

# **Web-Based Framework for Integrating Ecosystem Indicators in the Gulf of Maine**

**Ray Konisky  
Gulf of Maine Ecosystem Indicators Partnership (ESIP)**



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November 15, 2006**

## **Collapse of All Wild Fisheries Predicted in 45 Years**

**SANTA BARBARA, California**, November 6, 2006 (ENS) - All species of wild seafood that are currently fished are projected to collapse by the year 2050, according to a new four year study by an international team of ecologists and economists. Collapse is defined as 90 percent depletion.

The scientists warn that the loss of biodiversity is "profoundly" reducing the ocean's ability to produce seafood, resist diseases, filter pollutants, and rebound from stresses such as overfishing and climate change.

- National Center of Ecological Analysis and Synthesis (NCEAS)

**You don't need a weatherman to know which way the wind blows**

- Bob Dylan



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Gulf of St.  
Lawrence

Puget Sound  
Georgia Basin

Great Lakes

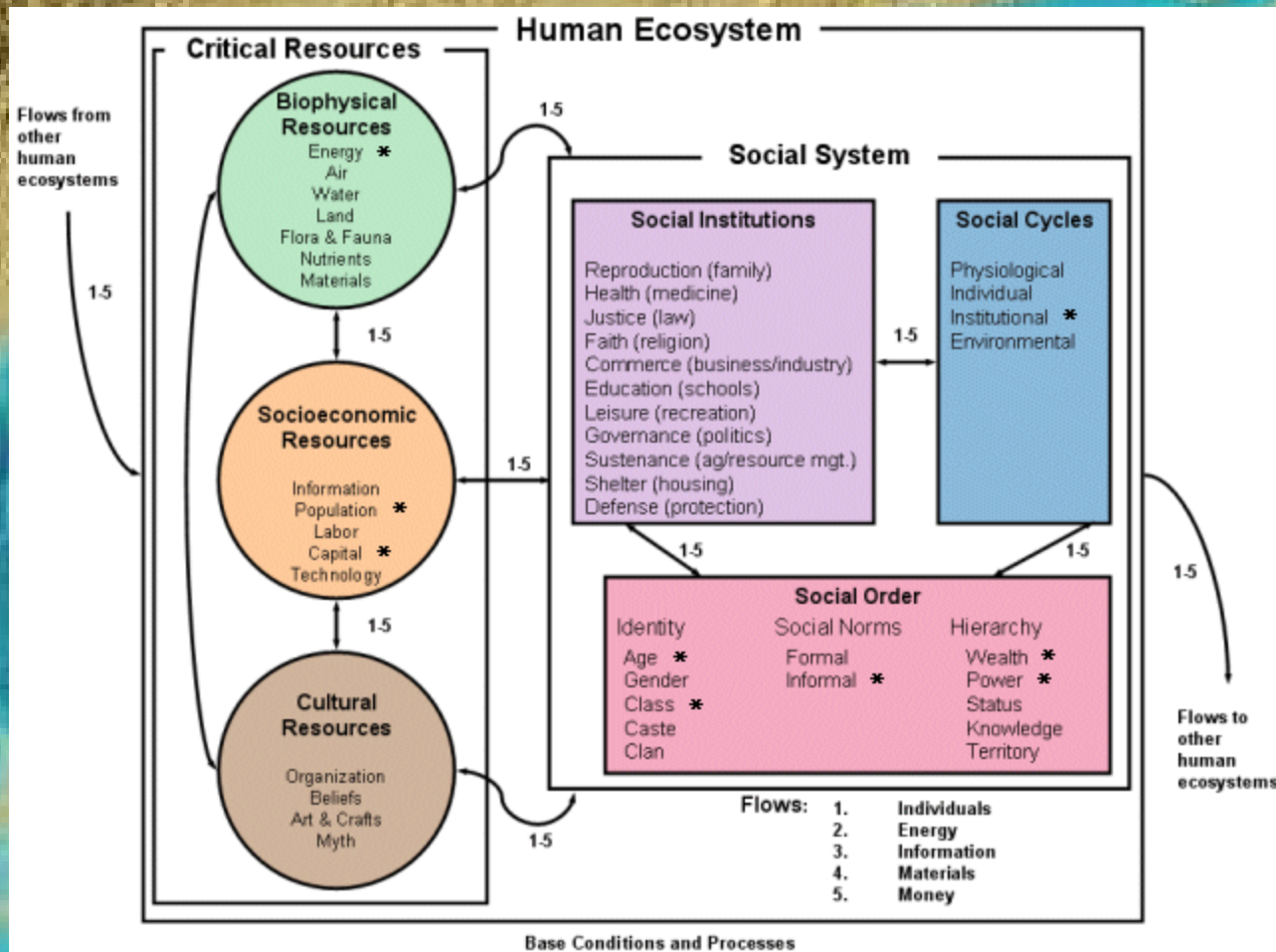
Ecosystem Based  
Management  
(EBM)

