# FACING CHANGE

## Sustaining the Vitality of the Gulf of Maine Region


Gulf of Maine Council
on the Marine Environment
Celebrating 25 years of action
for a healthy environment

> “To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years… is to have knowledge of things that are as nearly eternal as any earthly life can be.”

RACHEL CARSON, THE EDGE OF THE SEA (1955)

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We envision a healthy and resilient Gulf of Maine where people and aquatic life thrive.

GULF OF MAINE COUNCIL ON THE MARINE ENVIRONMENT
ACTION PLAN 2012–2017

The Gulf of Maine Council on the Marine Environment, created in 1989 by the governments of Maine, Massachusetts, New Brunswick, New Hampshire and Nova Scotia, works to foster environmental health and community well-being throughout the Gulf watershed. This binational partnership of governmental and nongovernmental representatives helps create a more sustainable future by:

- sponsoring innovative projects,
- coordinating environmental monitoring, and
- educating people about critical regional issues.

Volunteer and funding support from many partners makes the Council's work possible.

**www.gulfofmaine.org**

# A Wildly Productive Ecosystem

The Gulf of Maine is a unique sea within a sea, one of the world's most dynamic and productive marine ecosystems. Cold ocean waters nourish curving shores, deep basins and shallow banks that were crafted by glaciers. The Bay of Fundy within the Gulf has the world's highest tides, spanning 55 feet (17 meters). Powerful tides mix the inflow of North Atlantic waters with fresh surface waters from 60 rivers.

Saint John, New Brunswick

BAY OF FUNDY

Yarmouth, Nova Scotia

Portland, Maine

Portsmouth, New Hampshire

GULF OF MAINE

Boston, Massachusetts

GEORGES BANK


Jason Mrachina


Bill Lynch


Lunar Camel

Spanning 36,000 square miles (93,240 km²) of water, the Gulf represents one of the largest semi-enclosed coastal seas in North America. The Gulf of Maine Council focuses its work on the Gulf watershed, which drains a vast land area that covers much of three states and two provinces

An amazing array of marine life and birds—at least 3,300 species—depend on the Gulf. Coastal marshes and estuaries serve as nurseries for young fish, crabs, shrimp, and shellfish. Abundant microbes and plankton form the base of a food web that extends up to seals and whales.

"During my first chef job at the Shoals Marine Laboratory on Appledore Island, I fell in love with the Gulf of Maine—not just the breathtaking seascape but the whole biological system. Cutting open a 30-pound cod, I found it full of baby lobsters, stacked up all facing the same direction. You could see the community interactions in the Gulf: those became an object of fascination that I still feel. How do we connect the dots and keep that community thriving?"

