Council / Working Group Meeting
June 7 - 8, 2016

Killarney Lake Rotary Centennial Lodge
1600 St. Mary's Street, Fredericton, NB

Briefing Book

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Conference Call and Webex Information for the Meeting

Call In: 1-866-506-7697 Passcode: 9500660#

Link for Webex:
http://www.mymeetings.com/nc/join.php?sigKey=mymeetings&i=744921075&p=4927573&t=c

All Times are AT

Joint Council / Working Group Meeting • Tuesday, June 7, 2016 Killarney Lake Rotary Centennial Lodge, 1600 St. Mary's Street, Fredericton, NB		
9:00 AM	**GOMC Council Meeting - Welcome, Introductions and Overview of Meeting Objectives** *Council Co-Chairs: Rene Pelletier, NH DES and Jason Tuell, NOAA*	
9:10 AM	**Consent Agenda** • December 2015 Council / WG meeting summary, *pp. 5-11* • April 2016 Working Group meeting summary, *pp. 12-15* • Revised GOMC / NROC Memorandum of Understanding, *pp. 16-17*	✓ For Decision *pp. 5-17*
9:15 AM	**Roundtable Forum** Council / WG members discuss key issues facing jurisdiction and / or region.	✓ For Information
10:20 AM	**Check In Regarding GOMC Framework** Quick check in to solicit feedback regarding the first year implementing GOMC's new organizational framework.	✓ For Direction
10:40 AM	**Tribal and First Nations - GOMC Membership** Ann Rodney will provide background information and request Council support for recommendation to appoint the New England Tribal Environmental Directors to the GOMC.	✓ For Decision *pp. 18-19*
11:00 AM	**Break**	
11:15 AM	**GOMC Initiatives – Work Plan Updates** Working Group members will provide very brief updates highlighting progress and next steps for implementing two-year work plans. Where applicable, Work Plan revisions will be presented for approval.	✓ For Direction ✓ For Decision *pp. 20-25*
12:30 PM	**Lunch** (provided on-site) During lunch, USGS Scientist Rob Thieler will demonstrate a new forecast method for Nor'easters and hurricanes set to be released in June.	✓ For Information ✓ External
1:45 PM	**Cross-Cutting Theme: Climate Change and Extreme Weather Events** **Session 1 - *Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)*** GOMC Council and Working Group members will participate in high level, interactive, policy discussions around the session topic. See briefing note for recommended topics for this session.	✓ For Direction *Overview, pp. 26-28* *GOMC Session Templates, pp. 29-67*
3:00 PM	**Break**	
3:15 PM	**Session 1** (continued)	✓ For Direction
4:30 PM	**Wrap Up - Session 1** Identify key takeaways from session and reach agreement on next steps.	✓ For Direction ✓ For Decision
5:00 PM	**Adjourn for the Day**	

Tuesday, June 7, 2016 • GOMC Awards Reception **Killarney Lake Rotary Centennial Lodge, Fredericton, NB**		
6:00 PM	**GOMC Awards Reception** GOMC will host special reception and ceremony to present 2016 GOMC Awards. *Reception begins at 6:00 PM / Awards at approximately 6:30 PM*	

Joint Council / Working Group Meeting • Wednesday, June 8, 2016 **Killarney Lake Rotary Centennial Lodge, 1600 St. Mary's Street, Fredericton, NB**		
8:00 AM	**Overview of Objectives for Day 2** *Council Co-Chairs: Rene Pelletier, NH DES and Jason Tuell, NOAA*	
8:10 AM	**Geologic Mapping of Sea Floor** Susan Russell-Robinson will lead discussion regarding US / Canadian priorities and needs for coordinated high-resolution geologic mapping of the sea floor.	✓ For Direction
8:30 AM	**Cross-Cutting Theme: Climate Change and Extreme Weather Events** **Session 2 - *Links between Climate Change, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands*** GOMC Council and Working Group members will participate in high level, interactive, policy discussions around the session topic. See briefing note for recommended topics for this session.	✓ For Direction *Overview, pp. 26-28* *GOMC Session Templates, pp. 29-67*
10:15 AM	**Break**	
10:30 AM	**Session 2** (continued)	
11:15 AM	**Wrap Up - Session 2** Identify key takeaways from session and reach agreement on next steps.	✓ For Direction ✓ For Decision
11:45 AM	**GOMC Plans for 2016 / 2017 Secretariat Year, Passing the Gavel**	✓ For Information ✓Internal ✓ For Direction *pp. 68*
	GOMC Meeting Adjourns	
12:00 PM	**Lunch** (provided on site) During lunch guest presenters will highlight the Mactaquac Dam Project on the St. John's River in Fredericton, NB.	
1:00 PM	**Site Visit to View Mactaquac Dam Project** *Bus will depart at approximately 1:00 PM.*	✓ For Information ✓External
4:00 PM	**Site Visit Ends** *Bus transports GOMC participants to Delta Hotel, Fredericton*	

DRAFT Record of Decisions December 7, 2015 • Joint Council / Working Group Meeting

GOMC Council and Working Group members participated in a conference call meeting on Monday, December 7th from 10:00 AM – 3:00 PM ET / 11:00 AM – 4:00 PM AT. Participants attended the meeting at one of two regional sites (NH Department of Environmental Services in Portsmouth, NH, or Environmental Canada's Dartmouth, NS office) or by calling in from remote locations.

Meeting Participants

Jennifer Anderson, National Oceanic and Atmospheric Administration; Heather Breeze, Fisheries and Oceans Canada; Priscilla Brooks, Conservation Law Foundation; Mel Cote, US Environmental Protection Agency; Steve Couture, New Hampshire Department of Environmental Services; Perry Haines, New Brunswick Department of Environment and Local Government; Glen Herbert, Fisheries and Oceans Canada; Cindy Krum, GOMA Executive Director; Jim Latimer, US Environmental Protection Agency; Joan LeBlanc, GOMC Council Coordinator; Kathleen Leyden, Maine Department of Agriculture, Conservation and Forestry; Peter McLaughlin, New Brunswick Department of Environment and Local Government; Ellen Mecray, National Oceanic and Atmospheric Administration; Ru Morrison, NERACOOS; Rebecca Newhall, National Oceanic and Atmospheric Administration; Kathryn Parlee, Environment and Climate Change Canada; Rene Pelletier, New Hampshire Department of Environmental Services; Christophe Rivet, Environment and Climate Change Canada; Ann Rodney, US Environmental Protection Agency; Susan Russell-Robinson, US Department of Interior; Jack Schwartz, MA Division of Marine Fisheries; Lee Sochasky, New Brunswick; Theresa Torrent, Maine Department of Agriculture, Conservation and Forestry; Prassede Vella, Massachusetts Office of Coastal Zone Management; Peter Wells, Bay of Fundy Ecosystem Partnership; Bill Whitman, Nova Scotia Fisheries and Aquaculture; and Jack Wiggin, Urban Harbors Institute.

Guest Speakers: Sherry Godlewski, Environmental Program Manager, NH DES; Julie Labranche, Sr. Planner, Rockingham Planning Commission; Christine Tilburg, ESIP Program Manager; Cliff Sinnott, Executive Director, Rockingham Planning Commission

Opening Remarks

Rene Pelletier and Jen Anderson welcomed Council and Working Group members to the meeting and outlined objectives.

Consent Agenda

The following consent agenda items were accepted:

- June 2015 Council meeting draft Record of Decisions
- Proposed GOMC post 25th Anniversary logo update

Roundtable Forum

Council and Working Group members provided updates regarding projects, initiatives and other jurisdictional, federal agency, or NGO news relevant to the Gulf of Maine. Key points are noted below:

- Peter Wells noted that BoFEP would like to schedule its science workshop in conjunction with the GOMC June meeting by hosting the workshop on June 9, 10 and 11. Council and WG expressed support for this idea.
- Peter Wells noted that the Environmental Information: Use and Influence (EIUI) program at Dalhousie is conducting comparison studies of ocean management organizations and would like GOMC to continue to be a partner for the program (there is no cost associated with this request). Council and WG concurred.

- Glen Hebert and Heather Breeze noted changes at Fisheries and Oceans Canada resulting from the recent government changeover. Under a new mandate letter, the agency will increase conservation work, pursue a goal of 10% protection in marine environment by 2020, focus on improving ocean management, increase collaboration with businesses, First Nations and Aboriginal groups, and other stakeholders, and restore marine environmental monitoring.
- Christophe Rivet reported that Environment Canada has changed its name to Environment and Climate Change Canada reflecting an expanded focus and priority on climate.
- Jen Anderson reported that NOAA released funding for awards from its Coastal Ecosystem Resiliency Grants program. Projects funded within the Gulf of Maine include:
    - Town of Exeter, NH - $610,000 to remove a dam on the Exeter River
    - Town of Harwich, MA - $300,000 to replace culverts in Muddy Creek
- Jen also reported that NOAA's Northeast Fisheries Science Center is expanding focus on education and working on a climate strategy that will focus on fisheries management. Public information is expected during winter / spring 2016.
- Rebecca Newhall reported that NOAA had excellent participation at its recent Marine Debris meeting and will continue to collaborate with Gulf of Maine Council.
- Ellen Mecray noted that NOAA has a new focus on providing information related to increasing changes in climate resulting from El Niño. NOAA is working with both sides of the border to inform this effort.

Check-in Regarding GOMC Framework

Steve Couture and Rebecca Newhall asked Council and Working Group members to provide feedback regarding the new GOMC Framework approved in June 2015. Council and Working Group members noted several positive aspects of the new framework including increased efficiency, more effective email communication, benefits of having Working Group co-chairs, and overall flexibility.

GOMC Reference Guide and Proposed Edit to Terms of Reference (TOR)

As a follow up to the revised framework and Terms of Reference for the Council, Secretariat Team, and Working Group approved at the June 2015 GOMC meeting, Council Coordinator Joan LeBlanc prepared a Draft Reference Guide as a resource for incoming Council and Working Group members. The Reference Guide includes approved Terms of Reference, GOMC founding documents, and other resources. While reviewing the draft Reference Guide, Secretariat Team members recommended adjusting the GOMC Terms of Reference approved in June 2015 to make the membership section more consistent with the 1992 GOMC Amended Agreement.

Key Decisions / Action Items

- Working Group and Council approved the following edit to the first sentence in the membership section of the GOMC Terms of Reference (additional new wording is underlined):

    - "Each Governor and Premier appoints up to two cabinet level or senior level government representatives and up to two non-governmental representatives <u>so long as the total number of jurisdictional representatives on the Council is no more than three</u>."

- During discussion regarding the leadership section of the GOMC Terms of Reference, it was confirmed that co-chair positions may be held by jurisdictional or federal agency representatives who have not previously been Council members.
- GOMC Council and Working Group approved the draft GOMC Reference Guide (with edit to the GOMC TORs) for posting to the GOMC website.

GOMA / GOMC Transition

GOMC Executive Director Cindy Krum provided an update regarding the GOMA / GOMC transition to a more streamlined operating structure appropriate for the GOMA / GOMC reduced budget. The Gulf of Maine Association Fiscal Year (FY) budgets, including fiscal agent services, have decreased from approximately $1,350,000 in FY 14-15 to $800,000 in FY 15-16 to a predicted $350,000 in FY 16-17. Due to this trend, the GOMA Executive Director contract for the next six months will be reduced by 62%. Cindy noted that with GOMA moving toward a fiscal agent type relationship with GOMC, the following tasks will be handed from GOMA to other contractors or committees beginning in January 2016.

- Council Coordinator will oversee contractor selections associated with new sources of funding, recruit new contract managers if needed, oversee contract manager's preparation of contract documents, provide project-based contractor scope of services documents for next year's budget, and prepare requests for extensions to grantors. (Additional funding of up to $4,000 for these tasks is available for January – June 2016 only).
- Committees will track funding opportunities, develop project ideas and prepare funding proposals. Committees will provide proposal alerts to GOMA ED to provide to Secretariat Team. Committees will submit funding proposals for GOMA ED to review and submit.
- Appropriate contractors will prepare narrative and final progress reports for funded projects and submit to GOMA ED.
- Appropriate contractors will track in-kind match and submit to GOMA ED.

Scopes of service for January 2016 through June 2016 for the GOMA Executive Director, GOMA Bookkeeper and the GOMC Council Coordinator have been revised to reflect these changes and will be reviewed and approved at the December 14, 2015 GOMA meeting. The revised Scopes of Services document is available along with the December 2015 GOMC meeting materials at: http://www.gulfofmaine.org/2/gomc-home/council-meetings/ Beginning in 2016, Cindy will provide approximately 10 hours per week for GOMA / GOMC business. She will not participate in GOMC meetings in person but will assist via conference call or Webex as needed. She will continue to manage all GOMA affairs, participate in GOMA meetings, and participate in two budget-related GOMC Secretariat calls per year. Going forward, email will be the most efficient method for reaching Cindy for GOMC / GOMA business.

Key Decisions / Action Items

- GOMA will review and approve the revised Scopes of Services document for January 2016 – June 2016 at its December 14, 2015 meeting.
- Council members expressed appreciation to Cindy for her continued efforts to manage GOMA affairs and provide recommendations for a smooth transition.
- Council members expressed appreciation to Cindy and Joan for their flexibility in working together to revise Scopes of Work for the GOMA Executive Director and GOMC Council Coordinator positions.

Approval of Draft GOMC 2015-2017 Work Plan

Following the June 2015 meeting, several work plans were updated by project leads to incorporate feedback received during the June 2015 meeting. Joan LeBlanc organized the individual draft work plans into a Draft GOMC 2015-2017 Work Plan and added an introductory section. Working Group members provided updates highlighting progress implementing the Gulf of Maine Council initiatives included in the Work Plan since June 2015.

Key Decisions / Action Items for GOMC Work Plan

- Council and Working Group members approved the Draft GOMC 2015-2017 Work Plan.

