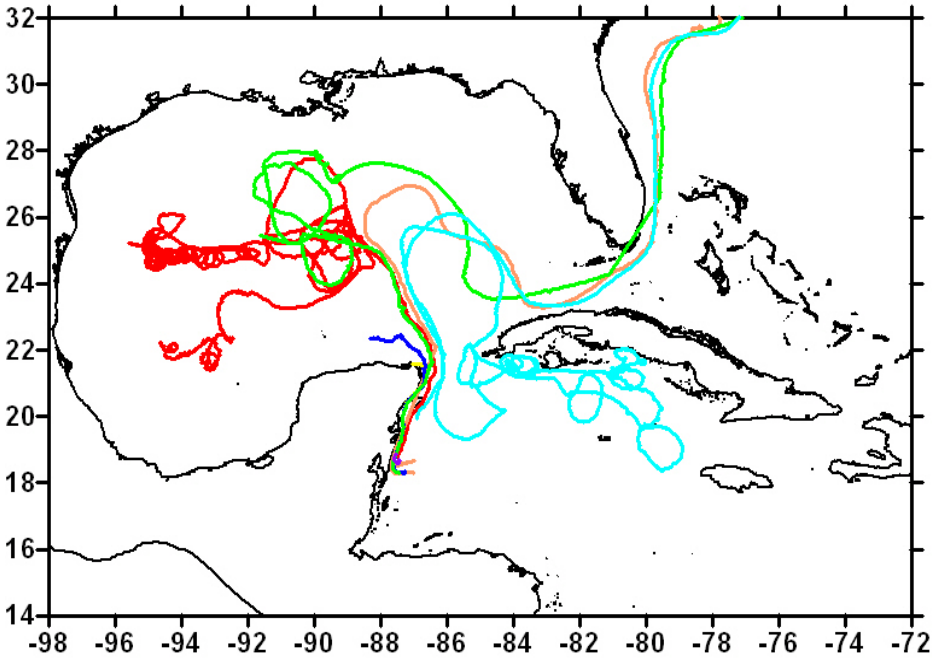
NOAA FISHERIES SERVICE

AOML-SEFSC WORKSHOP
June 1, 2009

Identifying Cooperative Research Opportunities



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Overview

- Workshop Objectives
- SEFSC Divisions
  - Protected Resources Program
  - Habitat & Fisheries Programs
  - South Florida Program
- Fisheries and the Environment Program
- Future Collaborations

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Workshop Objectives

1. Review current research and data products (AOML)
2. Review current research and data products (SEFSC)
3. Review current collaborative projects/research
4. Identify new collaborative opportunities

Workshop Goal

Develop 2+ new collaborative projects...

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Sustainable Fisheries Division
conducts research to determine the distribution and abundance of living marine resources managed under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and the Atlantic Tunas Convention Act (ATCA).

Protected Resources and Biodiversity Division
promotes stewardship of living marine resources for the benefit of the Nation through science-based conservation and management of a healthy marine environment.

Fisheries and the Environment
provides information necessary to effectively adapt management to mitigate the ecological, social, and economic impacts of major shifts in the productivity of marine resources.

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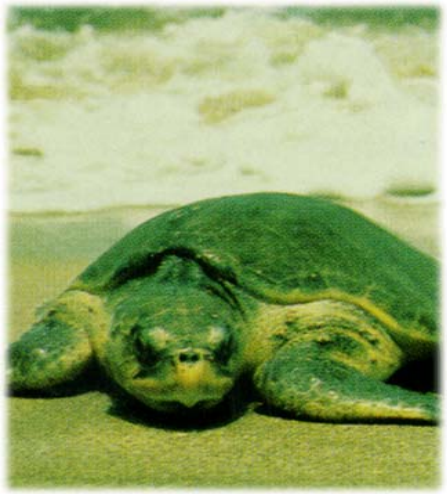
Protected Resources Program



- Improve status of threatened/endangered species
- Reduce incidental mortalities associated with fisheries
  - Partner with State Programs
- Minimize conflicts with human activities
- Research populations and habitats; improve scientific database

