Gulf of Maine
Council on the
Marine Environment

Working Group Briefing Packet

Version 1

Portsmouth, New Hampshire • October 4-5, 2010

Table of Contents

Working Group Agenda.....3

Consent Agenda.....6

GOM Habitat Restoration and Conservation Initiative.....12

Action Plan: Considerations…….....13
Action Plan: Vision Statement…….....14

Collaborations to Advance Projects of Regional Interest…… 15

Gulf of Maine Contributors.....17

The New England-Canadian Maritime Collaboration and Planning Initiative: Coastal Hazards.....20

The New England-Canadian Maritime Collaboration and Planning Initiative: Ecosystem Health……..…26

The New England-Canadian Maritime Collaboration and Planning Initiative: Ocean Energy Planning and Management……..37

Davis Conservation Foundation Completion Report……43

Working Group Agenda

Monday, October 4, 2010 – New Hampshire Department of Environmental Services – Pease Tradeport

8:30 AM	Welcome, introductions, and overview and objectives for the meeting ***Theresa Torrent-Ellis, Maine Coastal Program, ME State Planning Office and Working Group Chair***
8:40 AM	**Accept consent agenda** ▪ Accept June 2010 WG meeting summary ▪ Committee and Subcommittee reports ▪ Partial list of funds/in-kind Services Donated to the Gulf of Maine Council on the Marine Environment and Wish List for Funds/in-kind Services ▪ 2009 – 2010 Fund Development Report ▪ TAPAS (Tracking Action Plan Activities System) reports ▪ Update on the cooperative agreement between the Council and NROC
9:15 AM	**Action Planning for the next five years and developing the Gulf of Maine twenty-year vision statement** ***Theresa Torrent-Ellis, Michele Tremblay, Council Coordinator; and David Keeley, Development Coordinator*** **Background:** In December 2009, the Council decided to document 2007-2010 Action Plan accomplishments and revise the current Action Plan. The revision will be reflective of the GOMC current capacity and unique qualities that we bring to these goals. It was also decided that we frame this five-year Action Plan within a twenty-year vision statement that reflects our goals for the future sustainability of the GOM. **Outcome/Desired Action**: Recommendations to Council for a Twenty Year Vision Statement, affirmation of Committee recommendations on tasks for the new Plan, and approval of tasks and a schedule leading up to the December Council meeting,
10:30 AM	**Break**
11:00 AM	**Action Planning for the next five years continued… break out session** *Theresa Torrent-Ellis*
12:30 PM	**Lunch on your own** A pre-order lunch option will be provided from *The Green Bean*
1:30 PM	Marine Spatial Planning Forum and Gulf of Maine Census Presentation ***Betsy Nicholson, NOAA and Theresa Torrent-Ellis (respectively)*** Background: **Council requested information on MSP for their next meeting and we have been working with GOMCOML to do a presentation in December on the GOM portion of their ten-year study.** Outcome/Desired Action: **The Working Group will identify a lead person, plan, and group recommendations for presenters.**
2:00 PM	Update on the Northeast Great Waters initiative ***David Keeley and Peter Alexander*** Background: **The Council is partnering with others to prepare a GOM Habitat Restoration and Land Conservation Assessment that addresses the needs in the three states. This will be posted for public comment in August and finalized in September. (The USGOMA is the fiscal agent.) The Provinces and federal agencies in Canada are also in the midst of preparing a Provincial assessment of restoration and conservation efforts. On a parallel but separate/distinct path, a Northeast Great Waters Coalition is being formed to advocate for implementation of the Plan (and for similar plans in the Long Island Sound, Lake Champlain, and RI).** Outcome/Desired Action: **The WG is familiar with the contents of the Plan and the Provincial effort. It develops recommendations to the Council on roles it can take in implementing the Plan.**
2:30 PM	Items removed from consent agenda and unfinished business travel to Portsmouth waterfront
3.00 – 4:30 PM	Portsmouth Harbor Tour and Piscataqua Regional Estuaries Partnership presentation ***Hosted by Ted Diers, NH Coastal Program*** **We will set out aboard the MV Heritage on a narrated Harbor cruise and will learn about the past and current importance of this harbor and the Piscataqua watershed.**
6:00 PM	Meet in Hilton Garden Inn lobby for group supper

Tuesday, October 5, 2010 – New Hampshire Department of Environmental Services – Pease International Tradeport

8:30 AM	**State of the Gulf of Maine: next steps and plans for a dynamic document** *Tim Hall, Department of Fisheries and Oceans* Background: **On June 8, 2010, the Council released the State of the Gulf of Maine (SOTGOM) report. The context document and four theme papers are completed. While a work plan for final completion of the report has been completed, it is necessary to begin discussion on the long-term sustainability of the report.** Outcome/Desired Action: T**he Working Group should develop a strategy to address the sustainability of the SOTGOM report including agreeing on a permanent "home" for it.**
9:00 AM	Action Plan: focus on crosscutting and service committees ***Theresa Torrent-Ellis*** Background: **The Ecosystem Indicator Partnership and the Climate Change Committee are crosscutting committees—their focus and approach are essential for the three Action Plan goal areas. Information Management and Outreach are both service committees—their work and expertise is needed to support the Council's projects.** Outcome/Desired Action**: We will focus on the Cross Cutting/Service Committees, their roles and scopes, and will agree on a process with which to position recommended actions for these Committees under the three Action Plan Goals.**
9:45 AM	Break
9:55 AM	Moving Forward Our Actions – Steps for Building Fundable Project Ideas for the Private Foundation Sector ***David Keeley, Theresa Torrent-Ellis and Guest Presenter***
10:30 AM	Climate Change initiatives ***Susan Russell-Robinson, Gary Lines, Environment Canada*** **Background:** TBD Outcome/Desired Action: **TBD**
11:15 AM	Podcast from students attending the Sustainable Ocean Studies program ***Theresa Torrent-Ellis* and *David Vaughn, Waynefleet School*** YouTube film *Youth on the Coast 2010* from Coastal Zone Canada meeting held in Prince Edward Island ***Justin Huston***
11:35 AM	**Update on the Gulf of Maine Regional Ocean Science Initiative** *Judith Pederson, MIT Sea Grant College Program* **Background:** The Gulf of Maine Regional Ocean Science Initiative is committed to coordinate research and information exchange in the Gulf of Maine that encourages collaboration and coordination among stakeholders with the goal of preserving and providing for sustainable use of resources. Our priority areas include healthy coastal ecosystems, human health and the oceans, climate change, coastal hazards, and the science of governance. We continue to seek input into specific issues that reflect the priority of Gulf of Maine organizations. Among our activities is a commitment by the Northeast Sea Grant College Programs to fund regional research projects during the biennial call for proposals. **Outcome/Desired Action:** The Working Group will identify areas of mutual interest and provide recommendations for specific research to address these issues.
12:00 PM	**Lunch on your own– Committee meeting opportunity** Suggestions and walking directions to area restaurants at Pease International Tradeport
1:30 PM	**Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) maritime collaboration workshops and outcomes** *Dr. Ru Morrison* **Background:** In the northeast there are numerous organizations engaged in planning for the future management and stewardship of the region's coasts and oceans. Given their shared geography and common interests twelve organizations organized and hosted four theme meetings in May and June 2010 (ocean observing, ocean and coastal ecosystem health, ocean energy planning and management, and coastal hazards). The result is a compilation of projects that the organizations will consider for joint implementation at a Partners meeting on October 27th. **Outcome/Desired Action:** The Working Group will develop recommendations on what projects align with the emerging Action Plan and that the Council would be prepared to work on collaboratively.
2:45 PM	Working Group member roundtable ***Theresa Torrent-Ellis*** **Committee members will share information to increase the GOMC's role as a valuable coordinating and convening organization. This session will focus on committee and subcommittee chairs providing updates on their activities.**

4:00 PM	**Adjourn**

Wednesday, October 6, 2010 – Portsmouth Hilton Garden Inn

8:00 AM – 5:00 PM (TENTATIVE)	**Regional Association for Research on the Gulf of Maine (RARGOM) Annual Meeting** **Impacts of Climate Change in the Gulf of Maine** Registration will open on August 2, 2010. Registration fee is $25 for participants from RARGOM member institutions, $30 for non-members. http://www.rargom.org/ **Please contact Lynn Rutter at 868.0067 or lynn.rutter@unh.edu for further information.**

Consent Agenda
June 2010 Working Group Meeting Summary

Gulf of Maine Council on the Marine Environment Working Group
Meeting DRAFT Summary
Portland, ME
June 7-8, 2010

Working Group members present
Rob Capozi, NB Department of Environment; Ted Diers, NH Department of Environmental Services; Jennifer Hackett, Department of Fisheries and Oceans; Tim Hall, Department of Fisheries and Oceans; Anita Hamilton, Department of Fisheries and Oceans; Adrianne Harrison, National Oceanic and Atmospheric Administration; Russ Henry, NB Department of Fisheries; Justin Huston, NS Department of Agriculture and Aquaculture; Julia Knisel, MA Office of Coastal Zone Management; Gary Lines, Environment Canada; Jackie Olsen, Environment Canada; Ann Rodney, US Environmental Protection Agency; Susan Russell-Robinson, US Geological Service, Department of Interior; Jack Schwartz, MA Division of Fisheries; Theresa Torrent-Ellis, ME State Planning Office; Peter Wells, Dalhousie University; and Mark Wiley, University of NH Sea Grant.

Others present
Debbie Buott-Matheson, Environment Canada; Liz Hertz, ME State Planning Office; Patricia Hinch, Bay of Fundy Ecosystem Partnership; David Keeley, Development Coordinator; Cindy Krum, US Gulf of Maine Association; Slade Moore, Habitat Restoration Partnership; Michele L. Tremblay, Council Coordinator; Jay Walmsley, Department of Fisheries and Oceans; and Matt Wood, GOMC Administrative Assistant from the NH Department of Environmental Services.

Consent Agenda
The March meeting summary was removed for discussion. It was requested that the meeting summaries be sent out or posted somewhere prior to being distributed in the briefing material for the following meeting, to that individuals can reference the decisions and actions.
Decision: The Working Group accepted the consent agenda

Action: The Working Group will review its decisions and actions at the end of each meeting day via a PowerPoint presentation and then they will be provided with a list of participants via the Working Group listserve

GOM Habitat Restoration and Conservation Initiative

David presented an overview of the GOM Habitat Restoration and Conservation Initiative, explaining that it is a two-part effort. The first part involved putting together a plan/ needs assessment, and the second part involves advocacy for the needs assessment. Peter Taylor and Peter Alexander are leading the effort of developing the draft plan, which should be completed by July 1, 2010. Following completion of the draft, the plan will have a 30 days comment period, at which time it will be presented to the Council who will be asked for their endorsement. The finalized plan will be relented in September. Any funds generated through this effort will flow through existing federal programs, not the Council. To ensure that funds are directed to the Gulf of Maine there will need to be an authorization and an appropriation made. The Council is involved to make sure that the initiative moves forward in a timely manner.

There are approximately 30 Nonprofits monitoring the development of the initiative and they are likely to be the ones who become the advocates. Some of the key members involved are Senator Withouse, Senator Snow, Senator Collins, Senator Layhee, and Senator Lieberman. Theresa reminded the group that the Council will not be involved in the advocacy side of the initiative, only the development. Once it is drafted the plan will be posted on the Council's website for a 30 day comment period. At that time the Councilors will be asked to decided if the Council will endorse the plan or not. The suggestion was made that the initiative reaches the advocacy stage a document should be developed by the Council specifying what overall message the Council would like to send and what point of view should be portrayed. This will insure continuity in the message the NGOs present during their advocacy. David explained that the plan is primarily focused on coastal and marine but it is a watershed based plan and will not be limited to the coastal area. Justin commented that at the last Working Group the value/need for Canadian involvement was discussed; does the group think Canada would be doing this if it was not being undertaken by the States? The answer is No. Having the US developing this plan might put pressure on the Canadian government to also distribute funds to the provinces. Similarly to what happened with the Great Lakes. Jack inquired as to where the MOA with NROC stood. Adrianne explained that it is on the agenda of NROCs June meeting. NROC just needs to formally accept it. Justin inquired as to what that next steps should be, it sounds like there is value for Canada to develop a similar plan at the same time. Tim commented that there is interest; the problem is finding the funds. Tim will talk to the Canadian Association and see if they are still interested in pursuing this. David mentioned the plan will only be approximately 15-20 pages, so it might not require substantial funds or time for the Canadians to develop a similar plan. Developing a plan much larger and Congress won't know what to do with it. Peter commented that considering the recent oil spill in the Gulf of Mexico, a topic coving disaster preparedness may strengthen this document.

Action: Tim will talk to the Canadian Association to see if they are still interested in pursuing the development of a Canadian Habitat Restoration and Conservation Plan. Tim will report back to the Working Group once he gets an answer.