- Joan LeBlanc will post the 2015-2017 Work Plan to the GOMC website.
- GOMC Working Group members will provide any additional Work Plan updates to Joan.
- Joan LeBlanc will circulate any new or revised Work Plans to Council / Working Group for approval via email prior to adding them to the 2015-2017 Work Plan.
- Key decisions and action items associated with specific GOMC initiatives are outlined within the individual work plan updates.

Climate Network (including King Tides Project)

Ellen Mecray provided an update regarding Climate Network progress in implementing their Work Plan, including the following highlights:

- The Climate Network has been very active and engaged around climate activities. Lots of new products and updates available on the GOMC website.
- Publishing and expanding distribution of *Gulf of Maine Quarterly Climate Impacts and Outlook*.
- Publicizing webinars held in conjunction with the *Outlook* release each quarter. Next webinar will take place on Tuesday, December 15th at 9:30 AM Eastern Time, featuring Andrew Pershing of the Gulf of Maine Research Institute, author of research on the collapse of the cod fishery in the Gulf of Maine due to ocean warming.
- Adding marine fisheries information and promoting availability of dashboard of real-time data.
- Released a new product in October 2015 highlighting potential climate impacts and outlook associated with El Niño for the Eastern Region from December 2015 through February 2016.
- Hosted another successful King Tides event for the Gulf of Maine region during October 2015.
- Regarding Tidal Crossings, Climate Network anticipates hosting a series three workshops in January, June and October 2016. CN is focusing on science questions related to tidal crossings.
- Other activities include looking at climate information in different ways such as human health impacts associated with temperature.
- Currently examining joint areas of interest between the Climate Network and ESIP – looking at indicators for climate impacts and variability.
- The Climate Network has been invited to join the North American Climate Services Partnership which promotes bilateral efforts in US, Canada and Mexico.

Key Decisions / Action Items

- Peter Wells will follow up with Ellen regarding potential for collaborating with BoFEP workshop for one of the tidal crossings workshops.
- Ellen will circulate information about the 2016 tidal crossings workshops once available.

Tidal Crossings Workshop

Rebecca Newhall provided an update regarding a September 2015 Tidal Crossings Assessment Workshop hosted by GOMC in collaboration with the North Atlantic Landscape Conservation Cooperative (NALCC) and the Northeast Regional Ocean Council (NROC) in Portsmouth, NH. Over 40 subject matter experts from the Gulf of Maine, Southern New England, New York, and Washington State participated in the workshop. The first part of the meeting was spent learning about tidal crossing efforts in the jurisdictions and the North Atlantic Aquatic Connectivity Collaborative. This was followed by a deep dive into understanding the questions for assessing a culvert related to aquatic passage, habitat, and infrastructure. Support for the meeting was provided by NOAA ($ for travel), the New Hampshire Coastal Program (refreshments), and GOMA (refreshments). All participants at the meeting were invited to join the LCC's North Atlantic Aquatic Connectivity Collaborative effort.

Key Decisions / Action Items

- The NH Coastal Program is following up on the workshop by working with The Nature Conservancy to develop state protocols for tidal crossings.
- The planning committee will reconvene in March 2016.
- Ellen will follow up with Kathleen Leyden regarding question about how the Climate Network's proposed 2016 workshops mesh with the September 2015.

Coastal and Marine Spatial Planning (CMSP)

Glen Herbert informed the Council and WG that he is the current Canadian Co-Chair of CMSP with Betsy Nicholson. Glen took over for Tim Hall in September 2015. Information provided in the June 2015 Work Plan is still valid. Sometime between now and June, CMSP will host a virtual workshop to reassess status of CMSP activities which are moving fast on both sides of the border. Some key issues include identifying significant protected areas, marine conservation planning, energy, and transportation. CMSP will provide a more detailed update on activities at the GOMC June 2016 meeting.

Gulf of Maine Connector

Rebecca Newhall provided an update regarding creation of a new list serve now being used to help circulate items of interest among Council and Working Group members. Council and Working Group members expressed support for this new tool which has already been used to circulate 25 informational communications regarding webinars, news items, workshops and other topics of interest to GOMC.

EcoSystem Indicator Partnership (ESIP)

Christine Tilburg and Jim Latimer provided an update regarding ESIP 2.0. ESIP is developing a whole new paradigm with associated indicators and subcommittees. They are working to ensure that existing partners and subcommittee members remain engaged within the new program. The steering committee is still identifying the best path for moving forward. They have learned from both the socio-economic indicator effort at NH DES, and the Ecosystem Goods and Services effort at the US EPA. The ESIP 2.0 working model is focused on promoting human well-being by supporting ecosystem processes and functions that are involved in providing ecosystem services (such as providing food and water, flood protection, and recreational values). ESIPs webpages and journal articles continue to attract significant web traffic with journals alone receive 2,516 hits in 2014 and 3,172 hits so far in 2015.

ESIP's new smartphone app, "Seeing Change in the Gulf of Maine" is scheduled for launch in January 2016. This innovative app will allow users to access monitoring data and upload photos at sites located throughout the Gulf of Maine. The first sites include: Salem Maritime National Historic Site (MA), Saugus Iron Works National Historic Site (MA), Seacoast Science Center (NH), Harborside Park (NH), Wells NERR (ME), Scarborough Marsh (ME), Wolf's Neck State Park (ME), Schoodic Institute (ME), Musquash (NB), Brier Island (NS), and River Guardian Site (NS).

Key Decisions / Action Items

- ESIP will inform GOMC when smartphone app is launched.
- ESIP will provide an additional update on progress of developing ESIP 2.0 at June 2016 meeting.

State of the Gulf (Watershed Status Theme Paper)

Heather Breeze provided an update from the State of the Gulf. All papers other than the watershed status theme paper have been completed. The committee is currently evaluating whether or not they will complete and publish

the watershed paper due to the time lag since work began. If not published as a paper, information such as the mapping materials developed would be incorporated into the Gulf of Maine status section of the GOMC website.

Key Decisions / Action Items

- Peter Wells will follow up with Heather regarding potential for conducting a use and influence study on the State of the Gulf papers.

GOMC 2016 Awards Program

Joan LeBlanc noted that GOMC will again hold an awards program in 2016 with a ceremony and reception at the June 2016 meeting in New Brunswick. A call for nominations will be circulated in January 2016.

GOMC GeoTour

Kathryn Parlee provided an update regarding the GOMC GeoTour. The GeoTour was officially launched this past summer and has been active with people of all ages participating in the tour. Feedback has been very positive with participants noting that they explored Gulf of Maine sites they would not have otherwise known about. The GOMC GeoTour will continue into the future. If funding to pay a fee charged to list on www.geocaching.com is not available in the future, a change in name may be required (DFO paid a $2,500 fee this year but it may be less in the future).

Gulfwatch

Peter Wells provided an update regarding activities of the Gulfwatch Committee. During the 2015 summer / fall season, Gulfwatch volunteers collected samples in MA, NH, Maine and NB (no sampling was conducted in NS). NB samples will be shipped to the US for processing. Peter noted that they are not finding mussels at many of the sites. Samples stored at the Bedford Institute of Oceanography are secure for the time being.

With no new funding, Gulfwatch activities are currently focused on writing papers and reports on existing research. The committee is revising their work plan and looking at the recommendations provided by Council and Working Group at the June 2015 meeting. Funding for a project coordinator would be needed to keep this effort moving forward. Glen Hebert and Heather Breeze noted that there may be new opportunities for contaminants monitoring through Fisheries and Oceans Canada (DFO). Jack Swartz noted that a possible new direction for Gulfwatch may be promoting research such as the proposal for Gulfwatch to study microplastics recently submitted by Christian Krahforst to the US EPA's Urban Waters Small Grants program.

Key Decisions / Action Items

- Gulfwatch will continue to update Work Plan and send to Joan once complete.
- Peter Wells will follow up with Glen Hebert and Heather Breeze regarding potential new funding opportunities that may become available at DFO under the new agency mandate.
- Gulfwatch Committee will develop a budget and scope of work for a coordinator.

Sustainable Communities and GOMC Outreach

Theresa Torrent provided an update regarding GOMC sustainable communities and outreach activities. Theresa is still in the process of updating these two work plans which were discussed at the June 2015 GOMC meeting. Feedback from GOMC will be incorporated into the plans over the next two months. The 2016 awards program will be an important opportunity for expanding outreach and celebration of achievements throughout the Gulf of Maine. Other potential outreach activities include utilizing other mediums such as Instagram to highlight Gulf of

Maine stories. The sustainable communities effort is exploring options for potential GOMC workshops such as follow up to the NOAA marine debris meeting.

Key Decisions / Action Items

- Theresa Torrent will continue to develop priorities for sustainable communities and outreach initiatives and update associated work plans.
- GOMC members are asked to forward any significant outreach items that they would like posted on the GOMC Facebook page.

GOMC Plans for June 2016 Meeting and Awards

Steve Couture and Peter McLaughlin presented proposed plans for the GOMC joint Council / Working Group June 2016 meeting.

Key Decisions / Action Items

- A joint two-day Council / Working Group Meeting will take place on Tuesday, June 7 and Wednesday, June 8, 2016 in Fredericton, New Brunswick
- The two-day meeting will include a lunch time presentation followed by a site visit on Wednesday afternoon to view the Mactaquac Dam project in Fredericton, New Brunswick (or other restoration projects in the region).
- The GOMC 2016 Awards Ceremony will take place on the evening of Tuesday, June 7, 2016, at the Killarney Lake Lodge in Fredericton, New Brunswick.
- The Secretariat Team will continue to develop plans for the June 2016 two-day meeting in New Brunswick.
- Joan LeBlanc will follow up with Susan Russell-Robinson to coordinate a potential bus for transporting US attendees to the meeting in New Brunswick.
- Priscilla Brooks noted that there may be some conflicts as the meeting is scheduled during Capitol Hill Oceans Week.

Coastal Resiliency Efforts in New Hampshire

As part of the GOMC's efforts to share information and expertise across jurisdictions, the following regional experts provided an update regarding efforts of the NH Coastal Risks and Hazards Commission.

- Cliff Sinnott, Executive Director, Rockingham Planning Commission
- Julie Labranche, Sr. Planner, Rockingham Planning Commission
- Sherry Godlewski, Environmental Program Manager, NH DES

Copies of their presentations are available online along with the meeting materials at:
http://www.gulfofmaine.org/2/gomc-home/council-meetings/

Record of decisions prepared by Joan LeBlanc, GOMC Council Coordinator

The Briefing Book and additional reference documents for this meeting are available at:
http://www.gulfofmaine.org/2/gomc-home/council-meetings/

DRAFT Working Group Meeting Summary • Conference Call • April 4, 2016

Meeting Participants

Heather Breeze, Fisheries and Oceans Canada; Steve Couture, New Hampshire Department of Environmental Services; Don Hudson, Chewonki Foundation; Joan LeBlanc, GOMC Council Coordinator; Peter McLaughlin, New Brunswick Department of Environment and Local Government; Ellen Mecray, National Oceanic and Atmospheric Administration; Rebecca Newhall, National Oceanic and Atmospheric Administration; Susan Russell-Robinson, US Department of Interior; Jack Schwartz, MA Division of Marine Fisheries; Theresa Torrent, Maine Department of Agriculture, Conservation and Forestry; Prassede Vella, Massachusetts Office of Coastal Zone Management; Bill Whitman, Nova Scotia Fisheries and Aquaculture.

Consent Agenda

The following consent agenda items were accepted:

- June 2016 GOMC Meeting Logistics and Placeholder Agenda
- Potential Impact of Reduced GOMC Dues on Council Coordination Services*

** Steve Couture noted that the Council Coordination function will be fully funded in the coming Secretariat year as commitments for additional dues were received late last week.*

Roundtable Forum

Council and Working Group members provided updates regarding projects, initiatives and other news relevant to the Gulf of Maine. Key points are noted below:

- Jack Schwartz noted that he and Christian Krahforst are in consultation with NOAA to identify Gulfwatch stations to support their National Status and Trends Musselwatch program. Sampling and analysis for contaminants in mussels could come from existing Gulfwatch stations with mutual assistance from MA, NH, and ME. Stations will need to be revisited to determine viability to support this initiative. Laboratory analysis may include contaminants of emerging concern.
- Ellen Mecray provided the following NOAA updates:
    - NOAA is in the midst of completing a new dashboard that will overlay fish landings and climate change conditions for the region extending from the Gulf of Maine to Chesapeake Bay.
    - NOAA's Water Resources Dashboard is now available. It provides tools and resources regarding flooding, drought and other extreme weather precipitation events.
    - NOAA is currently conducting state by state climate assessments.
    - Through a partnership of the US Weather Service, USGS, and the US Army Corps of Engineers, a new water monitoring system is expected to go live by summer 2016.
- Becca Newhall noted that NOAA is providing funding for coastal ecosystem resiliency grants to pay for on the ground actions as well as planning and policy projects. Funding of $610,000 is being provided to the Town of Exeter, NH to remove a dam on the Exeter River.
- Heather Breeze noted that the Gulf of Maine Council's Watershed theme paper is in the works now with a solid draft. A final version is expected in the next couple months.
- In regards to the Canadian budget, Heather Breeze noted that there may be opportunities to support some GOMC work with emphasis on marine spatial planning and / or co-management of marine environmental resources.
- Susan noted that potential expanded focus on fisheries would be welcome and could renew interest by the US Fish and Wildlife Service in GOMC's work.

Tribal / First Nations Interest in GOMC

Though unable to participate in the call, Ann Rodney recommended that the Working Group review and consider moving forward with a recommendation to add the following individual as a US tribal member to the Gulf of Maine Council at the June 2016 meeting.

- Asha Ajmani, Passamaquoddy Tribe – Pleasant Point Reservation, Perry, Maine

GOMC does not pick tribal or first nations nominees to the GOMC; they are selected via an appropriate process determined by the tribes or First Nations themselves. The following process was used to select Asha as a nominee. Asha Ajmani was selected by the New England Tribal Environmental Directors at a meeting of the US Environmental Protection Agency's Regional Tribal Operations Committee to serve as the New England tribal representative to the Gulf of Maine Council. Asha works with the Passamaquoddy Pleasant Point (Sipayik) Environment Department on marine issues. Her nomination was arrived at by consensus of the Tribal Environmental Directors who serve as members of the Committee and have the authority to make such selections for various tribal representation on similar committees, partnership groups, and boards in New England and elsewhere.

