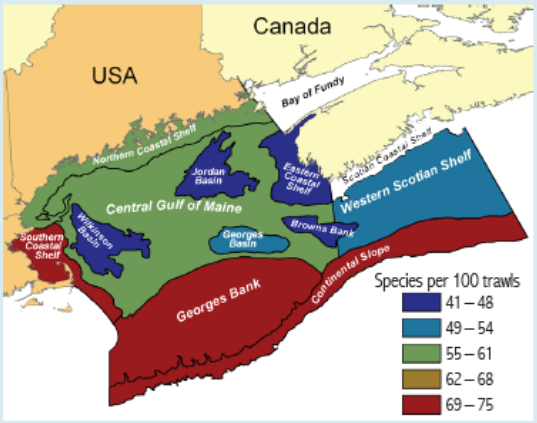
CENSUS OF MARINE LIFE

Marine ecosystems provide many important goods and services, such as recycling nutrients, regulating atmospheric gases, and producing food. Biodiversity plays a key role in maintaining these goods and services, which can be diminished through impacts on species or their habitats.

Patterns of Biodiversity in the Gulf of Maine

New statistical analyses have shown that habitat features such as bottom type, temperature, and bottom stress due to currents and storms explain about one-third of the variation in distribution and abundance of many fish and invertebrates in gulf-wide surveys. The Gulf has several physiographic regions distinguished by depth and geologic and oceanographic features. Analyses of fish species show highest diversity in the southern coastal regions and on Georges Bank, and lowest diversity in the deep basins and on Browns Bank and the Scotian Shelf. These large-scale patterns are defined by generally abundant and well-known taxa. A rich and complex structure also exists at smaller scales everywhere. Biodiversity relationships are inherently complex, and may never be completely known for the full spectrum of ocean life. Our understanding of ecosystem function and change ultimately depends on linking available knowledge across all these scales.

Large-scale patterns of diversity: Based on bottom trawl surveys from more than four decades of sampling, the diversity of fish varies among physiographic regions (shown here: number of species expected per 100 trawls). Finer scale mapping would reveal greater detail related to habitats.



Biodiversity Provides Economic Benefits

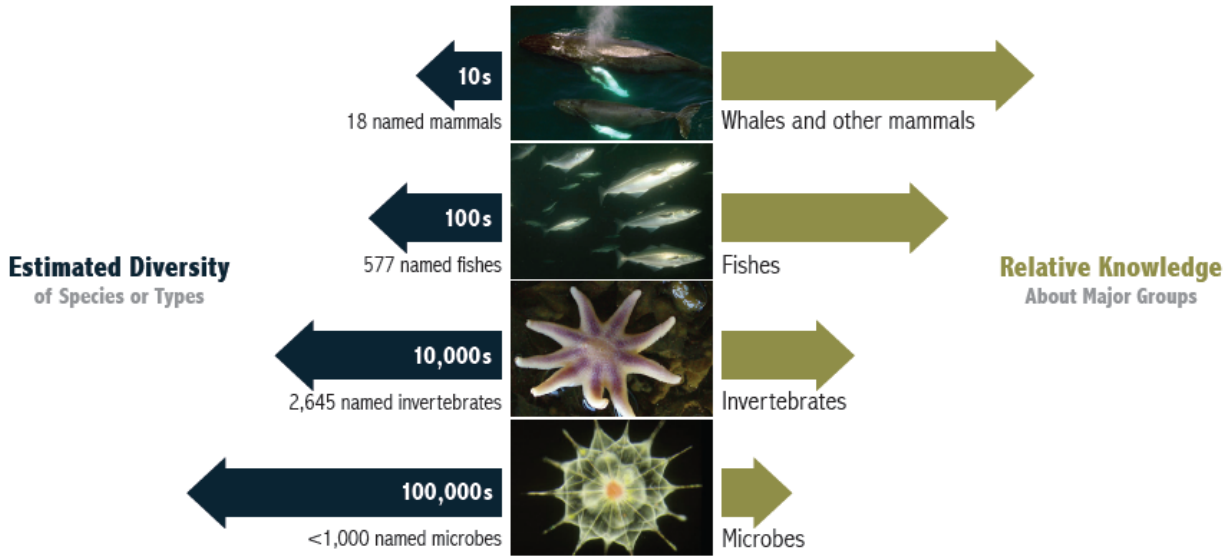
The physical and oceanographic characteristics of the Gulf of Maine Area, including Georges Bank, contribute not only to its biodiversity but also to its status as one of the world's most productive marine regions. For example, in the US, the New England economy derives over 5 billion dollars each year from the seafood industry alone (NOAA, 2010). Combining all economic benefits from activities that rely on the Gulf of Maine ecosystem makes it a critical natural asset for the region. Competition for use of the ocean is increasing by all sectors—fisheries, recreation, aquaculture, transportation, and emerging energy industries. Along with these growing demands comes a greater need to ensure that biodiversity is adequately protected so that the system continues to provide valuable benefits into the future.

Loss of Biodiversity May Impair Ecosystem

The Great Auk and Sea Mink are the only documented species extinctions in our region, but the abundance, within-population diversity, and ecological roles of many species are currently threatened, either directly or through impacts on their habitats. Present-day human-induced threats to biodiversity include overharvesting, physical impacts on species and habitats, pollution, and invasive species. These pressures may lead to "simplification" of the regional ecosystem, with less diverse gene pools, weakened or less diverse food webs, and a reduction in organisms that create structure—such as burrowers, corals, tunicates, and sponges. The cumulative impacts of these effects, along with other factors such as climate change, need to be considered by ocean managers and stakeholders.

***In the long term, economic stability depends on ecological sustainability.* – Pew Oceans Report, 2003**

DIVERSITY VERSUS RELATIVE KNOWLEDGE IN THE GULF OF MAINE



While our inventory of species in the Gulf of Maine area is far from complete, many key aspects of biodiversity are becoming better understood. We still know most about large conspicuous species, especially those of commercial importance. We also know more about organisms that live near the coast than those in deep water offshore. Yet, research shows that lesser known species—including microscopic organisms—play critical roles in ecosystem functioning.

Continued Efforts Are Needed to Sustain Biodiversity

In recent years, researchers in the US and Canada have made significant strides toward understanding the dynamics of the Gulf of Maine ecosystem and how this knowledge can be applied to management. There is an accumulating body of science, resource management tools, and information systems to support ecosystem-based management in the Gulf of Maine (see next page). Despite these advances, conservation efforts in the sea have lagged behind those on land, perhaps because ocean habitats are less visible and less familiar to people, and because people are often unaware of the ways in which ocean resources support coastal communities and regional economies. New marine conservation measures will need to be embraced by a broad stakeholder community in order to sustain the ecological, social and economic landscape of the Gulf of Maine region for generations to come.

Ecosystem-Based Management

Ecosystem-based management considers the integrated effects of humans and natural processes on ecosystem state and function in order to improve decision-making. When managers are faced with multiple options about the use of ocean space, they should consider how proposed uses interact with other uses to affect biodiversity and ecological functioning at the local and ecosystem level. Since our knowledge and inventory of biodiversity in the Gulf of Maine is incomplete, management options must include reducing risks to the currently unknown biodiversity.

In addition to aesthetic and ethical reasons for protecting biodiversity, there are truly practical reasons for doing so. Biodiversity—in the Gulf of Maine and elsewhere—is part of our natural heritage, an encyclopedia of life itself, and it serves as the reservoir of options that an ecosystem has to adapt to change.

Given that our knowledge and inventory of the Gulf of Maine is incomplete, ocean managers must adopt an integrated and precautionary approach that allows an ecosystem to function sustainably and manages human uses of ocean resources for generations to come.

Networks of Protected Habitats Can Help

One widely acknowledged way to conserve biodiversity is to establish networks of representative habitats of sufficient size to accommodate local ecological processes, and distributed so as to ensure connectivity of populations. Different levels of protection can be applied at various spatial scales to provide for ecological processes as well as human uses.

Given that the system is dynamic and subject to short-term variability as well as long-term shifts such as climate change, ecosystem performance should be monitored and management strategies adapted over time to ensure that objectives continue to be met.

The American lobster, *Homarus americanus*, is part of a diverse community of bottom-dwelling species.

Biodiversity Tools and Resources

The Gulf of Maine region is poised to use biodiversity information as part of ecosystem-based management approaches, and these are a few key tools and resources that have become available in recent years through the Census and other regional programs and collaborators:

- **First regional database of known species:** Gulf of Maine Register of Marine Species (http://www.marinebiodiversity.ca/nonNARMS/classification.jsp)
- **Ocean observing, monitoring and data systems** and partnerships to make data accessible for integration and synthesis: Northeast Regional Association of Coastal Ocean Observing Systems (www.neracoos.org).
- **Online encyclopedia** of species and images as well as **global databases** linked to geographic locations: Encyclopedia of Life (www.eol.org) and Ocean Biogeographic Information System (www.iobis.org).
- **Comprehensive website** on the Gulf of Maine Area program, including research projects, publications and educational resources (www.gulfofmaine-census.org.)

In addition, there are several **regional initiatives** to incorporate integrative approaches, including biodiversity considerations, into the management of ocean space: Fisheries and Oceans (Canada), Northeast Fisheries Science Center (US), Northeast Regional Ocean Council (US), Massachusetts Ocean Partnership (US), and the Gulf of Maine Council on the Marine Environment (US/Canada).

This brochure was developed by the Gulf of Maine Area program of the Census of Marine Life as a contribution to regional discussions on ecosystem-based management. Principal Investigators Lewis Incze, Peter Lawton, and Sara Ellis provided scientific content and Susan Ryan guided the publication's development. We gratefully acknowledge the Alfred P. Sloan Foundation's funding of this joint US/Canadian project, the contributions of numerous colleagues from our region, and the support and guidance of individuals involved with the international Census of Marine Life. We thank the COMPASS ecosystem-based management group for their valuable input in shaping this publication.

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CENSUS OF MARINE LIFE

usm UNIVERSITY OF SOUTHERN MAINE

Centre for Marine Biodiversity

Gulf of Maine Area GoMA Census of Marine Life

Gulf of Maine Council on the Marine Environment Council Meeting
Meeting Summary
Portland, ME
June 9, 2010

Councilors present: Priscilla Brooks, Conservation Law Foundation; Bruce Carlisle for Deerin Babb-Brott; MA Office of Coastal Zone Management; Pete Colosi for Pat Kurkul, National Oceans and Atmospheric Administration; Mel Coté for Stephen Perkins, US Environmental Protection Agency; Russ Henry for Rick Doucet; NB Department of Fisheries; Perry Haines for Rick Miles, NB Department of Environment; Don Hudson, The Chewonki Foundation; Justin Huston for Greg Roach, NS Department of Fisheries and Aquaculture; Peter Lamb, New Hampshire Charitable Foundation; Kathleen Leyden for Martha Freeman, ME State Planning Office; Odette Murphy, Department of Fisheries and Oceans; Jackie Olsen for Daniel Lebel, Environment Canada; Susan Russell-Robinson for Marvin Moriarty, US Department of Interior; Lee Sochasky, St. Croix International Waterway Commission; Rob Stephenson, St. Andrews Biological Station; Michael Walls for Tom Burack, NH Department of Environmental Services; and Jack Wiggin, Urban Harbors Institute.

Others present: Debbie Buott-Matheson, Environment Canada; Rob Capozi, NB Department of Environment; Ted Diers, Working Group Chair, NH Department of Environmental Services; Tim Hall, Department of Fisheries and Oceans; Adrianne Harrison, National Oceans and Atmospheric Administration; Russ Henry, NB Department of Fisheries; Patricia Hinch, Bay of Fundy Ecosystem Partnership; David Keeley, Development Coordinator; Julia Knisel, MA Office of Coastal Zone Management; Cindy Krum, US Gulf of Maine Association; Gary Lines, Environment Canada; Slade Moore, Habitat Restoration Partnership; Ann Rodney, US Environmental Protection Agency; Theresa Torrent-Ellis, Maine State Planning Office; Michele L. Tremblay, Council Coordinator; Jay Walmsley, Department of Fisheries and Oceans; Peter Wells, Dalhousie University; and Matthew Wood, Administrative Assistant.

Consent Agenda
Peter Lamb requested that the December meeting minutes be removed from the consent agenda. Peter requested that his name be moved from 'Others Present' to 'Councilors Present' on the December 2009 Councilor Meeting Summary.
The list of donated funds was removed for further discussion and clarification.
Decision: The Council accepted the consent agenda.
Action: Peter Lamb's name will be moved from under the 'Others Present' list to the 'Councilors Present' list on the December 2009 Councilor Meeting Summary.

2010-2011 Gulf Maine Council Budget
Cindy presented an overview of the budget, indicating that Working Group made the recommendation that the Council accept the budget. Cindy explained that the budgeting method has been changed for 2011. The budget was developed in a similar manner to other non-profit organizations in that funds were added in that were expected to come in. Overall there is currently funding for one issue of the Gulf of Maine Time, core services are back completely with the Keeley Group, and a few tasks have been added to the US Association to increase efficiency between the Canadian and US associations.
Decision: The Council approved the budget by consensus.
Action: The Council will proceed with the contracting process.