SAM HAYWARD, EXECUTIVE CHEF AND CO-OWNER, FORE STREET RESTAURANT, MAINE


Lily Piel


Brent Donley


Matthew Hull


Andreas Solberg

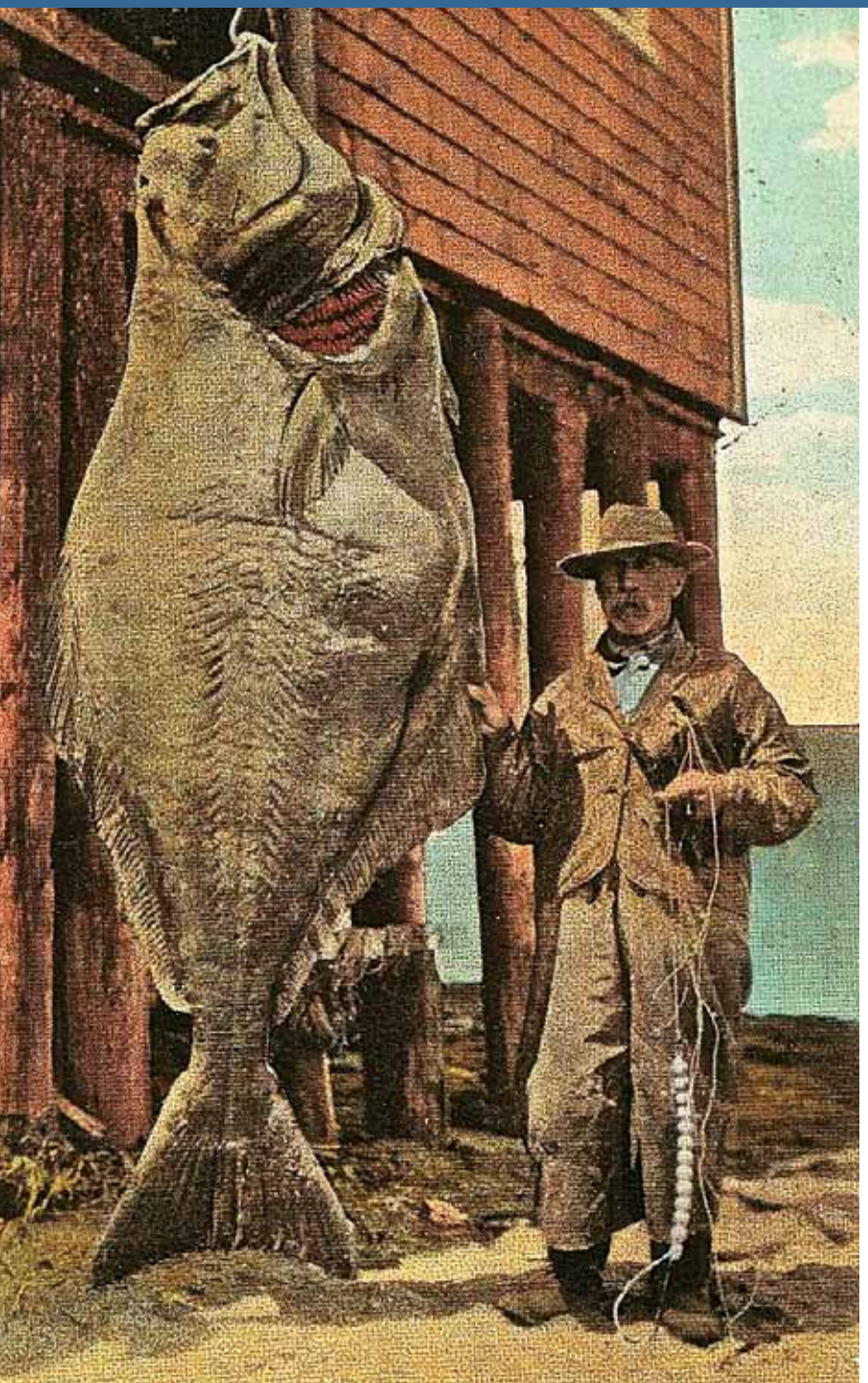

Matt LeClair


Fisheries and Oceans Canada


Joachim Muller

▲ The Gulf of Maine provides a sanctuary for a diverse array of wildlife, including migratory shorebirds and more than 30 species at risk, such as the roseate tern and critically endangered North Atlantic right whale.

# Sharing in the Bounty



The counties that rim the Gulf of Maine are home to more than 6 million people. The region's residents share a long maritime heritage, and roughly 200,000 derive their living directly from marine-related work.

The Gulf's fisheries have supported local communities for thousands of years, and remain strong economic drivers today. The total landed value of commercial fisheries across the Gulf each year is between 900 million and 1.3 billion US dollars (USD), and aquaculture generates approximately 240 million USD annually. Boatbuilding, shipping and other marine trades also strengthen local economies.

Chris Seward

> "For the fishing industry, the Gulf of Maine is our home. That's where most of our fishing is done and where we earn our living. We believe it needs to be protected from all the things that can threaten it. We need to work together to stay ever-vigilant."
>
> ANGELA SANFILIPPO, PRESIDENT, GLOUCESTER FISHERMEN'S WIVES ASSOCIATION, MASSACHUSETTS

Natural beauty and abundant wildlife enrich the lives of residents and lure visitors for bird watching, sea kayaking and other sustainable, nature-based activities, which represent a growing part of the region's major tourism industry.