2010-2011 Gulf Maine Council Budget

Cindy presented an overview of the budget, indicating that Management and Finance had approved it at their last meeting and made the recommendation for the Working Group to recommend that the Council approve 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. Management and Finance has recommended that the Council keep between $100,000 and $120,000 in the reserve account. Last year at this time our budget needed $17,000 from the reserve account, however we were actually able to add $33,000 to the reserve account. This year Management and Finance have recommended $39,000 come out of the reserve account, although it is unlikely any money will need to be used. Jurisdictions have been great in hosting the meeting (finding free space and donating refreshments). The Council will need to continue to do this in addition to continuing registration fees in the coming year to. Ted discussed some of the topics that were discussed during the last Council conference call, which included options to increase funds. One of the options presented was to see if the non-dues paying organizations could sponsor the Gulf of Maine Times, which would allow for organizational recognition. The outcome of the Council meeting on Wednesday will be to would be to pursue the organizations that ought to be around the table and/or sponsors of the Times. David mentioned that a scrolling banner has been added to the Council's website to publicize sponsors of Times. Michele commented that adding more organizations to the Council is great and will help to increase revenue, but the main goal should be to have the right people around the table, especially with the Action plan development coming up. The current members are the best advocates for bringing on new members. They can explain what they have contributed and what they have invested in the Council, and see if they would like to do the same.

Decision: The Working Group recommends that the Council accept the 2010-2011 provisional budget.

Action Plan: Guidance for the Future and Engaging the Council's Membership in Implementation

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 crosscutting areas. The new plan will be web-based with the ability to print-on-demand.

Objectives for the Action Plan Development:

- Have some direction to give to the Council's committees and sub-committees of their roles in the development of the plan.
- A process needs to be developed describing the timeline for development over the next year.
- Have a plan to present to the council for approval in a years time.

The Council will keep the three existing goal areas, but will keep them open so that goals can be added as focuses shift over time. Some of the areas that need to be examined to start the updating process are:

- How the Plan will for the Council first and foremost with less focus on a Plan for the Gulf
- How the Working Group proposes to evaluate and describe Action Plan results of the past four years
- How the logic model process in the current plan will be modified in the new plan
- The update vs. whole-sale revision approach
- How GOMC committees, partners, agencies, and the public will engage in the plans development
- How to tie in Gulf of Maine priorities that will engage its membership

David commented that the above bullets, 1 and 3, seem to be intertwined. In March there needs to be a plan for the Council, which includes a look at the activities in the existing plan and how successful the Council has been in addressing them. The Council was very aggressive in developing the plan last time, but not a lot was accomplished. Justin commented that during the last Action Plan development the Council used the Logic Model. One of the things learned was that it is good for some things and made you think how to get to a specific point, but it is better designed for project specific activities. The Council does not have the time and resource to do the needs assessment which is the most important part of the logic model. The Council needs to recognize this is a limitation. It was also identified that the actions in the last plan limited the council activities. The council needs to be more open to being flexible and adaptive to align with changing policies and needs of agencies. This should be a plan for the Council but we shouldn't be so specific that we limit ourselves like we did in the last plan. Michele commented that at the project level the logic model works and the needs assessment is critical. There needs to be a high level strategy developed for where the Council wants the Gulf and then the logic model can be used to develop the plans for implementing activities. Justin commented that it needs to be defined in the new plan that the Council has the ability to shift focus when something comes up that the council is interested in. Peter made the recommendation that the Council look into developing a larger plan, say 20 years. And then have action of that plan cover each five year period. The Action Plans have not changed all that much over the last 20 years, and this would not be a big leap. The Council needs to think in the long term and how to relate what ever plan it develops to the State of the Environment Report. The comment was made that there is a need for things to happen in the Gulf of Maine but there is also the need that our constituents feel engaged. David remarked that in the past projects were added simply because there was an individual that was passionate about the topic, and wanted to put the time in that it would require. Typically the project would relate to a goal but it was chosen more because there was staff to undertake it. There needs to be a way to identify what projects the Council wants to undertake as they relate to the goals that are chosen. Jay recommended that links need to be added on the website under each goal with descriptions of the projects the council has approved to engage people.

Breakout Group Summary

Jackie and David presented some questions for people to consider while discussion the objectives in the breakout groups:

1. What will the Action Plan be – objectives (what the Council does in short term – 5 years)?
2. What should the long term planning timeframe be?
3. What are the crosswalks/gaps between the action Plan and the State of the Environment? Emerging issues?
4. How do we track performance and reporting back/document results? Where would reporting/evaluation fit in GOMC org/process? How to document results and benefits, and jurisdiction contribution to goals?

Some other questions raided by the group for consideration were:

1. What will we do as an organization to reach goals?
2. Will we be a facilitator, convener, or educator?
3. What is GOMC sphere of influence?
4. What is the return on our investment? (e.g. Capacity building)
5. How applicable are the current goals now, in 5 years, in 20 years?
6. What's been achieved in current Action Plan?
7. What should/could carry over into the new plan?

Justin Commented that the Council should define what as an organization we will do, not what would we like to see done. Whose responsibility is it to define how the objectives of the Council fit in with the objectives of the constituents? Is it the role of the Council to demonstrate this or each Working Group member? Ted recommended that when developing the Action Plan there needs to be some documentable outcomes. Once that is accomplished the actions can be developed on how to get to those outcomes. Peter commented that one of the things the Council does not do well is report on what we have accomplished. There should be a review of all of the Council's past documents and summarize each of them so that there is a document summarizing the Council activities.

Goal #1

Goal	Have We	Should We	Comments
1.1	Yes	Keep	-
1.2	No	Reconfigure	-
1.3	Yes	Done	-
1.4	Yes	Keep	Happening through 1.1, part of large development effort
1.5	No	?	Ask committee for advice on criteria
1.6	Ongoing/partial	?	NECC/ECP lands effort

1.7	Partial	?		Need to support EBM on-the-ground
1.8	Ongoing	Keep	-	
1.9	Partial	Keep	ESIP is working on it	
1.10	Partial	-		US/CAN issue (capacity building)
1.11	Done	-		Did classification scheme in Mass
1.12	No	Yes		-
1.13	Partial	-		Look at e???? report
1.14	No	?		Shane jurisdiction efforts
1.15	No	No		Support staff in jurisdictions to do projects
1.16	Yes	-		-
1.17	Ongoing	-	-	
1.18	Ongoing	-	-	
1.19	-	-		-
1.20	No	-		Storm Smart Coast
1.21	Ongoing	-	-	
1.22	Ongoing	-	-	
1.23	Ongoing	-	-	
1.24	Ongoing	-	-	
1.25	Ongoing	-	-	

Goal #2

Very relevant goal, still relevant wording

2.1 – Develop – yes, modifications can be continued
Disseminate – potential
Encouraging use – underway
Analysis – done and some underway. Papers being written
2.2 – Continuation is recommended. A core program but currently not sustainable.
2.3 – Not done!
2.4 – Not done! It was going to be a major database / a review of trace chemical contaminants in native organisms throughout the Gulf of Maine.
2.5 – Only partially, via BOFEP.
Still a priority / extremely relevant
A priority in Canada

Other environmental conditions to be considered:

1. Algal toxins?
2. Others – possible
3. Nutrients!! - still a need for information planning
4.

Q – How sharply do we define what's in the Council Plan?

Goal #3

Goal	progress	
3.1	Yes/no	
3.2	Yes	Should continue
3.3	No	
3.4	No	
3.5	No	
3.6	No	

Recommendations:

1. Looking at ways to incorporate climate change adaptation / community resilience that is already underway (climate Change network).
2. Renewable energy.
3. Sustainable fishing practices – debris, gear, fuel, oil and gas.

Next step is to explore what would be Council's role as a convener/facilitator/catalyst to advance these three areas.

David presented a summary of the discussion (from the previous day):

Recommendations and Insights

- A Plan for the Council—Focus the new Plan on what the Council will do (prepare statement of what needs to be done in the region)
- Update vs. rewrite – Current Plan remains relevant and can be adapted/updated
- 20-year vision – the basis of the Plan should be the Council's long-term vision for the Gulf's human, economic and environmental resources that includes what is needed for the region

- Maintain three goal areas – the existing goals continue to be important and timely with ESIP and Climate Change as cross-cutting areas
- Assess 2007 – 2010 accomplishments – identify the outputs and outcomes of the past three years
- Work to ensure vision, goals, and activities are aligned
- Web-based – active site with print-on-demand

Schedule – "in broad strokes"

- 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

Council discussion and decisions

- Affirm the schedule and process recommended by the Working Group
- The Council participants will articulate their organization's priority or "center-of-desk" issues
- Discuss Working Group matrix (to be synthesized by the WG)
- Next steps

Jackie made the comment that that Council needs to get the committees to the working group meetings so that they can interact with each other. There has not been good attendance or reporting from the committees and subcommittees. We need to look at a way to get them to report. Theresa mentioned that there were committee reports in the past and the Council decided to do away with that to allow more time for Working Group discussion. The Council needs to revisit the functionality of how reporting is communicated. Jackie suggested that one Working Group member and one Councilor be assigned, each month, to assist David and Michele in pulling together all the committee and subcommittee reports and actions, so that they can be reported to the Council. Theresa suggested that reinstating the Secretariat once per month meeting/call may help with this. Ann commented that the chair of the Working Group and the chairs of the Committees are the responsible parties, and it is their decision on how to communicate decision and actions. Theresa suggested that the Management and Finance meeting summaries be distributed, which is where a lot of the decisions are made.

New England-Canadian Maritime Collaboration and Planning Initiative: GOMC Participation

There are a series of workshops being presented following the NROC priorities. The Council had representation at the first of these meeting, which was on ocean observing. There will be someone from the Council represented at all of the following meetings; there has been about 20% Canadian participation at the meetings. Sometime in the fall, there will be a meeting to discuss the responses developed at each of the meetings. David commented that after these meetings are held each of the organizations hat are involved will have a little money to give out. There will be a look at pooling resources and funding a few projects. How does the Council want to look at those project ideas and make recommendations? Justin suggested that the Council chair should be the representative at the meeting and make the recommendation on behalf of the Council at the fall meeting. Theresa made the comment that in order for the Council to decide how to respond and prioritize these issues, the summaries and thoughts of the partnership meeting need to be presented at the March meeting. Jacky mention that the Council needs to look at what we want to get out of these projects, what are the objectives of the Council. The Council needs to start look at these questions prior to attending these types of meeting. The Council also needs to see if the projects align with the goals. It was decided that at the October meeting, the Council will discuss the findings of the fall meeting and how they align to the Council's goals and Action Plan. The Council will communicate back to the group where/how the Council fits in and what the Council's recommendations are.

Action: Working Group members that attend the NECMCPI will report on the discussions/priorities at the October 2010 meeting. The NECMCPI priorities will be used to inform the GOMC Action Plan process and a decision will be made on how the Council will participate in the NECMCPI initiatives.

Marine Resource Planning

Russ gave an overview of the Southwestern Nova Scotia Bay of Fundy Marine Resource Planning, which was started in 2004 in response to aquaculture and fisheries space/use conflicts. The overall vision was to develop a marine plan to guide the decisions on the use of marine space. The final report outlined ten goals, 22 objectives, and 27 actions.

The report was divided into five focus areas that include resource management and decision making, marine ecosystem conservation, marine access, healthy coastal communities and sustainable livelihoods, and research and monitoring. The overall message from Steering Committee to the Decision Makers:

- overall support for the plan…not there yet
- good start…..more detail require
- focus on communication, decision criteria, and advisory council first

Currently within a deliberation phase, government is at the table with the stakeholders. The steering committee will be focused on creating an advisory council, a communications plan an a decision plan.

State of Environment and Wall of Achievements preview

Jay presented an overview of the State of the Environment website and demonstration of how to pull up the documents. The website is live but will not be linked to the website until the Council gives approval. Julia followed-up by presenting a preview of the Wall of Achievements that will be played at the Gala.

Climate Change: Contribute to Emerging Project Funding Proposals
For the past six months, the Council's Climate Change Network and NROC's Coastal Hazards Committee have worked together to engage regional climate change experts in defining priority regional tasks that can be used in government and foundation funding proposals. The priority tasks include promoting climate change exchange, expanding StormSmart Coast, enabling community infrastructure assessments, offering municipal guidelines, summarizing adaptation policies, dissemination, and use of LiDAR tools, and the development of climate change regional monitoring strategy. Justin commented that the priorities seem to be aligned with his agencies priorities. Julia remarked that over the last year there has been talk concerning how to get people engaged in StormSmart Coast. Brow bag lunch webinars will be used for peers with a local contact that has expertise with topic. Associated with the brown bag there will be a profile on the website where question will be posted periodically to get people involved in visiting the site regularly. Jay commented that one of the things that came out of the theme papers was that initiatives were local and that seems to be where the focus should be. Ted informed the group that New Hampshire has established CAW (the Coastal Adaptation Workgroup). CAW has been trying to prioritize activities. The communities in the coast seem to have a better handle on things and a willingness to participate. They already see the effects from increases in rain and stream flow from communities higher in the watershed. It is the inland watershed communities that need the information so that they will buy into climate change planning. The comment was made that the message needs to be directed towards communities and for planning. We do not want tourism to fall because the public is concerned about storm serge. The public needs to be aware that communities are alert and prepared. The StormSmart Coast webinars can be used to help with this awareness for local business. Showing examples of how planning has helped to save or protect communities during these events can go a long way in helping to inform the public. Ted recommended that the Council go through what has already done and see if there are ties to climate change. We need to use examples of what has already been done by the Council. Peter asked why there is no representation on the Working Group (John Annala is on Council).
Action: The Working Group Chair will ask John Annala if he can get someone to sit on the Working Group.