Action Plan: Guidance for the Future and Engaging the Council's Membership in Implementation
Ted presented recommendations and insight from the Working Group, stating that the Council will be moving forward with the development of the Action Plan in the upcoming year. This will be a plan for the Council, but will present an overall vision for the Gulf of Maine. This will be a revision of the current plan and not a complete re-write. The Maine Coastal program has dedicated funds and resources to this effort. The existing goals will be kept with ESIP and Climate Change as cross-cutting areas. The new plan will be web-based with the ability to print-on-demand. The schedule for the upcoming year will be:

- June 2010 – commence Plan update
- December 2010 – review implementation progress of current Plan and establish priorities; Councilors create ad-hoc group to work on plan development
- June 2011 – finalize Plan including implementation and communications strategies
- December 2011 – release Plan

Kathleen expressed her concern over the distinction that this is a plan for the Council not for the Gulf. Ted explained that by using this method it will help the Council describes our niche in the Gulf. Rob inquired whether through updating the current plan if anything might be missed (e.g. looking at what the council is unique at doing). Ted responded by indicating no. The Council will use the State of the Environment Report and RCOM and NROC to help develop the plan and show what we are uniquely qualified to do. The Council will probably list fewer things that we want to do but the Council will get more focused. Odette commented that the proliferation of groups can create overlap and it is important to identify where the Council can work together as opposed to duplicating efforts.

Theresa explained to the Councilors that the Working Group has gone through the exercise of identifying emerging issues and hot topics within their jurisdictions. A brainstorming session will now be held to allow Councilors the opportunity to identify their hot topic and emerging issues. The purpose of this exercise is to try and make sure that all of the jurisdictions can have a direct link to the Council's activities. Below is a list of some of the issues identified:

- Renewable energy - Tidal and Wind
- Adaptation to climate change and habitat restoration
- Strategic habitat restoration
- Integrated planning and communication, energy efficiency
- Water and land use planning across boarders
- Land use Resiliency
- Species at risk and migratory birds
- Climate volatility and how to respond
- Habitat connectivity
- Visualizing Cumulative impacts of build out of renewable energy
- Messaging for jobs and the economy
- Nitrogen and nutrient pollution and creation of standards
- Evolving landscape
- Scientific priorities
- Biodiversity in the coastal habitat
- Wastewater effluent – regulation in Canada
- Marine spatial planning – GOMC good to look across jurisdictions
- How to ID special ecological area that need to preserved
- Near shore water quality and watershed based planning
- Citizen engagement
- Integrated management and ocean management expansion to marine spatial planning
- Sustainable species management
- Renewable energy and far field effects
- Geospatial data mapping – fish pass issues
- Bioregional Marine Protected Area network planning
- Natural resource damage assessment capabilities
- Ecosystem based management and tools to management
- Traceable/labeling and eco-Certification of fish products
- Sea lice management
- Integrated cross–jurisdictional management
- Species shift do to climate change
- Invasive species
- Exploration of traditional energy resources across borders
- Emerging technologies and sustainability
- Strategic approaches to habitat protection, restoration + protection = conservation
- Coastal erosion and strategies and tactics to combat it
- Fisheries management – community based quota system moving to area based and sustaining economies
- Sustainable and viable marine based industries
- Oil and gas exploration

- Public education

Ted made the comment that the Council need to think about how to become complimentary and not redundant in our efforts. Justin commented that there are a lot of things that are outside of our three goal areas, the Council needs to make sure not to stray too far from the goals but still make the jurisdictions feel like they have buy in to the Council. Ted explained that the matrix Michele put together for the Working Group and the Councilors list will be merged, and then it will be identified how the Council's goals relate to the topics. This will also help identify what does not fit into the goals and determine if revisions need to be made. It was suggested that it would be good to have a similar brainstorming session to identify the Council's strengths and weaknesses. Russ inquired if the stakeholder process had been identified yet. Ted explained that it had not been identified yet, but is on the agenda and will be presented possibly at the next meeting.
Decision: The Council affirmed the Action Plan process and schedule recommended by the Working Group and will form an ad-hoc group to provide input during the development process. Councilors that volunteers to be on the ad-hoc group include: Jack Wiggin, Priscilla Brooks, Odette Murphy, Mel Coté, Jackie Olsen, Don Hudson, Kathleen laden, Lee Sochasky, Bruce Carlisle, Rob Stephen and John Annala.
Action: As a next step in the Action Planning Process the Working Group and the Councilors will conduct brainstorming sessions to identify the Council's strengths and weaknesses at their next respective meetings.

Habitat Restoration Partnership Update
Slade presented an update/overview of restoration successes, challenges, and how the GOMC-NOAA Partnership is adapting to conditions associated with a program of this scale and impact. Over the past nine years there have been 43 MA projects, 28 ME projects, nine NH projects, three NB projects and three NS projects. These projects have resulted in the restoration of nine acres of subtidal zone, two acres of intertidal "other" zone, and 518 acres of intertidal marsh. Combined the projects have re-established access to 144 river miles (2410 lentic acres). The group was asked it there has been a discussion to prioritize restoration efforts (dam removal vs. marsh restoration)? Ted reported that there have been some attempts to, but the majority of the efforts have looked to find multifaceted project, many things can be restored in one area. Regional significant efforts have also been developed. Slade reported that there has been quite a bit of work to identifying fish pass barriers throughout the state of Maine. There are physical dams, under standards culverts, and culverts that severely limit fishpass that are being identified. Once that surveys are completed there will be some work to ID and prioritize their effects. Odette commented that a vulnerability atlas has been developed in Canada and might work well if synthesized in the States; it could be used as a prioritization tool.

Councilor Roundtable

Councilors shared information from their respective jurisdiction to increase the GOMC's role as a valuable coordinating and convening organization. Russ informed the Council that Minister Doucette announced he would like to hold a symposium on the recent oil spill to talk about the lesions learned and the preparedness in the Gulf of Maine. He thought that Council might be a good convener for this symposium and wanted to know if the Council would like to lend its support or take a lead role. There was support of the symposium in principal, but more details are need before the Council can render any type of formal decision.

Decision: The Council is convening a call to explore working with the Department of Fisheries on an oil spill symposium.

Action: The Council will convene a conference call to discuss and scope the proposed oil spill symposium hosting, developing messaging and speaking points, and to decide if it wishes to proceed with the event.

Action: The Council Roundtable will be added to the December 2010 meeting agenda and considered for subsequent meetings.

Discussion on New Council Member Agencies

Ted explained to the Council that In December he gave an overview of the core services provided by the Council, the funds those services required, and capacity to raise funds. The two options available to raise funds are through direct contributions to the Gulf of Maine Times and through adding new members. The Council needs to consider who should be on the Council irregardless of dues and who should be invited to join the Council to increase dues revenue. Jackie provided some ideas for new members that included: Halifax, Saint John, Saint Andrews, First Nations, the tourisms Industry, NRCan, CFIA and Parks Canada. Odette reported that she spoke with individuals from NRCan, who indicated that there has been a shift in focus from coastal to offshore, although there was some interest in looking further. Odette impression was hat NRCan might be open if approached with an invitation. Lee commented that the Council also needs to look at bringing in some people for the economic sector not just the scientific side. Ted asked the Council where they would you like to go. There are currently some seats on the Council that are vacant and could be filled without adding numbers, just diversity. Justin recommended that all the jurisdictions look and see if the right agencies are represented on the council. Some are not involved and perhaps others could be looked at to fill their spots. Ted commented that beyond jurisdiction looking at their members to see if they are the best fit, the action planning process will help to identify potential new members. Individuals should continue to speak with colleges if they want to join and the Council should also continue to approach First Nations.

Action: The Working Group will explore additional agencies and other participants to assure that relevant perspectives are seated to better inform discussions and processes including the Action

Planning and provide recommended Terms of Reference recommendations to the Council at its December 2010 meeting.
Action: Jurisdictions will review their membership with the Council and work to maximize its representation as specified in the Terms of Reference and the Working Group will make recommendations for revisions, as needed, for Council consideration.
Action: DFO will continue discussions to gauge Natural Resources Canada's interest in Council membership and USGS will also contact with NRCan to provide a peer agency perspective.

Coastal Marine Spatial Planning Overview and Linkages in the Gulf of Maine
In Canada, the Regional Committee on Coastal and Oceans Management is the senior intergovernmental coordinating body for coastal and ocean management issues in the Maritime Provinces. Tim provided an overview of this current oceans management framework and identified the current challenges and opportunities in relation to planning in the Maritimes. The primary role of the committee is the oversight, monitoring and performance of integrated management process. This is accomplished through annual meeting and conference calls, which are supported by a coordinating committee, and a federal/provincial working group based on jurisdictional and or initiatives. The priorities of the Committee include coordination and administration, regional ICOM initiatives (place based initiatives, provincial strategies, partnerships), ICOM Policy and Governance (Fed/Prov agreements, MPA planning, extra regional partnerships). Four examples of integrated management efforts include:

1. Eastern Scotian Shelf integrated management
2. Bras d'Or Lakes Collaborative environmental planning initiative
3. Southwest new Brunswick marine resource planning
4. Northumberland Strait initiative

The US National Ocean Policy and anticipated CMSP final framework and Executive Order are anticipated by early June. Susan provided an overview and discussed implications for the Gulf of Maine.

Justin commented that when the President releases the executive order things will move very quickly. What dialogue has happened to date between the US and CA? Susan explained that there is a short section on this but really this is happening here at the Council meeting. Justin inquired whether there would be a more formal discussions in the future? Ted explained that the comments from the Council on this have indicated that the Council is the place to have these discussions. We have an opportunity in our action plan for our countries to put some resources in this. It was suggested that the Council send out a formal letter/press release when this comes to pass stating what the Council's role will be. Tim commented that there is no official framework within Canada like there is in the US, the Canadians have had some discussions on how to proceed when we get that initiative. Mel suggested that a substantial amount of time be dedicated in the December meeting to discuss this in greater detail.

Decision: A substantial amount of time will be dedicated in the December Council meeting to discuss Coastal Marine Spatial Planning in greater detail.
Action: The Council Coordinator will work with Susan Russell-Robinson on Land Conservation Cooperatives and Climate Change Science Center presentations by Marvin Moriarty for the December 2010 Council meeting

Time for Items Removed from the Consent Agenda or Unfinished Business
It was requested that agendas and summaries of the previous meeting decisions and action items be distributed at the beginning of each meeting. It was also requested that summaries (1-2 liner) of all committee and sub-committees meetings be reported to the Council along with decision and action items.
Decision: Add a new performance measure into the new Action Plan to specify that all Committee and Sub-committees are required to submit a brief synopsis (one to two lines) of all of their meetings along with any decisions or action items to the Council Coordinator.
Action: The Council Coordinator will request that all Committee and Sub-committees submit a brief synopsis (one to two lines) of all of their meetings along with any decisions or action items to the Council Coordinator.
Action: The Council Coordinator will distribute via the listserves all Committee and Sub-committee meeting summaries (one to two lines) along with any decisions or action items to the Council.

Summary of Decisions and Actions Presented at the Meeting
Decisions:

- The Council affirmed the Action Plan process and schedule recommended by the Working Group and will form an ad-hoc group to provide input during the development process
- The Council is convening a call to explore working with the Department of Fisheries on an oil spill symposium
- The next meeting is slated for December 6-9, 2010 somewhere in ME (the next Working Group meeting will be convened October 6-7, 2010 somewhere in MA (or NB)

Actions:

- The Council will convene a conference call to discuss and scope the proposed oil spill symposium hosting, developing messaging and speaking points, and to decide if it wishes to proceed with the event
- The Council Coordinator will work with Susan Russell-Robinson on Land Conservation Cooperatives and Climate Change Science Center presentations by Marvin Moriarty at the December 2010 Council meeting
- The Council Roundtable will be added to the December 2010 meeting agenda and considered for subsequent meetings

- The Working Group will explore additional agencies and other participants to assure that relevant perspectives are seated to better inform discussions and processes including the Action Planning and provide recommended Terms of Reference recommendations to the Council at its December 2010 meeting
- Jurisdictions will review their membership with the Council and work to maximize its representation as specified in the Terms of Reference and the Working Group will make recommendations for revisions, as needed, for Council consideration
- DFO will continue discussions to gauge Natural Resources Canada's interest in Council membership and USGS will also contact with NRCan to provide a peer agency perspective

Prepared by Matt Wood, NH Department of Environmental Services and Administrative Assistant for the Council

Habitat Restoration Subcommittee

Update

Activity has focused primarily on supporting key goals of the GOMC-NOAA Habitat Restoration Grant Partnership. Activities included:

1. GOMC-NOAA Partnership Coordination

Partnership members continue to engage in monthly conference calls on the first Tuesday (1:00-2:00 pm) of each month to discuss gulf-wide restoration activities, issues associated with restoration grant management, and other topics of relevance to restoration in the GOM. The Partnership includes NOAA Restoration Center staff (John Catena, Matt Bernier, Mat Collins, Eric Hutchins, and Jack Terrell), U.S. Gulf of Maine Association contractors (Cindy Krum and Lori Hallett) and Liz Hertz of the Maine State Planning Office. The Partnership's Jurisdictional Representatives are:

- Canada: Anita Hamilton – GOMC Habitat Restoration Subcommittee Co-Chair, Habitat Assessment Biologist, Department of Fisheries and Oceans
- Maine: Slade Moore – Habitat Restoration Coordinator, Maine Coastal Program
- Massachusetts: Hunt Durey – Acting Deputy Director, Division of Ecological Restoration, Massachusetts Department of Fish & Game
- New Hampshire: Ted Diers – Director, New Hampshire Coastal Program

2. Contracting of 2010 RFP habitat restoration projects

Six of the eight projects selected from the 2010 GOMC-NOAA Habitat Restoration Partnership RFP round have undergone contracting. A summary of 2010 project information is included in the table below:

GOMC-NOAA #	State/ Prov	Project Name	Applicant Organization	Amount Requested $	Award $	Non-Fed Match Amt $
10-01	MA	Broad Cove Restoration Project Feasibility Analysis, Hingham, MA	Town of Hingham in partnership with Derby Academy	45,000	45,000	45,000
10-02	MA	Clark Pond Tidal Restoration	The Trustees of Reservations	22,775	22,775	100,000
10-03	ME	Thomas Bay Marsh Culvert Replacement	University of Southern Maine, Casco Bay Estuary Partnership	40,463	40,463	44,000
10-04	ME	Montsweag Brook Dam Removal	Chewonki Foundation	100,000	59,651	95,056
10-05	ME	Muscongus Brook Culvert Replacements: Pre-construction	Kennebec County Soil & Water Conservation District (KCSWCD)	100,000	23,000	23,000
10-06	ME	Kennebec Barrier Survey	Kennebec County Soil & Water Conservation District (KCSWCD)	20,000	23,000	23,000
10-07	NH	Exeter River Great Dam Removal Feasibility Study	Town of Exeter, NH	40,000	40,000	45,000
10-08	NS	Clementsport Dam Restoration Planning	Clean Annapolis River Project (CARP)	34,974	34,982	52,643
			Totals	403,212	288,871	427,699

3. Administration/Oversight of Ongoing Habitat Restoration Projects

Since its inception, the GOMC-NOAA Habitat Restoration Partnership has awarded 94 projects (totaling $3.25 million) across all jurisdictions of the Gulf, including Maine, Massachusetts, New Hampshire, New Brunswick and Nova Scotia. Together, these projects re-opened access to 144 miles of rivers and streams for river herring, Atlantic salmon and American eel, re-established access to 2,400 acres of alewife spawning habitat, and rehabilitated over 500 salt marsh acres.

As of the drafting of this document, 18 active projects are being administered by USGOMA and the Partnership. Active projects occur within all five jurisdictions of the Gulf of Maine (MA, NH, ME, NB, and NS). Technical support is provided to these projects through a team approach. A NOAA Lead, a jurisdictional Technical Lead and the Jurisdictional Representative for each of the jurisdictions provide technical and administrative oversight for each project. The Habitat Restoration Coordinator and USGOMA provide additional, cross-jurisdictional administrative support to grant recipients.

4. Development and release of the 2011 GOMC-NOAA Habitat Restoration Grants Program RFP

The Partnership revised and released the RFP for 2011 habitat restoration projects in early October. The announcement was distributed via multiple outlets, including the GOMC web page, GOMC distribution lists, and other restoration-focused networks. The deadline for Letters of Intent is November 29, 2010. The period for uploading Full Applications to the website is February 2 – March 16, 2011.

5. Refinement of a web-based grant tracking system

The web-based grant tracking system continues to be refined. This system is intended to enhance efficiency and accountability of grant management by integrating functionality and data capture of three distinct web screens, namely:

a) The Grantee's GOMC-NOAA Project Webpage, which is the clearinghouse for grant administration information, reporting and invoice templates, and project documentation for each individual subaward. It is where grantees and Partnership staff upload relevant documents such as contracts, reporting materials, invoices and other files of interest. Both grantees and Partnership members have access to each of these pages.

b) The Grant Tracking At-A-Glance page, which is a tool for Partnership members to rapidly assess the status of all grants on one screen. This page provides functionality to flag recent uploads (a new function), tardy reporting by grantees, late response on the part of Partnership members to review reporting/invoices, and other situations warranting action. It also provides links to relevant files.

c) The Grant Tracking Sheets, which provide for each grant detailed information and fields for Partnership staff to indicate approval of submitted materials. It too, provides links to relevant files.

6. Refinement of grantee compliance measures and Partnership protocols

Guidance materials for promoting enhanced grant administration and grantee compliance continue to be updated. These included the Grantee's Primer for Grant Administration and the Partnership Protocols. Automated email notifications of grantee uploads, which are sent to key Partnership members assigned to each restoration subaward project, now have attached instructions for review of GOMC subaward reports and invoices. Grantees are also sent automated notifications alerting them of upcoming or past-due project reporting dates.

7. The Gulf of Maine Restoration and Conservation Initiative

GOMC-NOAA Partnership members have been key participants in providing technical information, developing assessments of need and other functions in support of this initiative's "Plan". It's anticipated that the Partnership will continue to provide support to this initiative. Information on this initiative and a draft of the Plan are available at http://www.gulfofmaine.org/documents/gom-restoration-plan/

8. Support of the GOMC action planning process

The Partnership has participated in this process by reviewing and revising the "Committee Rapid Assessment and Recommendations" language as it pertained to HRSC tasking for the next Action Plan

and by attending GOMC sessions and conference calls on the Action Plan. The Partnership's review was distributed to the entire HRSC email list (which has been updated annually since 2009) for response. Of the 40-odd recipients, only one responded with comments. That person was actually a member of the Habitat Restoration Partnership.

Possible activities and/or next steps

1. Continue GOMC-NOAA Habitat Restoration Partnership coordination

With renewed NOAA funding for this program, developing and administering new Partnership subaward projects will remain the primary focus of the Habitat Restoration subcommittee over the next 3-4 years. Likewise, coordination of the Partnership will remain the primary responsibility of the Habitat Restoration Coordinator.

2. Support GOMC Action Plan development

The Partnership will continue to support HRSC-focused Action Planning activities as needed.

3. Increase Maine's restoration capacity and coordination

With recent progress made in refining the Partnership's operations for maximum efficiency and grantee compliance, there is now an opportunity to better support the Maine jurisdiction's restoration potential, which has suffered from a persistent lack of capacity and coordination. Efforts to reverse this trend have recently been reinvigorated by development of the Maine Stream Connectivity Work Group, which is co-chaired by the Partnership's Habitat Restoration Coordinator (Slade Moore). Through the efforts of state, federal and NGO participants, this Work Group seeks to dramatically improve coordination of aquatic restoration activities and the rate of restoration within Maine. To date, the Work Group's progress includes:

- embarking on the design a statewide restoration database populated by rigorously-obtained watershed-scale barrier inventories
- initiating the design of restoration prioritization and decision-making tools
- exploring funding options and organizational structure alternatives for a formalized and functional state habitat restoration program
- Release of the "Year-One Report and Recommendations" – contact Slade Moore for additional information.

The work of this group represents a long overdue milestone in the evolution of Maine's restorative potential. Given the state's historical and evolving capacity to re-establish some of the GOM's most abundant diadromous fish runs, ongoing development and progress of the Work Group should figure prominently in the Habitat Restoration Subcommittee's efforts of regional importance.

4. Coordinate development of a "Restoration Summit"

Ecologically-meaningful habitat restoration, both at the local and ecosystem scales, requires adaptation to address advances in methodologies and restoration science. In the latest application to NOAA for habitat restoration funding, the Partnership committed to organizing a "restoration summit" that is intended to provide a forum for restoration practitioners to exchange the latest in methods and theory.

5. Continue to support development of the Gulf of Maine Restoration and Conservation Initiative

Implementation of the "Plan" is a high priority and will likely remain a focus of Habitat Restoration Subcommittee activities.

6. Frame GOMC's habitat restoration activities in the context of climate change projections

We intend to begin addressing the implications of climate change by assessing how they are likely to influence target habitats and habitat restoration policy and priorities.

Contractors for the Gulf of Maine Council on the Marine Environment as included in July 1, 2010-June 30, 2011 Budgets

Contractor	Contract End Date	Title	Funds
Krum Steele Consulting (Cindy Krum)	06/30/2011	U.S. Association Executive Director	Indirect/Reserve
Lori Hallett	06/30/2011	U.S. Association Finance Assistant	Indirect/Reserve
The Keeley Group (David Keeley)	12/31/2010 New contract planned for 01/01/11--6/30/11	Core Services Fund Development/Support for Action Plan/Additional projects	Dues ME SPO JB Cox Fund
The Keeley Group (Michele Tremblay)	12/31/2010 New contract planned for 01/01/11--6/30/11	Core Services Council Coordinator/Support for Action Plan	Dues Reserve/Indirect ME SPO
The Keeley Group (Jim Craddock)	12/31/2010 New contract planned for 01/01/11–6/30/11	Core Services Information Technology/Additional projects	NMFS Dues JB Cox Fund
The Keeley Group (Nancy Griffin)	12/31/2010 New contract planned for 01/01/11–6/30/11	Core Services Gulf of Maine Times	JB Cox Fund Donations USGS DFO NH Charitable Fund
Biological Conservation (Slade Moore)	06/30/2011	Habitat Restoration Project Coordinator	NMFS *ME DOT* Dues JB Cox Fund
UNH (Steve Jones)	03/31/2011	Gulfwatch Program Coordination	EC
Steve Jones	04/30/2011	Gulf of Maine Report - Microbial Pathogens and Toxins Theme paper	NH DES
Lawrence LeBlanc	03/31/2011	Gulfwatch 2009 Data Report	EC
Christine Tilburg	01/31/2011	ESIP Program Manager	USGS EC DFO
Talking Conservation (Peter Alexander)	12/15/2010	Coordination and Product Production -New England Cross-border Conservation Initiative	JB Cox Fund
Waterview Consulting (Peter Taylor)	12/15/2010	Conservation and Restoration Strategy-writing and design	JB Cox Fund

Submitted by Cynthia Krum, US Gulf of Maine Association

Adopting a Indirect Rate for 2011

ISSUE: The Council needs to accept a new annual Indirect Rate that would be used by the Association of US Delegates to the Gulf of Maine Council on the Marine Environment (USGOMA).

Background: The July1, 2009 through June 30, 2010 USGOMA audit is complete. The auditor has recommended a new administrative rate of 20.61%. The new administrative rate would go into effect for new proposals and or contracts as of December 9, 2010 and remain in effect until the 2011 December Council meeting. In December 2009 the Council approved a 19.24% administrative rate for all funds flowing through the USGOMA. In December 2008 the Council approved a 16.59 % rate. These rates were recommended by the auditor using the "look back" method which is set by reviewing the prior fiscal year. Our auditors have used this method for the past seven years. Following is text explaining the method from the "Indirect Cost Letter" from Marshall and Libby, LLC, the auditors for the USGOMA.

> "There are various acceptable alternatives to calculating and negotiating indirect costs under federal regulations. We have set up your allocation using a simplified method, which separates direct costs of programs from indirect costs, then divides the total allowable indirect costs by direct costs. This means for every dollar of direct expense the Association incurs, it needs to raise an additional 20 cents to cover the indirect costs."

RECOMMENDATION: Recommend Council approval of the new 20.61% rate to go into effect December 9, 2010 through the December Council meeting, 2011.

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Final Budgets for July 1, 2010 – June 30, 2011 (Fiscal Year 2011)

Background: The July1, 2009 through June 30, 2010 USGOMA budgets and summary have been sent as separate documents, attached to the email alerting Councilor's to the availability of the December, 2010 Council meeting briefing packet. These budgets have been updated to reflect additional funding since the Council's approval of the provisional Fiscal Year 2011 budgets at their June, 2010 meeting.

RECOMMENDATION: Recommend Council approval of the Fiscal Year 2011 budgets.

Submitted by Cynthia Krum, US Gulf of Maine Association

Report on Discussions between the Gulf of Maine Council's US and Canadian Associations

Background: To date, two conference calls have been held to discuss the Association of US Delegates to the Gulf of Maine Council on the Marine Environment (US Association) and the Association of Canadian Delegates to the Gulf of Maine Council on the Marine Environment (CA Association) collaboration, efficient management and support of the Gulf of Maine Council. After drafting problem statements the ad-hoc group will draft recommendations to address the most prominent issues. The ad-hoc group is comprised of: Don Hudson (President, US Association), Justin Huston (Secretariat to the CA Association), Theresa Torrent-Ellis (current Working Group Chair), Robert Capozi (upcoming Working Group Chair), and Ted Diers (US Association Executive Director Contract Manager). Cynthia Krum (US Association Executive Director) provides contractor support.