WESBL


National Park Service


Lamar Gore/USFWS

> "Increasingly, people choose businesses like ours because we're doing the right thing. Education is a high priority for us so that visitors come to appreciate the value of marine ecosystems and the importance of responsible environmental practices. We feel totally obligated to be part of the solution."
>
> STACIE AND AL CROCETTI,
> HARDY BOAT CRUISES, MAINE

# Joining Forces

Patrick Hudepohl

▲ More than 2,000 dischargers release pollution directly into regional waters, alongside countless diffuse sources—from vessels, groundwater seepage, atmospheric deposition, and road, construction and farm runoff.

Centuries of economic growth and resource harvesting have transformed the Gulf of Maine ecosystem. Dams and dykes have blocked free-flowing rivers and estuaries; manufacturing has generated persistent contaminants; and boom-and-bust harvesting has decimated certain species. Many rural coastal counties gradually became suburban, with sprawling construction and roadways that fragmented wildlife habitat and polluted waters.

> The Gulf of Maine Council helps put a larger perspective on our watershed work. Their 5-year Action Plans and reports inform what we do. What's most important of all, though, is the convening of people. It's so critical having someone at the regional level getting us to talk with each other and learn from one another.
>
> KIM REEDER, EXECUTIVE DIRECTOR, ST. CROIX ESTUARY PROJECT, NEW BRUNSWICK

Seeing symptoms of ecological decline in the Gulf, and knowing that marine degradation had reached crisis levels elsewhere, scientists and policy-makers sought to take action. In 1989, the region's premiers and governors created the Gulf of Maine Council on the Marine Environment, a Canadian-American partnership that provides collaborative leadership on cross-border issues like ecological monitoring and climate.

This binational forum engages governmental and nongovernmental representatives in a comprehensive approach to management that emphasizes natural linkages over political boundaries, and integrates ecological, economic and societal goals. The Council catalyzes regional initiatives that help participating states and provinces face change, advancing their shared vision for a sustainable future.

# Tracking Signs of Change

Maine Sea Grant

The Gulf of Maine Council works to gather region-wide ecological data and address critical changes in the watershed. To help gauge large-scale ecological changes over time, the Council established the EcoSystem Indicator Partnership (ESIP), a reporting system that uses factsheets and two web-based tools to deliver regional indicator information. The tools integrate data from more than 13,000 monitoring sites and track regional trends in fisheries, aquaculture, coastal development, climate change, eutrophication and contaminants. ESIP also facilitates data collection in regional settings where large gaps exist.

> "The Council plays an invaluable role in bringing together multidisciplinary scientists who monitor contaminants at all trophic levels—from mussels to marine mammals. Looking at the extent of contamination among species and across a broad ecosystem helps identify and control sources more effectively."
>
> SUSAN SHAW, DIRECTOR/FOUNDER, MARINE ENVIRONMENTAL RESEARCH INSTITUTE, MAINE

Gulfwatch, another research partnership launched by the Council in 1991, uses blue mussels to track the presence of metals, pesticides, PCBs and polycyclic aromatic hydrocarbons in nearshore waters. Some contaminants concentrate as they move up the food web, threatening human health and species such as seals and ospreys. Gulfwatch has found high levels of contaminants in urban areas. The Council has also synthesized and publicized research on sewage and nutrients that can cause eutrophication and algal blooms like "red tide."



▲ To share research on a broad array of Gulf-related concerns, the Gulf of Maine Council produces the *State of the Gulf of Maine Report*, an online document that offers cyclically updated, peer-reviewed papers on topics such as marine invasives, at-risk species and coastal development.

> "The Gulf of Maine Council's ESIP project helps generate awareness about what data are available (and for what locations), and how to find the data. With collaborative projects that cross borders, ESIP mapping tools help us share information and make it readily accessible to many different end-users."
>
> PATRICIA KING, GENERAL MANAGER, FISHERMEN & SCIENTISTS RESEARCH SOCIETY, NOVA SCOTIA

# Adapting to Change

The Gulf of Maine Council works to help communities protect and restore valuable coastal habitats. Salt marshes are among the Gulf's most productive and vulnerable habitats, with 50 percent or more already lost to filling, dyking or dredging around most of the shoreline. Through an extended partnership with the National Oceanic and Atmospheric Administration, complemented by foundation and business support, the Council has funded 115 local projects that have restored 680 acres (260 hectares) of tidal marsh and helped reestablish historical access to 200 miles (322 km.) of rivers and streams for sea-run fish such as alewife, eel and salmon. The wildlife benefits of restoration are matched by notable economic returns, including commercial and recreational fishing opportunities, and engineering and construction jobs—stimulated by Council restoration funding totaling more than 3.5 million USD.