IT Committee – Website Changes
Jim presented an overview of the Council's current website design and layout. Jim discussed what changes could be easily made so that the website functions better and is more user friendly to the public. The biggest complaints received include site navigation and communication of what the Council does. Some of the suggestions made for improvement included re-designating what is included in the menus, clarifying the headings, and adding donation buttons for all the groups not just the Gulf of Maine Times.
Decision: The Outreach and Information Management Committees should get together and discuss this in more detail.
Decision: Request volunteers to join the Information Management committee.

Other Business
Action: An agenda item will be added to the October 2010 meeting to discuss the long-term sustainability of the State of the Environment Report.

Summary of Decisions and Actions Presented at the Meeting
Decisions:
- The Working Group accepted the consent agenda
- The Working Group recommends that the Council accept the 2010-2011 provisional budget
- The Working Group developed Action Plan recommendations (documented in a separate PowerPoint presentation)
- Next meetings are slated for October 6-7 somewhere in MA and December 6-9 somewhere in ME

Actions:
- The Working Group will review its decisions and actions at the end of each meeting day via a PowerPoint presentation and then they will be provided with a list of participants via the Working Group listserve
- The Working Group will investigate asking a representative from RARGOM to participate at WG meetings as well as the other perspectives of First Nations/Tribal/Aboriginal, planners, municipalities, tourism, and nonprofits
- Peter Wells will provide the URL for Danielle Cossarini's paper and Russ Henry will provide the URL to the *Preferred Future* documents to Michele for her to post with the GOMC WG presentations and follow-up documents to the WG listserve and GOMC website
- Working Group at the NECMCPI table will bring back to the WG table in October 2010 to help synthesise those priorities so that they may inform the GOMC Action Plan process and decide how it will participate in the NECMCPI initiatives
- The Working Group will discuss add time on the agenda for committees' updates and explore other ways to provide communication and networking opportunities
- The Working Group will explore developing champions or peers (Working Group/Council Chairs) to help reinforce requests and communications

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

Habitat Restoration and Land Conservation Update

Canadian Progress Report -- In support of the GOM Habitat Restoration and Land Conservation initiative, the Canadian Association of Delegates to the Gulf of Maine Council has prepared an inventory of key ongoing Canadian programs/projects in habitat conservation and restoration in NS and NB marine, coastal, and watershed areas of the Bay of Fundy.

The inventory, which is now in draft final form, summarizes those projects/projects currently being conducted/funded by the Bay of Fundy Ecosystem Partnership (BoFEP) and the Canadian provincial and federal member agencies of the Gulf of Maine Council. It supports a similar inventory prepared for Maine, New Hampshire and Massachusetts. The report provides:

- a synopsis of the mandates/responsibilities of these agencies in habitat conservation and restoration,
- briefly describes current/ongoing programs/projects and supporting/facilitating legislation and policy instruments, and
- summarizes priorities and anticipated government and BoFEP needs in habitat conservation and restoration over the next three to five years.

The document is currently under review by Canadian Association members and will be tabled during the October 4-5, 2010 meeting of the Gulf of Maine Council Working Group.

Action Plan Considerations: Factors to Determine Contents of New Plan (Revised)

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 issues are within "their sphere of concern". It is now necessary to refine this list of issues to those that align with the Council's mission and roles. These are the Council's "sphere of influence".

In regard to the Council's roles as an entity its Terms of Reference contains the most articulate description of what it does. It says:

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.

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 three 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.
The current situation is that the Council has made some initial decisions about how it will proceed in developing the new Plan (e.g., update vs. re-write; modest resources to support Plan development; abbreviated logic model process, 18-months to complete new Plan; etc.). *These decisions help to shape the criteria it may use to decide the scope of the new Plan.*
Possible Criteria

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.)
2. **Council Capacity** -- Is the Council uniquely positioned (given its members, geography, mission, TOR, 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?
   Does the Council want to have most of its work green squares? Can it be agile in responding to issues?
4. **Resources** – Does the Council have (or can it get)

Choosing what to work on

Approach & Role	Lead	Partner	Supporter
Regional Issue			
Common Issue			
Isolated Issue			

in the new

the people and money to address the issue? Is it important enough to collectively marshal the resources required?

Next Steps/Needs

At this time we need to better define what the issues and content of the new Plan are. The June 2010 materials prepared by the Council and Working Group focused on themes (e.g., species at risk, water quality degradation, etc.) vs. issues/concerns (protecting key habitats of endangered bird, monitoring contaminants to establish a regional baseline, etc.). The following "next-steps" are suggested:

- Convert the themes into compelling problem statements.
- Then solutions/options can be identified to address the concerns (which will lead to creating projects/activities that incorporates an abbreviated logic model process, in an annual work plan).
- Finally, a weighted matrix/table can be created that uses the criteria to winnow the list.

Visually this process looks like the following (left to right sequence)

Overlapping list of themes	2-3 sentence problem statements for each theme	Options that address the problem statements	Project narratives in consistent work plan format

Working with Others to Advance Projects of Regional Interest

Instructions

1. Read each of the meeting summaries to understand the scale and scope of the possible projects.
2. Identify your "short-list" of projects that you think the Council, as an organization vs. individual members, should participate in some capacity.
3. Bring your "short-list" to the meeting. (The table below is a first-cut at a short-list that the WG will work from at the meeting.)

Background -- Through a series of four meetings in 2010 twelve organizations, with interest from Long Island Sound to the Bay of Fundy, engaged stakeholders in identifying projects of regional interest. Described below are those projects the Council may want to participate in. (It is noteworthy that this table reflects possible participation by the Council as an entity and not what its individual members may do separately.)

Ecosystem Health Project Synopses	Council Role	Options to participate
a) Produce high-resolution maps of the ocean floor spanning the region's highest priority geographic areas	Lead (for GOM through GOMMI)	Expand the geography & use GOMMI as the mechanism to identify priorities and pursue funding for mapping and analysis
b) Create an atlas (e.g., database or spatial data layers) of the spatial extent and intensity of consumptive and non-consumptive human uses of the ocean	Supporter	Form ad-hoc group that represents its members and serves as the regional coordinating mechanism for the GOM.
c) Develop and test a New England/Maritimes methodology that describes the economic value of ecosystem goods and services	Supporter	Assist in identifying and convening regional socio-economic experts
d) Conduct research to enhance our understanding of regional climate change impacts	Supporter	Help to articulate managers needs; network provincial, state and federal CC programs in the GOM;
e) Develop regional ecosystem management plan	Partner	Serve as a regional convener of agencies and stakeholders;
f) Create a data management distributed portal/network	Partner	Assist in identifying the needs of the management community
g) Bio-regional (web-based indicators)/Ecosystem States tool (BEST)	Lead (for GOM through ESIP)	Use ESIP to develop and deliver indicator products for the GOM that can be integrated with sub-regional efforts and with those outside of the GOM
h) Coordinated ecosystem health communication strategy for New England/Canadian Maritimes	Partner	Augment the membership of the Outreach Committee

Ocean Energy Planning and Management	Council Role	Options to participate
a) Monitoring (e.g., pre-construction, operation and	Supporter	Help to articulate managers needs;

post-operation) the effects of ocean energy facilities on the surrounding environment		network provincial, state and federal ocean energy programs in the GOM;
b) Develop methodology to understand cumulative impacts of multiple offshore wind energy structures	Supporter	Help to articulate managers needs; network provincial, state and federal ocean energy programs in the GOM;
c) Develop protocols for environmental assessment, monitoring and mitigation	Supporter	Help to articulate managers needs; network provincial, state and federal ocean energy programs in the GOM;
d) Identify areas compatible with renewable energy	Supporter	Help to articulate managers needs; network provincial, state and federal ocean energy programs in the GOM;

Coastal Hazards and Resilience	Council Role	Options to participate
a) Integrating climate change forecasts into coastal hazards resiliency	Supporter	Engage US and Canadian managers in developing regional consensus on the most accurate climate change forecasts for sea level rise, surge, precipitation and storms
b) Coordinated coastal hazards messaging, training and outreach	Partner	Assist in message development and dissemination

Legend
Lead – assume the role as a leader of the task (e.g., chair the effort, marshal resources, etc.)
Partner – play a major role with others in guiding the effort
Supporter – one of many organizations participating with a smaller role

Gulf of Maine Times Contributors

In 2009 the Council adopted a 3-5 year plan for the Gulf of Maine Times. One approach to sustaining the GOM Times is to partner with others in producing and disseminating it. Described below is the status of 2010 outreach efforts to obtain sponsors. (Those highlighted in grey have offered financial support.) Your suggestions of additional prospects are most welcome.

Name & Contact	Request
Acadia University: Center for Research (Anna Redden)	2/20 email to Anna – no response
Acadia National Park (Hillary)	2/18 email to Hilary 2/26 email to SERC Director
Bedford Institute	3/5 email to Tim Hall – contact in process. Tom Septon said no.
Bigelow Laboratory for Ocean Science	2/18 email – sorry no
Chewonki Foundation/ Gulf of Maine Marine Educators Association (Don Hudson)	1-09 email with positive response – funds received
CICEET (Rich)	2/18 email – sorry no
Clean Air – Cool Planet (Bill)	2/18 email – sorry no
Conservation Law Foundation	9-10 – yes
Coastal Management Programs (3)	
National Estuary Programs (3)	
NERR (3)	9-10 WNEER – sorry no
ACAP (3)	
COMPASS (Verna Delauer)	2/20 email – sorry no
Dalhousie University - Marine Affairs Program (Marine Affairs Policy Forum) (Peter Wells)	2/20 email to Peter 3/4 reminder email
Ducks Unlimited, Canada	9-10 – in progress
Fisheries and Oceans Canada	Yes – funds received
Fundy National Park	Waiting for NB advice
Gulf of Maine Census for	2/20 email with positive

Marine Life	response
Gulf of Maine Marine Educators Association (Justine/TTE)	Don offered to explore ways
Gulf of Maine Research Institute; Island Institute (Alan)	1/6 and 2/20 emails to John – sorry no
New Hampshire Charitable Foundation	Yes – funds received
Huntsman Marine Science Centre	3/8 email to Jim Cornall
Maine Island Trail Association;	
Maine State Planning	Yes – funds received
Massachusetts Ocean Partnership	2/20 email with positive response
NCC Atlantic Canada	
New England Aquarium	2/20 email with positive response
New England Ocean Science Education Collaborative (TTE)	Theresa says they have no money
Northeast Consortium (UNH)	3-10 email – funds received
Northeastern Regional Association of Coastal Ocean Observing Systems	2/20 email to Ru – said yes.
Rachel Carson (Ward Feurt)	2/20 email – discussion in progress
Sea Grant Programs in three states (Judy, Paul, Mark)	
The Nature Conservancy – Gulf of Maine Program (Jen)	
University of Maine – Marine Science Program and/or GOM Foundation (Dave)	
US DOI/USGS	Yes – funds received
US Fish & Wildlife Service – GOM Program Office (Stew)	
Woods Hole Oceanographic Institution (Bruce Tripp)	2/20 and 4-10 emails to Bruce

Levels of Sponsorship for the Gulf of Maine Times

Contributor -- $500: In recognition of your support at this level we will include your organization's logo on the "Sponsor Page" of the Gulf of Maine Times' website for one year, and include a link to your own website that brings visitors to your site. Contributors are encouraged to offer story ideas to the editor and may serve as a resource for the editor.

Supporter -- $1,000: In addition to the benefits listed above, we will include your logo, a 2-3 sentence description of your organization and a link to your website in the "Sponsors' Banner" on the home page of the Gulf of Maine Times website. (The banner is shared on a rotating basis by all sponsors at this level (or above), ensuring that everyone is guaranteed visible, front-page coverage.)