San Francisco  
Bay

Chesapeake  
Bay

Gulf of Mexico



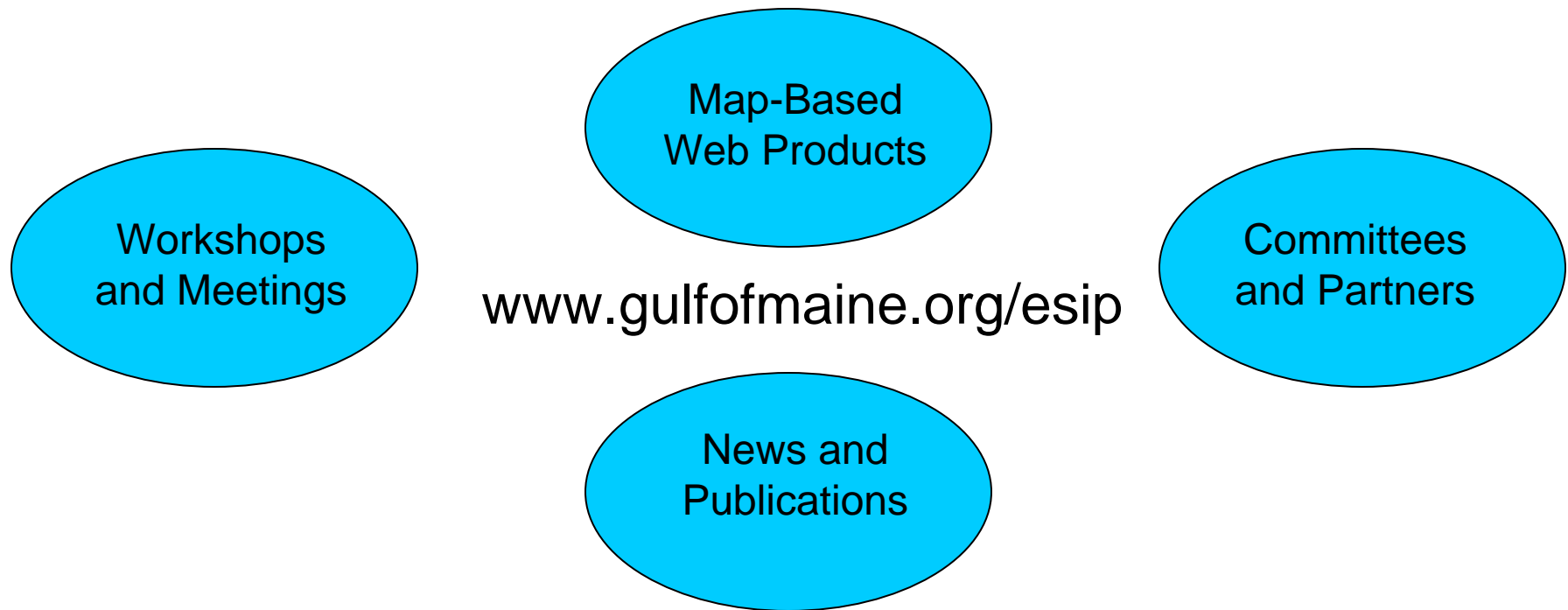


NOAA Coastal Services Center – Shawn Dalton

# The Big Picture

# Ecosystem Indicators Partnership (ESIP)

*A regional ecosystem indicators and reporting partnership for the Gulf of Maine/Bay of Fundy*



