Ecosystem Assessment and Ecological Forecasting Project

A NOAA - UMCES Partnership

The Ecosystem Assessment and Ecological Forecasting Project is a fellowship program supported by the NOAA Chesapeake Bay Office (NCBO) and the Integration and Application Network (IAN) at the University of Maryland Center for Environmental Sciences (UMCES). The purpose of the Project is to support fellows who evaluate factors and processes that influence ecosystem form and function, in an effort to facilitate formulation and implementation of management actions directed towards restoring and sustaining ecosystem health. The fellows are situated at the Cooperative Oxford Laboratory in Oxford, MD.

Rationale

There is general community consensus that the status quo is not sufficient to restore the health of Chesapeake Bay. This sentiment is largely driven by the fact that restoration efforts are not producing desired results at a pace that meets our commitments. Current efforts to monitor and assess the effects of restoration efforts are also deficient in many aspects. Monitoring and assessment is not locally oriented and can not provide the spatial resolution needed to assess the effects of local actions. Most monitoring and assessment activities suffer from a poor ability to synthesize the often large and complex data sets and provide information in a timely fashion. Furthermore, management is not guided by best available information in the form of ecological forecasts. Through an annual cycle of timely, spatially derived, integrated ecosystem assessment and summer ecological forecasts, this project aims to more effectively communicate the health of Chesapeake Bay and the effectiveness of restorations efforts.

Assessment

Goals

Spatial Assessment

- Develop and implement methods for spatially explicit assessments of Chesapeake Bay ecosystem health

Annual Integration

- Develop and implement methods for annual integrated assessment of Chesapeake Bay ecosystem health

Optimized Monitoring Program

- Formulate optimal ecosystem monitoring strategy through progressive integration of remote sensing and optimized field data

Communication

Goals

Build community (public, managers and scientists) consensus through scientific communication

- Establish anticipatory and responsive communication framework built upon scientific and technical linkages

- Provide scientific understanding to the broader community linking assessments and forecasts

- Produce a suite of interactive communication products that engage and inform stakeholders

Vision

Provide scientific assessment and ecological forecasts to guide ecosystem management, with the goal of Chesapeake Bay restoration.

Goals

Develop quantitative ecological forecasts supporting management decisions

- Explore ecosystem responses to human and environmental variability through analysis of historical data

- Identify key forcing variables

- Elaborate the processes through which these forcing variables operate in the form of forecast models

Products

- Annual ecological forecast

- Quantitative forecast model

- Interactive graphical interface based upon quantitative models

Outcomes

Better management of Chesapeake Bay restoration leading to improved ecosystem health

Networks

Atattaining the Project’s goals is dependent upon forming strong working relationship with the Chesapeake Bay monitoring and analysis community. The current Chesapeake Bay Program effort to redesign the indicator framework and associated communication strategy has provided the ideal environment for the wider implementation and adoption of many of the Project’s goals. The following diagram highlights the key elements of this relationship.