Donor -- >$2,000: At this level of sponsorship you will get all the benefits listed above, plus you will have space in each edition for a 300-word article written and submitted your organization that is relevant to the Gulf of Maine. The organization may also provide short press releases that will be edited into articles for the Times monthly updates. (Placement is subject to editorial approval)

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

<table>
<tr><td colspan="2">(1) Title: Coastal hazards directory</td></tr>
<tr><td colspan="2">Description: Develop a northeast coastal hazards directory of existing data, tools, ocean observations, models and pilots that will inform on setting priorities for product acquisition/development by leveraging funds and identifying synergies.</td></tr>
<tr><td>Goal(s):
1. To create a directory of existing hazards data, products and tools to inform managers of the availability of existing products.
2. Develop a plan to address product and data gaps.</td><td>Objective(s):
▪ Avoid duplication of products.
▪ Review existing products and identify enhancements as needed to address user needs.
▪ Identify needs and gaps.
▪ Facilitate centralized access to hazard data and products</td></tr>
<tr><td colspan="2">Tasks:
1. Develop a directory of existing data, tools, models and services. Product would be an online searchable database.
2. Identify key regional priority gaps and formulate priorities for acquisition by leveraging funds and looking for synergies. Formulate a priority plan for acquisition of data and products. Workshop priorities included Tier 1: high resolution bathymetry and tide gage deployments; Tier 2: shoreline erosion, storm/surge return frequencies, and coastal structures inventory; and Tier 3: economic data and impact scenarios.</td></tr>
<tr><td colspan="2">Benefits: A directory will help planners and managers identify available data, tools and pilots so as to avoid recreating existing products or through a critical review of existing products, identify improvements and enhancements. The Northeast Federal Partners took notes of NROC state's needs for high resolution topography and developed a project plan that ultimately was funded with stimulus funds. Funding the acquisition of LIDAR in RI and CT by FEMA is an example of synergy (e.g., covering more real-estate with a single contractor is a cost-savings). Knowledge derived from existing projects and pilots provides access to knowledge/lessons learned.</td></tr>
<tr><td colspan="2">Timeframes:</td></tr>
<tr><td colspan="2">Potential Partners: NROC, NERACOOS, NOAA NWS & CSC, FEMA, USGS, EPA, COE, State Agencies, TNC.</td></tr>
<tr><td colspan="2">Cost: Task 1 could be done by one or more interns or via contracting (~$5 to $10K). Costs could be higher if meta data are required. Task 1 should help to identify gaps and these gaps should be reviewed by NROC's Coastal Hazards working group to identify a preliminary strategy for data and tool acquisition.</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

(2) Title: Coordinated coastal hazards messaging, training and outreach	
Description: Coastal hazards and climate change messaging, training and outreach	
Goal(s): 1. Identify target audiences for education & outreach. 2. Increase literacy to public on Coastal Hazards. 3. Identify training needs for hazard managers and planners.	**Objective(s):** ▪ Create informed audiences about coastal hazards and actions that can be taken to become resilient. ▪ Provide training for hazard managers regarding available tools and models. ▪ Create state and federal legislative support for coastal hazards planning and resiliency.
Tasks: 1. Identify what information is needed to educate and inform legislators on coastal hazards and the associated impacts of climate change. 2. Develop a social marketing campaign with one of the target audiences being legislators. (Need to identify the target audiences). 3. Develop standardized signage such as high water marks for hurricanes and nor'easters. Example: storm drain stenciling. [NY Bight ROSI Climate Change workshop – priority pilot details under development.] 4. Develop a series of webinars, videos, or online audio 'PowerPoints'. Example subjects include northeast hazards tools and New England Hurricanes. 5. Develop visualizations such as historic photography to help the public understand coastal hazards and use lessons of the past to inform on resiliency. 6. Develop an all hazards webpage on the NERACOOS website.	
Benefits: The last major hurricane to strike New England was Hurricane Carol in 1954. The last major nor'easter in Long Island Sound was nearly 20 years ago. Many have become complacent about coastal hazards and education and outreach are needed to inform the public and legislators regarding the hazards of living on the coast. There are existing training programs like the NERRS Coastal Training Program that could benefit from regional partnerships to help design new training programs.	
Timeframes:	
Potential Partners: NROC, GOMC, Sea Grants, NEOSEC, SHMO, NY Bight ROSI, NOAA CSC & NWS, NEP Climate Ready Estuaries, FEMA, ICLEI, NERRS Coastal Training Programs, TNC. Existing websites that could be used to distribute messages and outreach products include but are not limited to: NROC's Coastal Hazards Data Portal, State StormSmart Coast, and NERACOOS (hazards products).	
Cost:	

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

(3) Title: Coastal storm impact forecasting

Description: Nor'easters and hurricanes generate surge and cause short term flooding. Wind from these storms can cause considerable tree damage and power outages. On the shore the waves combine with surge to create a different set of storm impacts than in river locations where surge combines with river discharge. Storm impact models would ideally predict potential storm impacts for exposed shores, protected bays, and tidal rivers. Surge and river discharge can significantly alter tidal current velocities and promote scour or erosion.

Goal(s):	**Objective(s):**
• Provide essential forecasting tools to help hazard planners reduce coastal vulnerabilities and improve resiliency. • Provide the most accurate forecasts. • Differentiate the surge impacts from nor'easters and New England Hurricanes.	▪ Assure that the region has the all key coastal storm forecasting capacity to support planning and response. ▪ Implement the data collection necessary to support forecasting and improve verification. ▪ Accurate forecasts allow for pre-deployment of repair crews where the greatest damage will occur to restore services as quickly as possible. ▪ Improve public access to products through development of Google Earth applications.

Tasks:

1. Develop a regional model that will forecast surge, wave, flooding from river discharge, erosion from tidal currents and wind.
2. Integrate the high resolution elevation data that exists or will become available by 2011/2012 to support flooding of land.
3. Get high resolution aerial photography into Google Earth such as the 2010 CT data. (Rhode Island already has high resolution photography in Google – other states?).
4. Complete the migration of the Corps' 1957 high water marks survey southern New England (includes the following water marks: Hurricane Carol (1954), 1938 hurricane and 1944 hurricane) into an existing access database and point coverage for GIS. This will be used for assessing surge performance (hindcasting).
5. Improve model verification through collection of post storm damage information (StormReporter database) and use of rapid deployment sensors (e.g., wave & tide gages) before storms.
6. Use the storm model to review and revise SLOSH projections.
7. Identify key data that are needed to improve forecasting (e.g., high resolution bathymetry, high resolution elevation, strategic deployments of tide gages).
8. Get early user input to review products and define specific user needs (e.g., datum preferences, reference surge values such as 1-, 10, 50 and 100 year tidal floods, parcel level accuracy).
9. Educational products are needed to demonstrate the value of existing observations (which drive forecasting or improve forecast accuracy).

Benefits: Improved forecasting provides coastal hazard managers to anticipate and plan for hazard impacts and begin to identify coastal resiliency approaches. Improved forecasting should reduce post-storm damage response particularly for restoration of utilities. Access to products through applications such as Google Earth could enhance public awareness of coastal hazards.

Timeframes:

Potential Partners: NOAA NWS & CSC, USGS, COE, Academia, WHOI, NERACOOS,

Cost:

Item 2. Even though post-processed data will be provided to the states, additional modifications may be necessary depending upon specific applications (e.g., a common need is to 'allow' water to flow under 'elevated' bridges – otherwise these structures are interpreted as dams). Cost will vary

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

depending upon the application.

Item 4. A template for the database and GIS coverage exists. Project could be completed by interns. Main work task is data entry into access from hard copy forms.

Item 5. ~$3K to complete the data retrieval GUI. Scaling up to a regional database would require review by the states and potential modifications of data input forms and data retrieval. Cost?

Item 6. Begin with a meeting with the COE, FEMA and NWS to demonstrate model outputs as compared to SLOSH scenarios.

Item 7. If high resolution bathymetry is required, this would have a high price tag. If it can be demonstrated that there is added value beyond navigation to producing near shore high resolution bathymetry, it may be possible to pursue this data acquisition with federal agency support.

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

(4) Title: Shoreline erosion hindcasting and forecasting	
Description: The New England states develop historic rates of erosion from using national protocols for shoreline change analysis (e.g., mean high water derived from historic T-sheets or aerial photography). New shoreline data need to be collected on a 5-10 year cycle. States need shoreline change forecasting tools to predict future conditions under accelerated sea level rise.	
Goal(s): Provide New England hazard managers with the tools needed to hindcast and forecast shoreline change.	**Objective(s):** ▪ Agree to a regional approach for shoreline change forecasting. ▪ Develop future scenarios for shoreline change as they would advise adaptation strategies.

Tasks:

1. Review the current approaches in the Northeast for forecasting shoreline change and recommend a regional approach for the Northeast.
2. Identify priority forecast areas and consider implementation of pilot projects.
3. Acquire mean high water shorelines on a 5 or 10 year cycle to support on-going historic shoreline change analysis.
4. The forecast model will likely require high resolution bathymetry and nearshore seafloor survey products such as surficial materials.
5. Translate model results into high resolution Coastal Vulnerability Index maps.
6. Review and revise the tidal flood profiles (1-, 10-, 50-, 100-year) and SLOSH projections and develop future scenarios from accelerated sea level rise.

Benefits: A regional methodology for shoreline change forecasting would develop regional consensus and provide states with the tools to translate accelerated sea level rise into future scenarios for adaptation planning. This information would also form the basis of developing education products and tools for the public.

Timeframes:

Potential Partners: COE, NOAA CSC, Academia, NERACOOS, USGS, Corps of Engineers, FEMA.

Cost:

Item 1. One way to approach this question is to conduct a Synthesis and Assessment Report for coastal sensitivity similar to the one done by USGS for the mid-Atlantic States (SAP 4.1, 2009).

Item 2. State CZM programs can likely generate a priority list of erosion prone sites.

Item 3. NOAA CSC has been the lead on historic shoreline change data rescue and the acquisition of present day shorelines. Determine what CSC goals are for future surveys.

Item 6. Item 6 is a priority for most of the New England states. It appears that the Union for Concerned Scientists uses different surge values (lower elevations) than have been identified in the tidal flood profiles. Consider convening a workshop to develop a standardized approach to generating these values and then identify the costs to update the tidal flood profiles and SLOSH maps.

The New England-Canadian Maritime Collaboration and Planning Initiative

Coastal Hazards: Priority Project Needs

(5) Title: Integrating climate change forecasts into coastal hazards Resiliency

Description: Develop regional consensus and the most accurate climate change forecasts for sea level rise, surge, precipitation and storms.

Goal(s):

1. Reduce the uncertainty of future forecasts from climate change for:
   - Sea level rise
   - Surge
   - Precipitation & river discharge
   - Storm intensity and frequency.
2. Develop regional consensus.

Objective(s):

- Reduce the confusion that is generated when neighboring states use different values.
- Standardize the forecasting methodology to resolve different approaches which produce different forecasts.

Tasks:

1. Develop regional consensus on climate change forecasts for SLR, surge, storm intensity/frequency and precipitation through the conduct of regional technical meetings.
   a. Convene a mini-IPCC approach to develop regional consensus on the previously listed parameters. May include downscaling to develop more accurate forecasts for the Northeast. **[Do we really mean a mini-IPCC approach or merely get the best long-term forecasts and get experts to agree on methodology? This may just be a series of technical workshops for each of the parameters.]**
   b. Convene a meeting of the COE and Union of Concerned Scientists to standardize surge analysis. Most New England States desire an up-to-date version of the tidal flood profiles.
   c. Use scenario planning to develop specific SLR, temperature, precipitation, and storm pattern scenarios out to 2100. Identify the research and science needed to reduce the uncertainty of long-range forecasts, the accuracy required in downscaling models that will be meaningful in the Northeast.
2. Develop regional inundation tool (high resolution elevation will be available for all Northeast coastal areas by 2011/2012) to illustrate future scenarios from accelerated sea level rise.
3. Need cost- benefit ratio data such as data provided by the "COAST" tool (the one demonstrated by Sam Merrill) to help planners appreciate the impacts/costs from sea level rise (no action versus action).
4. Use tools such as SLAMM to identify the fate of tidal wetlands which provides a surge dampening function.

Benefits: Reaching regional consensus on climate change forecasts and developing the most accurate forecasts helps to reduce uncertainty and eliminates confusion generated when neighboring states use different values. More accurate forecasts may help states to educate their legislators and develop appropriate legislation for climate adaptation.

Timeframes:

Potential Partners: NEGC Climate Initiative, State/State Governors Climate Change and Adaptation Initiatives, Northeast Federal Partners, NEP Climate Ready Estuaries, NESCAUM, Union o f Concerned Scientists (northeast), NOAA CSC

Cost:

1. While there was a lot of interest in the mini-IPCC concept, it might be useful to have a meeting of regional experts to assess existing data and forecasts and identify appropriate next steps that might be addressed through a more formal workshop.
2. Several inundation products have been developed in the US including the CT visualization tool (provides access to LIDAR elevation data and inundation scenarios from accelerated sea level rise). Once the Northeast receives the new elevation data, there remain additional processing steps to support inundation scenarios. The Regional Associations of IOOS had proposed (May 2010) several 'webinars' to share information about existing inundation products. Participation by the NROC and NERACOOS Coastal Hazards working groups could help to identify the specific priorities for inundation.