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# www.gulfofmaine.org/esip

**Ecosystem Indicator Partnership (ESIP) > Overview**

Overview | [Interactive map \*\*NEW!\*\*](#) | [Vision statement and core principles](#)

### Overview

The Ecosystem Indicator Partnership (ESIP) is a committee of the Gulf of Maine Council on the Marine Environment. ESIP is developing indicators for the Gulf of Maine and integrating regional data for a new Web-based reporting system for marine ecosystem monitoring. Activities of ESIP initially center on convening regional practitioners in six indicator areas: coastal development, contaminants and pathogens, eutrophication, aquatic habitat, fisheries and aquaculture, and climate change.

### What are indicators?

Indicators are quantitative or qualitative measures that provide information about the status of or changes in natural, cultural, and economic aspects of an ecosystem.

### Interactive map of monitoring sites **NEW!**

The long-term goal of ESIP is to provide Web-based access to synthesized monitoring data collected in the Gulf of Maine and its watershed. Numerous government agencies and non-government organizations conduct monitoring programs in the region. The data will be used to generate ecosystem indicators for a state-of-the-environment reporting system.

As an initial step toward this goal, ESIP has developed an interactive map showing where different types of monitoring are conducted. The [ESIP Monitoring Map](#) was launched in October 2006.



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# ESIP Structure

Gulf of Maine Council on the Marine Environment

Ecosystem Indicator Partnership Committee  
(DFO, EC, EPA, NOAA, USGS)

Program Manager

## Indicator Focus Areas

Indicator Focus Areas					
Aquatic Habitats	Climate Change	Coastal Development	Fisheries Aquaculture	Contaminants	Eutrophication (Nutrients)



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# ESIP Timeline

- Northeast Coastal Indicators Workshop (2004)
- Gulf of Maine Summit and *Tides of Change* Report (2004)
- GoM Council funding approval for ESIP (2005)
- ESIP Listening and Strategy Reports (Jun 06)
- Gulf of Maine Regional Indicators Workshop (Nov 06)
- Web-Based Regional Map Tools (Sep 06 – Nov 07)



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# ESIP Listening Sessions and Strategy

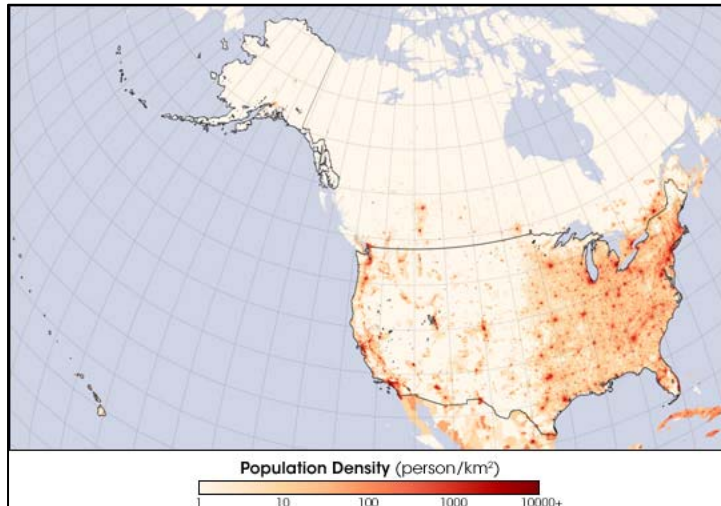
- Transboundary user listening sessions
- Partnership must be guided by science
- Engage a wide group of interdisciplinary partners (EBM)
- Harmonize existing monitoring programs/datasets
- Develop indicators and information infrastructure
- Target decision-makers (shape priorities - guide choices)
- Consider web-delivered solutions