Actions:

- Discussions will be held at the US Association and CA Association meetings
- Additional conference calls of the ad-hoc group will be held as needed
- Draft recommendations will be provided to the Working Group in March 2011
- Final recommendations will be provided to Working Group and Council in June 2011

Submitted by Cynthia Krum, US Gulf of Maine Association

Council Committees

Progress in implementing Committee work plans 2007 - 2010

GOM Mapping Initiative

- Hired Coordinator to perform GOMMI tasks (research, outreach, support)
- Prepared GOMMI brochure;
- Identified sea floor mapping priorities;
- Supported collaborative seafloor mapping project on Cashes Ledge;

GOMMI (continued)

- Organized, convened and reported out on two workshops – *Integrating seafloor mapping and benthic ecology into fisheries management in the GOM*; and "Survey Methods for Shallow Water Habitat Mapping in Northeast National Parks, Wildlife Refuges, & Estuarine Research Reserves"

Habitat Restoration

- 94 projects funded. Together, these projects 1) re-opened access to 144 miles of rivers and streams for river herring, Atlantic salmon, and American eel, 2) re-established access to 2,400 acres of alewife spawning habitat, and 3) rehabilitated over 500 salt marsh acres.

Restoration (continued)

- 65 projects - January 1, 2006 through June 30, 2010 = $ 1,914,784 & $2M in non-federal matching funds
- Maintained web portal operation
- Released and promoted use of the stream barrier removal guidelines by awardees and organizations/agencies
- Amended grant requirements to address climate change issue

HRSC accomplishments

- Barrier Removal guidance document: http://www.gulfofmaine.org/streambarrierremoval/

Restoration Monitoring

- Co-produced flyer: "Salt marshes of the Gulf of Maine: Long-term monitoring to assess human impacts and ecological condition" and distributed to members of the Gulf of Maine community as an insert to the Gulf of Maine Times. (with Science Translation). Available online at: http://www.gulfofmaine.org/habitat/monitoring/
- Co-produced "Salt Marshes in the Gulf of Maine: Human Impacts, Habitat Restoration and Long-term Change Analysis" (with Science Translation, Habitat Restoration Subcommittee). Available online at: http://www.gulfofmaine.org/publications/

Restoration Monitoring

- The results from the regional eelgrass conference were distributed online: http://www.gulfofmaine.org/habitat/eelgrass_2009/
- Neckles, H. A., A. R. Hanson, P. Colarusso, R. N. Buchsbaum, and F. T. Short (eds.) 2009. Status, Trends, and Conservation of Eelgrass in Atlantic Canada and the Northeastern United States. Report of a Workshop Held February 24-25, 2009, Portland, Maine.
- In addition, newspaper coverage of the workshop delivered important information to a broader audience ("eelgrass decline may be a sign of pollution", Portland Press Herald, 2/26/2009, online at http://www.pressherald.com/news/eelgrass-decline-may-be-a-sign-of-pollution_2009-02-26.html)

HMSC accomplishments

- Supported habitat monitoring beta-web site;
- Produced Salt Marshes in the Gulf of Maine: Human Impacts, Habitat Restoration and Long-term Change Analysis

HMSC accomplishments

- Developed a pilot web-based information system to enable the regional sharing, integration, and use of coastal habitat data. This pilot served as a proof-of-concept: http://www.gomoos.org/gomc/map/
- Distributed a user-needs survey to guide full-scale development of online habitat information system. The needs assessment was summarized in the attached file: *GOMC Dbase Needs Assessment-Summary responses.doc*

HMSC accomplishments

- Organized a regional conference on "Status, Trends, and Conservation of Eelgrass in Atlantic Canada and the Northeastern United States", February 24-25, 2009, Portland, ME.
- The workshop was attended by over 100 representatives of all sectors of eelgrass science and management in eastern Canada and the northeastern United States. Participants included federal, state, provincial, and municipal resource managers; researchers; coastal planners and decision makers; members of environmental organizations; consultants; students; and concerned citizens. Presentations and discussions over the course of two days focused on eelgrass change around the region, factors controlling ecosystem change, current and emerging management issues, and regional examples of eelgrass conservation efforts. Although a formal evaluation of the workshop was not conducted, comments from participants were overwhelmingly and uniformly positive and affirmed that the workshop was effective.

Habitat Conservation

- Completed documentation of coastal/marine managed areas in the CA portion of the GOM, created user portal and uploaded data to GOM site;
- Organized and produced workshop proceedings about sub-tidal habitat classification methodologies
- Disseminated info on American Eels

Gulfwatch Contaminants Monitoring

- Supported 12-year program peer-review by RARGOM & report;
- Collected and analyzed 2007, 2008 and 2009 samples;
- Reconciled past data &1993-2006 now on the server
- Produced data reports (07 & 08)

Gulfwatch Contaminants Monitoring Accomplishments

- http://www.symposcience.org/exl-php/cadcgp.php?MODELE=vues/symposcience_-_colloque___consultation/home.html&VUES=symposcience_-_colloque___consultation&EQUATION=WHERE_COL_REF=REF00000064

Sustainable Industries & Communities Committee

- Prepared *Industry Engagement with the GOMC* report with recommendations
- Organized and awarded Sustainable Industry Awards

Climate Change Network

- Organized Climate Change Network kick-off event in New Brunswick;
- Produced *Identifying Coastal Habitats at Risk from Climate Change Impacts*
- Produced *Identifying the Possible Effects of Extreme Precipitation and Other Climate Change Impacts on Streamflow and Water Quality*

Climate Change Network

- Produced Identifying the Possible Effects of Climate Change on Invasive Species

Ecosystem Indicators

- Produced fact sheet on 22 Indicators;
- Completed communications plan;
- Made improvements to ESIP Monitoring Map and Reporting Tool;
- Presented at workshops/conferences;
- Produced reports (climate change Mass & Atlantic Canada, Casco Bay rpt)

Ecosystem Indicators

- ESIP has "grown" into seven active and effective subcommittees focused on: aquatic habitats, aquaculture, climate change, coastal development, contaminants, eutrophication, and fisheries.
- Produced a fact sheet introducing ESIP to our audience. The fact sheet is available electronically at: http://www2.gulfofmaine.org/esip/factsheet-01.php
- Completed a communications plan focused on effective delivery of indicator information.

Ecosystem Indicators

- Presented at a wide variety of regional and international meetings including: Coastal Zone 08, Coastal Zone 09, Coastal Zone 10, RARGOM, Fishermen and Scientists Research Society.
- Significantly improved up ESIP Monitoring Map (http://www2.gulfofmaine.org/esip/map/) and ESIP webpage. Usage has increased alongside these improvements. In 2007 the ESIP pages received 17,414 hits as opposed to 2010 hits (does not include November and December at the time of writing: 42,782 hits.

Ecosystem Indicators

- Produced reports (climate change Mass & Atlantic Canada, Casco Bay report)
- Released the ESIP Indicator Reporting Tool (www2.gulfofmaine.org/esip/reporting) to provide all data utilized for the priority Indicators.

Ecosystem Indicators plans

- More thoroughly engaging ESIP's target audience with focused workshops and presentations to increase use of and improve delivery of ESIP indicator data and tools.
- Realizing a larger regional audience through targeted articles and advertisements in regional publications (electronically as has been done previously with the Gulf of Maine Times and Fishermen and Scientists Research Society newsletters) and in other more traditional publications (such as Downeast, Yankee Magazine, Sellscapes, etc).
- Providing information on ESIP's tools and the Gulf of Maine through kiosks at regional science centers (examples include Huntsman Marine Center, Seacoast Science Center, Bedford Institute of Oceanography, and the New England Aquarium).

Ecosystem Indicators plans

- Designing and fabricating several traveling kiosks for use with community colleges, public libraries, community and regional festivals to tap into local interest in environmental ocean, coastal and watershed issues.
- Building arch-type scenarios for the Environmental Intelligence Center by detailing out the relationships between the priority indicators through focused cross interactions between ESIP subcommittees and by working with specific communities which are arch-type localities.
- Continuing to support State of the Gulf Report with data and analysis where the efforts coincide between the ESIP subcommittees and the State of the Gulf team.
- Developing funding strategy especially for the outreach and communication components of ESIP 2.0.
- Completing a master plan for ESIP 2.0 - the Environmental Intelligence Center with robust alternative futures scenarios.

Other

- Produced and released State of the Gulf web site;
- Awarded 10 Action Plan grants ($95,000), received products, and conducted assessment of 2006-2007 Action Plan grants;
- Created evaluation methodology

Outreach Committee

- Coordinator provided wide range of in-house marketing & communication services;
- Supported Council programs (e.g., restoration, ESIP, Gulfwatch, SIC, Action Plan Grants, etc.)
- Supported the GOM Times

Outreach Committee

- Drafted and released survey to Working Group and Council members to gain feedback on GoMC outreach efforts.
- Committee drafting a strategic communications plan - based in part on survey results and feedback - to guide the Gulf of Maine Council as an organization in its outreach efforts, including media relations, the promotion of program actions/outcomes and proactive outreach.

Outreach Committee

- Committee members with expertise in education & outreach reviewing GoMC current offerings to outline a strategy/recommendations going forward. This strategy/recommendations will go hand-in-hand with the communications strategy.
- Supported Council programs (i.e. ESIP, Gulfwatch, etc.) on many fronts, including the review and editing of documents for public release.

Outreach Committee plans

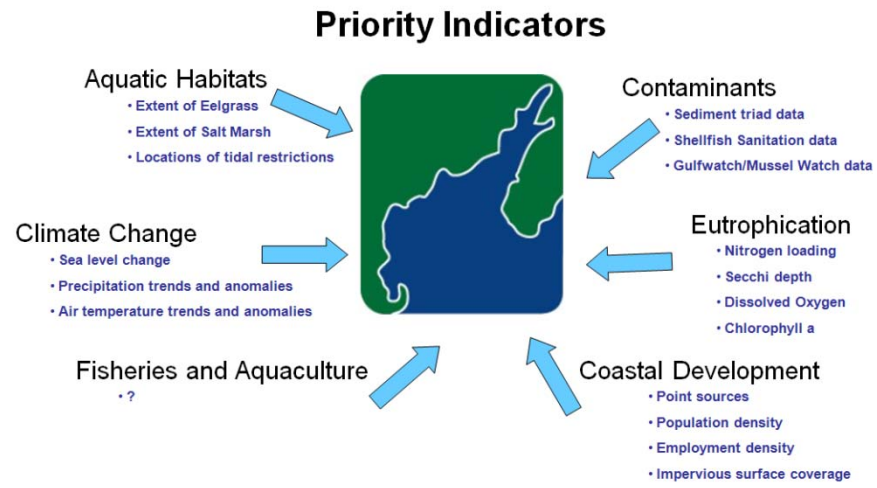
- Support the other committees will continue
- Be more active "stewards" of the Gulf of Maine Council brand through the promotion of the 2012 Action Plan and the organization in general

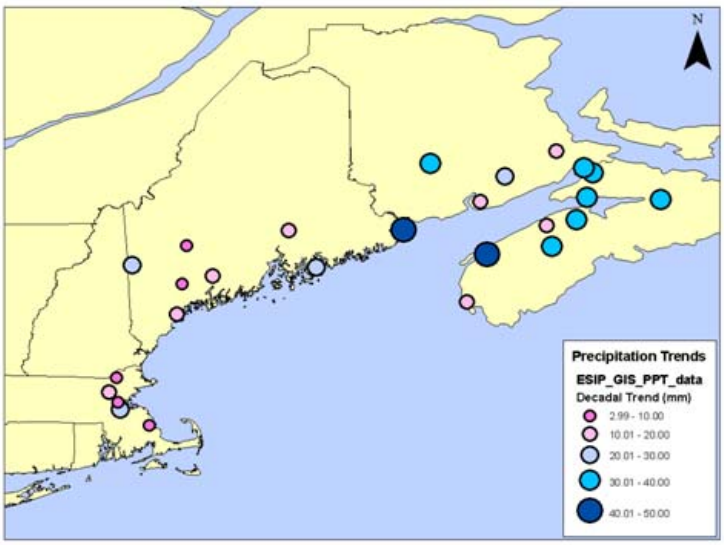
Information Management Committee

- Insert

ESIP and the Delivery of Ecosystem Indicators

ESIP continues our thorough work on ecosystem indicators with meetings in the past year at RARGOM (New Brunswick, 2010), Maine Coastal Waters (Maine, October 2010), ACZISC (New Brunswick, February 2010), Fishermen and Scientists Research Society (Nova Scotia, February 2010), National Monitoring Conference (Colorado, April 2010), Coastal Zone Canada (PEI, July 2010) and RARGOM (New Hampshire, October 2010). ESIP's annual Steering Committee meeting in June was also successful and focused on our workplan and efforts for the next 18 months. Along with these discussions, committee chairs from other Council efforts were invited to participate in the morning as we worked on ways to strengthen our collective work.





Aside from the important work of extending ESIP's presence in the Gulf of Maine and beyond, ESIP has continued to revise and improve upon our general webpages and, in particular, the Indicator Reporting Tool (www2.gulfofmaine.org/esip/reporting) with almost three times as many webhits for all of the ESIP pages between May - October of 2010 than the same months of 2009.