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Coordinated ecosystem health communication strategy for New England/Canadian Maritimes</td></tr>
<tr><td colspan="2">Description: This inter-organizational project addressed the ongoing gap in communications between and among the science, management and policy communities. Presently most organizations acknowledge this gap, concur it's a priority to address and are responding independently with a range of activities (e.g., e-news, editorials, workshops and conferences, etc.). There is a need to better understand the respective cultures, constraints, and opportunities to enhance dialogue about issues like ecosystem-based approaches to management.</td></tr>
<tr><td>Goal(s)
better apply the science, management and policy expertise within the region to its leading environmental & socio-economic issues;
improve the quality of decision-making for the coastal and marine environment</td><td>Objective(s)
create and sustain mechanisms that facilitate useful science-policy interaction and create trust among the parties (e.g., scientists, managers and policy staff at all career levels);
identify and enable the opinion leaders (i.e. movers and shakers to work more effectively with elected officials and senior management);
build linkages and ongoing dialogue among organizations working on communication, education and outreach.</td></tr>
<tr><td colspan="2">Tasks: complete rapid assessment to document and describe current (and previous) efforts within the region (and applicable examples from elsewhere) to bridge the gap and the results; articulate what the issues are and why they are important to address (e.g., what is not happening, what opportunities are missed, etc.); engage our audiences about what we need to effectively and efficiently communicate messages of ecosystem health and ask them how they like to get their information, why and from whom; identify and survey priority stakeholder groups to further document problem and identify possible responses; identify what information/expertise/knowledge is missing and needs to be brought in (e.g. social scientists who study people/communication/decision-making, etc); prepare draft communications strategy (e.g., tactics, content, messaging, costs, schedule, outcomes – behavior changes & outputs, etc.) and organizations best able to implement it; convene interested organizations to improve and adopt/accept; secure funding to implement 2-3 year communications initiative.</td></tr>
<tr><td colspan="2">Benefits:
Outputs – clear statement of the problems and possible responses; a communications strategy;
Outcomes/results – a narrowing of the "science, management and policy gap"</td></tr>
<tr><td colspan="2">Timeframes: 2-3 year initiative</td></tr>
<tr><td colspan="2">Potential Partners: New England Ocean Sciences Education Collaborative; Communication Partnership for Science and the Sea; Northeast Sea Grant Consortium; Northeast Regional Ocean Council/Gulf of Maine Council; NERACOOS; NESCAUM; NEIWPCC</td></tr>
<tr><td colspan="2">Cost: Scalable with minimum investment of $150,000 and in-kind resources of existing communications efforts related to this issue</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

Context/Introduction

There is a growing awareness of the interconnectedness of ecosystem functions and human activities. This has prompted a renewed commitment to management approaches that ensure wise use and the sustainability of coastal and ocean resources and services. The crux of these approaches is balancing human activities with the protection and conservation of natural systems.

> "Ecosystem health" refers to the ongoing capability of an ecosystem to support a productive and resilient community of species. A healthy ecosystem is capable of providing ecological goods and services to people and other species in amounts and rates comparable to those that could be provided by a similar undisturbed ecosystem.
>
> *Pew Oceans Commission*

For centuries the ocean has been used as dumping grounds resulting in pollution and contamination that impacts water quality, fosters nuisance algal blooms, contaminates seafood, and limits recreational use of waters. In recent years, the effects of climate change, including sea level rise, ocean acidification and temperature have become omnipresent but the extent of its full impact is still unknown.

Perhaps no issue resonates with the public as much as fisheries-related topics, including overfishing and depleted stocks, affecting cultural traditions in coastal communities, as well as threats to the goods and services that the ocean provides. (ROSI 2009) Other concerns include introduction of non-native species, coastal development, and proposed new uses that cumulatively will affect marine ecosystems. Stakeholders concerns include:

- Atmospheric and land-based point and non-point sources of pollution affect water quality, food resources, and freshwater and marine ecosystems;
- Bacterial levels have increased beach closures in recent years; meanwhile, many areas go unmonitored and pose public health risks of gastrointestinal, skin, ear, and eye infections;
- Nutrients, along with changes in climate and oceanographic conditions, may increase the extent and toxicity of harmful algal blooms.
- Fisheries are threatened by overfishing, habitat loss, and conflicting uses of the ocean and sea floor;
- Aquaculture needs to be sustainable and have a minimal impact on ecosystems and wild fish populations;
- Introduced species threaten ecosystems, cause economic damage, and may carry viruses and pathogens affecting humans;
- New management regimes that look at cumulative impacts must balance current uses (such as fishing, whale watching, and tourism), proposed uses (such as alternative energy facilities, cross-boundary uses and extraction of resources), and protection of goods and services the oceans provide; and
- Dredging for maritime transportation and safety may result in the disposal of contaminated dredged materials that may accumulate in seafood and affect public health
- Cumulative and indirect impacts from multiple pressures affect biodiversity – at both the species and community levels. Changes in biodiversity reduce the options that a species, a community of species, or an ecosystem has to adapt to change.

> An ecosystem is a dynamic complex of plants, animals, microbes and physical environmental features that interact with one another. Humans are an integral part of ecosystems. Ecosystems come in many sizes, often with smaller systems embedded within larger ones.

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Produce high-resolution maps of the ocean floor spanning the region's highest priority geographic areas</td></tr>
<tr><td colspan="2">Description: High resolution seafloor mapping products (e.g., multi-beam, side scan, sea bed, etc.) are needed to guide the siting of ocean energy projects and manage protected areas, support planning level analysis of in-water development, and evaluate anthropogenic impacts to marine habitats including oil spills, sewage outfalls, boating and fishing practices, dredging, and disposal. The types of information to be collected and mapped are sea floor topography, sediment texture, surficial and shallow sub-bottom geology, and benthic and associated flora and fauna.</td></tr>
<tr><td>Goal(s) map the sea floor from the intertidal zone to the upper continental slope to provide a geo-spatial framework for managing the marine environment and its resources</td><td>Objective(s)
Identify "appropriate" locations for offshore energy infrastructure
Identify habitat types (critical pelagic and benthic habitats) to inform management</td></tr>
<tr><td colspan="2">Tasks: engage stakeholders to determine quality, resolution, types, location, etc; create common mapping standards; conduct fieldwork and map the seafloor; ground-truth benthic and pelagic habitat; survey and assess key species (e.g., flora and fauna), document temporal variability in their distributions, and their vulnerability to perturbations (e.g., due to ocean construction), and resilience (ability to recover after disturbance; identify associations between sediment types, water column types, and species;) etc.); conduct data interpretation and management; release map products including on-line discovery of metadata;</td></tr>
<tr><td colspan="2">Benefits:
Outputs – sea floor mapping products, spatial management tools, models, etc.
Outcomes/results – better understanding of marine habitats; support more informed decision-making</td></tr>
<tr><td colspan="2">Timeframes: multi-year initiative (depends on the size of areas to be mapped, resolution, degree of pre-existing information, and number of priority areas identified)</td></tr>
<tr><td colspan="2">Examples of applications: High-resolution seafloor maps of bathymetry, surficial geology, and habitat to identify and evaluate wind energy demonstration project sites in Maine; support time-sensitive ocean planning processes in Rhode Island and Massachusetts; support identification of sensitive resources and planning of infrastructure development in Long Island Sound; and guide fisheries management decisions in New Hampshire</td></tr>
<tr><td colspan="2">Potential Partners: USGS, NOAA, MMS (permitting to include data release), Universities, States, Industry</td></tr>
<tr><td colspan="2">Cost: Scalable (see timeframes) Begin with $3 to 10M/year</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Create an atlas (e.g., database or spatial data layers) of the spatial extent and intensity of consumptive and non-consumptive human uses of the ocean</td></tr>
<tr><td colspan="2">Description: Prepare and disseminate an on-line database, information management system or data layers that describe the spatial extent and intensity of consumptive and non-consumptive human uses of the ocean (e.g., location of shipping lanes, concentrations of commercial fishing activity, aquaculture sites, spatial patterns of recreational use, transit routes from harbors and marinas, dredging & spoil disposal, protected areas, marine archeology, etc.) to promote an understanding cross-sectoral impacts.</td></tr>
<tr><td>Goal(s) to make more thoughtful decisions that better acknowledge multiple human uses of the marine environment; to enable regional decision-making by multiple partners;</td><td>Objective(s)
Develop a geo-spatial tool to inform decision-making
Inform and support CMSP framework in the region and nationally
Organize human use information, make accessible, and contribute to decision-making</td></tr>
<tr><td colspan="2">Tasks: Identify user needs and desired data and inventory/document what's available; review similar efforts in the region and elsewhere; identify information gaps to determine needs of future research; design system; commence development of information management system (e.g., develop architecture, quality QA/QC; metadata, etc.); create tool/mechanism to fund new data for coastal atlas; disseminate and evaluate user satisfaction;</td></tr>
<tr><td colspan="2">Benefits:
Outputs – compilation of existing data with rigorous metadata; inform and refine monitoring technologies
Outcomes/results – minimize conflicting uses in the marine environment; inform policy; contribute to compensatory mitigation</td></tr>
<tr><td colspan="2">Timeframes: 2+ years</td></tr>
<tr><td colspan="2">Potential Partners: MMS, NOAA, States, Feds, NGOs, Researchers, User groups</td></tr>
<tr><td colspan="2">Cost: Commensurate with scope. Establish priorities to identify funding requirements. Sources include government and industry</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

Title: Develop and test a New England/Maritimes methodology that describes the economic value of ecosystem goods and services	
Description: The region needs a methodology that describes the economic value of ecosystem goods and services, functioning ecosystems, etc. Examples include: fishing, recreation, aquaculture, boating, oil/gas/non renewable resource extraction, emerging renewable resource development, tourism, sewage outflows, regulation of climate, cultural and historic resources, clean drinking water, wetlands protection, transportation, storm protection, water purification, protection of shorelines from erosion and storm damage, control of diseases and pests, nutrient cycling etc.	
Goal(s) enable the more complete assessment of trade-offs between extractive and non-extractive uses by enabling the valuation of ecosystem services	**Objective(s)** ▪ Broaden our understanding of the economic cost of human uses ▪ Integrate long-term costs with short-term gains ▪ Establish a common unit of measurement
Tasks: Understand value of ecosystem services (types); Conduct literature review; Refine and apply MIMES (and other) ecosystem models; Collect data needed in model; Link ecology with services and management; Test and train users	
Benefits: Outputs - A methodology to guide management of resource use (max economic benefits and minimize loss of services) Outcomes/results – more complete consideration of ecosystem services in policy, planning and permitting; Able to compare economic, cultural, environmental values;	
Timeframes: 1-year	
Potential Partners: government, academia,	
Cost: $200,000	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Enhance our understanding of regional climate change impacts</td></tr>
<tr><td colspan="2">Description: Research is needed to enhance our understanding of regional climate change impacts. Examples of questions include:
Are the current predictive climate change scenarios correct for the region? If not, how can the level of certainty be improved?
What data and monitoring are needed to evaluate and improve regional climate change scenarios in support of policy and management decisions?
What are the impacts of higher temperatures on valued natural resources such as fisheries and other predicted environmental changes that support marine industries?
Are exiting risk-based management approaches and scopes for mitigation adequate for decision-making in a changing environment?</td></tr>
<tr><td>Goal(s) guide decision-making in face of a changing climate</td><td>Objective(s)
better understand the impacts of possible future CC on the marine/coastal environment and related industries/communities;
present the various CC scenarios;
describe the effects of management actions/ constraints on the future;</td></tr>
<tr><td colspan="2">Tasks:
Determine if current predictive climate change scenarios correct for the region. If not, how can the level of certainty be improved?; Identify what data and monitoring are needed to evaluate and improve regional climate change scenarios in support of policy and management decisions; Determine what the impacts of higher temperatures are on valued natural resources such as fisheries and other predicted environmental changes that support marine industries? ; Assess existing risk-based management approaches and scopes for mitigation to determine if they are adequate for decision-making in a changing environment; Develop decision support tools that capture the true science and management uncertainties; Develop regional level model for SLR and impacts (interaction with storm surge); near-shore bathy, AND ability to track current modeling efforts in the region; Understand impact of CC on ecosystem productivity and ocean acidification; etc.</td></tr>
<tr><td colspan="2">Benefits:
Outputs – regional data and assessment; accepted regional scenarios; data and monitoring needs identified; decision-support tools; etc.
Outcomes/results – integrate science into decision-making</td></tr>
<tr><td colspan="2">Timeframes: Perform first-cut with existing resources and knowledge</td></tr>
<tr><td colspan="2">Potential Partners: Federal government; State/Provincial climate change programs; academia;</td></tr>
<tr><td colspan="2">Cost: Consider pilot projects; incremental investments;</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