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# Web-Based Indicator Map Tools



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# GoMC/GeoConnection Indicators Project

*Major partners: GoMOOS, DFO, NOAA, EPA, EC, GoMC, GoMODP, ACZISC*

- Focus on nutrients and contamination monitoring data
- Indicator reporting on select datasets
- Deliver mapping applications using interoperable, standards-based technology and datasets (CGDI endorsed)
- Transboundary collaboration for coastal management and decision-makers



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# **GoMC/GeoConnection Indicators Project Roles**

## **Regional Partners**

**Provide data, establish data services using  
CGDI endorsed standards, register with CGDI**

## **Gulf of Maine Council**

**Project coordination, requirements, outreach**

## **GoMOOS**

**Technical oversight, data service support,  
product implementation, hosting**



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# GoMC/GeoConnection Indicators Project Timeline

Phase	Deliverables	Schedule
1	Kickoff; Web; Data Discovery	Oct 06
2	Discovery; Reqs; Tech RFP	Mar 07
3	Tech Development Launch	Apr 07
4	Tech Development & Testing	Sep 07
5	Tool & CGDI Documentation	Oct 07
6	Final Signoff; Outreach	Nov 07



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# ESIP Monitoring Map Tool

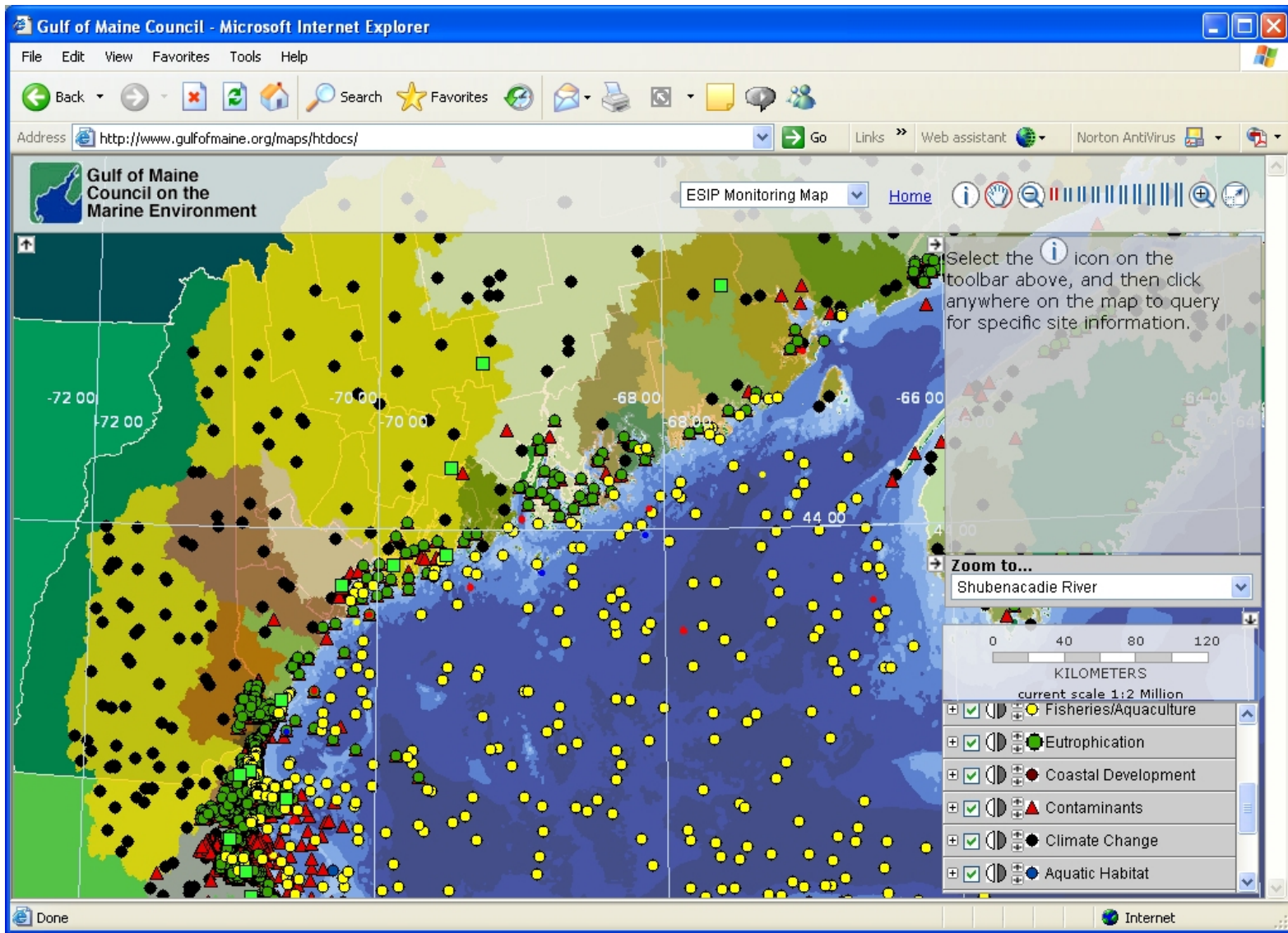
- Project funded by CICEET
- Accessed from [www.gulfofmaine.org/esip](http://www.gulfofmaine.org/esip)
- Web clickable map organized by major river basins
- Show locations for regional monitoring activities
- Symbology for six ESIP focus areas
- Query tool shows details, URL, of monitoring program

