Gulf of Maine 2050 International Symposium

November 4-8, 2019 | Portland, ME

Challenges and Opportunities for Regional Resilience

NROC MEETING
DECEMBER 16, 2019

Key Takeaways
GOM 2050 International Symposium

Joan LeBlanc

GOMC and NROC Coordinator / GOM 2050 Steering Committee

Gulf of Maine 2050 International Symposium

November 4-8, 2019 | Portland, ME

Challenges and Opportunities for Regional Resilience

Who?

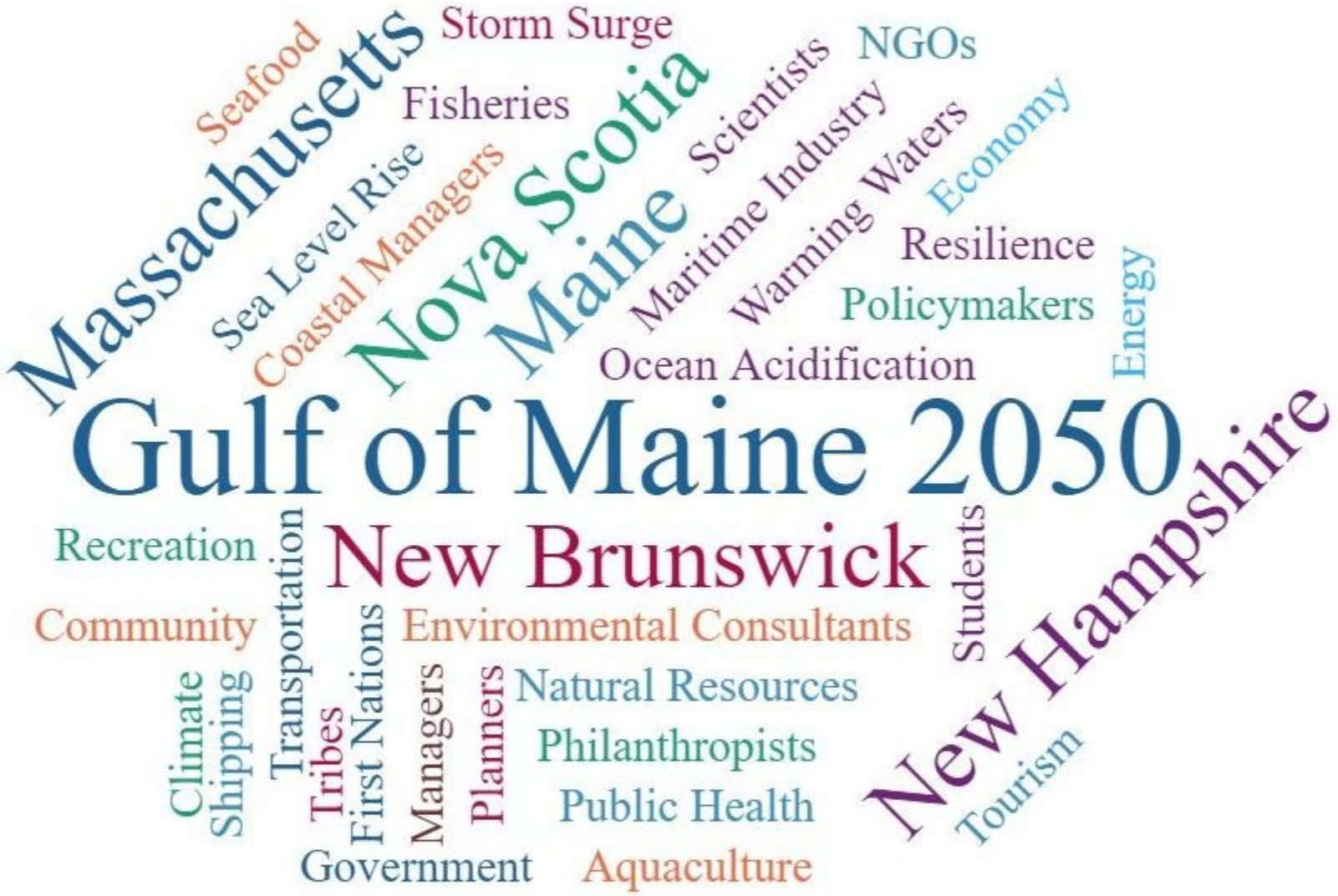
Leaders from New England and Maritime Provinces

What?