Title: Develop regional ecosystem management plan (EMP)	
Description:	
Goal(s) ensure long-term conservation of the physical, geological, and biological resources of the ocean to maximize benefits to our nation; provide context for decision making and spatial planning to maximize benefits to society;	**Objective(s)** ▪ Create a tool that allows open electronic access to data at 10 square kilometer resolution on human use patterns, geological structure, physical oceanography, habitats, and legal restrictions. ▪ Replace single-species management of biological resources with a productivity-based ecosystem management plan. ▪ Enable cost/benefit assessment of trade-offs among various uses of all marine resources.
Tasks: Create an interactive atlas/literature database on: current use patterns; known habitats, benthic biota, species assemblages, and migrations; known geologic structures and mineral concentrations; physical oceanographic parameters. Develop tools to assess changes in biodiversity, species assemblages, productivity, and habitats. Outline guiding principles for an EMP (e.g. population dynamic or productivity model). Develop an action plan with realistic interim goals to segue by identifiable steps from current single-species management to a dynamic ecosystem management plan. Engage stakeholders. Document and communicate results.	
Benefits: Outputs Outcomes/results	
Timeframes: 5-10 years (Scalable, consider a series of pilots)	
Potential Partners: Government, NEFMC, NGOs, stakeholder groups, and academic institutions	
Cost: > $1M	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Create a data management distributed portal/network</td></tr>
<tr><td colspan="2">Description: An integrated, regional data management network that is robust with searchable metadata; interoperable with existing state, provincial, federal and non-profit data management investments; and is user friendly through such tools as the evolving marine cadastre that contains legal, physical/chemical, biological and social/cultural information in a common, spatially referenced framework. Possible products include: enhanced electronic access to existing (and new) coastal ocean data, more robust data sharing agreements and collaborations, data products that managers use to support EBM approaches, enhanced monitoring programs and improved access to their data. Create maps identifying special, sensitive, and unique areas for fisheries resources. An essential aspect of this system is a public portal that improves the discovery, visualization and utilization of regional data products. This will provide access to cumulative impact tools currently used across the region as well as new tools that allow managers to compare cumulative impacts across jurisdictional boundaries though a web-based map interface (e.g., human use conflict, space use conflict, ecological sensitivity and vulnerability, renewable energy siting, etc.).</td></tr>
<tr><td>Goal(s) better inform resource decision-making; EBM approach to management; inform CMSP</td><td>Objective(s)
interoperability, discoverability, (use text in narrative); multiple users are engaged; assist with ocean literacy;</td></tr>
<tr><td colspan="2">Tasks: Link into current efforts (NECODP – schema, COIN Atlantic, etc.); Create common standards; Create metadata directory; Find and make accessible data; Create on-line tools for managers; Conduct inventory of current efforts (here and away);</td></tr>
<tr><td colspan="2">Benefits:
Outputs - ability of users to create new products; creation of tools;
Outcomes/results – better understand cumulative impacts of human actions, enable development of ecosystem services assessment,</td></tr>
<tr><td colspan="2">Timeframes: ongoing</td></tr>
<tr><td colspan="2">Potential Partners: government; non-profits;</td></tr>
<tr><td colspan="2">Cost: scalable</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

Title: Regional healthy beaches and shellfish	
Description: Develop an integrated observation and forecasting tool for beach and shellfish water quality to complement existing monitoring.	
Goal(s) ▪ protect public health by complementing beach water quality monitoring with forecasting ▪ reduce the number of beach and shellfish bed closures.	**Objective(s)** ▪ create a forecasting tool for beach water quality that provides accurate local predictions using integration observations, especially precipitation data from NEXRAD, for development of local relationships between (precipitation) events and closures.
Tasks: ▪ Integrate observations (NEXRAD rainfall, nearshore salinity data (deploy nearshore sensors), beach and shellfish bed water quality etc.) and reverse particle tracking into an accurate water quality forecast model. Precipitation values (derived from regional weather stations) are used to develop closure criteria. NEXRAD precipitation data provides the near-site (4 km resolution) precipitation values and thus informs managers as to the need for a closure. build on SECOORA Beach WQ modeling http://tinyurl.com/2eg2g55 ▪ Identify several northeast beaches as a pilot project to demonstrate that new technologies can help better manager public health risk. ▪ Demonstrate model accuracy through comparing forecast results with field collected water quality ▪ create WQ forecasting tool that can be used throughout the region; ▪ user's manual for interpreting forcasting tool output data and information; ▪ communications strategy developed and implemented;	
Benefits: Outputs – reduction in the public health risks associated with bathing; regional beach WQ forecasting tool display [website?]; communications strategy to get the information out to target audience; Outcomes/results – reduce public health risks associated with bathing; provide greater public health protection and could reduce monitoring costs by reducing the need for sampling	
Timeframes: 1-year	
Potential Partners: local and state public health/water quality/fisheries agencies, EPA Healthy Beaches, Aquaculture, NeCODP, MWRA, Volunteers	
Cost: $250k (data integration effort) ($210k - $1M funding from EPA) - it may be possible to get the NE states to kick in $5 - $10 k)	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

<table>
<tr><td colspan="2">Title: Regional nutrient loading to coastal waters from land and air sources</td></tr>
<tr><td colspan="2">Description: Document the relationships between increased nutrient loadings and adverse impacts (e.g. harmful algal blooms, changes in aquatic and wetland vegetation, hypoxia, food webs, and community structure). Project changes in nutrient delivery and impacts due to climate change scenarios.</td></tr>
<tr><td>Goal(s) Provide sound scientific support for management programs addressing nutrients. Develop and communicate information to build support from policy and law makers and the public. Reinforce scientific basis for reducing nitrogen loads to support nutrient criteria development, TMDLs, and NPDES (permitting) decisions. Provide tools to assist in the management of nutrients in a changing climate</td><td>Objective(s)
Document response of estuaries, near-shore, and coastal embayments to changed nutrient loadings (e.g., maintain healthy ecosystems & services)
Develop communications strategy with defined management objectives and outcomes
Develop predictive capability with defined uncertainties for use in management decisions</td></tr>
<tr><td colspan="2">Tasks: Assess pre-colonial loadings for regional waters (e.g., models like SPARROW); quantify environmental effects; contribute to the development of management strategies and plans; determine loadings (e.g., tipping points to undesirable conditions) that will maintain resilient ecosystems (deviation from pre-colonial); establish monitoring goals and develop a rationale monitoring strategy that supports assessment/management needs; (e.g., time, space and chemical/physical/biological primary and ancillary parameters and responses; inventory of regional knowledge and provide access to the data; inventory of existing efforts;); evaluate support necessary for models and modeling goals (e.g., loadings, ecosystem response, hydrodynamics (scales), TMDL development, risk assessment, etc.)</td></tr>
<tr><td colspan="2">Benefits:
Output: Data, information and tools that support nutrient effects analysis; : All five New England coastal states adopt and utilize numeric nutrient criteria that will be used to develop TMDLs, which in turn will be used to establish nitrogen limits in NPDES permits.
Outcomes/results: Better understanding of nutrient effects on ecosystems; scientific support for management decisions; tracking of trends and indicators; projection of future nutrient trends and conditions; public and policy support for management actions; Improved water quality as measured by reduced nitrogen levels in ambient waters as well as reduced incidence of eutrophication and increased quantity and health of SAV (eelgrass).</td></tr>
<tr><td colspan="2">Timeframes: Continuous and adaptive</td></tr>
<tr><td colspan="2">Potential Partners: State water quality and CZM agencies (this is where most of the data reside); Federal agencies (USGS, EPA, FDA, NOAA,) Regional - NEIWPCC, NROC; Provincial (Environment Canada, NB, NS); Universities; Industry</td></tr>
<tr><td colspan="2">Cost: data aggregation ($100K); data integration ($); modeling ($); Suggest $5M/yr for continuing program, but it would just be a start.</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean & Coastal Ecosystem Health – Priority Projects

Title: Bio-regional (web-based indicators)/Ecosystem States tool (BEST)	
Description:	
Goal(s) : Track regional condition of ecosystem status and trends relevant to suite of stressors and supportive of management programs and public and stakeholder interests; Publicize and disseminate information through communication programs that serve all user interests.	**Objective(s)** ▪ communication of regional ecosystem to decision makers (managers, policy makers, scientists, educators and the public/stakeholders) ▪ linked to education/communication tool
Tasks: identify priority audience(s) and needs; build on and expand ESIP and other indicator efforts (e.g., Maritimes/NE coverage to NY Bight; products are functional with interpretation; build interoperable data management into this; inventory of data and indicators; develop and implement communications strategy; etc.	
Benefits: Outputs – Better understanding of ecosystem function and trends; support for management and stakeholder needs and interests Outcomes/results - facilitates reporting/status updates to inform better decisions by managers and engender support by public; law makers & constituents understand indicators and use them to inform decisions	
Timeframes: Multi-year – continuing and adaptive	
Potential Partners: All levels of Government, regional organizations, and the public/stakeholders (LISS, GOMC, NROC, NERACOOS, etc.)	
Cost: $250k (upscaling), $100k data integration (getting the dataset and interoperable); in-kind contributions; scalable; outreach - $50 k [This would barely be a start]	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean Energy Planning and Management: Priority Project Needs

Title: Identify areas compatible with renewable energy	
Description: Comprehensive, advance planning for energy transmission and identifying renewable energy areas (e.g., on-shore and off-shore areas in state, provincial and federal waters) would help the region achieve its ocean energy goals at the lowest cost and with least environmental impact. An overarching plan would help site energy infrastructure in the most efficient manner and avoid lacing the region in a web of transmission and distribution lines that forfeit the economies of scale that can be gained by sizing and locating lines for future expansion. Advanced planning would help address the "chicken and egg" dilemma: energy developers are hesitant to build new facilities if they risk not getting approval for new transmission lines, but transmission companies will not build until they know there will be a steady supply of energy. An overarching and pro-active comprehensive plan incorporating the amounts of power sought, its location, and supporting development of the necessary infrastructure is needed.	
Goal(s) Reduce development costs and permitting times; create efficiencies; increase certainty, reduce environmental impact	**Objective(s)** ▪ Develop region-wide planning protocols to designate areas that would be compatible with renewable energy and transmission
Tasks: Conduct/complete wind and tidal power assessments to determine optimum energy areas; gather and assess existing biological, physical, oceanographic and human use data; describe gaps and prepare methodology to fill key regional information needs; create method to integrate optimum energy areas with natural and human use data; conduct literature review of experiences with energy areas elsewhere; make a dynamic map of these areas (recognize that new technologies will cause changes and need adaptive approaches)	
Benefits: accelerate renewable energy development; reduce environmental and human use conflicts; provide a demonstration project for the nation	
Timeframes: Need to engage experts to better define	
Potential Partners: government, industry, academia,	
Cost: Dependent on scale of undertaking (>$10M)	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean Energy Planning and Management: Priority Project Needs

Background

On June 11, 2010 US and Canadian public, non-profit and private sector representatives, familiar with ocean energy planning and management, selected nine priority projects from five categories (e.g., Monitoring, Research and Assessment; Data and Information Management; Financing; Electric Transmission and Grid Connections; Regulatory Framework). It is important to highlight that five of these projects were within the last three categories. Detailed narratives were not prepared for these five potential projects because of limited expertise among the meeting participants. Further, many of the organizations convening the June 11th meeting did not have a demonstrable role in these issues.

Introduction

Meeting participants, using the project template below, prepared more detailed project narratives for the convening organizations to consider.