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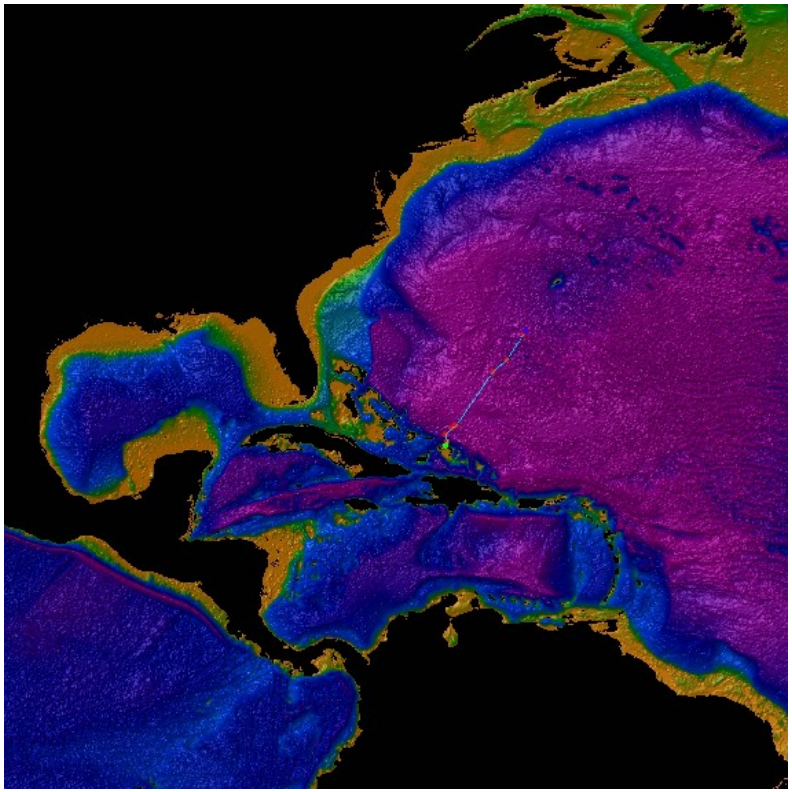
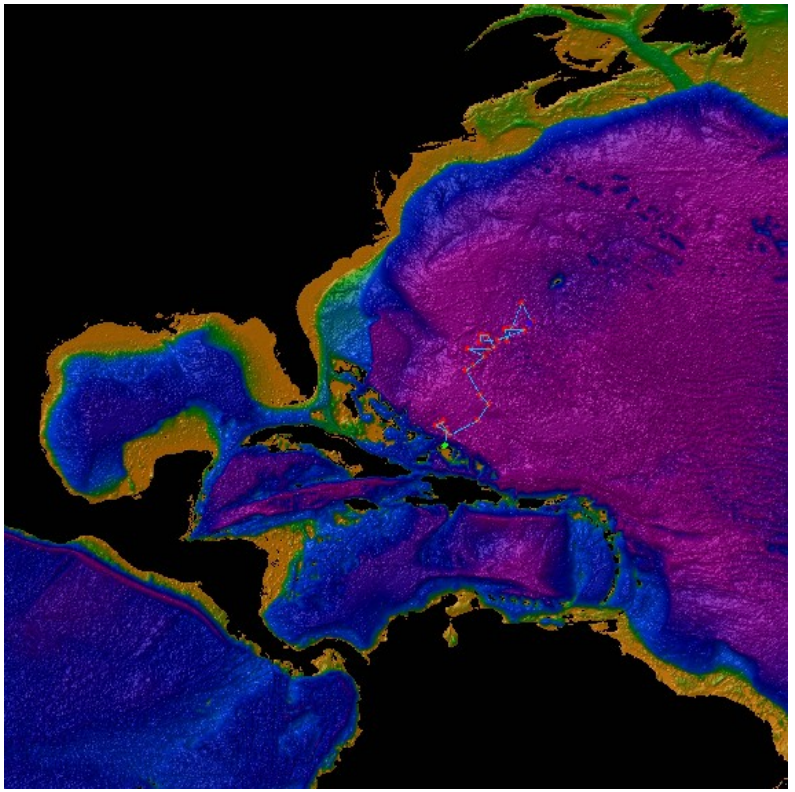
Sea Turtle Research