**A web-based spatial framework that “harmonizes” efforts**



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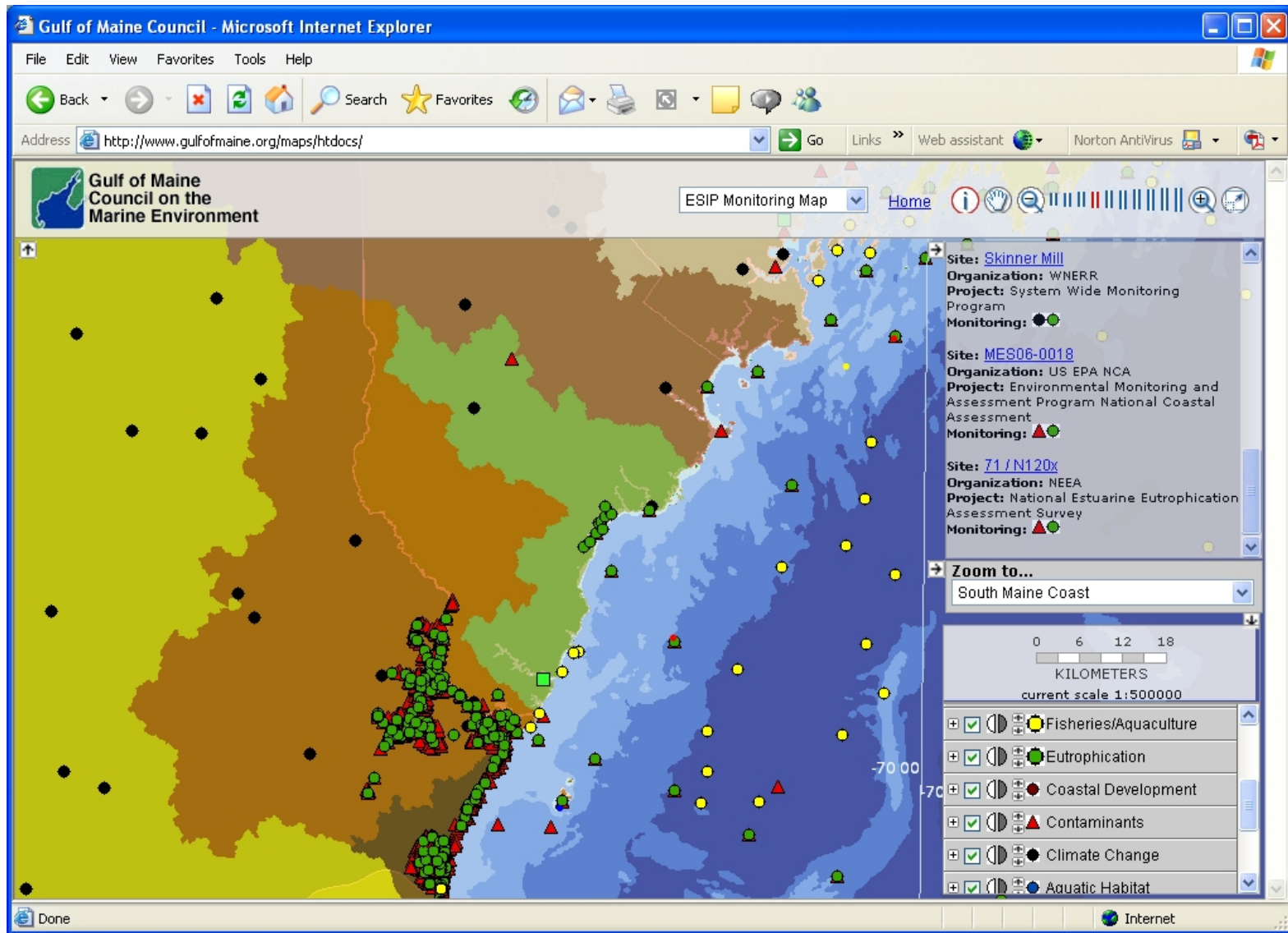
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Ecosystem Indicator Partnership (ESIP) - Microsoft Internet Explorer

Address: [http://www.gulfofmaine.org/esip/siteinfo.phtml?ID=2006&Organizati=NEEA&Organiza\\_1=National+Estua](http://www.gulfofmaine.org/esip/siteinfo.phtml?ID=2006&Organizati=NEEA&Organiza_1=National+Estua)

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Promoting cooperation to maintain and enhance environmental quality

Ecosystem Indicator Partnership (ESIP) > **Monitoring site detail**

<ul style="list-style-type: none"> <li>Home</li> <li>Gulf of Maine Information Clearinghouse             <ul style="list-style-type: none"> <li>People Finder</li> <li>NGO Directory</li> <li>Knowledgebase Find general &amp; scientific info about the Gulf</li> <li>News</li> <li>Gulf of Maine Times</li> </ul> </li> <li>In the Spotlight             <ul style="list-style-type: none"> <li>Ecosystem Indicator Partnership (ESIP)</li> <li>Habitat restoration grants &amp; strategy</li> <li>Gulf of Maine Mapping Initiative (GOMMI)</li> <li>Gulfwatch Monitoring