Beth Garden


CARP (3)

▲ The Gulf of Maine Council has funded multiple dam removal projects along the Annapolis River in Nova Scotia, part of regional habitat restoration work spanning more than a decade.

NOAA


Puddle Dock Photo

To help communities take effective action in a warmer world with more variable and extreme weather events, the Gulf of Maine Council's Climate Network serves as a regional clearinghouse for information on climate impacts and adaptation strategies. The Network fosters the exchange of climate information across sectors and jurisdictions; provides resources for local communities in the Gulf of Maine watershed; and produces a quarterly *Climate Impacts and Outlook* that summarizes the past season's temperature, precipitation and impacts, and offers an outlook for the next season.

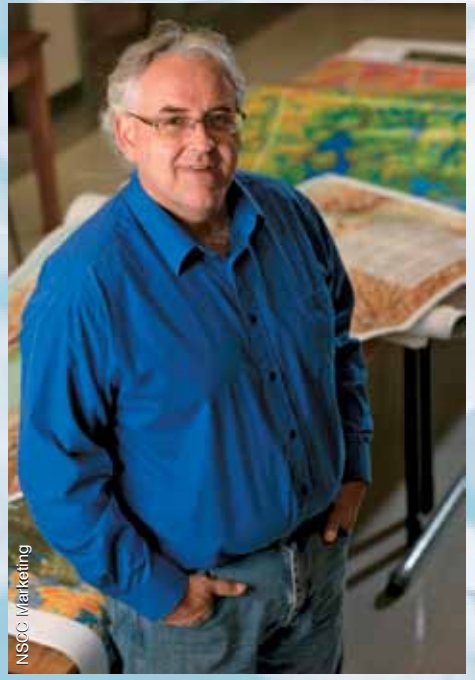
> "Gulf of Maine Council support helped catalyze our community to take a comprehensive look at our vulnerability to climate change—particularly in terms of sea-level rise and storm surge. We've engaged the public, and have begun integrating climate change impacts into our planning process."
>
> PETER BRITZ, CITY OF PORTSMOUTH SUSTAINABILITY DIRECTOR, NEW HAMPSHIRE

# Building Synergy around the Gulf

Over the past quarter-century, the Gulf of Maine Council has strengthened alliances among those who share its vision for a healthy and vital region. It fosters this synergy by sharing stories of success (done for many years through the *Gulf of Maine Times* newspaper), and by offering annual Gulf of Maine awards. To date, the Council has honored more than 200 individuals, organizations and businesses for their exceptional commitment to sustain the Gulf watershed. This collage of ten past award winners reflects the efforts of *ALL* those who have contributed their time and talents and vision (a full list of award winners appears at www.gulfofmaine.org/2/awards).


◀ Jen Kennedy and Diane Shulte (Blue Ocean Society, New Hampshire) for their commitment to ocean health and education

▼ Salem Sound Coastwatch (Massachusetts) for leadership in protecting coastal habitats and marine resources




◀ Tim Webster (Nova Scotia) for leadership developing and applying remote-sensing technologies

▶ Stormy Mayo (Massachusetts) for establishing the Marine Mammal Disentanglement Network and advocating for cetacean protection



◀ Gulf of Maine Research Institute (Maine) for innovative science, education, and community work


Rebecca Zeiber/NH Sea Grant

◀ University of New Hampshire Marine Docents for 20 years of increasing marine awareness


Oceanside Meadows Inn

▲ Oceanside Meadows Inn (Maine) for running educational programs and creating a nature preserve


FNFA

▲ Greg Thompson (New Brunswick) for representing fishermen and founding the Fundy North Fishermen's Association


Joe Boyd

◀ J.D. Irving Limited (New Brunswick) for private sector commitment to environmental protection in establishing the Irving Nature Park

▼ Clean Annapolis River Project (Nova Scotia) for volunteer environmental monitoring and fish habitat restoration


Salem Sound Coastwatch

"Working on a town resolution to make our beaches smoke-free, I learned a lot about how many levels there are to decision-making. Seeing the resolution pass felt great, knowing that it will benefit my community, visitors and the ocean."