Key Decisions / Action Items:

- Working Group members recommended moving forward with proposed nomination of Asha Ajmani as a new GOMC member for Council consideration at the June 2016 meeting.
- Canadian Working Group members noted interest in reviewing the process for recommending a First Nations nominee from Canada.

GOMC 2016 Awards Program

Joan LeBlanc, Steve Couture and Theresa Torrent thanked GOMC members for their assistance in developing an outstanding slate of nominations from all five jurisdictions for GOMC 2016 awards. Joan distributed an updated list summarizing the 20 nominations received.

Key Decisions / Next Steps

- Working Group members noted that there is no funding available to support travel costs for award winners.
- Working Group members were asked to forward any outstanding detail or additional nominations to Joan ASAP.
- Nominations for Gulfwide awards will be discussed during the April 20 Secretariat Team call.
- Visionary Award winners will be selected by each jurisdiction.
- During discussion about Distinguished Service Awards for departing GOMC participants, Working Group members noted that GOMC needs to determine who will fill the vacant seat left by the departure of Kevin Friedland. Prassede will be asked to verify the process regarding how Kevin was selected to determine if the seat should automatically be filled by RARGOM Chair Joel Llopiz of Woods Hole Oceanographic Institute or if additional potential science advisory candidates for the Council should be considered.

Development of Workshop Concepts for June 2016 Council / WG Meeting

As an introduction to the discussion, Steve Couture expressed appreciation for the level of interest and contributions made by so many members of the Working Group and Council to help facilitate a productive and engaging GOMC June 2016 meeting. He also noted that the additional input received by the Canadian

representatives late Friday provided an opportunity to take a step back from the planning process and revisit the overall goal and potential structure for the June 2016 Council / Working Group meeting.

Update from Recent Meetings Among Canadian GOMC Members

Bill Whitman provided an overview of feedback from recent meetings of the Canadian GOMC departments and agencies to help inform development of the agenda for the June 2016 GOMC meeting and identify areas of interest around the GOMC for future work plans, discussions, and presentations.

There was consensus among the above Canadian meeting participants on the following comments pertaining to the suggested level of discussion for the June meeting sessions:

- Council needs to be engaged in a high level discussion on one of the priority topics of common interest in a way that moves us forward on an issue. If there is sufficient buy-in at Council level, further exploration of specific activities/initiatives (that support the Council high level guidance) will flow from that.
- Suggested that the Council sessions will not or may not be the right venue for getting into discussions of the specific tools
- Recommend naming as “sessions”, not “workshops”

The following common areas of interest were identified amongst the Canadian Working Group representatives:

Climate Change and Extreme Weather Events as a cross-cutting theme:

- Coastal Resiliency, in particular, Vulnerability of coastal infrastructure to weather extremes and climate change
- Links between changing climate, ocean and ecosystem health, and the sustainability of coastal resources such as sustainable fisheries
- Also: general interest in possible high level discussion linked to marine and coastal planning

Bill Whitman also noted that each Canadian Department and agency developed a list of potential topics around priority interest for potential inclusion at the June 2016 meeting. The full list was distributed to Working Group as a supplement to the meeting Briefing Book. It is available online along with Working Group materials here: http://www.gulfofmaine.org/2/gomc-home/council-meetings/

Potential Topics for Consideration

To facilitate discussion around next steps, Steve Couture presented two potential topics as examples of how high level discussion around a particular topic might be structured at the June 2016 GOMC meeting.

Goal:

- Provide opportunity for GOMC members to discuss important coastal resiliency / vulnerability policy issues facing jurisdictions.

Topics for Discussion:

- What is the current science and how are GOMC members addressing coastal and ocean acidification?
- How are jurisdictions and federal agencies considering Sea Level Rise and storm surge in their decision making?

Within each topic the following questions could be considered:

- What are the current policy and science initiatives / tools that the GOMC should be aware of?
- Are there opportunities for GOMC to bring cross-cutting support for common priorities?

Working Group members supported the general concept of identifying one or more high level topics for discussion at the June 2016 meeting such as the examples provided by Steve.

Key Decisions
Following discussion, consensus was reached regarding the following:

- Overall focus of June 2016 meeting will shift away from 'workshops' and toward sessions focused on high level discussion around one or more key policy issues.
- Sessions will be light on presentations to ensure ample opportunity for strategic discussion.
- In addition to information sharing, sessions will focus on identifying opportunities for new or expanded GOMC collaborative efforts as an outcome.
- While previous proposal for a full workshop around technical tools has been dropped, presentation by Rob Theiler of USGS will be incorporated into one of the sessions. This decision reflects interest among many of the Working Group members as well as support for previous invitation and plans approved by the Secretariat Team during two previous meetings. Rob's presentation will include highlighting a new method for forecasting hurricanes and nor'easters set to be released by USGS in June 2016.

Action Items

- Affirm tentative cross-cutting theme: climate change and extreme weather events
- Develop consensus around one or more topics for the high level discussion sessions at the June 2016 meeting. Potential options include but are not limited to:
    - coastal resiliency / vulnerability of coastal infrastructure
    - coastal and ocean acidification
    - considering Sea Level Rise and storm surge in decision making
    - links between changing climate, ocean and ecosystem health, and sustainability of coastal resources such as sustainable fisheries
    - marine and coastal planning
- Develop agreed upon questions / template for each session in advance of meeting so that Working Group and Council members can adequately prepare for discussion and share information in advance.
- Follow up regarding action items will take place during the April 20 Secretariat Team meeting and via agenda development subcommittee if needed.

Record of decisions prepared by Joan LeBlanc, GOMC Council Coordinator

The Briefing Book and additional reference documents from this meeting are available at:
http://www.gulfofmaine.org/2/gomc-home/council-meetings/

DRAFT – Revised April 2016

Memorandum of Understanding

between

Northeast Regional Ocean Council

and

Gulf of Maine Council on the Marine Environment

Parties to the Memorandum of Understanding:

(1) **Northeast Regional Ocean Council**, heretofore referred to as NROC, is a state and federal partnership that facilitates the New England states, federal agencies, regional organizations, and other interested regional groups in addressing ocean and coastal issues that benefit from a regional response. It is NROC's mission to provide a voluntary forum for New England states and federal partners to coordinate and collaborate on regional approaches to support balanced uses and conservation of the Northeast region's ocean and coastal resources. http://northeastoceancouncil.org/about/

(2) **Gulf of Maine Council on the Marine Environment**, heretofore referred to as GOMC, is a Canadian-American regional partnership that provides collaborative leadership on cross-border issues such as ecosystem conditions, water quality, and climate change within the Gulf of Maine watershed. This forum engages governmental and nongovernmental representatives in a comprehensive approach to management, emphasizing natural linkages over political boundaries and integrating ecological, economic and societal goals. The Council's work to protect and enhance environmental quality and allow for sustainable resource use by existing and future generations is made possible by volunteer and financial support from many partners. http://www.gulfofmaine.org/2/gomc-home/gomc-about-the-council/

Mutual Interests:

The organizations and institutions that comprise the membership of NROC and GOMC share common interests and public mandates to protect, conserve and wisely manage natural resources for the benefit of current and future generations. Both organizations support activities to promote healthy and resilient coastal and ocean ecosystems and to address the impacts of climate change on environmental and human health. In order to foster strong regional communication, centered on the shared geography of the Gulf of Maine, the NROC and the GOMC propose to work collaboratively to leverage information, data, best practices and communication vehicles to the benefit of the people who rely on the resources of the Gulf of Maine.

Agreed upon interactions:

(1) Foster regular communication and information sharing.
    a. Build communication links on specified topics between standing committees:
        i. Environment and Human Health
            1. NROC-NERACOOS: Ocean and Coastal Ecosystem Health
            2. GOMC: Ecosystem Indicator Partnership
        ii. Climate Change
            1. NROC-NERACOOS: Coastal Hazards Resilience

2. GOMC: Climate Network

iii. Ocean Planning

1. NROC: Ocean Planning
2. GOMC: Coastal and Marine Spatial Planning

b. Provide annual progress reports from NROC to GOMC and from GOMC to NROC on current and emerging priorities and work plans, on joint activities that have occurred during the intervening year, and on policy issues or changes that may affect the interactions between the two organizations.

(2) Identify opportunities to share best practices, lessons learned and capabilities.

a. Relay examples that are applicable to both Canadians and Americans and might be deployed within the Gulf of Maine and to adjacent regions in Atlantic Canada and Southern New England.
b. Provide technical sessions to transfer technical requirements, tools and know how.

(3) Collaborate, whenever feasible, on planning regional workshops, webinars and other information sharing venues of mutual interest to NROC and GOMC.

Duration and termination of Agreement

The duration of this agreement will be for one year, from the date of signing. Renewal will be automatic unless specifically terminated. Amendment of the agreement may be made at any time, by signature of both parties. Termination of the agreement may be initiated by either party in writing with a notice period of 30 days.

State Co-Chair
Northeast Regional Ocean Council — Date

Council Chair
Gulf of Maine Council on the Marine Environment — Date

Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: Tribal and First Nations interest in the GOM/Tribal and First Nations Collaboration

Submitted by: Ann Rodney – EPA Region I – June 2016

Type of Item (place X in appropriate box)	**For Decision**	x	**For Direction**		**For Information** (internal GOMC)		**For Information** (External)	

Background (required):
On October 14th -- 16th 2015 EPA Region I participated in the New England Tribal Leaders Fall Summit. The gathering included Tribes from New England, First Nations from Canada, EPA Senior leadership and Staff at the University of Maine Presque Isle. Ann Rodney participated remotely as part of a panel discussion titled: "Opportunities for Strengthening International Watershed Restoration Efforts". The tribes wanted information on the Gulf of Maine Council. From this discussion the Maliseet First Nation requested information on how to participate in the Gulf of Maine Council (GOMC). Ann Rodney talked with EPA's tribal liaison, Mike Stover, for advice and direction and talked with a Patricia Saulis of the Maliseet First Nations.

In early March 2016 at the monthly Regional Tribal Operations Conference call (RTOC) which includes Chiefs, leaders of their organizations, tribal members and EPA staff, a discussion ensued about an opportunity for a New England Tribal Representative to participate in a designated Council position on the Gulf of Maine Council.

In early April 2016, Mike Stover, EPA liaison said that the New England Tribal Environmental Directors, while in executive session, have selected Asha Ajmani as the New England tribal representative to the Gulf of Maine Council. The selection was arrived at by consensus of the Tribal Environmental Directors who serve as members of the Conference and have the authority to make such selections for various tribal representation on similar committees, partnership groups, and boards in New England and elsewhere.

EPA provided information to the New England Tribal Environmental Directors and their designee with links to GOMC website, and the 2015 Terms of Reference. The Gulf of Maine Terms of Reference Guide of 2015, page 4 of Membership states: "*In addition, the Governors, Premiers, and the Council will work collaboratively to make two-year renewable appointments for the following interests:*

- *A senior representative of the scientific community from each country that resides in the watershed; and*
- ***A member of the tribal community that is nominated by the region's First Nations.***
- *Additional government or non-government representatives with appropriate expertise may be invited to participate in Council meetings as needed.*

Peter McLaughlin, Lee Sochasky, Susan Russell-Robinson and I discussed by phone the responsibilities of membership, looked up former Terms of Reference in order to fully understand the issues, concerns and ramifications of recommending the Tribal Environmental Directors representative becoming a member of the Council.

Asha Ajmani, the representative from the New England Tribal Environmental Directors will attend the June Working Group meeting and Council meeting as an observer.

Possible Activities / Next Steps (optional)**:**
Discussion on:

1. Questions Councilors have about the recommendation to appoint the New England Tribal Environmental Directors to the GOMC.
2. Next steps to work towards identifying a First Nations representative and actions needed to make this happen.

Actions, Outcomes or Decisions Requested (optional)**:**

1. Recommended that the Council accept New England Tribal Environmental Leaders and its representative as a Council member.

Supporting Documentation (If applicable, list additional documents included in the Briefing Book following this Briefing Note):
Outline time line of discussions.

Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: GOMC 2015 – 2017 Work Plan Updates

Submitted by: Steve Couture, Rebecca Newall, and Joan LeBlanc

Type of Item (place X in appropriate box)	**For Decision**	x	**For Direction**	x	**For Information** (internal GOMC)		**For Information** (External)	

Background (required):

Gulf of Maine Council approved a two year 2015 – 2017 Work Plan during the June 2015 GOMC meeting in New Hampshire. Edits to the Work Plan were approved at the December 2015 GOMC virtual meeting.

During the June 2016 GOMC meeting in Fredericton, NB, working group members will provide brief updates regarding the status of implementing GOMC Work Plan initiatives. Where applicable, Working Group members may also submit updated Work Plans for approval.

The 2015-2017 Work Plan includes the following initiatives:

- Climate Network
- EcoSystem Indicator Partnership (ESIP)
- Coastal and Marine Spatial Planning (CMSP)
- State of the Gulf – Watershed Status Theme Paper
- GOMC GeoTour
- Gulf of Maine Connector
- Gulfwatch
- GOMC Awards Program
- Sustainable Communities
- GOMC Outreach Projects

Possible Activities / Next Steps (optional)**:**

- GOMC Council and Working Group members will hear updates regarding implementation of Work Plan initiatives.

Actions, Outcomes or Decisions Requested (optional)**:**

- Council members are asked to approve any proposed changes or additions to the GOMC 2015 – 2017 Work Plan.