Program</li> <li>Gulf of Maine Marine Habitat Primer</li> </ul> </li> <li>About the Council             <ul style="list-style-type: none"> <li>Overview</li> <li>Action Plan</li> </ul> </li> <li>Committees             <ul style="list-style-type: none"> <li>Projects</li> <li>Meetings</li> <li>Publications</li> <li>Media room</li> </ul> </li> </ul>	<p><b>Organization:</b> NEEA National Estuarine Eutrophication Assessment</p> <p><b>Project name:</b> National Estuarine Eutrophication Assessment Survey</p> <p><b>Project description:</b> The data and information collected by this survey form will provide the basis for development of an update to the National Estuarine Eutrophication Assessment. <a href="http://ian.umces.edu/nea/contact.php">http://ian.umces.edu/nea/contact.php</a></p> <p><b>URL:</b> 71 / N120x <b>Site ID:</b> Wells Bay <b>Latitude:</b> 43.32 <b>Longitude:</b> -70.57</p> <p><b>Climate change:</b> No</p> <p><b>Aquatic habitat:</b> No</p> <p><b>Contaminants:</b> Yes</p> <p><b>Coastal development:</b> No</p> <p><b>Fisheries / aquaculture:</b> No</p> <p><b>Eutrophication:</b> Yes</p>
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Ecosystem Indicator Partnership (ESIP) - Microsoft Internet Explorer