Work has continued in all of the ESIP Subcommittees with fact sheets out for both Aquaculture and Climate Change in the coming months (Aquaculture December 2010 and Climate Change January 2011).

ESIP has secured the assistance of two graduate student interns to work on some data analysis for the aquatic habitat subcommittee and the eutrophication subcommittee. One student from Dalhousie is looking at tidal restrictions in the Gulf of Maine. A separate student from the University of Southern Maine is working on locating samples for chlorophyll a and water clarity.

Workshop Prospectus

Ecosystem Health Indicator: Strengthening Regional Collaboration & Effectiveness

Background
The Northeast Regional Ocean Council, the Massachusetts Ocean Partnership, COMPASS, NERACOOS and the Gulf of Maine Council, with support from a workshop steering committee, are finalizing plans for a regional indicator workshop.

Date
Mid-March 2011 (TBD) – 2 days in Worcester

Audience
Representatives from nearly 20 regional indicator programs

Needs Assessment
In 2010 the Massachusetts Ocean Partnership, through the Urban Harbors Institute of the University of Massachusetts Boston, conducted interviews with indicator programs. Program selection was guided by the workshop steering committee and heavily weighted to include programs from within the region in order to gather regionally relevant information and engage potential workshop participants. The information gained through these interviews is being used to inform the goals, outcomes and agenda for the conference.

Goals and Outcomes
Over fifteen organizations in the northeast are working collaboratively to enhance region-wide indicator capacity and coordination with the objective of advancing integrated and adaptive management while maximizing the provision of critical ecosystem services for ecological and human well-being.

Workshop Goal 1: To strengthen coordination and integration of regional indicator initiatives to better meet users' needs by finding efficiencies of scale and refining processes that benefit all.

Example Outcomes (not prioritized):
- Improved understanding of the indicator initiatives and their data
- Coordination of data acquisition
- Identification of shared end-user management needs and collaboration methods to better inform and meet those needs
- Understand/record processes for indicator selection
- Leverage financial/staffing resources
- Define projects to work on collaboratively

- Enhance credibility and authority for all initiatives
- Develop data series to measure socio-economic aspects of coastal areas and ocean dependent industries in New England

Workshop Goal 2: Strengthen regional indicator communication methods, products, and evaluative techniques. Convey consistent messages and visualizations to key audiences and better understand how indicators are being used, their effectiveness and create and/or enhance user-driven indicator processes, products, and tools.

Example Outcomes (not prioritized):

- Communication methods and tools based on available research about how people learn and make decisions. Use indicators as a learning tool.
- Frame messages to more explicitly link indicators and ecosystem services and ecosystem health
- Develop best practices for creating use-inspired reporting products and visuals for more effectively communicating data
- Develop regional formative and summative evaluation protocol and techniques for better understanding the evolving needs of users and behaviors and communication products' ability to adapt to evolving values, attitudes, and perceptions.
- Create/compile examples and case studies of indicator successes and failures

Research Goals (Clark University and Brown University): Use one indicator program (such as the NEPs) as a case study to learn what messages they want to get across and to which audiences. Use a concept mapping approach to identify inconsistencies in mental models among NEPs and misperceptions and gaps in understanding among audiences to ultimately refine and reframe messages to be more consistent among programs and more relevant and clear to users.

Collaboration Opportunities: Foundations with shared interests of the Council

Background – During the "development work session" at the October 2010 Working Group meeting there was some discussion about Council project priorities, the preparation of competitive proposals, and possible foundations the Council might seek to work with. The following is a compilation of New England and national foundations.

Jane's Trust
Area of giving: meaningful and innovative contributions to the protection of critical or historically significant rural or urban natural resources AND efforts that have a beneficial impact on the quality of life of underserved populations; annual grants total $9M with range from $50,000 to $1,000,000. Average size is $130,000; spend-down trust; makes multiple year-awards; geographical focus is Florida, Massachusetts and northern New England; Jane's Trust cover sheet, concept papers, proof of federal exemption and budget due January 25 and July 15.
www.hembar.com/selectsrv/janes/

Davis Conservation
Areas of giving: wise use, protection and advancement of our physical environment and the different natural forms of life – projects related to wildlife, wildlife habitat, environmental protection and outdoor recreation, projects that strengthen volunteer activity and outreach/community involvement; Highest geographic priority is northern New England, particularly projects involving the northern forest and the Gulf of Maine; April 10 and October 10; 1-year grants; $5,000 to $50,000/award and $875,000 awarded in 2008 for 50+ projects.
www.davisfoundations.org

Elmina Sewall Foundation
Areas of giving: conservation of the natural environment and the well-being of animals and humans in Maine, support issues and priorities that cut across areas of interest, support capacity building of grantees, seek to leverage other resources; operating, project and capital grants; no multi-year awards; environment – encourage local/regional land conservation, support habitat protection, restoration and related public education, provide opportunities for people to remain connected to the land, protect Maine's working lands and waters; Letters of Inquiry – February 1st; in 2009 grants ranged from $3500 to $1M for a total of $7.5M.

Merck Family Fund
Areas of giving: The program "Protecting the Natural Environment" recognizes the need for and practice of sustainable forestry; supports the participation of people living in or near the impacted area; and the protection and preservation of ecologically valuable land in the northern forests of New Hampshire and Maine. Letters of interest may be submitted.

http://www.merckff.org

John Merck Fund
Areas of giving: Promoting adoption of clean, renewable energy options in New England; and Implementing New England's strong climate policies, such as the Regional Greenhouse Gas Initiative.
www.jmfund.org

Sudbury Foundation
Areas of giving: The Environmental Program makes grants to nonprofit organizations with headquarters or branch offices located in the Northern Forest and the Gulf of Maine who are working at the nexus of ecosystem protection and community economic sustainability. Because solutions developed with local input are often the most effective and enduring, the Foundation favors community-based efforts to conserve resources and enhance quality of life. The heart of our approach is to support groups who give voice to local stakeholders seeking to balance marine and forest resource management with community sustainability. (The fisheries and coastal communities of the Gulf of Maine, which encompasses 36,000-square miles of ocean and connects the New England states of Massachusetts, New Hampshire and Maine with adjoining Canadian provinces.)
http://sudburyfoundation.org/environmental.html

Jessie B. Cox Charitable Trust
Areas of giving: education, environment (preservation of fresh and marine waters through natural habitat conservation, protect terrestrial and marine habitats and wildlife crucial for biodiversity, support eco-regional planning, habitat assessment, smart growth, strengthen citizen-based networks and alliances, science-based tools to support conservation) and health; focus on six New England states; concept papers due March 15 and September 15; average award of $50K/year.
www.jbcoxtrust.org

Northeast Utilities Foundation
Areas of giving: the emphasis of the Environmental Leadership & Stewardship is on protecting, preserving, or improving the environment; natural habitats and biological diversity, and renewable energy in their service area.
http://northeastutilitiesfoundation.org/what/index.html

Irving Oil Foundation
Area of focus: Environmental programs in Atlantic Canada and New England
www.irvingoil.com/community/charity.asp

Community Foundations

The Maine Community Foundation, the NH Charitable Foundation, the Fundy Community Foundation and the Cape Cod Foundation all support environmental/conservation and education programming through existing programs or donor-advised funds.

State/Provincial Foundations
The Maine Outdoor Heritage Program, the Massachusetts Environmental Trust and the New Brunswick Environmental Trust all support environmental/conservation and education programming.

Island Foundation
RNAV Foundation
Thaxter Foundation
Kendall Foundation (in transition)

Gordon and Betty Moore Foundation
Areas of giving: environmental conservation, science and San Francisco Bay; in 2008 awarded 134 grants totaling $261M; no unsolicited proposals.
www.moore.org

Ittleson Foundation
Areas of giving: innovative pilot, model and demonstration projects that will help move individuals, communities, and organizations from environmental awareness to environmental activism by changing attitudes and behaviors. They particularly seek to encourage and nurture environmental action through:

- Supporting the present generation of environmental activists, whether professionals or volunteers through education, training and other activities
- Educating and engaging the next generation of environmentalists with a special interest in supporting the training of those who are teaching that generation
- Strengthening the infrastructure of the environmental movement with a particular focus on efforts at the grassroots and statewide levels
- Activating new constituencies, particularly those focused on environmental equity issues

www.ittlesonfoundation.org

Pew Charitable Trust Environmental Program
Areas of giving: reduce the generation of greenhouse gases that contribute to global warming, conserve living marine resources with a particular emphasis on fisheries and protect critical forest habitat and wilderness on public lands in North America. The Trust accepts letters of inquiry on an open basis. If the proposed project appears to be eligible for Trust consideration, a full proposal will be requested. Average - $300,000.
www.pewtrusts.com

Rockefeller Brothers Fund
Areas of giving: The Sustainable Development program supports environmental stewardship that is ecologically based, economically sound, socially just, culturally appropriate and

consistent with intergenerational equity. The program has two components: Combating Global Warming, which supports strategies to combat global warming, and Protecting Ecosystems and Conserving Biodiversity, which seeks to conserve terrestrial and marine biodiversity by protecting and restoring ecosystems and by fostering sustainable communities that pursue locally appropriate development strategies. Letters of inquiry are accepted on an ongoing basis. Invitations for full proposals are issued by the Fund. Average $75,000.
www.rbf.org

Surdna Foundation
Areas of giving: The Environment Program's goals are to prevent irreversible damage to the environment and to promote more efficient, economically sound, environmentally beneficial and equitable use of land and natural resources.
The program has four principal areas of interest: biological diversity and the human communities that depend on it, realigning human and natural systems, transportation and urban/suburban land use and energy. Letters of inquiry are reviewed year round. Grants are approved three times per year: in February, May and September. Requests must be received three to four months ahead of time for staff review.
www.surdna.org/grants

Gulf of Maine Council

June 2010 to December 2010 Development Report

Context for Development Initiative

1. Council fund development priorities (Climate Change, ESIP, GOM Times, IT, and Habitat Restoration)
2. Tough economic conditions and highly competitive funding environment
3. Team effort of Working Group, Committees and contractors working to secure funds for Council tasks (Highlighted for emphasis)
4. Pursued new development approaches (engaged Councilor to attend Working Group meeting sessions on fund development; solicited GOMT sponsors to make annual contributions; engaged DC Hill staff in discussions of creating a Gulf of Maine Program Office and corresponding authorization; worked with USGOMA to prepare and submit proposals to the Northeast Regional Ocean Council (e.g., serve as fiscal agent for marine spatial planning grant, contribute coastal and marine spatial planning services)

2010 Assessment & Return on Investment

January – December 2010

Total Requested	$1,248,920
Funds Raised	$658,920
Total Declined	$198,000
Total Pending	$362,000
Fund Development Expenses	$40,050

Note: A detailed breakdown of funds raised, declined, and pending is available in the December 2010 meeting packets

Level of Effort, Results and Next Steps

- **Climate Change Adaptation**
  - Effort – Used 2010 GOMC climate change needs assessment; Engaged Coastal Training Programs, ICLEI, five state coastal management programs, Provincial RAC members, Roger Williams University, Cool Air- Clean Planet and StormSmart Coasts in preparing and submitting $280K proposal to NOAA/CSI Coasts with $500K+ in cash and in-kind match
  - Result – expect NOAA decision by May 2011
  - Next steps – Review needs assessment and prepare funding proposal(s)
- **Ecosystem Indicator Partnership (& SOG reporting)**
  - Effort – Recruited interns to assist with data discovery and mining; Explored collaboration with NEIWPCC; Submitted $82,000 proposal to support 2 years of services; Pursued $6,500 request for offshore ecosystem paper
  - Result – Secured $15,000 grant for March 2011 Workshop; ESIP leadership secured $4,000 from Council agencies for coordinator
  - Next steps – Choose project(s) from draft 5-year ESIP plan and prepare funding proposals
- **GOM Times**
  - Effort – Cultivated and solicited 8 organizations to become ongoing sponsors; Worked to increase circulation/readership; increased web site functionality;
  - Results – Raised $9,225 from Census for Marine Life, CLF, DOI/National Park Service, EC, DFO , ME SPO, and NERACOOS;
  - Next Steps – Engage additional organizations to become ongoing contributors
- **Information Technology**
  - Effort – Funding proposals contained IT support
  - Results – Proposals pending
  - Next steps – Continue to include IT in proposals
- **Habitat Restoration Coordinator & Strategy**
  - Effort – Supported Canadian contractor documenting restoration programs and policies; Reported release of US GOM Restoration Plan to funders (e.g., Cox Trust, NH Charitable Foundation and Maine Community Foundation); Secured commitment by National Wildlife Federation (NWF) to act as fiscal agent for the Northeast Great 'waters Coalition; Prepared funding analysis with NWF development staff and identified priority funding sources; Prepared case statement for the Northeast Great Waters Coalition as basis for funding proposal(s); Assisted NWF to submit $30,000 proposal to the Davis Conservation Foundation for Plan advocacy
  - Results – Awaiting response by Davis Conservation
  - Next steps – Work with Congress on an implementation strategy for the US GOM Plan
- **US Federal Appropriation Initiative**
  - Effort – Work focused on implementation of the US GOM Restoration and Conservation Assessment (see above)
  - Results – Hill staff receptive to a FY 2011 request
  - Next steps – Continue to engage Hill staff & members of Congress
- **Cultivate foundations**
  - Effort – Engage foundation community in Council activities;
  - Results – Increased knowledge of 10+ foundations about the Council and its work
  - Next steps – organize Council - foundation events

Gulf of Maine Council Proposals – factors for success

This informal assessment provides some insights into the Council's 2010 fund development efforts. It is intended to support discussions about ways to strengthen fund development by improving Council, Working Group, and Committee engagement and preparing more competitive proposals. (This table reflects proposals prepared for GOMC priorities that the Council participated in preparing. Some funds have or will flow through other organizations.)