Explore environmental, economic, social and institutional perspectives on climate resilience in the Gulf of Maine

Why?

- Learn how key drivers will impact Gulf of Maine over next 30 years
- Identify priorities for regional resilience


Gulf of Maine 2050
Massachusetts
Nova Scotia
Maine
New Brunswick
New Hampshire
Storm Surge
Seafood
Fisheries
Sea Level Rise
Coastal Managers
Scientists
NGOs
Maritime Industry
Warming Waters
Economy
Resilience
Policymakers
Energy
Ocean Acidification
Recreation
Community
Transportation
Tribes
First Nations
Managers
Planners
Environmental Consultants
Natural Resources
Philanthropists
Public Health
Aquaculture
Government
Climate
Shipping
Students
Tourism

Special Thanks to our Sponsors and Partners

Gulf of Maine 2050 Hosts

Gulf of Maine Research Institute
Science. Education. Community.

Gulf of Maine Council on the Marine Environment
Canada and the United States working together for a healthy environment

HUNTSMAN Marine Science Centre

Ocean Futurist

Maine Marine Resources

Maine Coastal Program

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Canada

Union of Concerned Scientists
Science for a Healthy Planet and Safer World

The Curtis & Edith Munson Foundation

Avangrid Foundation
Central Maine Power

EPA United States Environmental Protection Agency

TD Bank
America's Most Convenient Bank®

NSERC CRSNG

New Nouveau Brunswick Canada

Leadership in Action

Woodard & Curran

The Nature Conservancy
Protecting nature. Preserving life.

UNB Est. 1785

wex

Gulf of Maine Research Institute
Science. Education. Community.