Implement research to support the conservation and recovery of threatened and endangered sea turtle species by:

- **Investigating demographics; life stages and cycles**
- **Researching stock structure (age and genetics)**
- **Assessing sea turtle mortality and strandings**
- **Researching by-catch reduction measures**
- **Evaluate habitat requirements**

Satellite Tagging and Tracking Project





Implement research of fisheries ecology and support the conservation of essential fish habitats:

- **Conduct studies to determine effects of fishing on U.S. marine habitats**
- **Support habitat research including ecosystem-scale assessments and restoration**
- **Support sustainable fisheries**
- **Researching by-catch reduction measures**
- **Evaluate habitat requirements**

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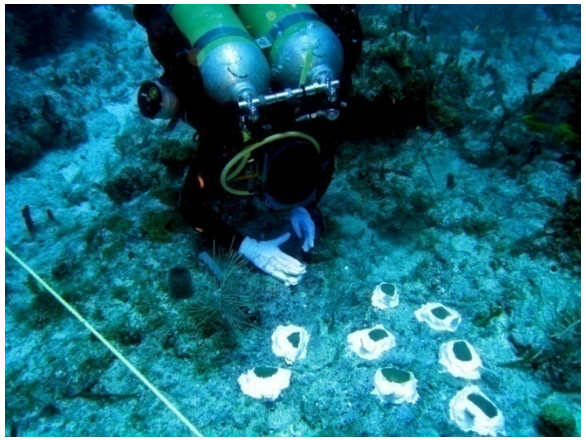
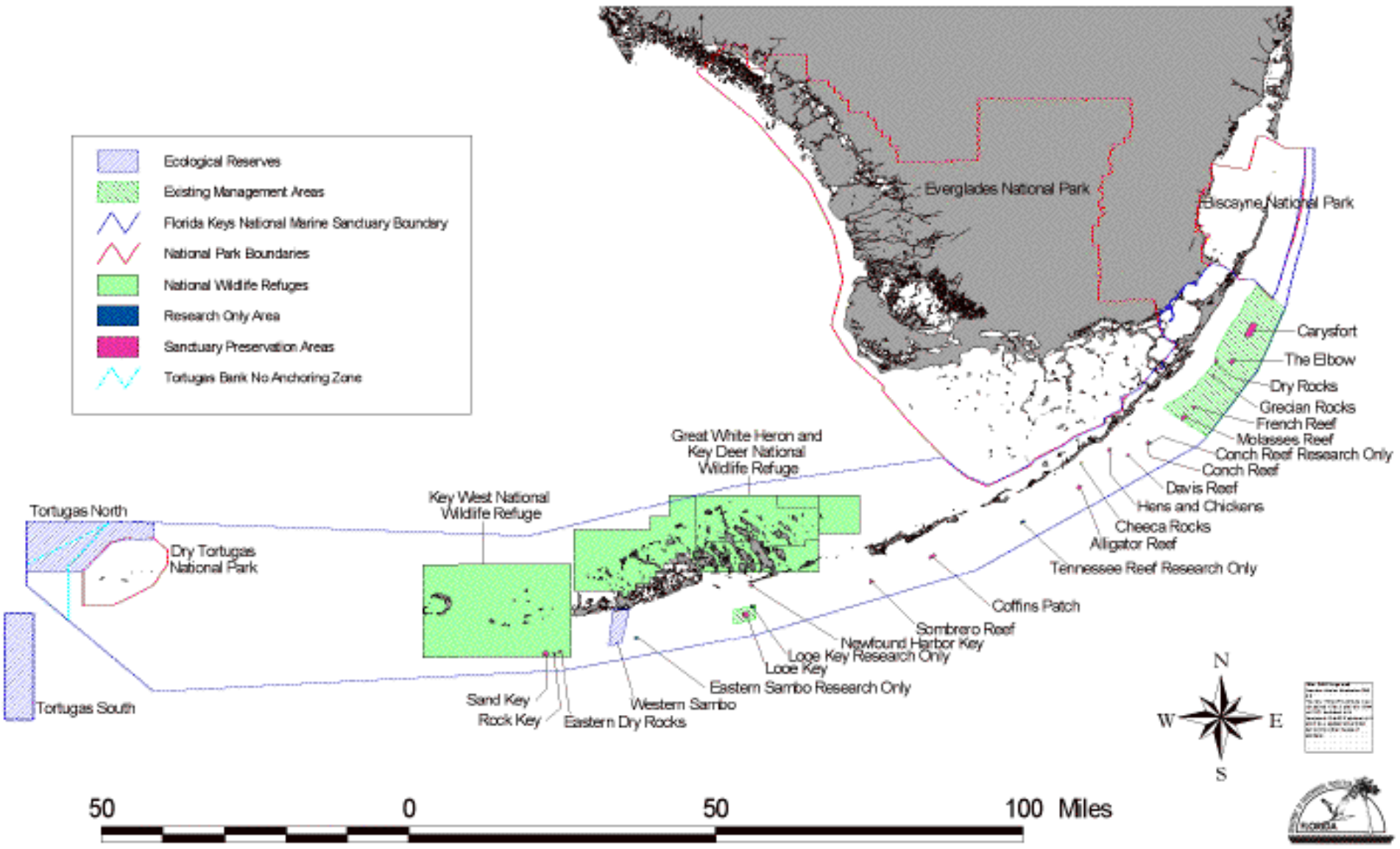
Benthic Ecosystems Programs