<table>
<tr><td colspan="2">Title: Produce high-resolution maps of the ocean floor spanning the region's highest priority geographic areas</td></tr>
<tr><td colspan="2">Description: High resolution seafloor mapping products (e.g., multi-beam, side scan, sea bed, etc.) are needed to guide the siting of alternative energy projects and manage protected areas, support planning level analysis of in-water development, and evaluate anthropogenic impacts to marine habitats including oil spills, sewage outfalls, boating and fishing practices, dredging, and disposal.</td></tr>
<tr><td>Goal(s) map the sea floor from the intertidal zone to the upper continental slope to provide a geo-spatial framework for managing the marine environment and its resources</td><td>Objective(s)
Identify "appropriate" locations for offshore energy infrastructure
Identify habitat types (critical pelagic and benthic habitats) to inform management</td></tr>
<tr><td colspan="2">Tasks: engage stakeholders to determine quality, resolution, types, location, etc; map the seafloor; ground-truth benthic and pelagic habitat; survey and assess key species, document temporal variability in their distributions, and their vulnerability to perturbations (e.g., due to ocean construction), and resilience (ability to recover after disturbance; identify associations between sediment types, water column types, and species;) etc.); conduct data interpretation and management; release map products including on-line discovery of metadata;</td></tr>
<tr><td colspan="2">Benefits:
Outputs – sea floor mapping products
Outcomes/results – better understanding of marine habitats; support more informed decision-making</td></tr>
<tr><td colspan="2">Timeframes: multi-year initiative (depends on the size of areas to be mapped, resolution, degree of pre-existing information, and number of priority areas identified)</td></tr>
<tr><td colspan="2">Examples of applications: High-resolution seafloor maps of bathymetry, surficial geology, and habitat to identify and evaluate wind energy demonstration project sites in Maine; support time-sensitive ocean planning processes in Rhode Island and Massachusetts; support identification of sensitive resources and planning of infrastructure development in Long Island Sound; and guide fisheries management decisions in New Hampshire</td></tr>
<tr><td colspan="2">Potential Partners: USGS, NOAA, MMS (permitting to include data release), Universities, States, Industry</td></tr>
<tr><td colspan="2">Cost: Scalable (see timeframes) Begin with $1.5M/year</td></tr>
</table>

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean Energy Planning and Management: Priority Project Needs

Title: Monitoring (e.g., pre-construction, operation and post-operation) the effects of ocean energy facilities on the surrounding environment	
Description: Develop a regional consensus on the pre-construction, operation and post-operation monitoring needed to understand the effects of ocean energy activities on the surrounding environment including a) impacts of introducing hard-bottom on benthic flora and fauna, b) fish distributions around wind farm structures, c) the effects of EMF on fish, d) studies of avian behavior, migration, and collision, e) impacts of construction and operational noise on marine mammals, f) coastal geomorphology, and g) socio-economic effects. Identify options for collaboration with higher educational institutions, state or federal agencies, non-governmental organizations, and others in acquiring such baseline environmental information. Implement and evaluate the Plan.	
Goal(s) use comprehensive, standardized independent monitoring data in decision-making about the siting, operation and management of ocean energy projects	**Objective(s)** ▪ Create and implement comprehensive, standardized independent monitoring
Tasks: Identify parameters and criteria for monitoring; conduct best practices review (Europe); develop monitoring plan; engage stakeholders & consult with regulatory agencies; implement the plan; evaluate performance	
Benefits: Outputs – support recommendations to inform policy and revising management actions; identify ways to minimize impacts and inform cumulative impact assessments; inform and refine monitoring techniques; support compensatory mitigation efforts Outcomes/results	
Timeframes: Appropriately scaled for project, minimum of one year monitoring (to include four seasons). Parameters to measure are topic dependent (e.g., monitor birds should be minimum 2, etc. Baseline data needed now.	
Examples of applications:	
Potential Partners: Resources users (example: Fishermen), Federal and state agencies, Researchers/universities, Industry, NGOs	
Cost: cost to develop the plan can be estimated but implementation depends on scope of Plan	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean Energy Planning and Management: Priority Project Needs

Title: Develop methodology to understand cumulative impacts of multiple offshore wind energy structures	
Description: It is timely to develop a regional methodology that assesses the potential cumulative impacts of multiple offshore wind energy structures, located in close proximity to shipping lanes, on marine navigation, safety (e.g., effect on marine radar), flora and fauna, and human uses.	
Goal(s) to minimize the cumulative impacts of offshore energy activities	**Objectives** ▪ To understand cumulative impacts and effects of offshore activities on the ecosystem, maritime operations, and socio-economic concerns ▪ To inform optimal siting decisions
Tasks: Identify different types of renewable energy installations and select priorities; evaluate existing methodologies and set standards (e.g., evaluate strategies to get at this question, look at tools available, etc.); describe needed existing use information (e.g., resources, base line biological data, human use, etc.); develop regional cumulative impact assessment methods of multiple installations;	
Benefits: Outputs -- improved methodologies for assessing cumulative impacts Outcomes/results -- inform/support mitigation planning; use in conflict avoidance; inform siting decision-making; stimulate/inform greater wind energy development and accelerate economic benefits and job creation. Inform public of process to build better advocacy.	
Timeframes: Commence with review of existing methodologies;	
Potential Partners: State agencies, regional organizations, academia	
Cost: TBD	

The New England-Canadian Maritime Collaboration and Planning Initiative

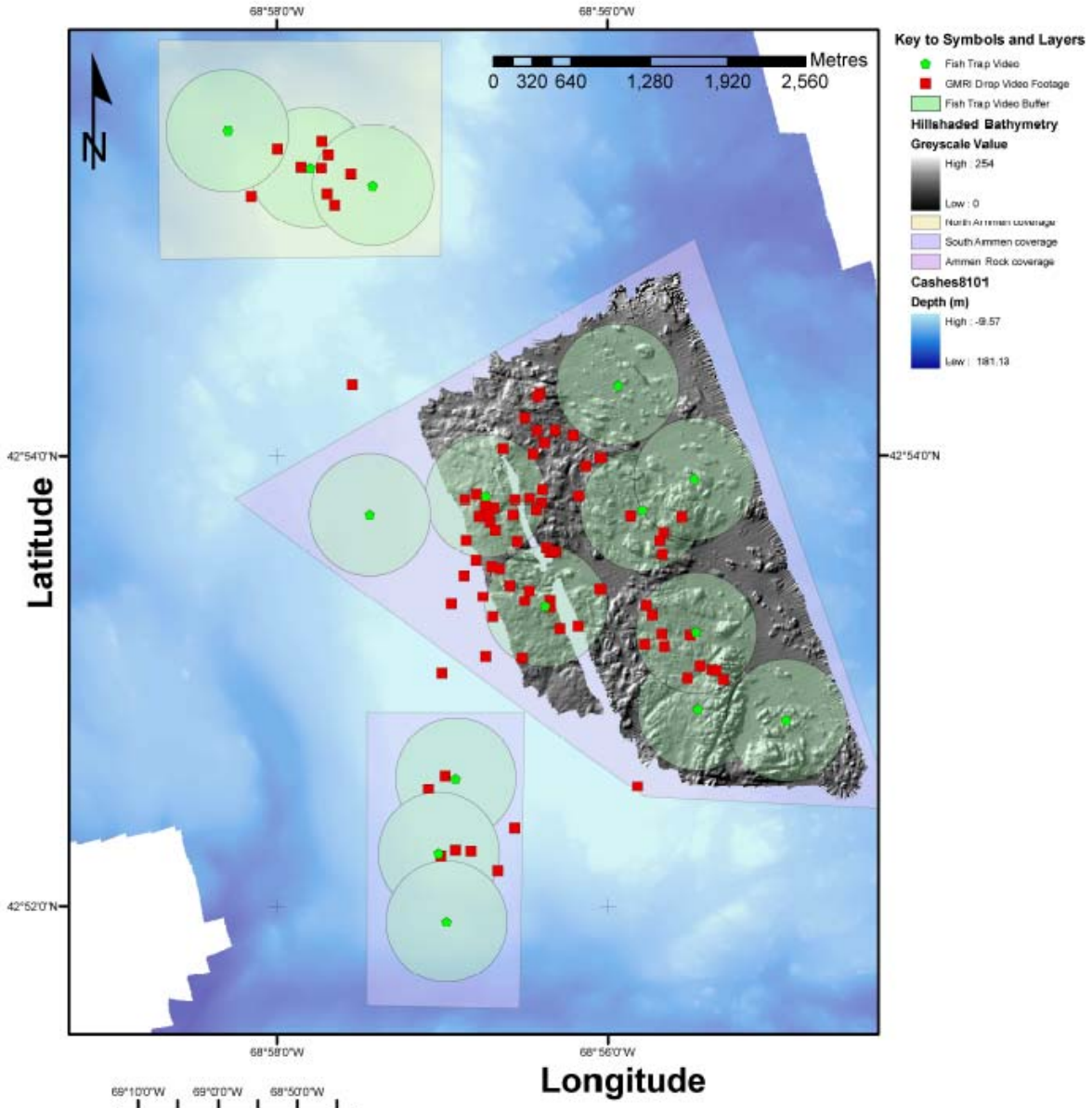
Ocean Energy Planning and Management: Priority Project Needs

Title: Create an atlas (e.g., database or spatial data layers) of the spatial extent and intensity of consumptive and non-consumptive human uses of the ocean	
Description: Prepare and disseminate an on-line database, information management system or data layers that describe the spatial extent and intensity of consumptive and non-consumptive human uses of the ocean (e.g., location of shipping lanes, concentrations of commercial fishing activity, aquaculture sites, spatial patterns of recreational use, transit routes from harbors and marinas, dredging & spoil disposal, protected areas, marine archeology, etc.) to promote an understanding cross-sectoral impacts.	
Goal(s) to make more thoughtful decisions that better acknowledge multiple human uses of the marine environment; to enable regional decision-making by multiple partners;	**Objective(s)** ▪ Inform and support CMSP framework in the region and nationally ▪ Organize human use information, make accessible, and contribute to decision-making
Tasks: Identify user needs and desired data and inventory/document what's available; review similar efforts in the region and elsewhere; identify information gaps to determine needs of future research; design system; commence development of information management system (e.g., develop architecture, quality QA/QC; metadata, etc.); create tool/mechanism to fund new data for coastal atlas; disseminate and evaluate user satisfaction;	
Benefits: Outputs – compilation of existing data with rigorous metadata Outcomes/results – minimize conflicting uses in the marine environment	
Timeframes: 2+ years	
Potential Partners: MMS, NOAA, States, Feds, NGOs, Researchers, User groups	
Cost: Commensurate with scope. Establish priorities to identify funding requirements.	

The New England-Canadian Maritime Collaboration and Planning Initiative

Ocean Energy Planning and Management: Priority Project Needs

<table>
<tr><td colspan="2">Title: Develop protocols for environmental assessment, monitoring and mitigation</td></tr>
<tr><td colspan="2">Description: Consistent protocols and standards for environmental assessment, monitoring, and mitigation for ocean renewable energy development are needed. This approach would reduce project risk, have financial/environmental benefits for developers, and improve regulatory decision-making. Regional consistency in baseline data collection procedures would contribute to an ecosystem-scale understanding of existing conditions. For future renewable energy developments, standard protocols for monitoring during project operation would promote cumulative learning about risk factors.</td></tr>
<tr><td>Goal(s) Reduce project risk; increase benefits to developers and the public; increase the pace of decision-making, adapt requirements to project scope and scale</td><td>Objective(s)
Define consistent regional requirements for baseline data collection for offshore renewable energy
Develop a cooperative strategy for necessary data acquisition, management and public availability, including fund raising
Prepare regional protocols commensurate with the risk, impacts and alternatives
Create a framework for developing project specific adaptive management protocols</td></tr>
<tr><td colspan="2">Tasks: Describe anticipated impacts and risks (based on experiences elsewhere) associated with particular ocean energy technologies; identify regional, state and federal data requirements; create consistent data collection procedures (including data management, access, ability to aggregate); develop a method for public & private pooling of funds to pay for data collection; develop a method to assess impacts of new uses, existing uses and their interaction; create consistent monitoring protocols; create method to record “lessons-learned” and adaptive management strategies; develop strategy to integrate into decision-making process;</td></tr>
<tr><td colspan="2">Benefits:
Outputs – better information for pre-designation & operating guidelines;
Outcomes/results – more projects moving along to production of energy; agencies adopt protocols; lead to more effective project reviews and industry support; reduce permitting costs; support adaptive management</td></tr>
<tr><td colspan="2">Timeframes: 2+ years</td></tr>
<tr><td colspan="2">Potential Partners: Government, Offshore Wind DC, Ocean Renewable Energy Coalition, marine trade and fishery groups, science consortiums,</td></tr>
<tr><td colspan="2">Cost: Less than $1M</td></tr>
</table>



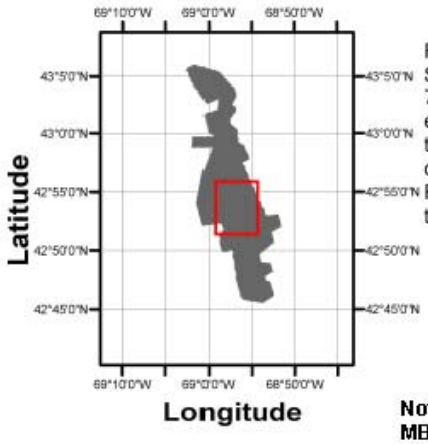


Figure 4: Cashes Ledge location of extant ground truthing data. Displayed over SAIC 2005 MBES coverage, with greyscale hill shaded bathymetry of the Reson 7125 coverage from 2006. The 7125 has complete coverage for the areas enclosed by the polygons marked in this figure. The red squares indicate the location of drop video footage, and the green squares mark the location of the fish traps fitted with video camera housing.Inset detail includes position Reson 7125 survey coverage in relation to the SAIC 8101 data. The position of the study site in the main window is indicated bu the red frame.