NERACOOS
Northeastern Regional Association of Coastal Ocean Observing Systems

Special Thanks to our Sponsors and Partners

Many Voices Scholarships

Generations Fund of the Maine Community Foundation

DAVID ROCKEFELLER FUND

Union of Concerned Scientists
Science for a Healthy Planet and Safer World

The Curtis & Edith Munson Foundation

Poster Session

UNE UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

USGS science for a changing world

1865 THE UNIVERSITY OF MAINE
School of MARINE SCIENCES

Sea Grant Maine

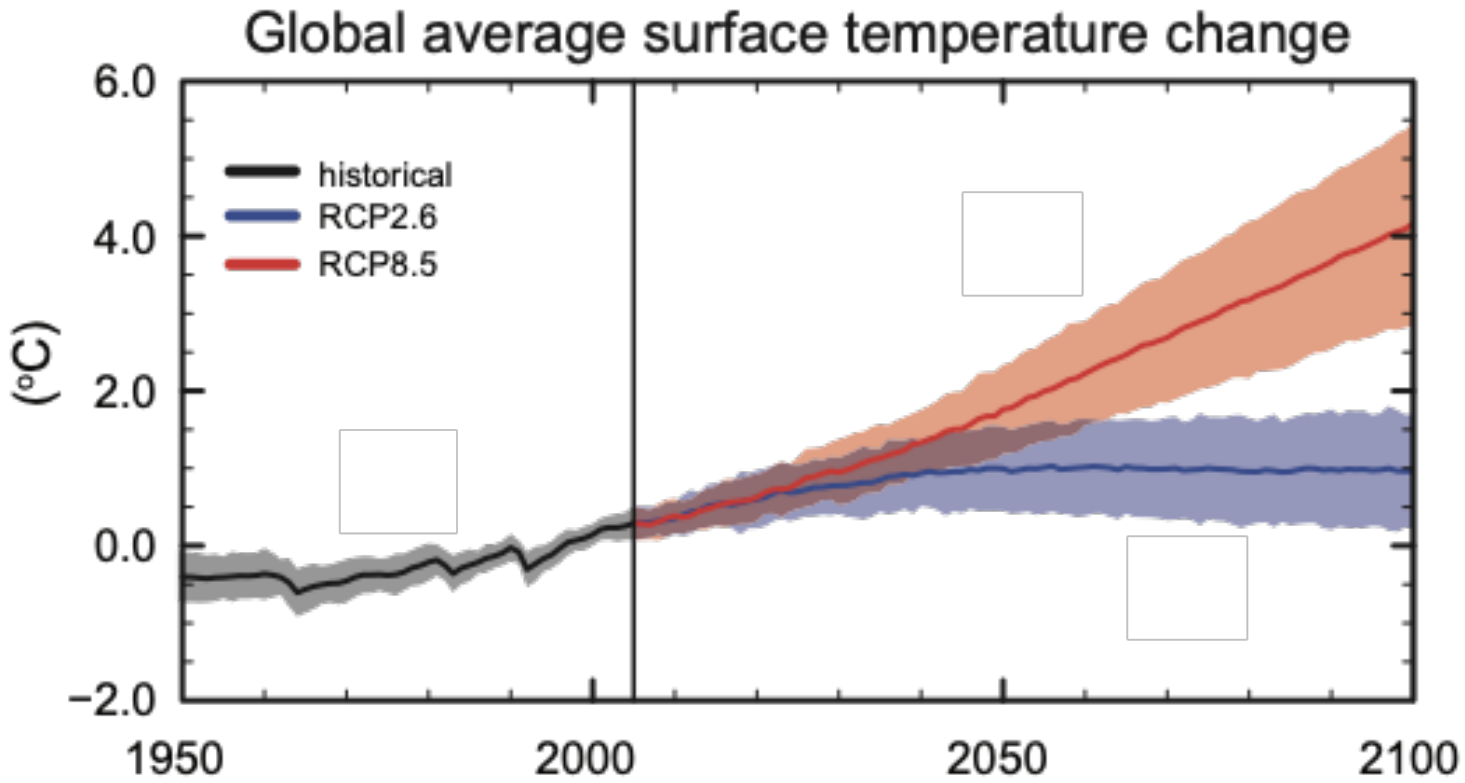
Organizational Partners

Special thanks to the following organizations for providing in-kind support to help plan and coordinate Gulf of Maine 2050.

- Bay of Fundy Ecosystem Partnership
- Fisheries and Oceans Canada
- Gulf of Maine Council on the Marine Environment
- Gulf of Maine Research Institute
- Huntsman Marine Science Centre
- Maine Department of Marine Resources / Maine Coastal Program
- Massachusetts Office of Coastal Zone Management
- MIT Sea Grant
- National Oceanic and Atmospheric Administration
- New Brunswick Department of Environment and Local Government
- New Hampshire Coastal Program / New Hampshire Department of Environmental Services
- Northeastern Regional Association of Coastal and Ocean Observation Systems
- Nova Scotia Department of Intergovernmental Affairs
- Regional Association for Research on the Gulf of Maine
- US Environmental Protection Agency

Gulf of Maine 2050 International Symposium

Why 2050?



Source: IPCC

Gulf of Maine 2050 International Symposium

Highlights from GOM 2050

- **Over 320 leaders from across US / Canada**
- **Keynote speakers**
- **Scientific scenario papers**
- **Poster sessions**
- **Scientific presentations**
- **Panels, lightning talks, and working sessions**
- **Collaborative action grants**

Gulf of Maine 2050 International Symposium

Focus of Presentation

➡ Research, Management, Policy and Communications Priorities

- **Cross-cutting**
- **Driver specific**
  1. **Sea level rise, storm surge, precipitation**
  2. **Coastal and Ocean Acidification**
  3. **Warming Waters**

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Expand Collaboration

- Knowledge, tools, resources and strategies
- Bi-nationally (US / CA), across jurisdictions, between state and federal government, among local communities
- Across multiple sectors
  - Science, industry, academia, government, NGOs, the public
- Look beyond our continent

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Improve Communications, Awareness and Education

- Bridge the gap between science, management and public information
- Convey 'stories' about regional communities and priorities
- Share case studies and models of success
    - Adaptation and mitigation examples
    - Innovative research techniques
    - Local and regional policy actions

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Improve Communications, Awareness and Education

- Use creative strategies to increase awareness
  - Increase role of scientists in communicating their work
  - Engage meteorologists in climate change communications
- Improve K-12 Education
  - Climate change
  - General earth science