ISABELLA HILLMAN, 7TH-GRADE STUDENT AT RYE JUNIOR HIGH, NEW HAMPSHIRE, AND 2014 GULF OF MAINE VISIONARY AWARD WINNER



CARP

# Facing a Dynamic Future

The decades ahead will bring unprecedented change to the Gulf of Maine region—as population expands, resource use intensifies, and natural and human communities strive to adapt to shifting weather patterns, altered ocean chemistry, and rising temperatures and sea levels. With the region facing more complex and interconnected challenges, the need for transboundary cooperation and widespread public engagement is greater than ever.

"The Gulf of Maine Council holds great potential to unify the region around observed climate impacts across borders and sectors. It has been recognized in both the North American Climate Services Partnership and the Global Framework for Climate Services as a bilateral collaboration that fosters information-sharing between the US and Canada. As an established and trusted partnership, the Council is poised to coordinate climate work across multiple sectors in coming years."

ELLEN MECRAY, NOAA REGIONAL CLIMATE SERVICES DIRECTOR, EASTERN REGION

"It's absolutely crucial to have an effective, collaborative governance system across borders. To manage the transition into a new era with climate change and increased marine stressors, we are increasingly going to need strong leadership from the Gulf of Maine Council."

MIMI LARSEN BECKER, ASSOCIATE PROFESSOR AND COORDINATOR OF THE UNH INTEGRATED COASTAL ECOSYSTEM SCIENCE, POLICY AND MANAGEMENT M.S. PROGRAM

Greg A. Hartford, AcadiaMagic.com

# Engaging the Ripple Effect

Over 25 years, the Gulf of Maine Council has forged partnerships throughout the region, helping link local efforts to the larger Gulf ecosystem. Each community-scale project has positive impacts that ripple outward—downstream and across the Gulf. The Council helps propel these positive ripples by encouraging communities to share information and learn from the experiences of others.

In the decades ahead, these partnerships must be stronger and the ripples larger. The Gulf of Maine Council will work with renewed commitment to engage more citizens and communities in sustaining the region's ecological vitality. It welcomes your support and involvement in spreading positive ripples across the Gulf.

"Gulf of Maine Council sessions on how land-based practices affect marine ecosystems have helped me, as a land-use manager, alleviate destructive impacts. Recent support from the Council and the RBC Blue Water Project enabled our community to create a porous pavement demonstration project in a sensitive ecosystem with high wildlife values and potable water supplies. A little money can go a long way in helping a community take a risk—trying something different and experimental that could become a successful model."

