



# MARES

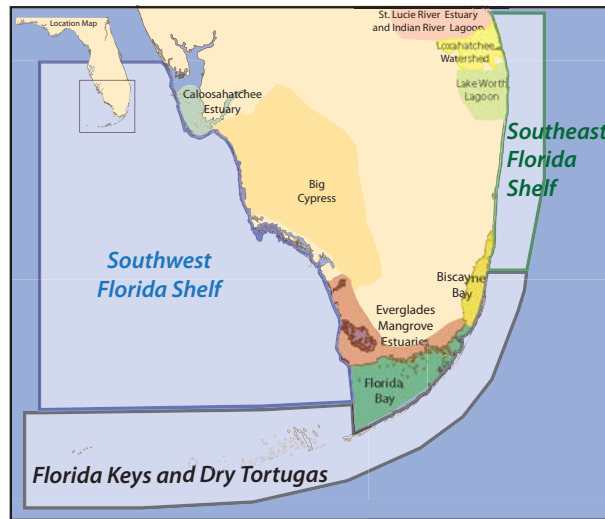
## Marine and Estuarine Goal Setting for South Florida

The goal of the Marine and Estuarine Goal Setting for South Florida (MARES) Project is to reach a science-based consensus about the defining characteristics and fundamental regulating processes of a South Florida coastal marine ecosystem that is both sustainable and capable of providing the diverse ecological services upon which our society depends.

### The Purpose

The coastal marine ecosystem is invaluable to the growth, development and sustainability of South Florida. The underlying purpose of MARES is to focus and prioritize future research and to facilitate integrated adaptive management of South Florida's coastal marine ecosystem.

MARES represents a collaboration among academic scientists, federal and state agency experts and non-governmental organizations working in close conjunction with federal and state environmental managers, private industry stakeholders and interested members of the public. The first step in the process involves the development of Integrated Conceptual Ecosystem Models (ICEMs) for three sub-regions (Florida Keys & Dry Tortugas, Southeast Florida Shelf and Southwest Florida Shelf)



Existing estuarine CEMs and three subregions.

each ICEM is combined with available Conceptual Ecological Models (CEMs) for Biscayne Bay, Florida Bay and the Caloosahatchee Estuary. Going beyond the models created for the Comprehensive Everglades Restoration Plan, the models envisioned for MARES will incorporate not only the best available information about relevant natural science but also about human dimensions science and societal processes. Such models identify Drivers, Stresses, Effects, measurable Attributes, societal Actions and the feedback loops among these. The models and a deliberate series of public meetings and agency briefings will be used to identify Quantitative Ecosystem Indicators (QEIs). A small subset of these QEIs will then be used to create a South Florida Marine Ecosystem Report Card. A sequence of such Report Cards will assist the natural resource and environmental management of South Florida by providing a common reference with respect to overall ecosystem health and the changes that may occur in response to management actions.

### The Process

The process begins with briefings to regional environmental management committees. These will be followed by facilitated sub-regional Integrated Conceptual Ecosystem Model workshops, Indicator Workshops and public meetings. Sub-regional results will be combined with available models to address the Total South Florida Coastal System. The resultant Assessment Report and Report Card will be delivered to coastal managers, industry groups and NGO constituents through targeted briefings and to the public at large via a user-friendly website.

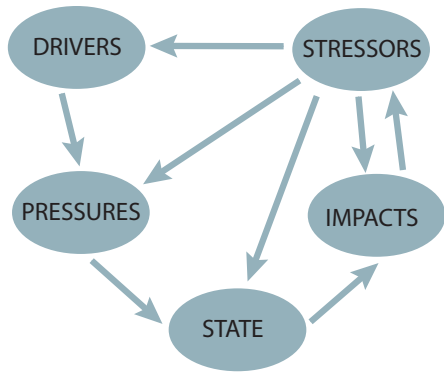
### New Partnership

MARES is a three year collaborative effort with contributions from academic, federal, state, local, public, and private organizations. 7 universities, 3 federal agencies, 2 state agencies and 2 non-governmental organizations have already agreed to participate. The project is led by the Cooperative Institute for Marine and Atmospheric Science at the University of Miami. Funding is provided by the National Oceanic and Atmospheric Administration.



# MARES Project Components

## Integrated Conceptual Ecosystem Models



The Integrated Conceptual Ecological Models (ICEMs) will explicitly account for the human dimensions of coastal marine ecosystems in South Florida. As with the conceptual models developed to guide activities in the Comprehensive Everglades Restoration Plan, the ICEMs describe cause and effect relationships in the ecosystem. But the ICEMs also identify valued services provided by the ecosystem and account for ecosystem management activities (Responses) intended to mitigate the adverse effects on the ecosystem.

## Quantitative Ecosystem Indicators

Indicators are ecosystem components that can be monitored to measure change and reflect the condition of the ecosystem. They must be present throughout the coastal system and be a key attribute or effect in the ICEM. Indicators must also integrate the system-wide response to various ecosystem drivers. One example of a QEI is algal bloom status in Florida Bay. The concentration, duration and spatial extent of chlorophyll a with respect to historical conditions assesses changes in the habitat. (Right: Image of Tennessee Reef with algal bloom moving from Florida Bay to the Florida Keys reef tract.)



J. Fajans, Keys Marine Lab

## Indicator Assessment Reports

Fish and Macroinvertebrates								
PERFORMANCE MEASURE	'00	'01	'02	'03	'04	'05	CURRENT STATUS	CURRENT STATUS
<b>SHARK RIVER SLOUGH</b>								
spotted mangrovefish	Green	Green	Yellow	Red	Red	Yellow	Yellow	Power than expected because of upland drying.
flingfish	Green	Green	Green	Yellow	Green	Green	Green	Two of 36 plots with more than expected.
bluefish	Green	Yellow	Yellow	Red	Yellow	Yellow	Yellow	Power than expected because of land and upland drying.
tripl fish	Green	Green	Red	Red	Red	Red	Red	Power than expected because of land and upland drying.
Everglades centifish	Green	Yellow	Green	Yellow	Red	Yellow	Yellow	More than expected because hydrographed was slower than expected.
Non-up fish	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Present at all monitoring sites. More than 25% of all fish collected, northern limit of mangrove boundary.

2008 System-Wide Indicators Report  
www.sfstore.org

Assessment reports provide an overview of the condition of the ecosystem. An easily interpretable stoplight approach with red, green, and yellow rankings will be used in the Report Card included as part of the Total System Assessment Report. The Report Cards provide the public, managers, and researchers with a quick guide for identifying areas that require immediate attention and those that are meeting consensus goals quantified as indicator targets.

## Proposed Project Schedule

*Florida Keys and Dry Tortugas Reef Tract*  
November 2009 - July 2010

*Southwest Florida Coast*  
August 2010 - February 2011

*Southeast Florida Coast*  
February 2011 - September 2011

*Total System*  
October 2011 - June 2012

*Final Report and Recommendations*  
September 2012

## Project Coordination and Participation

There are many ways to participate in the project. Visit the MARES web site [www.sofla-mares.org](http://www.sofla-mares.org) and sign-up for the MARES electronic mailing list. You can also attend workshops and provide input during the public comment period.



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