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Research Priorities

- Research impacts out to 2100 to reflect more drastic changes after 2050
- Combined impact of all three major drivers on multiple sectors
    - Communities
    - Ecosystems
    - Economy (needed to inform cost / benefit analysis)

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Policy and Management Priorities

- Promote social / environmental justice
  - Vulnerable communities face significant negative impacts
- Integrate climate policies into all levels of government policy
- Create 'adaptive' policies and management strategies
  - Changing ecosystems

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Policy and Management Priorities

- Improve link between science and management / policy decisions
  - Use most recent IPCC research, forecasting and knowledge
  - Improve 'real time' data and reporting tools to inform adaptive management strategies
- Come to terms with the importance of making good policy and management decisions despite UNCERTAINTY associated with climate change

Gulf of Maine 2050 International Symposium

Cross-Cutting Priorities

SLR, Ocean Acidification, Warming Waters

➡ Policy and Management Priorities

- Increase knowledge and expertise in conflict management
- Promote cross-generational planning and management
  - Engage young people in policy and management
  - Extend the planning horizon out to 2100
  - Plan for 'grandchildren not grandfathers'

Gulf of Maine 2050 International Symposium

Sea Level Rise, Storm Surge and Precipitation Priorities

➡ Key piece of advice

- Make sure we're all talking about the same thing

Total Water Impact = combined impacts of sea level rise, storm surge, rainstorms, and groundwater

Gulf of Maine 2050 International Symposium

Sea Level Rise, Storm Surge and Precipitation Priorities

➡ Troubling reality check:

- Despite everything we know about coastal damage from SLR and storm surge…

We are still building too close to the shoreline!

- Major planning and policy changes are needed to shift this trajectory

Gulf of Maine 2050 International Symposium

Sea Level Rise, Storm Surge and Precipitation Priorities

➡ Research Priorities

- Expand use of existing tools
  - IPCC data and reports
  - LIDAR data
  - SLR viewers
- Improve existing tools
  - Example: Integrate waves & sediment into SLR models
- Develop new tools
  - Example: Tools to measure success of coastal resilience strategies

Gulf of Maine 2050 International Symposium

Sea Level Rise, Storm Surge and Precipitation Priorities

➡ Expanding local action is critical

- Communities can move forward despite state / federal political shifts
- Highlight and share successful case studies, model ordinances, building codes
- Significant funding is needed to promote resilient communities and infrastructure
  - Maritime
  - Ecosystem services
  - Transportation
  - Disaster management
  - Protecting vulnerable communities

Gulf of Maine 2050 International Symposium

Coastal and Ocean Acidification Priorities

➡ Research Priorities

- Increase understanding of ocean and coastal acidification
  - Environmental conditions in the region
  - Ecological, social and economic impacts
  - Interaction of variables and stressors on life stages of key species
- Funds to support current and additional monitoring and reporting

Gulf of Maine 2050 International Symposium

Coastal and Ocean Acidification Priorities

➡ Communications, Policy and Management Priorities

- Expand activism and communications to increase awareness about OCA
- Implement strategies to reduce atmospheric carbon
- Create 'nimble' management policies that adapt to shifting environmental conditions

Gulf of Maine 2050 International Symposium

Warming Waters Priorities

➡ Research Priorities

- Real-time data, especially for bottom temperatures
- How warming waters impact ecosystems
  - Species distribution
  - Interconnections among shifting species
- Relationship between warming waters and wider oceanographic processes
- Increase sharing of data, tools, research gear and equipment

Gulf of Maine 2050 International Symposium

Warming Waters Priorities

➡ Communications, Policy and Management Priorities

- Link policies to most recent climate information
- Develop systems for transboundary (US / Canada) efforts to protect key species that cross boundaries
  - Birds, whales, fish, etc…

Gulf of Maine 2050 International Symposium

GOM 2050 Next Steps

➡ Anticipated Products / Reports

- Publication of scientific papers
- GOM 2050 proceedings
- More detailed set of priority recommendations from Working Sessions
- Additional resources (presentations) posted online
- Public outreach materials

Abstracts, program details, scientific scenario papers, collaborative action grant details and more: www.gulfofmaine2050.org

Gulf of Maine 2050 International Symposium

Thank you!

Questions / Discussion

For discussion:

➡ ***How can NROC support key priorities?***

www.gulfofmaine2050.org