

CLIMATE CHANGE AND EUTROPHICATION STATUS AND TRENDS IN THE GULF OF MAINE

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In 2006, the Gulf of Maine Council on the Marine Environment (a Canadian-U.S. regional alliance) commenced an initiative to determine priority indicators of ecosystem health for the Gulf of Maine. Six focus areas were identified, including coastal development, effects on water quality and habitat integrity, and climate change. The Ecosystem Indicator Partnership (ESIP) was formed to lead activities on this initiative and is composed of over 100 volunteers from local, state, and federal governments along with academics and partners from non-governmental organizations. These volunteers participate in ESIP through one or more of its six indicator subcommittees based on the focus areas mentioned above. Indicators were developed through a rigorous consensus process and initial priority indicators were selected based on the following questions: Is the indicator scientifically valid? Is the indicator responsive to change? Does a cause and effect link exist? Are accurate data available? Is the indicator relevant to users? Is the indicator comparable regionally? Is the indicator useful at different scales? Is the indicator comparable to established thresholds and does the indicator represent something other than simply a measurement?

Eight priority indicators were selected for climate change and eutrophication in the Gulf of Maine region from Nova Scotia to Massachusetts. Climate change indicators consist of changes in sea level, air temperature, precipitation, and sea surface temperature. Eutrophication indicators consist of nitrogen and phosphorus loading, chlorophyll a, secchi depth, and dissolved oxygen. A complete list of indicators for all focus areas is available at www.gulfofmaine.org/esip.

Initial analysis for several of these indicators has been completed by the respective subcommittees. Critical to the success of coastal communities in adapting to and managing for climate change and eutrophication changes in their region is obtaining information on status and trends of these two areas. ESIP has developed the Indicator Reporting Tool (available at www.gulfofmaine.org/esip) which provides scientists and coastal managers with one easily accessible portal site for data on priority indicators. This tool allows users to graph trends at specific sites. Data for the indicators are automatically updated from various data sources on a weekly basis therefore allowing users continual access to the most recent data.

By providing this compilation of information in an easily accessible format, along with developing more detailed indicator fact sheets, ESIP is accomplishing one of the priority goals of the partnership: assisting users in locating and utilizing information on priority indicators in the transboundary Gulf of Maine Region.

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