Purpose	Funding Source	Amount	Funded Yes/No	Comments
Gulf of Maine Times	NB Environmental Trust Fund	$28,000	No	Huntsman Marine Science Center & GOMC developed joint proposal; $15K for GOMT; NB Environment encouraged proposal; Favorable reviews but not funded.
	CLF, DOI/NPS, DOI/USGS, EC, DFO, Chewonki, UMass Boston, Census for Marine Life, New England Aquarium, NERACOOS, Northeast Consortium, MSPO, Mass Ocean Partnership, NH Charitable Foundation,	$17,500	Yes	Three levels of donations and benefits from $500 to greater than $2,000; expectation these are ongoing annual contributions; one-on-one solicitation; time consuming (securing commitments, obtaining sponsor materials for posting to GOMT site)
Restoration Grants/ Coordinator Match	NOAA/NMFS MA DER, CWRP, ME SPO	$450,000 35,000	Yes Yes	Year one of fourth 3-year partnership
Ecosystem Indicator Partnership/SOE	NERACOOS	$15,000	Yes	Documented alignment between NERACOOS/GOMC data and information management objectives;
	NERACOOS	$82,000	Pending	Build on current regional effort; ESIP to collaborate with other indicator efforts in New England; present region-wide information
	Agency contributions EPA, EC, DFO, USGS, MSPO, NHDES	$14,700	Yes	Substantial in-kind support
	DFO/HOTO,	NA	Yes	DFO demonstrated exemplary leadership with strong advisors;
	EPA/GEOSS Program	$170,000	No	Highly competitive program; incomplete EPA guidance
Climate Change	NOAA/CSI Coasts	$280,000	Pending	Highly collaborative proposal engaging five state agencies, three non-profits and a university that will perform the work; secured in excess of $500K in cash and in-kind match
Restoration &	NH Charitable	$110,000	Yes	Able to prepare compelling narratives.

Conservation Plan	Foundation, Maine Community Foundation and Cox Charitable Trust, DFO			DFO provided $10,000 to support Canadian contractor working on Canadian programs.
Council priorities	US Congress	NA	Pending	Prepared GOM Program Office authorization and appropriation language for DC Hill staff in the fall.
Gulfwatch	EC	16,720	Yes	
	Total Requested	$1,248,920		
	Total Funded	$658,920		
	Total Declined for Funding	$198,000		EPA/GEOSS & NBETF
	Total Pending	$362,000		$30,000 NWF funds not included in pending total

Gulf of Maine Council on the Marine Environment

May 28, 2010

Regional Climate Change Project Proposal Ideas

Background: The Gulf of Maine Council's Climate Change Network and the Northeast Regional Ocean Council's Coastal Resiliency Committee are collaborating in the development of several climate change adaptation funding proposals that would benefit the region extending from Long Island Sound to the Bay of Fundy. The organizations are interested in projects that will take 12-18 months to complete, are $50-$250,000 in value, meet multiple jurisdictional needs, benefit from a regional approach, and build on existing efforts. Our audiences for these projects are decision-makers and coastal managers. The basis of the projects ideas described below were synthesized from recent state, provincial and federal climate change forums, meetings, user needs assessments and reports.

Adaptation involves making adjustments in our decisions, activities, and thinking in response to observed or expected changes in climate, with the goal of moderating harm and taking advantage of new opportunities that may be presented by

Current Situation: In April and May 2010 over twenty climate change experts from throughout the Gulf of Maine region reviewed and contributed suggestions to the initial synthesis. Their consensus priority project recommendations are:

Priority Ideas for Projects (see highlights below)
➢ Promote climate change exchange
➢ Expand StormSmart Coast
➢ Enable community infrastructure assessments
➢ Offer municipal guidelines
➢ Summarize adaptation policies
➢ Disseminate and use LiDAR tools
➢ Develop climate change regional monitoring strategy

Category 1: Growing the capacity of local and provincial/state leaders to more effectively respond to climate change

Local, provincial/state and non-profit leaders from Long Island Sound to the Bay of Fundy are developing and applying creative climate change adaptation strategies – often in isolation of each other. At the national level CEQ is poised to release a national adaptation strategy. There are a number of ways we might accelerate the learning and implementation of effective adaptation responses. Examples include:

a. Promote climate change "exchange" – Develop and effectively disseminate a routine e-correspondence tool for coastal managers (e.g., local, state, provincial and federal representatives, non-profits, legislative staff, etc.) engaged in climate change issues. Use existing communications tools (e.g., Gulf of Maine Times, monthly e-newsletters, etc.) and integrate/adapt existing materials (e.g., CZMA Climate Change, Coastal Hazards E-News from NOAA, etc.) **(Priority Idea)**

Next steps

- *Solicit state, provincial and federal climate change managers to learn where they get their information, priority needs, perceived gaps, and recommended delivery methods (e.g., frequency, detail, sources, etc.);*
- *Compile directory of leading climate change sources of information pertinent to the region;*

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- *Commence immediately circulating these sources to existing outlets (e.g., Gulf of Maine Times, State CZ newsletters, etc.) for re-distribution;*
- *Develop new materials responsive to climate change managers needs & disseminate;*

Partners to engage

Northeast Federal Partners, Environment Canada, NRCAN, ICLIE, NESCAUM, Regional Adaptation Collaborative

b. Expand StormSmart web presence – several states are in the midst of providing community-level decision-makers, via the StormSmart Coasts Network, with information to better prepare and recover from natural disasters such as storms and sea-level rise. http://stormsmartcoasts.org/ Parallel Provincial materials are being organized. The region's ocean observing assets can also make important contributions. Collectively these efforts need to be augmented and sustained. **(Priority Idea)**

Next steps

- *Enable the New England states that have yet to complete content for their state pages/sites to finish this work;*
- *Speak further with Wes about incremental improvements to individual New England state pages/sites (e.g., 6-month update process for the states to keep pages "fresh"; create a listserve for interested parties to join and send documents, updates, etc. A listserve moderator can then upload information to the website if relevant; actively promote the site to target audiences via the CSC magazine, Coastal Connections and other methods;*
- Learn from the NB and NS members of the Regional Adaptation Collaborative *about their comparable web development projects and needs and assess next steps (They have confirmed their interest in StormSmart.);*

Partners to engage

NOAA/CSC, State coastal hazard leaders (e.g., floodplain & emergency management programs, coastal management, geological survey, etc.), ICLIE, RAC

c. Support networking of climate change professionals -- support mechanism to coordinate and communicate data and decisions across sectors; foster communication and coordinated policy recommendations; achieve broad consistency in the region about the common elements for adaptation planning strategies, etc.

d. Organize annual climate change networking event -- A content rich, annual event that brings practitioners together to discuss accomplishments, share approaches and strategize collaborative ideas for the coming year. Possible participants include state/provincial climate adaptation officials, NEIWPCC, NESCAUM, GOMC, NROC, ICELI (local government), regional fish & wildlife staff, forestry experts, transportation officials, academia and federal partners.

e. Offer adaptation workshop(s) – compile existing workshop materials and results (e.g., fall 2010 NOAA/NESCAUM, ICLEI, etc.) and offer additional opportunities for natural resource management professionals, including state/provincial and local resource managers, planners, and program administrators to be more informed about climate change. Workshops would target foundational and process content and skills to support integration of climate adaptation planning in communities and planning processes. (Topics include comprehending the science, governance -integrating climate adaptation, engaging stakeholders for the long-term, communications -considering perceptions and applying principles, risk assessment - understanding methods and interpreting results, adaptation planning -identifying and prioritizing actions, adaptation implementation and monitoring - considering changing conditions)

f. Develop shared messaging and communication: develop materials to engage communities, local officials, legislatures, Governors/Premiers and media that communicate climate literacy and the benefits of taking actions today, even in the midst of a tough economic climate. Understand current attitudes and awareness

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of the target audience (e.g., 2010 Clean Air – Cool Planet report). Commence work by engaging environmental agency education staff to document lessons-learned.

Adrianne – status of NOAA/NESCAUM work on shared messaging and communication?

Category 2: Terrestrial projects that prepare for and increase resilience to the most likely foreseeable impacts of climate change

The coastal zone has a unique set of challenges and opportunities associated with climate change adaptation planning. For example, anticipated rise in sea level is a primary concern in planning how the region's coast could become more resilient. However the effects of higher sea surface levels will be compounded by the increase in significant storm events. Increases in precipitation that result in greater storm-water runoff have a coastal impact because most of the additional runoff reaches the major rivers that flow through and into estuaries and wetlands, bringing with it sediments and pollutants. These climate effects drive beaches, dunes, marshes, and wetlands "inland". In many places they are unable to migrate to new locations and we risk losing the benefits of systems that provide protection for our communities and vital natural resources.

A. Enable community infrastructure assessment: Enable communities to prepare climate change assessments that support comprehensive planning and capital improvements. Initially this would involve developing criteria for assessing natural communities and infrastructure for response and resilience to likely climate impacts, including a mechanism for evaluating vulnerability. Look for the intersection of water utilities and transportation corridors. These should recognize the unique ecological, social, and economic qualities of different areas of the coast, and should be used to guide investments in infrastructure repair, protection, and land conservation and restoration. **(Priority Idea)**

Next steps

- *Conduct literature review for criteria used to assess natural communities and infrastructure for their response and resilience to likely climate impacts;*
- *Engage New England and Maritime hazard and municipal planning managers to understand their needs and likely applications of the criteria (see recent NS Climate Change Centre needs assessment);*
- *Adapt criteria and/or develop new criteria as needed;*
- *Work with managers to implement on pilot basis, evaluate and expand effort.*

Partners to engage

State coastal hazard leaders (e.g., floodplain & emergency management programs, coastal management, geological survey, climate change program leaders, etc.), NESCAUM, RAC, professional associations (e.g., engineers, architects, planners, etc.)

B. Organize municipal guidelines: Assemble and present materials for protective zoning/regulation and conservation in coastal areas that allow for the movement of natural areas and species in response to anticipated climate effects. Present metrics to identify priority locations based on best scientific forecasts of highest risk of loss from sea level rise and related impacts, and promote opportunities for state/provincial and local partnerships to develop creative approaches to respond to anticipated climate effects. **(Priority Idea)**

Next steps

- *Conduct a literature review of protective zoning/regulation and conservation in coastal areas that allow for the movement of natural areas and species in response to anticipated climate effects and assess effectiveness. Draw on current Canadian Institute of Planners work on a*

planning guide, the earlier Canadian Climate Impacts and Adaptation Research Network manual for Canadian municipalities; pending NOAA/OCRM Planning Guide for State Managers; etc.

- *Develop 1-2 pilot projects in the region that are exposed to the highest risk of loss from sea level rise and related impacts. Implement and evaluate results.*

Partners to engage

Leaders from a few areas in the region that are exposed to the highest risk of loss from sea level rise and related impacts; respective federal, state and provincial hazards managers; chapters of Associations of Planners;

C. Summarize adaptation policies: Prepare a regional white-paper/briefing that identifies a range of municipal adaptation policies and standards for publically-owned properties, infrastructure and investments in the coastal zone. This could include guidelines that smaller communities and rural areas could use to evaluate current and projected hazards vulnerability and emergency preparedness. **(Priority Idea)**

Next steps

- *Conduct a literature review of municipal adaptation policies and standards for publically-owned properties, infrastructure and investments in the coastal zone and related evaluations;*
- *Produce synthesis of applicable policies and standards for the region;*
- *Disseminate and promote their use/application*

Partners to engage

NE Federal partners, RAC, state hazards managers,

D. Produce LiDAR products and maps: In 2010 a $1.4M ARRA funded collaborative light detection and ranging (LiDAR) program was launched by the New England states in cooperation with USGS, FEMA and other federal partners to develop 2-meter point-spaced LiDAR files at +/- 15-cm vertical resolution (and metadata) for the New England coastal region to better inform shoreline management decision-making. Once the data are collected (projected "leaves-off" fall 2010) and processed (likely delivery in June 2011) the real work begins (e.g., maps produced, priority products/interpretations prepared for coastal managers, etc.) It can then be used to create inundation and sea level rise scenario maps using Digital Flood Insurance Rate Maps or standardized digital flood zones; delineate current and future resources areas, especially salt marshes; use first return DEMs to calculate canopy coverage and development footprints; etc. (These same data can be used in a variety of other ways -- map wildlife habitat, predict erosion, model suitability of potential wind energy sites, choose locations of cell towers or wireless broadband equipment, and predict forest types.) **(Priority Idea)**

Next steps

- *The New England states develop a strategy (e.g., applications/uses, methods, timeline and funding plan, etc.) for "data crunching, derivative map and tool generation, etc. " for the most vulnerable regions in New England (e.g.,* beaches, low marsh areas, bluffs, etc.).