Supporting Documentation (If applicable, list additional documents included in the Briefing Book following this Briefing Note):

- Climate Network Activities - Briefing Note, *p. 21*
- Climate Network / Updated Work Plan, *pp. 22-24*
- ESIP 2.0 Beyond the Computer - Briefing Note, *p. 25*

For reference, a copy of the GOMC 2015-2017 Work Plan is available at:
http://www.gulfofmaine.org/2/wp-content/uploads/2015/12/GOMC-2015-2017-Work-Plan.pdf

Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: Climate Network Activities

Submitted by: Ellen Mecray and Bill Appleby, Climate Network Co-Chairs

Type of Item (place X in appropriate box)	**For Decision**		**For Direction**		**For Information** (internal GOMC)	x	**For Information** (External)	

Background (required):

The GOMC Climate Network continued its third year distributing a quarterly *Gulf of Maine Region Climate Impacts and Outlook* that is collaboratively developed by US and Canadian scientists (supporting an MOU established by NOAA and EC as well as the North American Climate Services Partnership). The *Outlook* is available on multiple websites and is sent electronically to 130 members of the media and 262 subscribers (with online signups continually raising that number). Our "open rate" for the Bulletin is typically upward of 40 percent, about double what is typically expected with e-newsletters.

The Climate Network recently completed its first year of a three-year grant (through Environment Canada's Atlantic Ecosystems Initiative) to create a web-based tool for Atlantic Canada offering improved access to Intensity/Duration/Frequency (IDF) extreme rainfall data. The Network organized a webinar last fall to solicit input from Canadians on the American prototype for the new site, www.precip.net. The draft site and will be reviewed at another webinar in June. Once the site is finalized, provinces in Atlantic Canada will promote the new resource with engineers, planners, farmers, municipalities and other entities in need of more refined data on extreme precipitation events.

The Climate Network completed a second regional King Tides Photo Contest in October 2015, and has created a bank of regional inundation images that can be used for education and media purposes at www.gulfofmaine.kingtides.net.

Possible Activities / Next Steps (optional)**:**

See Climate Network 2016 Work Plan.

Actions, Outcomes or Decisions Requested (optional)**:**

None required.

Supporting Documentation (If applicable, list additional documents included in the Briefing Book following this Briefing Note):

NA

Gulf of Maine Council Climate Network
2016-2017 Work Plan
(Updated May 31, 2016)

Context for Work

Climate is fast becoming the most powerful ecological and economic driver for the Gulf of Maine region and for the world. This region is particularly vulnerable to climate disruptions in its marine and coastal ecosystems.

- Over the past decade, the Gulf of Maine has warmed faster than 99.9 percent of global oceans (Pershing, 2014).
- The 2014 US National Climate Assessment (NCA3) reports that sea-level rise along most of the coastal Northeast is expected to exceed the global average rise due to local land subsidence, with the possibility of an even greater rise if the Gulf Stream weakens as some models suggest.
- The NCA3 concluded that the Northeast has experienced a greater increase in extreme precipitation than any other US region (between 1958 and 2010, the Northeast saw more than a 70 percent increase in the amount of precipitation falling in very heavy events).
- A recent report on Canada's Marine Coasts in a Changing Climate describes many biological ramifications along its East Coast, including ocean acidification, hypoxia and threats to habitats like tidal salt marshes.

Climate change is dramatically and irreversibly transforming environmental management, making regional information-sharing and collaborative planning more critical than ever. The Gulf of Maine Council, a successful bi-national partnership for 25 years, is well-suited to facilitate public outreach concerning climate impacts and to foster collaborative regional adaptation projects across borders and sectors—helping Gulf watershed communities respond constructively to ecological disruptions (and resulting economic and health challenges).

About the Climate Network

The Climate Network, a cross-cutting committee of the Gulf of Maine Council on the Marine Environment, supports collaborative work to improve the climate resilience of communities in the Gulf of Maine watershed (which encompasses portions of Maine, Massachusetts, New Hampshire, New Brunswick, and Nova Scotia). The Network benefits from the varied perspectives of those working in meteorology, climatology, marine sciences, transportation, regional planning, and public health. It is well-positioned to address concerns that cross sectors, require effective delivery of current science, and benefit from a coordinated regional response.

Vision

Local decision-makers in the Gulf of Maine watershed have access through Climate Network projects and online resources to credible information that helps them evaluate climate change impacts and work collaboratively on adaptation and mitigation measures.

Mission

In support of greater climate resilience and adaptability in communities throughout the Gulf of Maine watershed, the Climate Network fosters sharing of professional knowledge and resources and coordinated regional responses

Climate Network Strategies

1. Deliver credible climate information and adaptation guidance to all levels of government throughout the Gulf of Maine/Bay of Fundy watershed;
2. Advance climate resilience and adaptation through collaborative projects that address emerging regional needs and help local decision-makers prioritize action.

The Gulf of Maine Council's Climate Network plays a significant role in four primary ways:

1. Compiling and promoting (across sectors and borders) accurate information about likely climate impacts within the region. Examples include the Gulf of Maine quarterly *Climate Impacts and Outlook*; a dashboard of real-time climate data; and a King Tides regional web page with sea-level rise projections, anticipated impacts, and stories about adaptation planning.

2. Identifying critical data gaps and convening regional experts to determine how to most efficiently gather and disseminate that information. For example, the Climate Network is currently exploring ways to extend the National Integrated Heat Health Information System being developed in the US into Atlantic Canada, potentially linking heat early-warning systems across borders.
3. Engaging more citizens in tracking the impacts of climate change and transmitting those data (such as King Tides photos) to the municipal and regional managers who can best use that information to strengthen community resilience.
4. Fostering regional and international collaboration on climate-related management challenges through mechanisms such as the North American Climate Services Partnership (NACSP) and the World Meteorological Organization's Global Framework for Climate Services. Early in 2016, the Gulf of Maine region was formally included in the NACSP, joining the Great Lakes Region and the Rio Grande/Rio Bravo Region. The Climate Network is exploring ways that it can contribute to the Global Framework as well, potentially through proposed actions (see below) involving infrastructure/culverts, marine forecasting and public health.

Climate Network projects are typically grant-funded and rely on an expert "working group" that is assembled for each initiative.

Proposed Actions

- Continue expanding distribution of *Gulf of Maine Quarterly Climate Impacts and Outlook* and related media outreach; publicize webinars held in conjunction with the *Outlook* release each quarter; and promote the availability of the Climate Network's new dashboard of real-time data. *(Strategy 1) (requires staffing resources)*
- Refine and publicize a web-based tool offering improved access to Intensity/Duration/Frequency (IDF) extreme rainfall data, helping environmental managers and municipal planners in Atlantic Canada better prepare for climate impacts. *(Strategy 2)(funded by Environment Canada 2015-2017)*
- Continue coordinating the Gulf of Maine King Tides Initiative and annual photo contest, which generates inundation images from extreme tides to use for planning and educational purposes *(Strategies 1 & 2) (requires additional resources)*
- In collaboration with partners such as the Department of Interior's Landscape Conservation Cooperative Network and the Infrastructure and Climate Network, create online guidance and host a regional workshop to help coastal communities reconsider design and engineering standards for coastal roads and tidal road crossings so as to improve habitat and minimize impacts of sea-level rise and storm surge. The Climate Network would take a lead role in sharing examples of infrastructure designs, best management practices and regulatory frameworks that benefit coastal ecosystems and minimize climate-related impacts. *(Strategies 1 & 2) (requires additional resources*)
- Lead regional pilot, potentially linked to the new US National Integrated Heat Health Information System, overlaying climate data and health data to enable better management of vulnerable populations in extreme heat and weather events *(requires additional resources)*
- Respond to funding opportunities for projects involving collaborative, regional responses to extreme weather and its impacts on sectors such as health, transportation and natural resources. *(Strategy 2) (requires additional resources)*

Past Accomplishments

- Hosted a two-day bi-national discussion in September 2013 about regional climate issues for more than 60 participants
- Generated a new regional climate information dashboard that provides multiple links to recent and real-time data sources
- Helped facilitate preparation and distribution of a Gulf of Maine Region Quarterly Climate Impacts and Outlook, a two-page bulletin that summarizes the past season's events and anomalies, discusses weather impacts on the region's ecosystems and economy, and offers a forecast for the coming three months

- Completed and distributed a study of the climate adaptation status and needs of municipalities bordering the Bay of Fundy
- Working in conjunction with the international King Tides Project, launched a regional Gulf of Maine King Tides Initiative helping raise awareness about sea-level rise impacts
- Created a "Living Shorelines" page on the Climate Network web pages that provides information and resources on best practices for those interested in ecologically sound ways to mitigate impacts of sea-level rise and storm surge

Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: ESIP 2.0: Beyond the Computer

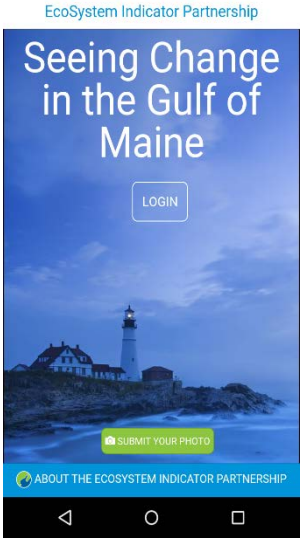
Submitted by: Kathryn Parlee (ECCC), Jim Latimer (EPA), and Christine Tilburg (ESIP)

Type of Item (place X in appropriate box)	**For Decision**		**For Direction**		**For Information** (internal GOMC)	x	**For Information** (External)	x

Background (required):

The Ecosystem Indicator Partnership (ESIP) has been very busy working on a new phase of indicators and new platforms to introduce ESIP to a wider group of users. ESIP has successfully produced fact sheets for six of the subcommittees: Aquaculture, Aquatic Habitats, Contaminants, Climate Change, Coastal Development, and Eutrophication. The Fisheries fact sheet will be released in July. Users find these informational fact sheets helpful and to date over 3,500 fact sheets have been delivered in hard copy form and over 11,000 downloaded copies from ESIP's webpages. The Steering Committee has now charged ESIP with determining the best framework for developing ecosystem services type indicators. This ecosystem service framework and subsequent indicators will be determined with input from the Working Group and ESIP community.

ESIP has now also launched a smartphone app – the ICUC app ("I See You See"). The app (available for free from the Google Play and iTunes stores) uses your location to inform you about monitoring programs in your vicinity. In addition, you can use your phone to upload images into photo libraries or to introduce others to locations you feel are important.



Possible Activities / Next Steps (optional)**:**

- Complete ecosystem services framework from which indicators will be developed
- Develop a new ESIP subcommittee structure reflecting the ecosystem services framework
- ICUC phase 2 additional functionality
- ICUC site expansion

Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: GOMC Policy Sessions at the June 2016 Meeting

Submitted by: Steve Couture, Rebecca Newhall, and Joan LeBlanc (in collaboration with GOMC Working Group, Secretariat Team, and ad-hoc Agenda Development Team)

Type of Item (place X in appropriate box)	**For Decision**		**For Direction**	x	**For Information** (internal GOMC)		**For Information** (External)	

Background (required):

The GOMC June 2016 meeting will include two policy discussion sessions focused around the cross-cutting theme: ***Climate Change and Extreme Weather Events***. Within this theme, there will be two sessions:

- **<u>Session 1</u>: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)**
- **<u>Session 2</u>: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands**

In preparation for the meeting, GOMC members were invited to fill out templates with background information related to each of the session topics aimed at enhancing opportunities for productive and informative discussion sessions at the June meeting. In addition to guiding development of sub-topics for each session, background provided by jurisdictions and agencies will facilitate learning about each other's efforts and promoting networking and collaboration around shared interests, challenges, and priorities.

With information provided in the templates, the Secretariat Team, Working Group, and ad-hoc Agenda Development Team worked together to develop a set of sub-topics that will provide a starting point to enhance vs. limit policy discussions at the June meeting. Facilitation of the policy discussions will be flexible enough to allow GOMC members to engage in productive and meaningful dialogue. Due to the timing of template submittals as well as the broad range of topics suggested, not all issues included in the templates are listed here and these topics may be revised to reflect additional information received and / or collective desire of GOMC members during the meeting. Efforts were made to focus on topics with both Canadian and US interest. In addition to the specific topics suggested here, networking time will be incorporated to allow for discussion around related issues of interest.

Disclaimer *- All information in the templates provided by GOMC jurisdictions and agencies is considered draft and should be used for purposes of informing discussions at the June 2016 GOMC meeting only.*

<u>Proposed Topics for Session 1</u>: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

<u>1. Assessing Risk and Vulnerability</u>

<u>Goal</u>: Identify opportunities for Gulf of Maine Council to enhance ability of jurisdictions to assess risks and vulnerability through GOM regional data, assessment tools, and / or informational products.

- GOM regional data needs
    - Saltwater / freshwater intrusion
    - Increased data sharing
    - Pre and post storm conditions (sediment transport / fate of contaminants…)
    - High quality regional-scale data for coastal and marine waters
- Gaps in GOM regional assessment tools
    - Flood forecasting and storm surge
- Opportunities for additional GOM informational products
- Opportunities to improve cross border data sharing

2. Strategies for Promoting Coastal Resiliency (Adaptation and Mitigation)

Goal: Identify opportunities to promote coastal resiliency by sharing knowledge and resources about tools, techniques and policies.

- Shoreline management
    - living shorelines
    - green infrastructure
    - managing sediment and erosion
- Protecting coastal infrastructure
    - Shoreline protection structures, freeboard, relocation, etc.
    - Resilient waterfront / small craft harbors
    - Sustainable coastal industry (fisheries / seafood)
    - Sea level rise tools used to inform management decisions

Proposed Topics for Session 2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

1. Coastal and Ocean Acidification

Goal: Enhance understanding and identify opportunities for GOMC to bring cross-cutting support for common priorities.

- Current science (quick update from NECAN)
- Links between science and management framework
- Opportunities for GOMC to add value / enhance collaboration

2. Habitat Sustainability

Goal: Enhance understanding and identify opportunities for GOMC to bring cross-cutting support for common priorities.