CRAWFORD MACPHERSON, DIRECTOR OF COMMUNITY DEVELOPMENT, COUNTY OF COLCHESTER, NOVA SCOTIA

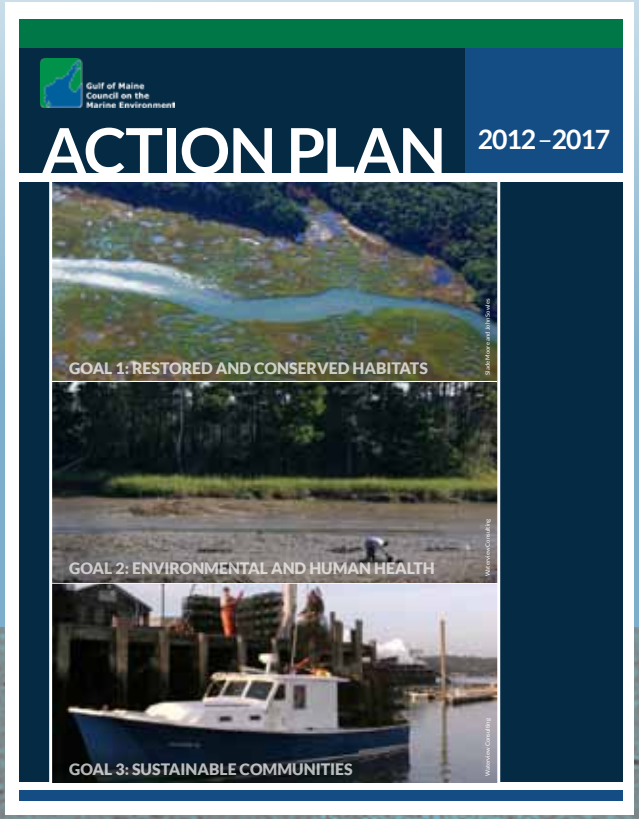
Saugus River Watershed Council

## TO SUPPORT COLLABORATIVE WORK AROUND THE GULF OF MAINE

Council initiatives—such as ESIP, Gulfwatch, habitat restoration and the Climate Network—rely primarily on working committees of volunteers. In-kind partner support and funding assistance from agencies, foundations and businesses make this work possible. To learn more about grant and charitable giving opportunities (in either the US or Canada), please contact the Gulf of Maine Association (www.gulfofmaine.org/goma), a 501(c)(3) nonprofit organization that supports the activities of the Gulf of Maine Council.

## About the Gulf of Maine Council

The Gulf of Maine Council is a binational partnership that brings together those with a shared commitment to promoting a healthy and sustainable environment. Its members include representatives from the states and provinces bordering the Gulf (Maine, Massachusetts, New Brunswick, New Hampshire and Nova Scotia) and from federal agencies (Environment Canada, Fisheries and Oceans Canada, National Oceanic and Atmospheric Administration, US Department of the Interior and US Environmental Protection Agency); regional science advisors; and representatives of nongovernmental organizations and businesses (up to three from each state and province).




## ACTIONS YOU CAN TAKE

- Explore the region and renew your sense of wonder outdoors;
- Adopt sustainable practices and projects in your home, workplace and community;
- Connect with others around the region through Council events and committee work;
- Learn more about the Gulf's values and challenges at www.gulfofmaine.org; and
- Support Gulf of Maine Council initiatives through the nonprofit Gulf of Maine Association.

"The Gulf of Maine Council is critical in bringing together governments across the region. Council projects like the State of the Gulf of Maine Report help to identify key issues and to advance collaborative work on solutions."

TIM HALL, REGIONAL MANAGER, OCEANS AND COASTAL MANAGEMENT, FISHERIES AND OCEANS CANADA

**Gulf of Maine Council on the Marine Environment**
Celebrating 25 years of action for a healthy environment

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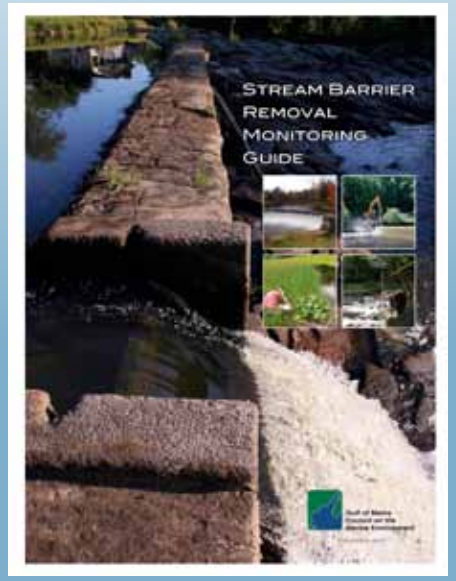