Notes:
MBES = multibeam echosounder

Reson 8101: acoustic data collected in Western Gulf of Maine by SAIC for GOMMI in 2005
Reson 7125: acoustic data collected on Cashes Ledge by T. Weber of UNH in 2006
Drop video: digital video collected on Cashes Ledge by J. Grabowski of GMRI, 2006-2007

Davis Conservation Foundation
COMPLETION Report

Submitted March 2008

Grantee: Gulf of Maine Council on the Marine Environment, for work by the Gulf of Maine Mapping Initiative

Contact: Sara Ellis, Coordinator, Gulf of Maine Mapping Initiative
Cynthia Krum, Executive Director, Association of U.S. Delegates to the Gulf of Maine Council on the Marine Environment

Project Title: Seafloor Mapping and Outreach

Date Awarded: Originally awarded May 2006. Reallocated November 2006 **Amount Granted:** $15,000

1. What were your original goals and objectives for this project and to what extent were they achieved?

Our original proposal was to conduct biological and geological sampling to support seafloor mapping in coastal Casco Bay. Due to insufficient overall funding for work in Casco Bay, we received permission from DCF to reallocate our grant to similar work offshore on Cashes Ledge, as well as to outreach and education on seafloor mapping in the Gulf of Maine region.

Our revised goals were to

1) Hire a graduate student to work on a collaborative seafloor mapping project on Cashes Ledge.
2) Generate seafloor maps for Cashes Ledge, including benthic habitat maps.
3) Leverage the DCF funding to raise additional support for mapping of Cashes Ledge
4) Advance GOMMI's outreach and education efforts re seafloor mapping throughout the Gulf of Maine region

We have made excellent progress towards these goals, as summarized in the two sections below.

Cashes Ledge Mapping

The GOMMI Steering Committee identified an ideal graduate student candidate who was planning to work on seafloor mapping techniques with Professor Craig Brown at the University of Ulster. The student, Chris McGonigle, came to Portland this summer where he was hosted by Jonathan Grabowksi at the Gulf of Maine Research Institute (GMRI) and Lew Incze from University of Southern Maine's Aquatic Systems Group. Other scientists involved in this project are Tom Weber and Luciano Fonseca from University of New Hampshire's Center for Coastal and Ocean Mapping (CCOM).

The focus of Chris's dissertation is to develop new methods for mapping seabed habitats, using acoustic and groundtruth data sets from the United Kingdom and the Gulf of Maine. Chris plans to process multibeam acoustic data using commercial and experimental software to create predictive habitat maps of Cashes Ledge, then use video to groundtruth the maps and guide further surveys, ultimately resulting in accurate habitat maps. In summer 2007 he obtained massive acoustic multibeam data sets from two sources (one collected in Western Gulf of Maine by SAIC for GOMMI in 2005, the other on Cashes Ledge by T. Weber of CCOM in 2006), as well as digital video recordings of bottom habitat from selected locations on Cashes Ledge (collected by J. Grabowksi of GMRI in 2006 and 2007). He has begun to work with these data and has created some preliminary maps of bathymetry, backscatter[1], and video locations (see Figures 2 and 4 attached). These maps, and others to come, will be used to guide GMRI's groundtruthing surveys in Summer 2008. Chris and his supervisor Craig Brown each plan to visit the US in 2008 to continue collaborating with colleagues on this project. Final habitat maps are currently expected in Fall of 2008.

Outreach and Education

One of GOMMI's primary tools for outreach and education is our website. Over the past year, the GOMMI Coordinator has been ensuring that new content is added periodically, including an overview of mapping technologies and a Power Point presentation with general information on GOMMI and seafloor mapping.

[1] Backscatter maps show the reflectivity of seabed materials. Strong sound reflections indicate the presence of hard seabed (gravel, coarse sand, bedrock) while weak reflections indicate soft seabed (mud, fine sand).

One of the most useful products on the website is an interactive map showing known high-resolution surveys in the Gulf of Maine. An updated map was posted in February 08, thanks to GIS support by Seth Ackerman (MA Office of Coastal Zone Management) and web services by Peter Taylor (Gulf of Maine Council's web designer). This coverage map is linked to websites of the survey groups and indicates where more details and data can be found. It is especially useful for planning new surveys, to avoid duplication of effort.

Our annual electronic newsletter was sent out in July 2007 to approximately 500 people in the Gulf of Maine region and/or the seafloor mapping community.

GOMMI's Coordinator gave presentations on seafloor mapping at five meetings between Oct 2006 and 2007, including

- Bay of Fundy Ecosystem Partnership's 7th Bay of Fundy Science Workshop (St Andrews, NB, Oct 2006),
- NE Charterboat Captains' Association (Newburyport, MA, Nov 2006),
- ICES Working Group on Marine Habitat Mapping (Woods Hole, MA, Mar 2007),
- New England Fishery Management Council Habitat Committee (Boston, MA Sep 2007), and
- Stellwagen Bank Scientific Advisory Council (Plymouth, MA, Oct 2007).

Most recently she was invited by the Northeast Consortium to give a presentation at the Maine Fishermen's Forum (Rockport, ME, Feb 2008) in a session entitled "Oceans of Data to Harvest". Others presenters included scientists from the GoM Census of Marine Life, GoM Ocean Data Partnership, and the University of Maine, as well as fishermen who are involved in collaborative research.

We are pleased to report that GOMMI was invited to participate in a facilitated workshop to help develop a National Ocean and Coastal Mapping Strategic Action Plan. The invitation from Capt. Roger Parsons, Coordinator for NOAA's Integrated Ocean and Coastal Mapping stated that "GOMMI is a highly successful example of regional mapping cooperation and will bring a unique perspective to the development of this Strategic Action Plan." Steering Committee member Tony Wilbur of MA CZM participated in the 2.5 day workshop in February 2008.

An important goal for GOMMI is to educate US federal legislators about the importance of, and need for, seafloor mapping in the Gulf of Maine in order to garner legislative and financial support for regional mapping. To this end, GOMMI's Coordinator has been working with the Gulf of Maine Council's Development Director to develop a legislative outreach strategy. Such work cannot be supported by federal funds, thus private support by the Davis Conservation Foundation has been crucial to these efforts.

Did you encounter any unexpected obstacles or opportunities in carrying out your work? (Please explain.)

The graduate student working with data from Cashes Ledge encountered some technical difficulties (especially software/data incompatibilities) that slowed his progress in producing benthic habitat maps. He has been working diligently with the software companies to resolve these issues. He has also received a great deal of support from technically savvy individuals at CCOM, including Professor Fonseca who signed on as a thesis supervisor. Chris was originally aiming to create habitat maps by December 2007, however Fall of 2008 is now seen as more realistic.

2. How were the Davis Conservation Foundation grant funds spent? (Expense summary comparing actual expenses with your original budget included here).

Funds were spent on contract work (GOMMI Coordinator, graduate student, GOMC Development Director and administration), website work, travel, and postage as detailed below. Although we had originally budgeted $500 for printing we have since decided that electronic distribution will be more practical, once final products are ready.

Budget category	Budget submitted	Budget revised	Actual to date
Contract	12,000	12,400	12,597.11
Travel	1,000	2,000	2,160.71
Web	1,500	-	202.50
Printing	500	500	
Postage, supplies		100	39.68
	15,000	15,000	15,000.00
		Balance	0

3. Did our grant attract other funding for your project? (Please explain.)

Yes. In October 2007 Jonathan Grabowksi of GMRI was awarded $16,216 of federal NOAA funds for continued work on the Cashes Ledge habitat mapping project through a 2007-2008 Gulf of Maine Council Action Plan grant.

Also in Summer 2007 the Gulf of Maine Council received a donation of $5,000 from the MA Office of Coastal Zone Management for continued coordination, outreach and education by GOMMI.

4. Did our grant, in combination with funding from other sources, result in excess funding for your project?

No.

5. In an effort to improve our grantmaking, we welcome any additional comments you wish to make regarding our grant application, award notification and post-grant reporting process.

The GOMMI Coordinator is grateful to have had such an open line of communication with DCF through Stacy Begin and Nancy Winslow. Both were very responsive to our questions, and have offered guidance when we were faced with difficult decisions. I have always found the guidelines and forms presented on the Davis website to be helpful, straightforward, and easy to find. Thank you.

Prepared by
Sara Ellis, GOMMI Coordinator
March 2008

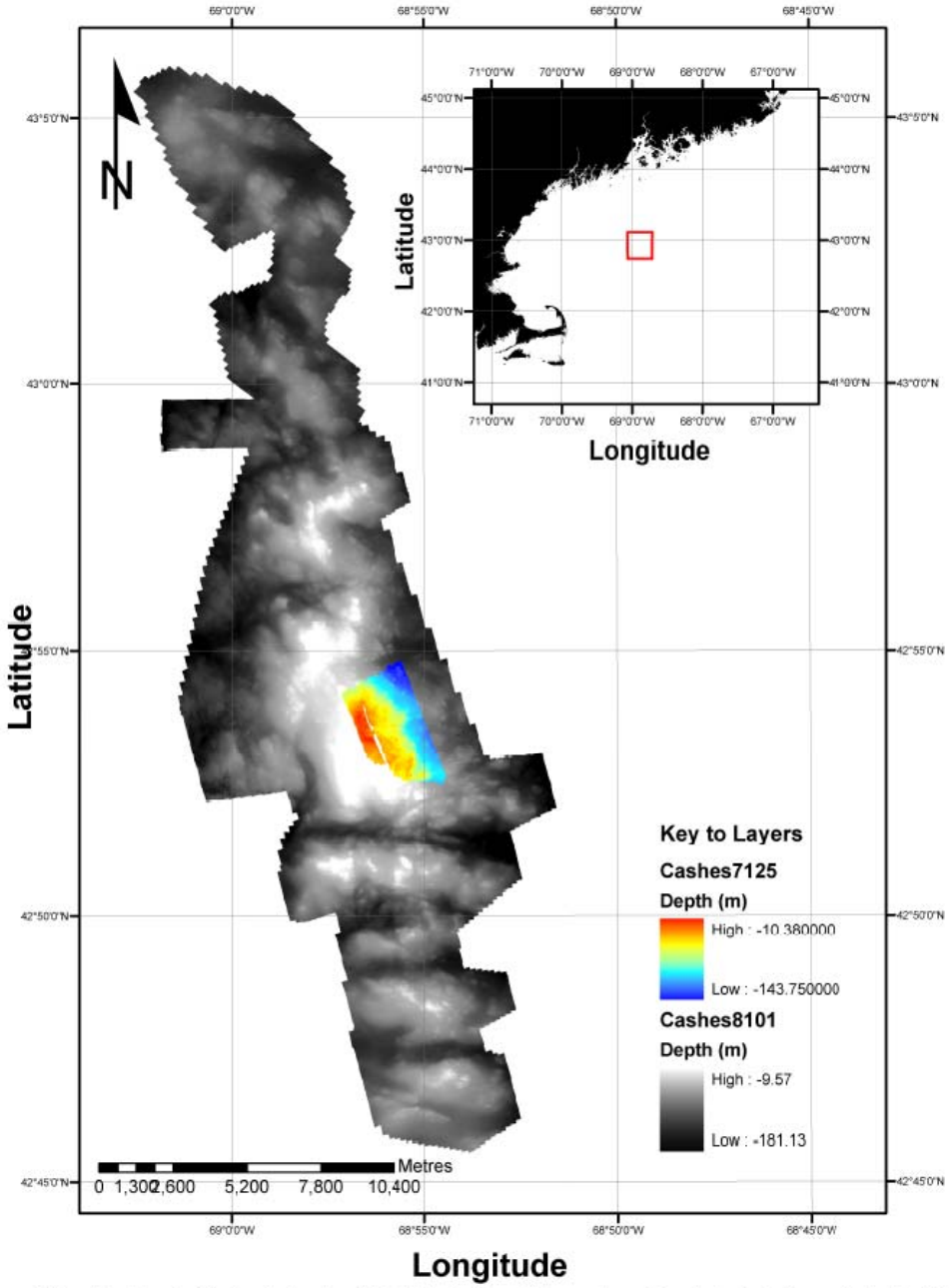


Figure 2: Location Map for Cashes Ledge: Inset detail inludes the relative position of the study site in the context of the Gulf of Maine. The position of the study site in the maine window is indicated bu the red frame. Cashes 8101 shows the coverage of the 2005 SAIC survey. Cashes 7125 highlights the coverage obtained by the 2006 Reson 7125 survey undertaken by CCOM. The area in colour represents only partial coverage of the full 2006 survey. Additional areas to the North and South of this site area in the process of being processed for inclusion in this study. These areas are highlighted in Figure 4

Notes:
Reson 8101: acoustic data collected in Western Gulf of Maine by SAIC for GOMMI in 2005
Reson 7125: acoustic data collected on Cashes Ledge by T. Weber of UNH in 2006
Drop video: digital video collected on Cashes Ledge by J. Grabowski of GMRI, 2006-2007