- Salt marsh migration
- Links between ecological services and risks from climate change (flooding, temperature, sea level rise)
- Protecting 'pools' of future habitat for transboundary species such as migratory birds, whales and fish
- Public health and community impacts

Actions, Outcomes or Decisions Requested (optional)**:**

The underlying goal of the policy sessions is to identify opportunities for GOMC to help address challenges, gaps and unmet needs. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Collaboration between GOMC and industry (NSDFA asks GOMC partners to consider this a targeted outcome)
- Expand sharing of information or tools via webinars or training sessions

Supporting Documentation (If applicable, list additional documents included in the Briefing Book following this Briefing Note):

The following policy session templates were prepared and submitted by GOMC members.

DRAFT – for internal GOMC discussion purposes only

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: Environment and Climate Change Canada

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

Overall, Environment and Climate Change Canada's mandate is to:

- Preserve and enhance the quality of the natural environment, including water, air, soil, flora and fauna;
- Conserve Canada's renewable resources;
- Conserve and protect Canada's water resources;
- Forecast daily weather conditions and warnings, and provide detailed meteorological information to all of Canada;
- Enforce rules relating to boundary waters; and
- Coordinate environmental policies and programs for the federal government.

With respect to resiliency of infrastructure to extreme weather, ECCC Branches - Meteorological Service of Canada, Canadian Wildlife Service, Science and Technology, and Strategic Priorities –provide:

- Field and laboratory research aimed at understanding climate processes;
- Development and application of climate models to make projections of future change;
- Meteorological research and monitoring to improve weather and environmental prediction (e.g. weather, hurricanes, ice); and
- Hydrologic research and monitoring on water levels and water quality

This information provides the basis for decision making and actions, policy development, and products and services for Canadians.
ECCC also:

- Provides funding programs to support NGOs with environmental projects that benefit the natural environment; and
- Builds relationships with key stakeholders (e.g. other federal, provincial and municipal governments, academia, private sector) to identify and advance opportunities to collaborate on applied research, development of decision-support tools, sharing of data or expertise

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- Conducting science (e.g. research, monitoring) to improve understanding of climate process and improve weather and environmental prediction. For example: enhancing information on storm water levels and wave setup to improve storm surge forecasting.
- Providing weather and climate services and developing relevant products to inform Canadians and support planning and decision-making. For example: Quarterly Gulf of Climate Impacts and Outlook bulletin; Intensity-Duration-Frequency (IDF) data for planners and engineers who require return period data and information on extreme rainfall for designing infrastructure; working with CoCoRaHS to expand precipitation monitoring network in Canada
- ECCC co-chairs (with Prince Edward Island) the federal-provincial-territorial *Working Supporting on Adaptation and Climate Resilience* under the Pan-Canadian Framework on Clean Growth and Climate Change

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

- On-going and new opportunities for cooperation and/or collaboration
    - Improved observations to support and/or validate regional forecasts, models or projections
    - Knowledge and information sharing (e.g. assessments, services, data)
    - Products to support adaptation decision-making (e.g. modelling, tools)
    - Research, monitoring, policies and actions to better predict, prepare for, and respond to weather-related emergencies and natural disasters
- Engage stakeholders and citizens to better understand the ecosystem and impacts of climate change (e.g. King Tide photos, Smartphone App) or provide regional information to inform decision-making (e.g. on-line indicator reporting tool, regional climate outlook)
- Collaboration with Ocean Weather in the US in developing and updating the MSC50 data (TBC?)
- Encouraging Canadians to experience and learn more about the environment and heritage of the GOM.

Desired Outcomes from Session:

During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: Environment and Climate Change Canada

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring		3.1 Understanding How People Use the Gulf of Maine	
1.2 Habitat Restoration Outcome		2.2 Environmental Indicators and Reporting		3.2 Community Stewardship	
1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?
Overall, Environment and Climate Change Canada's mandate is to:

- Preserve and enhance the quality of the natural environment, including water, air, soil, flora and fauna;
- Conserve Canada's renewable resources;
- Conserve and protect Canada's water resources;
- Forecast daily weather conditions and warnings, and provide detailed meteorological information to all of Canada;
- Enforce rules relating to boundary waters; and
- Coordinate environmental policies and programs for the federal government.

With respect to ocean and ecosystem health, ECCC Branches - Canadian Wildlife Service, Science and Technology, Enforcement, and Strategic Priorities –provide:

- Research, monitoring and assessments on wildlife and habitat
- Planning and management of ECCC protected areas including National Wildlife Areas, Migratory Bird Sanctuaries
- Partnerships to enhance stewardship and/or implement management plans, recovery strategies and action plans related to species at risk as well as implementing other conservation plans (e.g. migratory birds)
- Produce/development of recovery strategies for species at risk
- Input into Environmental assessments as well as species at risk protection assessments
- Enforcement of regulations supporting to protect species at risk, migratory birds and other wildlife, maintain healthy ecosystems and preserve Canada's natural heritage
- Coordination and/or support toward achieving the goals and objectives of the United Nations Convention on Biological Diversity through a collaborative approach (e.g. support DFO with marine and coastal conservation targets)

This information provides the basis for decision making and actions, policy development, and products and services for Canadians.
ECCC also:

- Provides funding programs to support NGOs with environmental projects that benefit the natural environment; and
- Builds relationships with key stakeholders (e.g. other federal, provincial and municipal governments, academia,

private sector) to identify and advance opportunities to collaborate on applied research, development of decision-support tools, sharing of data or expertise

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- Conducting science (e.g. research, monitoring) to improve understanding of current conditions and changes in ecosystem health. For example: scientific studies aimed at understanding and preventing loss of ecosystem services and biodiversity; scientific studies to understand species distribution and changes/causes of species distribution, particularly associated with seabirds
- Development of science-based decision-support tools for integrated habitat conservation efforts in GoM watersheds. Specific emphasis on threats associated with coastal squeeze and barriers to habitat migration. For example: development of Habitat Conservation Strategies for identifying key pressures and threats and for preventing loss of ecosystem services and biodiversity
- Contributing to Marine Protected Area Network planning for the Scotian Shelf marine bioregion (including coastal and offshore components of the Gulf of Maine and Bay of Fundy). Focus on ecosystem functions so as to enhance resiliency to climate change.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

- On-going and new opportunities for cooperation and/or collaboration
    - Research, monitoring, policies and actions to better understand changing conditions in habitat and biodiversity and impacts to a number of migratory bird populations.
    - Knowledge and information sharing (e.g. assessments, services, data)
    - Products to identify and/or support conservation of ecosystem services and biodiversity
- Availability of consistent foundational data layers and clear avenues to optimize ecological coherence of planning efforts across geographical scales (GoM, A2C, NAMPAN). Note: NA LCC has shown leadership on this front (data sharing, supporting development of foundational data and decision-support tools) in terrestrial and coastal environments.
- Understanding changes to species distribution and associated changing prey distributions and loss of habitat through erosion
- Improving/building ecological resiliency within the seabird community, as well as for other wildlife by identifying and protecting 'pools' of potential habitat, particularly coastal and offshore nesting island options
- Engage stakeholders and citizens in contributing to a better understand of the ecosystem or provide regional information to inform decision-making (e.g. on-line indicator reporting tool)
- Encouraging Canadians to experience and learn more about the environment and heritage of the GOM.

Desired Outcomes from Session:

During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting **Theme: Climate Change and Extreme Weather Events**		
Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)		
GOMC Agency / Jurisdiction / NGO: Fisheries and Oceans Canada, Maritimes Region		
Links to 2012-2017 Action Plan Goals and Outcomes *Place 'x' next to all GOMC outcomes related to issue*		
Goal 1: Restored & Conserved Habitats	**Goal 2: Environmental & Human Health**	**Goal 3: Sustainable Communities**
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

Fisheries and Oceans Canada (DFO) is responsible for a variety of coastal infrastructure that is vulnerable to changing climatic conditions including extreme weather events:

- DFO's Small Craft Harbours program operates and maintains a national system of harbours for commercial fish harvesters and other harbour users, including 88 in the Gulf of Maine.
- The Canadian Coast Guard (a Special Operating Agency of DFO) owns and operates the Canadian federal government's civilian fleet of vessels.
- DFO's Real Property Safety and Security program has administrative control over wharves and docking facilities for Canadian Coast Guard vessels, as well as many lighthouses, coastal offices, storage facilities and other buildings.

The fisheries protection provisions of the *Fisheries Act*, administered by DFO's Fisheries Protection Program, require that projects (e.g., placing or removing structures in water, dredging, quarries, dams, etc.) avoid causing serious harm to fish that support or are part of a commercial, recreational or Aboriginal fishery.

As well, DFO has a mandate to conduct scientific research to better understand the marine and coastal environment.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

DFO Science and Small Craft Harbours

The Aquatic Climate Change Adaptation Services Program (ACCASP) assessed climate change impacts as emerging risks or opportunities, and devised tools and technologies to help the department adapt appropriately. This program was initially funded for five years (2011-16) and was recently extended to 2018. Some relevant projects are described below:

- DFO scientists developed the Canadian Extreme Water Level Adaptation Tool (CAN-EWLAT) for predicting Atlantic sea level extremes under uncertain climate change scenarios. They established and implemented a methodology for adaptation to rising sea-level in Atlantic Canada based on long-term tide gauge records

from the region. Using a high resolution computer model, researchers also generated historical averages for wind and waves in Atlantic Canada and future estimates based on three climate change scenarios (2040-2069). The tool was later expanded to other regions of the country. Results will help DFO-Small Craft Harbours and Real Property Safety and Security branches predict the effects of changing climatic conditions on coastal infrastructure and develop adaptation strategies for recapitalization and construction of new coastal infrastructure. http://www.bio.gc.ca/science/data-donnees/can-ewlat/index-en.php

- CAN-EWLAT was one of the tools used to develop a National Coastal Infrastructure Vulnerability Index (CIVI). DFO is responsible for maintaining 1,014 Small Craft Harbours across the country which support nearly 90 percent of all fish landings in Canada as well as other commercial and recreational activities. Approximately 12,000 coastal assets are susceptible to the impacts of sea-level rise and climate change. The CIVI work included a national geodatabase encompassing a wide variety of information including sea-level rise projections (from CAN-EWLAT), as well as information on infrastructure condition and socio-economic value of the infrastructure. The CanCoast geodatabase developed by Natural Resources Canada serves as the platform for CIVI (ftp://ftp.nrcan.gc.ca/pub/outgoing/manson/CanCoast.gdb.zip). The CIVI is intended to provide relative information on a site specific basis to enable the department's Small Craft Harbours Program to assess the vulnerability of coastal sites to changing climatic conditions and develop overall planning strategies such as protection, adaptation or relocation.

DFO Fisheries Protection Program

DFO's Fisheries Protection Program is working with the provinces of Nova Scotia and New Brunswick to develop guidelines and standards for proponents working in or near waterbodies that are part of or that support a commercial, recreational or Aboriginal fishery. These guidelines and standards are expected to include consideration of extreme events.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

The information gap is the most significant gap for DFO-Small Craft Harbours in addressing issues arising from climate change and extreme weather events.

- There are challenges and limitations to adapt specific infrastructure at a harbour in relation to the elevations of adjacent private and public infrastructure.
- There is some resistance from harbour users with respect to raising the elevations of wharves to adapt to future climatic conditions as this means extra freeboard, and therefore higher lifting and climbing in the shorter term.
- The current network of harbours is strategically positioned to support the current fisheries; any changes to fishing or fishing patterns could affect the sustainability of some of those harbours.
- There is a need for additional robust scientific evidence to inform and justify decisions on future infrastructure requirements and changes in the fishery.

Desired Outcomes from Session:

During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting **Theme: Climate Change and Extreme Weather Events**		
Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands		
GOMC Agency / Jurisdiction / NGO: Fisheries and Oceans Canada, Maritimes Region		
Links to 2012-2017 Action Plan Goals and Outcomes *Place 'x' next to all GOMC outcomes related to issue*		
Goal 1: Restored & Conserved Habitats	**Goal 2: Environmental & Human Health**	**Goal 3: Sustainable Communities**
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

Fisheries and Oceans Canada (DFO) manages and regulates commercial fisheries, including coastal fisheries.

DFO is responsible for implementing the *Species at Risk Act* for aquatic species at risk, including recovery planning.

The *Fisheries Act*, administered by DFO, requires that projects (e.g., placing or removing structures in water, dredging, quarries, dams, marine seismic surveys, etc.) avoid causing serious harm to fish.

DFO is developing a network of marine protected areas to protect biodiversity.

DFO has a mandate to conduct science to better understand the marine and coastal environment.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Science

The Aquatic Climate Change Adaptation Services Program (ACCASP) assessed climate change impacts as emerging risks or opportunities, and devised tools and technologies to help the Department adapt appropriately. This program was initially funded for five years (2011-16) and was recently extended to 2018. ACCASP projects relevant to the Gulf of Maine are described below:

- Scientists at St. Andrews Biological Station led a project to look at the effects of ocean acidification on marine fauna and ecosystem processes in the Northwest Atlantic. Acute tolerance tests were performed on the synergistic effects of ocean acidification and increased ocean temperature on Atlantic cod embryos. The behavioural response of key commercial invertebrate species to acidified seawater was also explored.
- As marine ecosystems adapt to climate change, gains or losses in available habitat will alter the distribution of species. Nancy Shackell led a project to develop a reliable method of measuring the vulnerability of a variety of marine species to climate change on the Scotian Shelf, including commercial populations (preliminary results presented at the October 2014 Gulf of Maine Council meeting). The results are being considered in MPA Network planning.

References
Shackell NL, Ricard D, Stortini CH. Thermal habitat index of many Northwest Atlantic temperate species stays neutral under warming projected for 2030 but changes radically by 2060. PloS ONE. 2014; 9(3): e90662. doi: 10.1371/journal.pone.0090662.
Stortini CH, Shackell NL, Tyedmers P, Beazley K. Assessing marine species vulnerability to projected warming on the Scotian Shelf, Canada. ICES J Mar Sci. 2015; 72(6): 1731–1743. doi: 10.1093/icesjms/fsv022.)