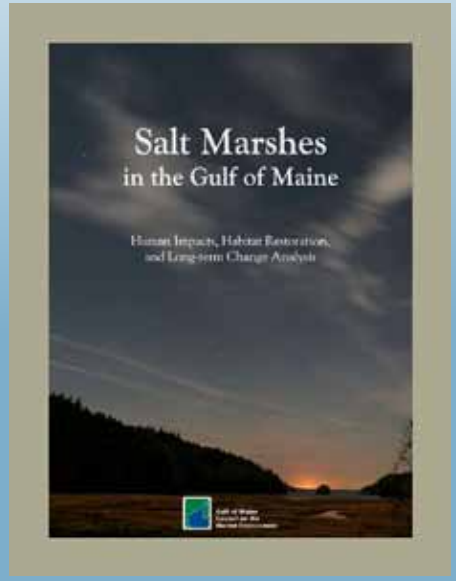


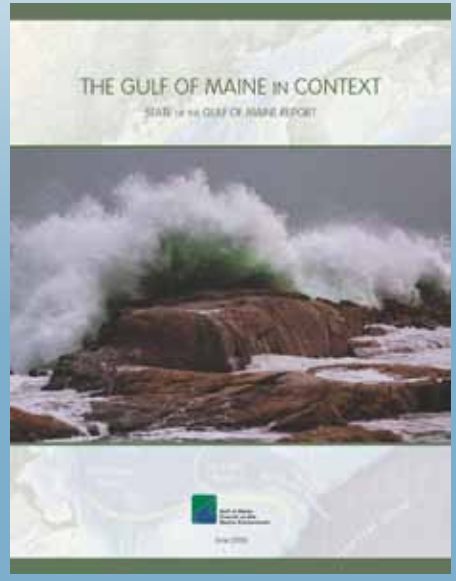


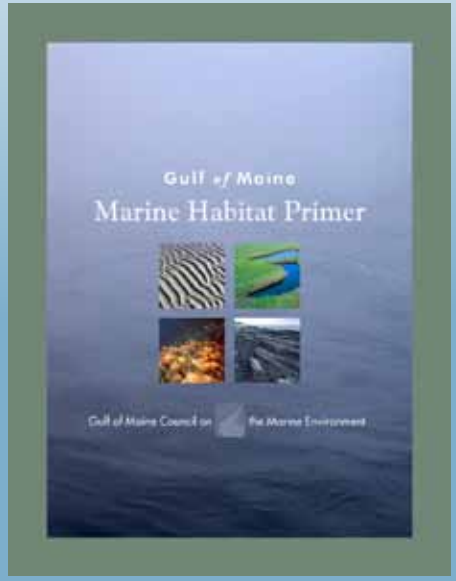


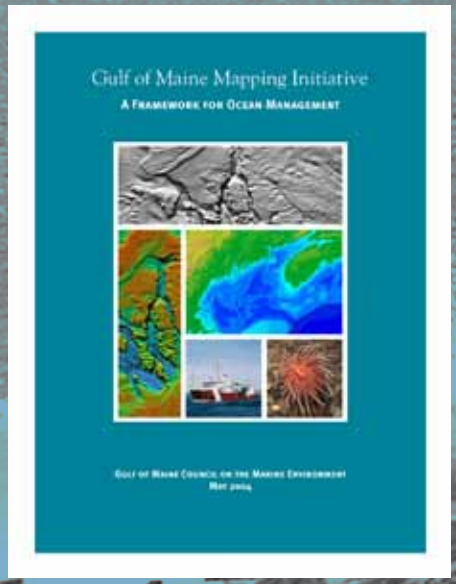


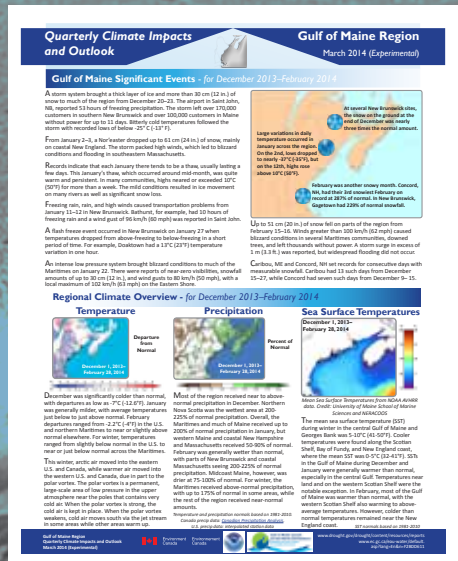




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