Address: [http://www.gulfofmaine.org/esip/siteinfo.phtml?ID=946&Organizati=US+EPA+NCA&Organiza\\_1=United+](http://www.gulfofmaine.org/esip/siteinfo.phtml?ID=946&Organizati=US+EPA+NCA&Organiza_1=United+)

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Organization (Shade-Pilot)	Program		
Acadia University	Water Quality Research Monitoring	NH Dept of Env Services	Shellfish/Beach/Rivers Monitoring
Bigelow Laboratory	Loxosteira Settlement Index	NOAA	Ecosystem Monitoring Vessel Survey
Coastal Communities Network	Coastal Currents	NOAA	National Marine Sanctuary Program
Environment Canada	Ecological Assessment & Monitoring Network	NOAA CSC	Land Cover Analysis
Environment Canada	Atlantic Climate Centre	NOAA NCCOS	Nat'l Estuarine Eutrophication Assessment
Environment Canada ACAP	Atlantic Coastal Action Program	NOAA NCCOS	Mussel Watch
EPA NCA	National Coastal Assessment	NOAA NCDC	National Climate Data Center
EPA NEP	Mass Bay/NHEP/Casco Bay	NOAA NERR	System-Wide Monitoring (SWMP)
Fisheries and Oceans Canada	Commercial Landings	NOAA NMFS NEFSC	Fisheries and Ecosystem Monitoring and Analysis
Fisheries and Oceans Canada	Atlantic Zonal Monitoring Program	Nova Scotia Government	Maps/Services/Fish/Aquaculture
Fisheries and Oceans Canada	Canadian Shellfish Sanitation Program	Provincetown Center for Coastal Studies	Cape Cod Bay Ocean Sanctuary Monitors
GoMOOS	Gulf of Maine Ocean Observing	Univ of Maine	Maine State Beach Profiling
Gulf of Maine Council	GulfWatch	Univ of New Brunswick	Seabird Monitoring
Maine Dept Env Protection	Surface Water Ambient Toxins	Univ of New England	Marine Mammal Monitoring
Maine Dept Marine Resources	Shellfish/Aquaculture/Trawl/Shore	Univ of New Hampshire	SeagrassNet
Maine State Planning Office	Maine Coastal Program	Univ of New Hampshire	Watershed Characterization System
Mass Coastal Zone Management	Mass Coastal Monitoring	Univ of New Hampshire	Great Bay Coast Watch
Mass Dept of Public Health	Beach Watch	Univ of New Hampshire	CINEMar
Mass Division Marine Resources	Shellfish/Sediments/Fish	Univ of New Hampshire	Coastal Ocean Observation & Analysis
Mass Water Resource Authority	Water Quality/Outfall Monitoring	USFWS	Gulf of Maine Coastal Program
National Oceans Economic Program	Coastal Economy Sector	USFWS	National Wetland Inventory
National Park Service (US)	Vital Signs	USGS	Natl Water Quality Assessment Program
New Brunswick Government	Maps/Services/Fish/Aquaculture	USGS NBII	Northeast Information Node



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# Where We Are Today

- **Developing/assessing regional ecosystem indicators**
- **Building consensus on priority indicators**
- **Implementing pilot web-based data mapping tools**
- **Moving toward a regional reporting partnership**

Questions?



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