Science and Fisheries Management
Some stock assessments are taking into account changing climate, and guidance is being developed on incorporating ecosystem considerations into stock assessments. One of the best examples is the incorporation of a wide suite of environmental factors in the snow crab stock assessment: http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2015/2015_034-eng.pdf Snow crab is at the southern end of its range on the southwestern Scotian Shelf/Gulf of Maine.

New Integrated Fisheries Management Plans are expected to follow a template that includes a section on the effect of climate regime changes on stock status, see guidelines: http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/guidance-guide/template-app-a-ann-modele-eng.htm

Species at Risk
Climate change is one of the considerations in determining the recovery feasibility of a species at risk.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

A significant challenge is translating scientific research on the changing climate and ecosystem health into management actions for departmental management programs, such as fisheries management, fisheries protection, marine protected area planning and design, and species at risk recovery. Key gaps include:

- Limited experience incorporating climate change information into management decisions. The slow pace of climate change, with warmer years often followed by cooler years and an apparent return to normal, results in uncertainty among managers.
- Inconsistent application of information available on climate change and changing ecosystem health in stock assessments and other management decisions. For example, some stock assessments include a wide range of environmental considerations, while eithers do not yet do so. Clearer guidance on environmental information to be included in stock assessments is expected in the next year.

A significant gap is understanding what is driving mortality of some fish stocks. For some stocks, even when fishing mortality is reduced to zero or near-zero, the stock status continues to decline. What efforts can be made to reduce natural mortality?

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: Nova Scotia Department of Fisheries and Aquaculture

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring		3.1 Understanding How People Use the Gulf of Maine	
1.2 Habitat Restoration Outcome		2.2 Environmental Indicators and Reporting		3.2 Community Stewardship	
1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

- Nova Scotia Department of Fisheries and Aquaculture's (NSDFA) mandate (primarily under the NS Fisheries & Coastal Resources Act) includes development of commercial fishery and (freshwater and marine) sport fishery, the licensing and development of aquaculture ,seafood processing, rockweed harvest, and a coordination role on coastal and ocean management issues across NS departments.

- NSDFA's Commercial Marine Fisheries Strategy (not yet finalized) includes an objective to facilitate Nova Scotia's seafood industry's understanding and ability to adapt to a changing climate and ocean. This objective recognizes that much of the seafood sector's activities and crucial private and public infrastructure is located directly on the coast and marine waters and may be vulnerable to flooding and other climate related impacts. These challenges include but not limited to ocean temperature changes and shifts in commercial and forage fish abundance, distribution, spawning timing, and seasonal movement; ocean and coastal acidification and impacts on shellfish and plankton; rising sea level and increased frequency and intensity of storm impacts on fish harvester and seafood industry-associated infrastructure; aquatic invasive species and detrimental impacts on fish habitat and fish mortality.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- NSDFA is open to exploring partnerships where there are shared interests to collect data, analyze, and develop information products that are useful for understanding and maintaining seafood industry resilience to a changing climate and ocean.
- NSDFA has undertaken an inventory of Provincial coastal and marine map data holdings with a long-term objective to improve government access to coastal and marine data, maps, and information products. The

draft inventory has been completed and future phases will include improving management and utilization of the data through GIS and other information products.

- NSDFA has started to work with experts in remote sensing including LIDAR with the objective to acquire enhanced coastal-marine spatial data for modelling and other derived mapping products ;e.g., modelling for optimal aquaculture siting

2. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

- Lack of sufficiently high resolution, regional-scale (e.g. GOM) data for coastal and marine waters of Nova Scotia needed to assess:
  - vulnerability of coastal infrastructure and opportunities for adaptation measures
  - vulnerability and opportunities for aquaculture development
  - vulnerabilities and opportunities for fisheries and seafood development
- Lack of high quality information products (derived from regional data) to provide clear and decision-ready information for government, industry, and the public.
- Need for increased intergovernmental collaboration on data-sharing, standard methods for collection and management.
- Interest to utilize various shared means of dialogue and learning with seafood industry; e.g. webinars, training, workshops
- NS Dept. Fisheries and Aquaculture has a growing interest in the importance of seabed mapping; e.g., characterization and classification of resource, environment/habitat features, seabed geology, and seabed suitability for economic activity. Interest to explore how various remote sensing technologies, and as importantly, the derived applications and products that can provide useful information for managers.

Desired Outcomes from Session:

During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and industry (NSDFA asks GOMC partners to consider this a targeted outcome)
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting **Theme: Climate Change and Extreme Weather Events**
Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands
GOMC Agency / Jurisdiction / NGO: New Brunswick Department of Environment and Local Government (DELG)

Links to 2012-2017 Action Plan Goals and Outcomes *Place 'x' next to all GOMC outcomes related to issue*		
Goal 1: Restored & Conserved Habitats	**Goal 2: Environmental & Human Health**	**Goal 3: Sustainable Communities**
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

The DELG's mandate is to provide integrated stewardship through planning and management of land use, zoning development and waste management issues. Ensure effective enforcement of, and compliance with, environmental legislation and regulations. Provide effective consultation and liaison with municipal governments and Local Service Districts (LDS's) on governance issues.

The regulatory mechanism for this is through the Clean Water Act, the Clean Environment Act and the Community Planning Act. More specifically as it relates to coastal areas and wetlands the regulatory tools available include the Watercourse and Wetland Alteration Legislation, the Coastal Areas Protection Policy and the New Brunswick Wetlands Conservation Policy.

The Climate Change Secretariat which is part of the DELG has a mandated to develop, implement, and report, in cooperation with other departments, on actions that address greenhouse gas emission reductions and adaptation. It is also responsible to manage continued engagement with provincial stakeholders, federal, provincial, territorial, and international jurisdictions and the NEG-ECP region, on climate change matters, and interacts in the development of public awareness and education programs.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

DELG has funded a project in the South East Regional Services Commission that is examining the linkage between ecological services, e.g. wetlands and marshes, and flood risk reduction, both inland and coastal. This project is beginning its second year and is a collaboration between a number of NGOs, the South East Regional Service Commission and the Province. The intent is to highlight the value of green infrastructure in managing flood risk.

DELG and the Climate Change Secretariat have been involved in a project examining the impacts of coastal squeeze on saltmarsh habitat. This is being done in collaboration with researchers from the Universite de Moncton, New Brunswick Department of Energy and Mines and researchers from Quebec. This information will help to ID priority

areas for restoration and protection. Furthermore, updated data on coastal erosion and climate change for NB have recently been made available:
http://geonb.maps.arcgis.com/apps/webappviewer/index.html?id=5716e9f3bec147a29f366c3c0fa43284

The Province is also in the process of acquiring LiDAR data for the full coast of NB. This information will help with adaptation planning efforts and vulnerability assessments of natural resources.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

The majority of our efforts in NB on climate change adaptation have been focused on communities and infrastructure. We have spent less focused time on the linkages between climate change and ecosystem health and coastal resources. A first steps would be a needs assessment that would help to identify priorities for future action. Also examples of green infrastructure and how this is being used as a tool in climate change adaptation.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: US EPA Region 1

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
Outcomes:	**Outcomes:**	**Outcomes:**
1.1 Water Quality Protection	2.1 Environmental Monitoring	3.1 Understanding How People Use the Gulf of Maine x
1.2 Habitat Restoration	2.2 Environmental Indicators and Reporting	3.2 Community Stewardship x
1.3 Habitat Conservation x	2.3 Climate Adaptation x	

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

EPA's mission is to protect human health and the environment. To accomplish this mission we develop and enforce regulations, as authorized by Congress, through laws such as the Clean Water Act and the Safe Drinking Water Act.

The Clean Water Act establishes a basic structure for regulating discharges of pollutants into the waters of the United States and regulating water quality standards for surface waters. Under the Clean Water Act, EPA has implemented pollution control programs such as setting wastewater standards for industry.

The Safe Drinking Water Act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. EPA provides grants to implement state drinking water programs, and to help each state set up a special fund to assist public water systems in financing the costs of improvements (Drinking Water State Revolving Fund).

The November 2013 Executive Order no. 13653 – Preparing the United States for the Impacts of Climate Change – establishes that the Federal Government must build on recent progress and pursue new strategies to improve the Nation's preparedness and resilience to climate change. EPA has responded to this Order through the development and implementation of a National and Regional Climate Action Plan, and by incorporating climate change considerations across all programs.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- Implementation of the Climate Ready Water Utilities program, which provides water sector utilities with the practical tools, training, and technical assistance needed to adapt to climate change by promoting a clear understanding of climate science and adaptation options.
    - EPA has provided direct technical assistance to 23 communities for conducting comprehensive climate-related risk assessments and identifying practical, local adaptation strategies using the Climate Resilience Evaluation and Awareness Tool (CREAT); a further 260 water and wastewater utilities were provided general training in the use of Climate Ready Water Utilities tools to assess and adapt to climate change

- Sustainable Communities Flood Resilience Checklist pilot projects
- Incorporating climate change into Drinking Water State Revolving Fund grant requirements
- Increase green infrastructure sustainability through non-regulatory funding and programs

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Not enough capacity to implement climate change considerations across all projects, not enough funding to incorporate climate change considerations into all projects, and operating within the confines of a regulatory environment.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: US EPA Region 1

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
Outcomes:	**Outcomes:**	**Outcomes:**
1.1 Water Quality Protection x	2.1 Environmental Monitoring x	3.1 Understanding How People Use the Gulf of Maine x
1.2 Habitat Restoration x	2.2 Environmental Indicators and Reporting x	3.2 Community Stewardship x
1.3 Habitat Conservation x	2.3 Climate Adaptation x	

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

EPA's mission is to protect human health and the environment. To accomplish this mission we develop and enforce regulations, as authorized by Congress, through laws such as the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act.

The goal of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The Clean Water Act strives to achieve this goal by establishing s a basic structure for regulating discharges of pollutants into the waters of the United States, regulating water quality standards for surface waters, and authorizing non-regulatory programs to help protect and restore our water bodies of national significance...

- Clean Water Act (CWA) section 303, Water Quality Standards Regulation and Total Maximum Daily Loads, requires US EPA to establish water quality criteria guidelines for states to use in preserving designated uses of streams, lakes, and rivers within their borders. These criteria outline pollution levels that could cause a health risk or significant degradation of the water quality for the specific use designation.
- CWA section 319, Nonpoint Source Management Program, requires states to assess and develop control programs for nonpoint sources of pollution. EPA is authorized to approve state management programs and to provide program implementation grants.
    - EPA and NOAA jointly implement a parallel program in coastal areas under section 6217 of the Coastal Zone Management Reauthorization Act, which requires states to implement and enforce management measures to reduce nonpoint source pollution
- CWA section 320, National Estuary Program, promotes comprehensive planning efforts to help protect nationally significant estuaries deemed threated by pollution, development, or overuse
- CWA section 404 is jointly administered by EPA and USACE to regulate permits for disposal of dredge and fill materials into wetlands and other waters of the US.
- The Beaches Environmental Assessment and Coastal Health Act of 2000 amended a number of sections of the CWA to improve the quality of coastal recreation waters. The resultant Beach Program is a state grant program that conducts water quality monitoring, notifications to the public, source tracking, and data analysis.

The Marine Protection, Research and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, regulates the transportation and dumping of any material into ocean waters. The MPRSA prohibits or restricts ocean dumping that would adversely affect human health, welfare, amenities, the marine environment, ecological systems or economic potentialities. EPA promotes beneficial use (rather than ocean disposal) of dredge materials whenever possible. Dredge materials can be used as sediment sources for beaches and other coastal resiliency efforts.

and

The November 2013 Executive Order no. 13653 – Preparing the United States for the Impacts of Climate Change – establishes that the Federal Government must build on recent progress and pursue new strategies to improve the Nation's preparedness and resilience to climate change. EPA has responded to this Order through the development and implementation of a Regional Climate Action Plan, and by incorporating climate change considerations across all programs.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- Implementation of the Climate Ready Estuaries Program, which provides National Estuary Programs practical tools, training, and technical assistance NEPs need to adapt to climate change.
    - New funding guidance for the National Estuary Programs, published in Dec 2014, provides that by 2020 the Comprehensive Conservation and Management Plan for each NEP has to include a broad, risk-based climate change vulnerability assessment.
- Securing Ocean acidification monitoring funds through NEP CRE program. Developed a Beneficial Use tracking database for New England to establish a baseline and encourage beneficial use of dredge material when possible.
- Implementation of our EPA R1 Regional Climate Adaption Plan through exploring options for incorporating climate into regulatory authorities, adding climate parameters into monitoring programs and encouraging "climate smart" investments in our grant programs.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Not enough capacity to implement climate change considerations across all projects, not enough funding to incorporate climate change considerations into all projects, and operating within the confines of a regulatory environment.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

Gulf of Maine Council on the Marine Environment
June 2016 Council / Working Group Meeting

Policy Session #2: Links between changing climate, ocean and ecosystem health, and sustainability of coastal resources such as sustainable fisheries, migratory birds, and wetlands

GOMC Agency / Jurisdiction / NGO: ESIP - US EPA – Office of Research and Development, Atlantic Ecology Division

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

AED's research is designed to improve the ability of the Agency, coastal States, and Tribes to: (a) monitor and assess ecological condition of coastal ecosystems; (b) identify waters that have been damaged and diagnose causes; and (c) develop predictive models of population responses and ecological condition under varying combinations of stresses. Within this context, AED supports the overall mission of the U.S. EPA in three ways: 1. conducting scientific research, 2. providing scientific and organizational leadership, and 3. supplying technical advice to EPA Program Offices and Regions. As part of EPA, AED's mandate is mainly derived from the Clean Water Act.