Partners to engage

LiDAR project participants and end-users (e.g., towns, COGs, planning commissions, watershed associations, utility districts, nonprofits, etc.)

E. Municipal technical assistance: Strengthen municipal land use ordinances, building codes, and community capacity to respond climate change. Examples of this work includes amending local ordinances, bylaws,

hazard mitigation plans, emergency planning, design standards and codes to go beyond the minimum; developing informative materials about the rationale/need for municipal amendments that address sea level rise and coastal inundation; and scaling down regional inundation materials to the local scale & convening regional workshops; etc.

F. Make vulnerable municipal infrastructure more storm resilient: Assist municipalities adapt shoreline municipal infrastructure to be more storm resilient through design, site planning, engineering and permitting. Examples of this work includes adapting existing shoreline stabilization structures, flood-proofing, address highly erodible bluffs that have associated municipal infrastructure, incorporate soft/green solutions; reengineer sewer lines, elevate structures, relocate frequently damaged roads, raise manholes, elevate outfalls, sand dune enhancements to improve buffering, architectural and design changes to reduce flood impacts, etc.

G. Document priority thresholds: Assemble regional experts to assess and report-out on where the thresholds of key natural systems in the region are at risk of disruption and critical data gaps. Exceeding these have the potential to cause abrupt ecosystem changes that are able to produce significant risks/hazards. Examples of these thresholds could be:
   - ocean acidification for sensitive marine organisms;
   - terrestrial plant and animal species sensitive to temperature and precipitation;
   - warming that creates new opportunities for human diseases that were previously inhibited by our cold climate.

H. Habitat restoration & climate change considerations: engage regional partners (e.g., NOAA, TNC, etc.) in developing regional climate change criteria for evaluating habitat restoration projects (e.g., whether to fund a project, how to design a project, how to set project restoration goals that fully consider a changing climate and establish achievable baselines, etc.). The goal could be to about what standards to address (e.g. 2 or 3 sea level rise scenarios for marshes; higher coastal floodplains for roads, bridges, higher tidal flow through culverts, infrastructure elevation or capacity for stomwater, etc.).

I. Wastewater facility adaptation: Engage the engineering and architect community in developing materials specific to publically-owned wastewater treatment facilities (POTW's) that assist such facilities to consider the effects of changing precipitation and/or sea level rise on their infrastructure, and support decisions needed for capital planning, disaster mitigation, etc.

J. Prepare Critical Infrastructure Protection Plan: Based on the 2007 Portland/Vancouver Urban Area Critical Infrastructure Protection Plan initiative (and their lessons-learned) select a priority area (e.g., inter-state, complex metropolitan area, etc.) and develop a definition for critical infrastructure specific to the area; identify private and public critical infrastructure that meet the regionally specific definition; develop a method to prioritize the region's critical infrastructure; and identify existing standards for protection of each critical infrastructure sector that can be used for public- and private-sector planning. (Convene a series of "interdependencies workshops" (e.g., dams, utilities and energy providers; transportation, shipping and military; etc.) to not only look at what was the most critical infrastructure within the region but also how they related to each other.)

K. Inventory vulnerable natural areas: Identify (1) undeveloped low-lying coastal areas for wetland migration through up-dated mapping and evaluation of coastal marshes, dune systems, and other wetland types having the capacity to buffer against storm events; and (2) undeveloped up-lands that protect these systems and offer potential for eventual inland migration of these systems. The inventory should identify potential areas of loss and gain, including economic, ecological, and cultural value, and design and/or enhance robust monitoring systems to track change and vulnerability over time. Identify landscapes to which tidal wetlands are likely to migrate in response to SLR.

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L. Health considerations: As data on climate-related health impacts are gathered and assessed, information for health providers and the public will need to be revised and made available. A focus may be on vulnerable populations (e.g., elders, children, indigenous people, disabled/handicapped people, low income groups, refugees/migrants) and communities of special concern when viewed through the lens of climate.

Category 3: Marine environment responses

The marine environment has a profound effect on the region's climate, weather, quality of life for wildlife and humans, and economy. Impacts with the likelihood of most significant impact to the ocean are:

- Changes in ocean circulation patterns, especially open ocean current changes that have an impact on the transport of deep cold waters into the Gulf from the Atlantic;
- Changes in seawater chemistry, including nutrient levels and acidification;
- Changes in amount of freshwater delivery to the Gulf from melting ice in the Arctic, which would impact stratification and in turn productivity;
- Changes in seawater temperature, which may differ between in-shore and open ocean; and
- Changes in off-shore wind patterns, a matter of importance in light of current efforts to utilize wind energy.
- changes in near-shore wind patterns are intensifying hypoxia in LIS and will affect long-shore sediment transport patterns (and thus the efficacy of existing erosion control structures.

Given the extreme complexity of ocean chemistry, it is not yet clear just what changes such as acidification, calcification, or nutrient transport and availability will have on the marine ecosystem and the species it supports. These are already stressed by other human impacts, especially storm-water runoff, which may be exacerbated by climate change. The entire marine food-web is expected to undergo changes in both plant and animal species, including the increased risk of invasive species, with corresponding changes to the region's ocean fishery.

A. Develop a regional monitoring strategy for key marine climate change indicators: Secure seed-funds to prepare and promote federal implementation of a Gulf of Maine to Long Island Sound sustained climate change monitoring framework that coordinates the acquisition and exchange of scientific knowledge. This effort would determine what is required to initiate and maintain a suite of monitoring programs in the marine environment. (LISS and CT DEP/UConn are developing a sentinel monitoring strategy for climate change.) For the estuarine and marine ecosystems, climate change affects the physical and chemical properties of Gulf of Maine waters, which in turn alters physiological processes, food webs, and distribution and migration patterns of marine organisms. Robust monitoring programs are needed to monitor atmospheric and water properties, circulation patterns, distribution and abundance of marine organisms (phytoplankton to marine mammals and sea birds, including invasive species), changes to habitats, impact on the economic and social systems, etc. (Examples of current initiatives to draw on include the Gulf of Maine Monitoring Inventory & ESIP Monitoring Map, the emerging Gulf of Maine Restoration and Conservation Initiative, the Massachusetts Ocean Plan, NOAA ocean acidification implementation report, and the Long Island Sound Study.) **(Priority Idea)**

Next steps

- *Form ad-hoc steering committee of bi-national climate change and monitoring experts to scope the content and cost of a regional monitoring strategy for key marine climate change indicators;*

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- *Prepare a seed-funding grant to assess existing monitoring programs, develop the scope of the monitoring strategy and prepare implementation recommendations*

Partners to engage

RARGOM, BoFEP, the region's climate change leaders (e.g., state/provincial climate change program managers, NOAA/OAR, etc.)

Reasons to be involved

As the scope and content of the 2012 – 2017 Action Plan is defined it is very important to articulate what the participating agencies (and individuals representing the agencies) need from the Council and the value they place in it.

Background

During the past twenty years agency representatives on the Gulf of Maine Council, in the face of competing requests for time and resources, have needed to make choices (and respond to inquiries) about why they participate in this transboundary organization.

Given the slow but steady growth of regional coordination mechanisms in Canada and the US over the past 10-years there is an ongoing need to be really clear about the benefits of participation in the GOMC. In October 2010 the WG discussed and created the following list of rationale for participation.

Reasons to participate

1. Easier to do daily tasks within the agency
   - Participation in the GOMC is a mechanism to get things done. The Working Group, Councilors and committee members have access to people, networking and new resources. This transboundary work makes agency work more productive and interesting. These resources can be used to address agency priorities.
2. Address transboundary issues
   - Each state, province and federal agency can use the GOMC to address issues of regional concern that are not dealt with through other regional collaboration mechanisms.
   - The Council allows each country to engage the other in issues of common concern.
3. Learn of innovative approaches
   - Council/WG meetings provide a forum to exchange information
   - In-person, friendly and electronic professional networking opportunities
4. Support cross boundary initiatives
   - Determine important activities (and projects) that require cross boundary approaches such as indicators and state of the Gulf reporting, restoration, Gulf of Maine mapping, monitoring, climate change, communications and outreach
   - Leverage resources that would not be available to individual organizations

Assessing and evaluating the effect of Council activities

Background

In October, 2010 the Working Group reviewed a compilation of 2007-2010 accomplishments of the Gulf of Maine Council and its committees in implementing the current Action Plan. In the ensuing discussion the following questions were raised:

- How effective was the Council in disseminating the products (and marketed) to the end-users;
- What data and information does the Council have on user satisfaction and/or concerns;
- How do these products align with the short and mid-term objectives in the current Action Plan;
- Did any of the products contribute to attaining the respective mid-term and long-term objectives;
- How would the Council's experience in creating and using these products guide development of the new five-year Plan;
- What is the experience of the Council agencies in using these products and services;
- How might the Council promote the use of these products in the next 12-months;

The Working Group concluded that it was important to pursue these evaluation and assessment questions (and others) and to develop some recommendations for Council consideration in December.

2007-2010 Products

GOMMI

- Seafloor mapping brochure
- Seafloor mapping priorities
- Cashes Ledge mapping
- *Integrating seafloor mapping and benthic ecology into fisheries management in the GOM*; and
- Survey Methods for Shallow Water Habitat Mapping in Northeast National Parks, Wildlife Refuges, & Estuarine Research Reserves

Habitat Restoration

- 65 projects - January 1, 2006 through June 30, 2010 = $ 1,914,784 & $2M in non-federal matching funds
- Maintained web portal operation
- Released and promoted use of the stream barrier removal guidelines by awardees and organizations/agencies
- Contributed to US GOM Habitat Restoration and Conservation Plan

Habitat Monitoring

- Supported habitat monitoring beta-web site;
- Produced Salt Marshes in the Gulf of Maine: Human Impacts, Habitat Restoration and Long-term Change Analysis

Habitat Conservation

- Completed documentation of coastal/marine managed areas in the CA portion of the GOM, created user portal and uploaded data to GOM site;
- Organized and produced workshop proceedings about sub-tidal habitat classification methodologies
- Disseminated info on American Eels

Gulfwatch

- Supported 12-year program peer-review by RARGOM & report;
- Collected and analyzed 2007, 2008 and 2009 samples;
- Reconciled past data &1993-2006 now on the server
- Produced data reports (07 & 08)

Sustainable Communities

- Prepared *Industry Engagement with the GOMC* report with recommendations
- Organized and awarded Sustainable Industry, Longard, Snow-Cotter and Visionary Awards

Action Plan Considerations: Factors to Determine Contents of New Plan

Background: The Working Group and Council have identified issues that are important to their respective agencies (e.g., within their mandates) as well as being important to them as individuals. (These materials reflected jurisdictional priorities, hot topics and emerging issues.) Collectively these issues are within "the Council's sphere of concern". In preparation for the December 2010 Council meeting these issues were refined to focus on those that align with the Council's mission and roles. These are the Council's "sphere of influence".

Council's Terms of Reference articulates what it does:

a. Facilitators of integrated watershed, coastal and ocean management – The Council fosters an ecosystem-based management approach. It works to ensure decision-makers possess the necessary information to manage human effects on the ecosystem, to preserve ecological integrity and to sustain economically and socially healthy human communities.

b. Enable the region's governments be more effective stewards – By working together in a regional forum the states, provinces and federal agencies learn from each other, try new approaches and as a result are better stewards of the resources they are legally responsible for.

c. Sustain strong partnerships – The Council works to be an effective partner and build the capacity of local and regional organizations that are addressing issues of regional concern.

Possible Criteria

The determination of what items will be included in the new Plan will be guided by a host of considerations such as: what was the Council able to accomplish in the past four years; what are its lesson-learned from previous Action Plans; what resources/capacity might the Council plausibly have to implement the Plan; how might it partner with others; etc. Based on this situation the following criteria are proposed:

1. **Regional Response** -- Does the issue require or substantially benefit from a regional response?
   For successful resolution of the issue in the Gulf of Maine region must the provinces, states and federal agencies work cooperatively? (It is more than just the issue occurring in some or all of the states/provinces. Rather it requires a coordinated response to effectively address the issue.)
2. **Council Capacity** -- Is the Council uniquely positioned (given its members, geography, mission, Terms of Reference, etc.) to address the issue?
   As a transboundary entity does the Council have special capabilities to address an issue? Is it organized appropriately (or could we put a mechanism in place)?
3. **Council Role –** Can the Council narrow the wide range of possible transboundary issues so as to focus its attention successfully on a few?
   Can the Council choose a few issue? Can it be agile in responding to new issues?
4. **Resources** – Does the Council have (or can it get) the people and money to address the issue? Is it important enough to collectively marshal the resources required?