Implement research of fisheries ecology and support the conservation of essential fish habitats:

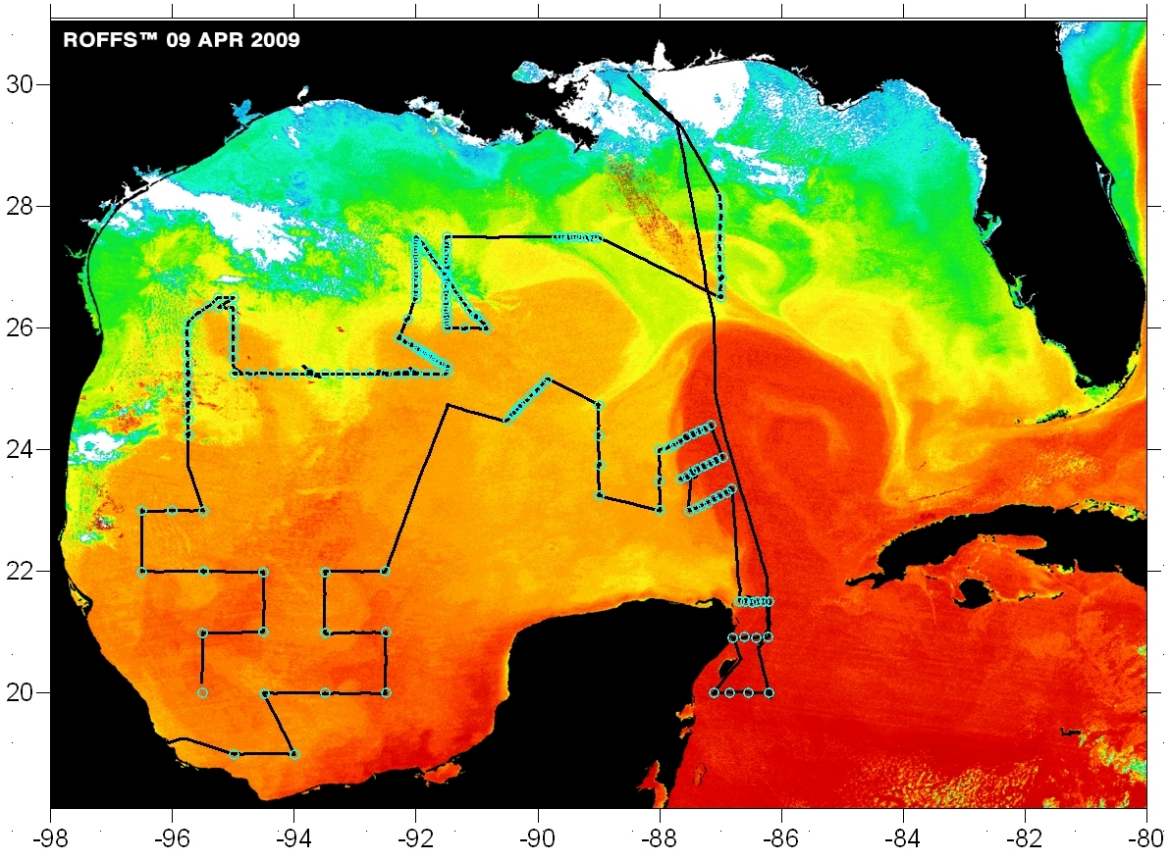
- **Coral reefs assessment and research**
- **Monitor *A. palmata* demographics**
- **Support management & conservation**
- **Coral transplants and reef restoration**
- **Evaluate habitat requirements**