As US chair of the ESIP, AED is engaged in facilitating research, monitoring, and assessment within the Gulf of Maine ecosystem – particularly for ecosystem indicators relevant to important stakeholders like fisherman, lobsterman, and recreational users of the aquatic resources either directly or indirectly threatened by climate pressures.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

ESIP/AED is engaged in (1) identifying, (2) acquiring, and (3) disseminating important environmental and ecosystem service indicator data for use in research, education, and management of natural resources for the protection and restoration of the Gulf of Maine region. This session is particularly important in relation to water quality effects of climate related pressures that link to habitat quality and the associate aquatic dependent wildlife.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

The work of ESIP, including the future ecosystem services focus of ESIP2.0 are extremely important because many of the indicators that have been, and will be, developed are sensitive to climate pressures. Support for the program manager for the ESIP is an ongoing importance. Without support the ESIP would disintegrate and the services it provides would be lost.

Desired Outcomes from Session:

During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives: provide a means to better support the ESIP program manager
- Collaboration among GOMC initiatives: better coordination among the CN and ESIP would enhance both missions
- Collaboration between GOMC and non-GOMC organizations: only to the extent that the bi-national character of the GOMC is not diminished
- Expand sharing of information or tools via webinars or training sessions: ESIP is always looking for venues to engage both the educated public and environmental managers at the state and provincial levels

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

U.S. Department of the Interior

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring	x	3.1 Understanding How People Use the Gulf of Maine	x
1.2 Habitat Restoration	x	2.2 Environmental Indicators and Reporting	x	3.2 Community Stewardship	x
Outcome	x				
1.3 Habitat Conservation		2.3 Climate Adaptation			

1. Describe your organization's mandate, legislation or key policies on this issue?

DOI and its main Bureaus in the Northeast (**BOEM, NPS, USFWS, and USGS**) have mandates (A) to protect and conserve natural resources (land, species, water) and cultural resources, (B) to map, characterize and assess the land, water, mineral and energy resources of the Nation – terrestrial and marine, (C) to lease land both terrestrial and submerged for wise exploration and extraction of resources, and (D) to provide warning for hazards associated with earthquakes, landslides, volcanic eruptions, coastal erosion and vector-borne diseases.

Extreme heat, extreme precipitation and inland flooding are forecast to severely change strategic habitats for trust species. Projected needs for protected species such as piping plover must be balanced with current human use. **Environmental Health** is threatened by expansion of vector borne diseases such as Avian Bird Flu, Lyme Disease, and Zika Virus under conditions of increased precipitation and fewer days below freezing. **Geologic Hazards** will cause increased damage as sea levels continue to rise and barrier/buffer areas shrink during times of flooding and inundation.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

A. **Provide tools** which document historic trends for shoreline change, estuarine and riverine habitat shifts, pathways for invasive species, nutrient movement, and so on using Landsat imagery (change in impervious surface, change in forest and agriculture cover), high-resolution elevation data, models for coastal inundation and sediment transport, surface and groundwater chemistry, and many more long term monitoring programs.

B. **Map geologic settings** and identify distribution of probability of standing pools of water where mosquitoes breed. Monitor distribution of cases of vector-borne disease.

C. **Improve geologic characterization of the seafloor** in the Gulf of Maine and model impacts of marine geohazards (submarine landslides, earthquakes and melting gas hydrates) on nearshore and coastal habitats, installations, transportation infrastructure and communities under projected sea level rise scenarios.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

#1: Improved observation of conditions immediately before and after long-duration storms. Focus on sediment transport, fate of contaminants, impacts of fresh water influx on saltwater environments (and vice versa).

#2: Understanding how to establish common practices and standards for pre and post-storm data collection using Unmanned Aerial Systems and Structure from Motion technology to generate high-resolution point clouds and monitor change in vegetated terrains.

#3 Identify priority areas for high-resolution geologic characterization of the ocean floor.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting **Theme: Climate Change and Extreme Weather Events**		
Policy Sessions 1 and 2		
GOMC Agency / Jurisdiction / NGO: NOAA Climate		
Links to 2012-2017 Action Plan Goals and Outcomes *Place 'x' next to all GOMC outcomes related to issue*		
Goal 1: Restored & Conserved Habitats	**Goal 2: Environmental & Human Health**	**Goal 3: Sustainable Communities**
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

NOAA's GOALS:
Climate Adaptation: An informed society anticipating and responding to climate and its impacts
Weather Ready Nation: Society is prepared for and responds to weather-related events
Healthy Oceans: Marine fisheries, habitats, and biodiversity sustained within healthy and productive ecosystems
Resilient Coastal Communities and Economies: Coastal and Great Lakes communities that are environmentally and economically sustainable

On the climate side, we respond to several key policy drivers as it pertains to climate and our partnership w Atlantic Canada:
- US President's Climate Action Plan
- US President's Executive Order on Preparing the Nation for a Changing Climate- incl data and tools
- World Meteorological Organization's Global Framework for Climate Change
- North American Climate Services Partnership- U.S, Canada, and Mexico- GOMC Climate Network is a specific activity under this effort
- Environment and Climate Change Canada/NOAA MOU- GOMC Climate Network is a specific activity under this agreement

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

NOAA has many programs across our 'line office' structure dealing w climate variability and change:

- Office of Oceanic and Atmospheric Research- Extramural funding opportunities (http://cpo.noaa.gov/GrantsandProjects/ClimateProgramOfficeFFO.aspx), Climate Resilience Toolkit (http://toolkit.climate.gov/), Regional Integrated Sciences and Applications (RISA) (coastal, climate, green infrastructure, and health themes in urban environments), National Integrated Drought Information System (https://www.drought.gov/drought/)
- Weather Service- Operational forecasting, long-term daily monitoring information, issue-based decision-support, river forecast centers for flood forecasting
- Ocean Service- Integrated Ocean Observing Systems (ocean data), Office of Coastal Management (regional services for coastal managers dealing w green infrastructure, sea-level rise, coastal inundation)

- Satellite Service- Coast Watch (ocean and coastal data portal, http://coastwatch.noaa.gov/), Climate at a Glance (https://www.ncdc.noaa.gov/cag/) for station data, and NOAA Regional Climate Services Directors (https://www.ncdc.noaa.gov/rcsd)

Specific projects of interest to GOM:

- Gulf of Maine Quarterly Outlook reports: https://www.drought.gov/drought/nidis/region/northeast-regional-climate-center
- Gulf of Maine Climate Information Dashboard: http://gulfofmaine.org/dashboard/
- Fisheries and climate information Dashboard: under development
- Precipitation Frequency calculations: precip.net, NOAA Atlas-14 Volume 10 (http://www.nws.noaa.gov/oh/hdsc/currentpf.htm)
- National Integrated Heat Health Information System: http://cpo.noaa.gov/AboutCPO/IntegratedInformationSystems/NIHHIS.aspx

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Capacity

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: NOAA

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring		3.1 Understanding How People Use the Gulf of Maine	
1.2 Habitat Restoration Outcome		2.2 Environmental Indicators and Reporting		3.2 Community Stewardship	
1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

NOAA's GOALS:

Climate Adaptation: An informed society anticipating and responding to climate and its impacts
Weather Ready Nation: Society is prepared for and responds to weather-related events
Healthy Oceans: Marine fisheries, habitats, and biodiversity sustained within healthy and productive ecosystems
Resilient Coastal Communities and Economies: Coastal and Great Lakes communities that are environmentally and economically sustainable

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Active topics related to coastal resiliency:

Communities (e.g. Regional Coastal Resilience Grants, coastal economies, training and technical assistance, and risk communication)
Living Shorelines (e.g. cold climate interviews with living shorelines experts, strategies)
Green Infrastructure (e.g. training, methods, decision making tools)
Marsh Migration (e.g. monitoring, research)
Sediment Management (e.g. data, modeling, applied science, tools)
Inland Flooding (e.g. monitoring, and predicting)
Coastal Flooding (including storm surge) (e.g. monitoring and predicting)
Modeling long term weather predictions to support projects and planning (e.g. will there be a period of drought six months from now?)

Visualization tools to note: Coastal Flood Exposure Mapper, Sea Level Rise Viewer

Trainings to note: Climate Adaptation for Coastal Communities, Coastal Inundation Mapping, and Green Infrastructure.

For information on how climate changes will affect Marine Resources:
Information on Trainings, Tools, and Information on Climate Adaptation
Information on Trainings, Tools and Information on Green Infrastructure
Information on Trainings, Tools and Information on Coastal Land Cover

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Assessing social and economic values of ecosystem services, and incorporating them in decision frameworks given future climate scenarios

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
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GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: NOAA

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring		3.1 Understanding How People Use the Gulf of Maine	
1.2 Habitat Restoration Outcome		2.2 Environmental Indicators and Reporting		3.2 Community Stewardship	
1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

NOAA's GOALS:
Climate Adaptation: An informed society anticipating and responding to climate and its impacts
Healthy Oceans: Marine fisheries, habitats, and biodiversity sustained within healthy and productive ecosystems
Resilient Coastal Communities and Economies: Coastal and Great Lakes communities that are environmentally and economically sustainable

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Active topics related to coastal resources:
Living Shorelines (e.g. cold climate interviews with living shorelines experts)
Green Infrastructure (e.g. training in New England in next 12 months, methods, decision making tools)
Ocean Acidification (e.g. monitoring, research)
Marsh Migration and Accretion (e.g. high resolution tidal wetlands mapping, marsh migration modeling, habitat conservation/restoration prioritization, applied science, and Coastal Change Analysis)
Climate impacts on fisheries (e.g. research, vulnerability assessments)
Habitat restoration (e.g. tide gate management and planning, riparian corridors)

For information on how climate changes will affect coastal resources:
Climate and Fisheries
NOAA Ocean Acidification Program
Information on Trainings, Tools, and Information on Climate Adaptation
Information on Trainings, Tools and Information on Green Infrastructure
Information on Trainings, Tools and Information on Coastal Land Cover
Information on Trainings, Tools and Information on Water Quality

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Baseline data for benthic habitats and coastal hydrodynamics

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
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GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: NH Department of Environmental Services Coastal Program

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
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1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?
SB452
Title: requiring certain state agencies to conduct an audit of laws governing coastal regions to enable authorities to take appropriate actions

SB374
Title: requiring DES to update coastal flooding trends.

2016-2021 Section 309 Assessment and Strategy - Identifies key research needs, management priorities and strategies to improve coastal zone management.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

SB452: We received funding (NOAA) to conduct the audit required and will be coordinating with other state agencies.

We are working with municipalities to conduct planning level vulnerability assessments (10 communities) and seeking funding for implementation of adaptation and mitigation measures where planning level vulnerability assessments have occurred (7 Atlantic coast communities).

Continued development of Coastal Viewer and new state specific landing page for coastal resilience.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Time, funding for site specific vulnerability assessments. Further understanding of saltwater intrusion/groundwater level change.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: NH Department of Environmental Services Coastal Program

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
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Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

SB375 **Focus on Coastal and Ocean Acidification**
Title: establishing the coastal marine natural resources and environment commission.

2016-2021 Section 309 Assessment and Strategy -Identifies key research needs, management priorities and strategies to improve coastal zone management

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Shoreline Management: Develop shoreline structure rating system, interview staff and review past permit applications to determine motivations and locations of shoreline protection structure permits, provide support for a White Paper analysis of barriers and opportunities for living shorelines implementation in NH, and research desktop methods for identifying candidate sites for living shoreline projects. Convene an Adaptive Management Committee to evaluate living shoreline projects.

Tidal Crossing Assessment Protocol: Develop Final Tidal Crossing Assessment Protocol and associated documentation to include, but not limited to: datasheets and protocol instructions.

Coastal and Ocean Acidification: We will provide staff support for the SB375 Commission when formed. Coastal and Ocean Acidification will be a focus.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: Maine Department of Agriculture, Conservation and Forestry

Links to 2012-2017 Action Plan Goals and Outcomes

Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
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1. Describe your organization's mandate, legislation or key policies on this issue?

Coastal Zone Management Act – federal – addresses state's role in addressing coastal hazards
Maine Coastal Policies Act – reduce development in harm's way.
Natural Resources Protection Act (administered by ME DEP) - must plan for SLR and future shoreline position in sand dune systems, no new seawalls in sand dune area, standards on bluff setbacks.
Transportation infrastructure guidance – ME DOT

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

- Provide scaled down data on sea level rise and storm surge under different scenarios – includes analysis of infrastructure and advice on adaptation methods. Worked with more than 25 communities to date.
- Created bluff stability maps
- Provide outreach and education
- Current project looking at adaptation needs at coastal state parks and historic sites
- Current project looking at alternative methods of bluff stabilization
- Working with NERACOOS and MA, NH, RI, CT on regional project to increase use of living shorelines. Analysis of where suitable, regulatory challenges, guidance, outreach, etc.
- New project to look at vulnerability of working waterfront infrastructure

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

- We lack significant staffing to assist interested municipalities with vulnerability assessments and development of adaptation strategies.
- We lack funding for construction and monitoring of living shoreline stabilization pilot projects
- A challenge is to go beyond bathtub models of potential vulnerability – need wave models
- Need water penetrating LiDAR
- Regulatory barriers to soft shoreline protection are problematic – need streamlined process
- Opportunities to make infrastructure more resilient are often not able to be prioritized in the queue of infrastructure needs addressed by MDOT.
- Need more nearshore buoys to understand local conditions.
- Cost/benefit analysis to analyze adaptation alternatives is expensive.
- Region has significantly less vulnerability than Mid and South Atlantic states and receives less FEMA funding.