Next Steps/Needs

Finalize the criteria, apply them to the issues, and begin the shape the contents of the Plan.

2012 – 2017 Priorities

Sources of information: 2007-2012 Action Plan; jurisdictional priorities; GOMC "hot topics brainstorm"; SOG Emerging Issues paper; October 4th Working Group meeting products; 2010 climate change needs assessment; NE/Maritime Partner Collaboration;

Goal 1: Protect and Restore Habitats – Coastal and marine habitats are in a healthy, productive and resilient condition			
2007 – 2012 Activities	Proposed 2012 – 2017 Activities	Possible Tasks	Outcomes/Results
Invasive Species ▪ Assessing risks posed by invasive species in the Gulf of Maine. ▪ Setting priorities and supporting efforts to minimize and/or prevent harmful marine invasions.	NA	NA	NA
Land-based Activities ▪ Disseminating materials that increase awareness about effects of land-based activities on the coastal environment. ▪ Identifying and assessing the long-term economic, social, and ecological implications of projected coastal development patterns in the region.	NA	NA	NA
Habitat Restoration			

▪ Disseminating information on the need for coastal habitat restoration. ▪ Funding restoration activities. ▪ Creating tools that managers need to accelerate habitat restoration.	▪ Disseminating information on the need for coastal habitat restoration. ▪ Funding restoration activities. ▪ Creating tools that managers need to accelerate habitat restoration.	▪ Produce articles in GOMT ▪ Offer restoration grants (fish passage, salt marshes, etc.) ▪ TBD	▪ Implementation of US GOM Rest/Con Plan ▪ Restore habitat functions and values
Marine Habitat Conservation ▪ Communicating how ecosystem-based management can be accelerated in the Gulf of Maine. ▪ Developing the ecosystem-based tools that managers need. ▪ Building the capacity of managers for integrated approaches to management.	▪ Communicating how ecosystem-based management can be accelerated in the Gulf of Maine. ▪ Developing the ecosystem-based tools that managers need. ▪ Building the capacity of managers for integrated approaches to management.	▪ Produce articles in GOMT ▪ Promote the need for high-resolution seafloor maps for highest priority areas ▪ Support documentation of the spatial extent and intensity of human uses of the ocean ▪ Collaborate in preparation and implementation of ecosystem health communication strategy ▪ Support marine spatial planning	▪ Enhanced awareness; materials exchanged; ▪ Seafloor maps produced ▪ Better management decisions ▪ Enhanced awareness ▪ Better management decisions

Creating a Vision Statement for the Gulf of Maine

Background: In June 2010 the Council agreed that the 2012 – 2017 Action Plan should be based on a 20-year vision for the Gulf of Maine. With a vision in place the Council can then determine what actions it can pursue to attain it.

A **vision statement** is a vivid idealized description of a desired outcome that inspires, energizes and helps to create a mental picture of your target. It defines the desired or intended future state and provides a strategic direction.

Current Council Mission: maintain and enhance environmental quality in the Gulf of Maine and to allow for sustainable resource use by existing and future generations

Proposed Vision Statements for the Gulf of Maine

Option #1 -- A healthy, thriving, and resilient Gulf of Maine ecosystem that supports a range of human activities.

Option #2 – A prosperous and healthy Gulf of Maine where conservation, productivity and resource use are sustainable.

Appendix -- Research to inform Council deliberations

The following vision statements may help to identify "words, phrases and concepts" that the Council may want to have in its 20-year vision statement for the Gulf of Maine. (Items highlighted are suggested priority words from the AP Work Group.)

Maya Mountain Marine Corridor Conservation Goal [LINK]
The MMMC will continue to be a place of national importance to Belize and international importance to the greater Gulf of Honduras because of its economic, environmental and geopolitical significance.

Puget Sound Partnership (Vision in progress?) [LINK]
Despite its size, *Puget Sound is ecologically delicate;* and while its symptoms of trouble are not easily visible, they are undeniable and getting worse. **Our goal is to make Puget Sound healthy again, and create a roadmap for how to get it done.** If we work together, we can have both a thriving Puget Sound economy and a clean and healthy Puget Sound ecosystem.

Chesapeake Bay Foundation [LINK]
Our vision is that the Chesapeake Bay and its tributary rivers, broadly recognized as a national treasure, will be highly productive and in good health as measured by established water quality standards. The result will be clear water, free of impacts from toxic contaminants, and with healthy oxygen levels. Natural filters on both the land and in the water will provide resilience to the entire Chesapeake Bay system and serve as valuable habitat for both terrestrial and aquatic life.

Chesapeake Bay Program – Executive Order DRAFT Vision [LINK]
We work toward a Chesapeake Bay watershed with clean water that is swimmable and fishable in streams, rivers and the Chesapeake Bay; with sustainable, healthy populations of blue crabs, oysters, fish and other wildlife; and with a broad network of land and water habitats that support fish and wildlife and are resilient to the impacts of development and climate change. We work toward a Chesapeake Bay watershed with abundant forests and thriving farms that benefit both the economy and environment; with extensive areas of conserved lands that protect nature and the region's heritage; with ample access to provide for public enjoyment; and with cities, towns and neighborhoods where citizens are stewards of nature.

Great Lakes Restoration Initiative (No vision statement?) [LINK]
This Great Lakes Restoration Action Plan (Action Plan) outlines methods and actions to advance implementation of the Initiative through FY 2014 and will help protect and restore the chemical, physical and biological integrity of the Great Lakes Basin ecosystem.

Five principal focus areas have been identified which encompass the most significant

environmental problems in the Great Lakes (other than water infrastructure) for which urgent action is required. These include:

- Toxic Substances and Areas of Concern
- Invasive Species
- Nearshore Health and Nonpoint Source Pollution
- Habitat and Wildlife Protection and Restoration
- Accountability, Education, Monitoring, Evaluation, Communication and Partnerships

Florida Coastal Wildlife Conservation Initiative [LINK]
Vision: Ensure the long-term conservation of native wildlife in coastal ecosystems throughout Florida in balance with human activities.

Lower Columbia River Estuary Partnership [LINK]
Mission: To preserve and enhance the water quality of the estuary to support its biological and human communities. Guiding Principle: The health of the river will not significantly improve if new problems continually emerge even as old ones are addressed and solved.

Colombia River Basin – Columbia River Inter-Tribal Fish Commission [LINK]
The tribal vision for the future is one where people, fish, wildlife, plants and other natural and cultural resources are once again biologically healthy and self-sustaining.

United Nations Environment Programme [LINK]
Vision: Prosperous and healthy oceans and coasts where conservation, productivity and resource use are sustainable.

Yellowstone to Yukon Conservation Initiative [LINK]
Y2Y's vision is that the entire Yellowstone to Yukon region will be managed so that this world-renowned mountain ecosystem and its inhabitants (both wild and human) remain healthy and connected for centuries to come.

Great Barrier Reef Marine Authority, Keppel Bay [LINK]
The broad objective and vision of the GBRMPA is to provide for the protection, wise use, understanding and enjoyment of the Great Barrier Reef in perpetuity, through the care and development of the Great Barrier Reef Marine Park.

Great Barrier Reef Marine Authority (#2) [LINK]
In the Great Barrier Reef World Heritage Area in 25 years there will be:

- A healthy environment: an area which maintains its diversity of species and habitats, and its ecological integrity and resilience, parts of which are in pristine condition.
- Sustainable multiple use
- Maintenance and enhancement of values
- Integrated management

- Knowledge-based but cautious decision making in the absence of information
- An informed, involved, committed community.

Florida Reef Resilience Program [LINK]
The FRRP seeks to improve ecological conditions of Florida's reefs, economic sustainability of reef-dependent commercial enterprises, and continued recreational use of reef resources.

Florida Everglades Coalition [LINK]
Our Vision for 2020 includes ten specific Visions, which capture those objectives we feel are critical to successful restoration. These ten Visions are summarized below:

1. By 2020, lands that are necessary for restoration are brought into public ownership to expand the spatial extent of wetlands and prevent development that undermines the greater Everglades ecosystem.
2. By 2020, abundant and diverse native plant and animal life in the greater south Florida ecosystem meets or exceeds the 10 year recovery goals of federal and state conservation plans for listed species and their habitats.
3. Assure sufficient clean freshwater for the Everglades and the Estuaries.
4. Adequate storage exists in the Everglades Agricultural Area and North of Lake Okeechobee to provide clean water to the Everglades and its estuaries during dry periods and sufficient conveyance capacity exists in the Everglades Agricultural Area to facilitate a natural response to wet events.
5. By 2020, the ecological decline of Lake Okeechobee will be measurably reversed and infrastructure improvements to eliminate destructive discharges to the estuaries and to enable water to flow south into the Northern Everglades will be in significant stages of design, bid or construction.
6. The Southern Everglades is on its way towards full restoration of sheetflow and wildlife recovery as initial key projects are completed.
7. In the Western Everglades, maintain and recreate the connectivity of water and wildlife movement, and the greater ecosystem, while promoting wise growth management.
8. Science remains the driving force for decision support in CERP and related project implementation, as well as the basis of CERP policy, including all steps in the scientific method, peer review, and incremental adaptive management.
9. Florida's energy choices do not compromise land and water supply critical to Everglades' restoration efforts.
10. Everglades restoration sees substantial progress with support and full commitment at the highest levels of the federal and state governments.

Gulf of Mexico Governors Alliance [LINK]
The Alliance is committed to a Gulf of Mexico region that includes healthy beaches and seafood, sustainable natural communities, productive marine ecosystems, and resilient coastal communities.

Irish Sea (Department of Environment, Food and Rural Affairs) [LINK]
Our vision for the marine environment is clean, healthy, safe, productive and biologically diverse oceans and seas. Within one generation we want to have made a real difference.

West Coast Governors Agreement [LINK]

- Priority area 1: Ensure Clean Coastal Waters and Beaches
  - Vision: Clean coastal waters and beaches where marine life thrives and where people can safely enjoy swimming, fishing, and other activities without the detrimental effects of pollution and marine debris.

- Priority area 2: Protect and Restore Ocean and Coastal Habitats
  - Vision: Estuarine, marine, and coastal habitats are ecologically healthy and allow for public enjoyment and sustainable use.

- Priority area 3: Promote the Effective Implementation of Ecosystem-Based Management
  - Vision: A healthy, thriving, and resilient marine and coastal ecosystem along the entire West Coast that supports a range of human activities.

- Priority area 4: Reduce Adverse Impacts of Offshore Energy Development
  - Vision: No new offshore oil and gas leasing and development shall occur in state tidelands or within the federal Outer Continental Shelf. The energy potential of wind, wave, and tidal currents is appropriately and safely considered along the West Coast.

- Priority area 5: Increase Ocean Awareness and Literacy Among Citizens
  - Vision: The West Coast has an informed citizenry that understands the value of ocean and coastal resources, processes, and ecosystems and acts consistently to conserve and enhance them.

- Priority area 6: Expand Ocean and Coastal Scientific Information, Research, and Monitoring.
  - Vision: A sustained research and monitoring program for the entire West Coast that provides timely and relevant information to support coastal and ocean management programs.

- Priority area 7: Foster Sustainable Economic Development in Coastal Communities
  - Vision: Coastal communities are economically and environmentally sustainable over the long term.

Other suggestions

- Accountability, Education, Monitoring, Evaluation, Communication and Partnerships

Mission statement
"The council will nurture strong partnerships among, local, regional, and national organizations and will foster innovative approaches to sharing information and enhancing collaboration."

Vision statement

"The Gulf of Maine Council will partner, collaborate and communicate in order to enhance the region's quality of life in the Gulf of Maine marine, coastal and watershed environment though integrating economic, social and ecological values into the conservation."

- compared to other great waters, the GoM may appears pristine, but to the people living and working within the GoM and its watershed, evidence of degradation is becoming apparent
- two countries, # levels of government and stakeholders working together in the spirit of sustainability
- better understand the GoM and its watersheds and ensure a healthy ecosystem and thriving economy through wise use, conservation and restoration of this natural wonder of North America (Bay of Fundy has been identified as one of the natural wonders of North America)

Finalizing the Action Plan: January to December 2011 schedule

Background – The Council's intent is to release the 2012-2017 Action Plan at its December 2011 meeting in New Brunswick. To meet this deadline the following needs to occur.

Months	Activity	Comments
January – February	Conduct internal agency engagement/securing buy-in; begin collaboration discussions with regional partners (e.g., this is what we want to work on, how do you want to be involved, what can you contribute, etc.)	
March	Complete AP priorities, tasks, activities; describe logic model approach; finalize public consultation approaches including internal agency participation; produce draft 2007-2012 "accomplishments" report-out;	
April	Commence initial public consultation (30-comment period – broad strokes) via Constant Contact	
May	Tabulate and assess results for June meetings	
June	Approve content and initial presentation/design ideas; approve layout and production; review draft roll-out strategy	
Fall	Provide final materials to writing and layout team; create "elevator speech" about the plan, relevance to agency objectives, etc.; grow capacity of committees (e.g., secure co-chairs, recruit new members, etc.)	
December	Release 2012-2017 AP in New Brunswick & in each jurisdiction	