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: Maine Coastal Program/Maine Department of Agriculture, Conservation and Forestry

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
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1.3 Habitat Conservation		2.3 Climate Adaptation			

1. Describe your organization's mandate, legislation or key policies on this issue?
Coastal Zone Management Act
Maine Coastal Policies Act
Natural Resources Protection Act (ME DEP)

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

NOTE: This list includes the work of other Maine agencies, beyond DACF. All are efforts that include MCP/DACF

- Completed analysis of marsh migration. Establishing network of sediment elevation tables to look at accretion rates. Worked with 5 towns to address marsh migration in comp plans, ordinances. Land trusts currently using to look at conservation of adjacent buffers, uplands.
- Mapped culvert, bridge and dam barriers to fish migration, established Habitat Viewer to help towns and others prioritize restoration opportunities.
- Funded experiments with trapping and netting of green crabs.
- Funding research on ability of eelgrass and polyculture to address localized ocean acidification, serve on OA Commission.
- Mapping sand deposits for potential use in beach nourishment
- ME IFW – significant regional mapping of birds
- Nearshore and offshore bathymetric mapping
- Update of oil spill maps (habitat)

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

- Increasingly limited funds for habitat restoration
- Large number of communities that are dependent on the lobster fishery
- Ability to make an impact given magnitude and nature of issues.
- Rapid observed changes – e.g. eelgrass die-off, presence of new species, invasives, temperature, etc. with many, many poorly understood variables

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature, and storm surge)

GOMC Agency / Jurisdiction / NGO: Massachusetts Office of Coastal Zone Management

Links to 2012-2017 Action Plan Goals and Outcomes

Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
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Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

The Global Warming Solutions Act (GWSA), signed in August of 2008, created a framework for reducing greenhouse gas emissions to levels that will avoid the worst effects of global warming. It mandates all sectors of the economy to reach a target of a 25% reduction of Greenhouse Gas (GHG) emissions by 2020 and an 80% reduction by 2050. Under this legislation an advisory committee was convened to develop a report, analyzing strategies for adapting to predicted climate change, and developing a set of policy recommendations to meet these targets..

The Massachusetts Clean Energy Center (MassCEC) is a publicly-funded agency dedicated to increase the success of clean energy technologies and innovations while creating high-quality jobs and long-term economic growth. Since established by legislature in 2009 MassCEC receives funding from the Renewable Energy Trust Fund and works closely with communities and industries to increase the statewide adoption of renewable energy, while driving down the costs of renewable energy and delivering financial and environmental benefits to taxpayers.

The MA Ocean Management Plan was developed under the MA Oceans Act of 2008 to protect critical marine habitat and important water-dependent uses and sets standards for new ocean-based development. Both the 2009 plan and the revised 2015 ocean plan where built under the tenet of climate change and its potential impacts on the coastal and marine environment including human uses. The 2015 ocean plan laid the groundwork for characterization of offshore sand for use in beach nourishment, characterization of potential wind energy transmission corridors, and monitoring impacts of climate change.

The CZM StormSmart Coasts program provides information, strategies, and tools to help communities and people working and living on the coast to address the challenges of erosion, flooding, storms, sea level rise, and other climate change impacts. The program also promotes effective management of coastal landforms, such as beaches and dunes.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

The StormSmart Coasts has set up several initiatives including tools to help local communities and home owners, to reduce erosion and storm damage and improve erosion and floodplain management. One initiative is the Coastal Resilience Grant Program funds municipalities and nonprofit organizations to advance innovative local efforts to address coastal flooding, erosion, and sea level rise impacts through communication and public outreach initiatives, vulnerability assessments, planning activities, engineering projects, and natural storm damage protection.

Shoreline Change Project - To help make informed decisions, coastal managers, shorefront landowners, and potential property buyers need information on shoreline trends, including erosion and accretion rates. The goal of the CZM Shoreline Change Project is to develop and distribute scientific data that will support local land-use decisions. The project was updated in 2013, through continued collaboration with USGS. The project included adding a new contemporary shoreline (2007-2009), a 2000 shoreline derived by USGS as well as a 2001 shoreline for the south shore. Statistical analysis was conducted at over 26,000 shore perpendicular transects, which produced short- and long-term (30- and 150-year) shoreline change rates and uncertainty values.

Dam and seawall repair or removal program - Massachusetts faces a growing need for the repair of dams, coastal flood control and protection structures, and inland flood control structures. In some cases, public safety and key economic centers are at risk due to deteriorating infrastructure. In other instances, the structures no longer serve their purpose and removal provides the opportunity to restore ecological systems. Legislature enable the MA Executive Office of Energy and Environmental Affairs (EEA) to contract with qualified organizations to implement projects for the repair and removal of dams, levees, seawalls, and other forms of flood control. The Dam and Seawall Repair or Removal Fund was established in 2013 by the MA Legislature to promote public health, public safety, and ecological restoration. With over $37 million now under management, twenty five projects are currently underway with eight additional projects completed.

Massachusetts Climate Change Adaptation Report (2011): This report is the first broad overview of climate change impacts in Massachusetts and includes a coastal zone chapter on vulnerabilities and potential adaptation strategies to address sea level rise and coastal storm impacts. A wide range of issues and strategies are presented in three categories within the coastal zone: residential and commercial development, ports, and infrastructure; coastal engineering structures; and, coastal, estuarine, and marine resources and ecosystem services

Coastal Inundation Report (draft): CZM is evaluating critical infrastructure along the Massachusetts coast that would be inundated under various static sea level rise and “worst case” hurricane surge scenarios. Inundation levels are measured in feet and calculated for all facilities to allow direct comparisons between SLR and hurricane storm surge. The maps and tables are designed to be used as a planning tool for coastal managers, planners, decision-makers, and technical users charged with managing the Commonwealth's coastal resources.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

The reports highlight the challenges and barriers that exist in reaching the goals of the GWSA and other policies and initiatives. More capacity is needed to help communities address their needs against rising costs. There is need for more sustained funding to be able to plan ahead and incorporate climate change considerations into all projects.

Desired Outcomes from Session:
During the session, we will work together to identify opportunities for GOMC to help address challenges, gaps and unmet needs associated with this issue. Potential outcomes include:

- Expand existing GOMC initiatives
- Develop new GOMC initiatives
- Collaboration among two or more GOMC members
- Collaboration between GOMC and non-GOMC organizations
- Expand sharing of information or tools via webinars or training sessions

GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #2: Links between Changing Climate, Ocean and Ecosystem Health, and Sustainability of Coastal Resources such as Sustainable Fisheries, Migratory Birds, and Wetlands

GOMC Agency / Jurisdiction / NGO: Massachusetts Office of Coastal Zone Management

Links to 2012-2017 Action Plan Goals and Outcomes

Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats	Goal 2: Environmental & Human Health	Goal 3: Sustainable Communities
Outcomes: 1.1 Water Quality Protection 1.2 Habitat Restoration Outcome 1.3 Habitat Conservation	**Outcomes:** 2.1 Environmental Monitoring 2.2 Environmental Indicators and Reporting 2.3 Climate Adaptation	**Outcomes:** 3.1 Understanding How People Use the Gulf of Maine 3.2 Community Stewardship

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

The MA Ocean Plan established under the **Oceans Act of 2008** and revised in 2015 establishes siting and performance standards for specific human uses allowed in ocean waters (cables, pipelines, sand extraction for beach nourishment, and renewable energy development) and identifies "special, sensitive, or unique life and habitats" for protection. The plan includes a prioritized list of science and data acquisition tasks necessary to advance ocean management in MA. The revised plan contains data and trends on ocean habitats and ecosystems, human uses, economics, cultural and archeological aspects, and climate change; preliminary offshore wind transmission corridor routes for further investigation; initial planning and analysis for appropriate potential locations for offshore sand areas for beach nourishment; and a fee structure and guidance for required mitigation fees for ocean development projects.

The **Massachusetts Wetlands Protection Act** describes the resources that are protected, and the specific protections that are provided. The nine "interests of the Act" include: protection of wildlife habitat, protection of fisheries, and storm damage prevention. Important resources subject to the Act include coastal dunes and beaches, land subject to coastal storm or flooding, and coastal wetland.

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Climate Change Literature Inventory - One of the directives of the Oceans Act is to track and address climate change. The MA ocean plan addresses this charge through: (1) regional efforts to monitor and report on long-term seawater temperature, pH, dissolved carbon dioxide, salinity, and sea level in which CZM is involved; and (2) periodic updating of data for species abundance and distributions to establish patterns and trends to physical drivers including water temperature and thermal and hydrodynamic fronts. CZM is conducting a literature review and compiling an inventory of the most recent findings

related to the implications of climate change on the abundance and distribution of ecologically and economically important fish, marine mammals, migratory birds, and related organisms.

Massachusetts and Cape Cod Bays Tide Gate Inventory and Assessment for Wetlands Restoration and Hazard Mitigation Project - This project resulted in an inventory of tide gates within Massachusetts and Cape Cod Bays. Poorly managed, mismanaged, and abandoned tide gates adversely affect coastal ecosystems' ability to buffer coastal infrastructure and development from sea level rise and storm surge impacts. The project brings CZM, the Massachusetts Bays National Estuary Program, and other state agency partners together with local infrastructure managers and other stakeholders to gain on-the-ground knowledge of these legacy structures to initiate, inform, and prioritize management for ecological benefit and hazard mitigation in the face of sea level rise projections, ongoing floodplain encroachment, and aging infrastructure.

Estuarine Wetlands and Sea Level Rise: Identifying At-Risk Resources and Supporting Climate Change Adaptation Responses -The data and information generated will result in more accurate and informed forecasting of coastal wetland changes—including areas of forecasted loss, areas where marsh migration (transgression) may be supported, and areas that are predicted to undergo changes in wetland types—which will be communicated to managers, decision-makers, and others.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Development of climate change adaptation strategies for wetlands - There is a need to develop adaptation strategies for climate change impacts and examine management techniques that can be used to protect, restore, and help wetlands adapt. Old and new techniques are being proposed and their feasibility, including likelihood for success, time horizon, cost benefit, and impacts need to be carefully examined and understood

Monitoring wetlands to detect impacts from climate change and other stressors - Long term data on wetlands and the species which depend on them is vital in order to track and analyze current and future threats and stressors. Efforts will include monitoring for species sensitive to climatic changes, developing a long-term dataset to assess trends and impacts.

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GOMC June 2016 Council / Working Group Meeting
Theme: Climate Change and Extreme Weather Events

Policy Session #1: Coastal Resiliency / Vulnerability of Coastal Infrastructure to More Frequent Extreme Weather Events (drivers include precipitation, temperature and storm surge)

GOMC Agency / Jurisdiction / NGO: NERACOOS

Links to 2012-2017 Action Plan Goals and Outcomes
Place 'x' next to all GOMC outcomes related to issue

Goal 1: Restored & Conserved Habitats		Goal 2: Environmental & Human Health		Goal 3: Sustainable Communities	
Outcomes:		**Outcomes:**		**Outcomes:**	
1.1 Water Quality Protection		2.1 Environmental Monitoring		3.1 Understanding How People Use the Gulf of Maine	
1.2 Habitat Restoration Outcome		2.2 Environmental Indicators and Reporting		3.2 Community Stewardship	
1.3 Habitat Conservation		2.3 Climate Adaptation			

Please provide very brief answers to the following questions in preparation for a high level discussion at the June 2016 Council / Working Group meeting. Council and / or Working Group members will be asked to provide an overview of this information at the meeting.

1. Describe your organization's mandate, legislation or key policies on this issue?

The Integrated Coastal and Ocean Observation System Act of 2009

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Working with NROC on a NOAA OCM funded Regional Resiliency project to improve flooding forecasts and risk assessment for coastal communities and develop green infrastructure or living shorelines (http://www.neracoos.org/regionalresiliency).

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Project just getting started and funding only for two years.

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GOMC Agency / Jurisdiction / NGO: NERACOOS

Links to 2012-2017 Action Plan Goals and Outcomes
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The Integrated Coastal and Ocean Observation System Act of 2009

2. What are the top two or three actions your organization is taking to address this issue (programs / plans)? Please be sure to include activities that might be particularly relevant or transferable in the transboundary Gulf of Maine watershed.

Developing the Integrated Sentinel Monitoring Network for Change in the Northeast U.S. Ocean and Coastal Ecosystems with NROC (http://www.neracoos.org/sentinelmonitoring). Also includes Canadian waters and ESIP is a partner.

3. What are the most significant challenges, gaps, or unmet needs associated with your efforts to address this issue?

Funding to establish the network.

Desired Outcomes from Session:
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Gulf of Maine Council on the Marine Environment
Meeting Briefing Note

Title of Agenda Item: GOMC Plans for the 2016 - 2018 Secretariat

Submitted by: Peter McLaughlin, Incoming Working Group Chair, NB; and Joan LeBlanc, Council Coordinator

Type of Item (place X in appropriate box)	**For Decision**		**For Direction**	x	**For Information** (internal GOMC)	x	**For Information** (External)	

Background (required):

At the end of the June 2016 GOMC meeting, New Brunswick will take on jurisdictional leadership for the 2016 – 2018 Secretariat. New Brunswick will explore the possibility of collaborating with a supporting Canadian federal agency during their Secretariat. During the New Brunswick two-year secretariat, GOMC will continue to operate according the streamlined framework approved in 2015. Meeting plans for the coming year include:

- The next in-person joint Council / Working Group meeting will take place during June 2017 in the United States. Specific location to be determined.
- In December 2016, GOMC Council and Working Group will have a mid-year virtual meeting to check-in on progress in achieving Work Plans.
- With continued support from the Maine Coastal Program, the next GOMC Awards program will take place again in June 2017.
- Working Group will meet a maximum of four times (up to 2 in-person and 2 conference call meetings). If a mid-year in-person meeting is held specific location is to be determined.
- Secretariat Team will continue to meet regularly via conference call. Calls will take place monthly when needed.
- Meeting plans for 2017-2018 have not yet been developed.

GOMC will continue to operate with two-year Work Plans following the existing schedule. The current GOMC Work Plan covers 2015 – 2017. The work plan cycle will alternate with the Secretariat leadership cycle allowing the incoming Secretariat ample opportunity to provide leadership for development of the next work plan.

Possible Activities / Next Steps (optional)**:**
GOMC Council and Working Group members discuss meeting plans for the upcoming NB Secretariat.

Actions, Outcomes or Decisions Requested (optional)**:**
Council members are asked to provide feedback regarding the proposed plans for the upcoming year.

Supporting Documentation (If applicable, list additional documents included in the Briefing Book following this Briefing Note):
n/a