Florida Keys National Marine Sanctuary



Bluefin Tuna Larval Cruises Project



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South Florida Program

Investigate and monitor ecosystem-scale restorations:

- **Florida Bay Research – pink shrimp**
- **Partner in CERP planning and implementation**
- **Investigate estuarine nursery habitats**
- **Coordinate research across state, federal, and academic institutions**
- **Evaluate habitat restorations**

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F.A.T.E.

Fisheries and the Environment: provides the information necessary to effectively adapt management to mitigate the ecological, social, and economic impacts of major shifts in the productivity of living marine resources.

- **Analysis of the response of fish and shellfish to environmental change**
- **Development of ecosystem indicators**
- **Construction of next generation forecasting models**
- **Incorporation of ecosystem indicators in stock assessments**

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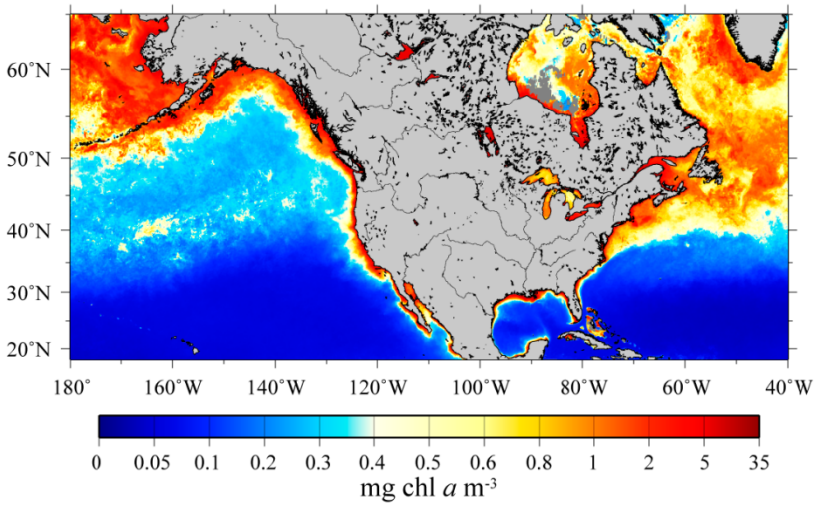
F.A.T.E.

Ecosystem Indicators

A multidisciplinary approach to developing leading ecological/ ecosystem indicators.



Biological Indicators

- fish distribution and migration
- ecosystem community structure
- primary and secondary production

Physical indicators have been derived from a combination of data sources, including:

- remote sensing
- in situ oceanographic measurements
- large-scale atmospheric and oceanic fields

Biological

- Fish distribution and movement
- Ecosystem structure
- Growth
- Production
- Zooplankton community composition
- Size spectrum analysis
- Annual primary and secondary production
- Seasonal primary and secondary production (e.g. timing of spring bloom)
- Spatial distribution of prey fields

Physical

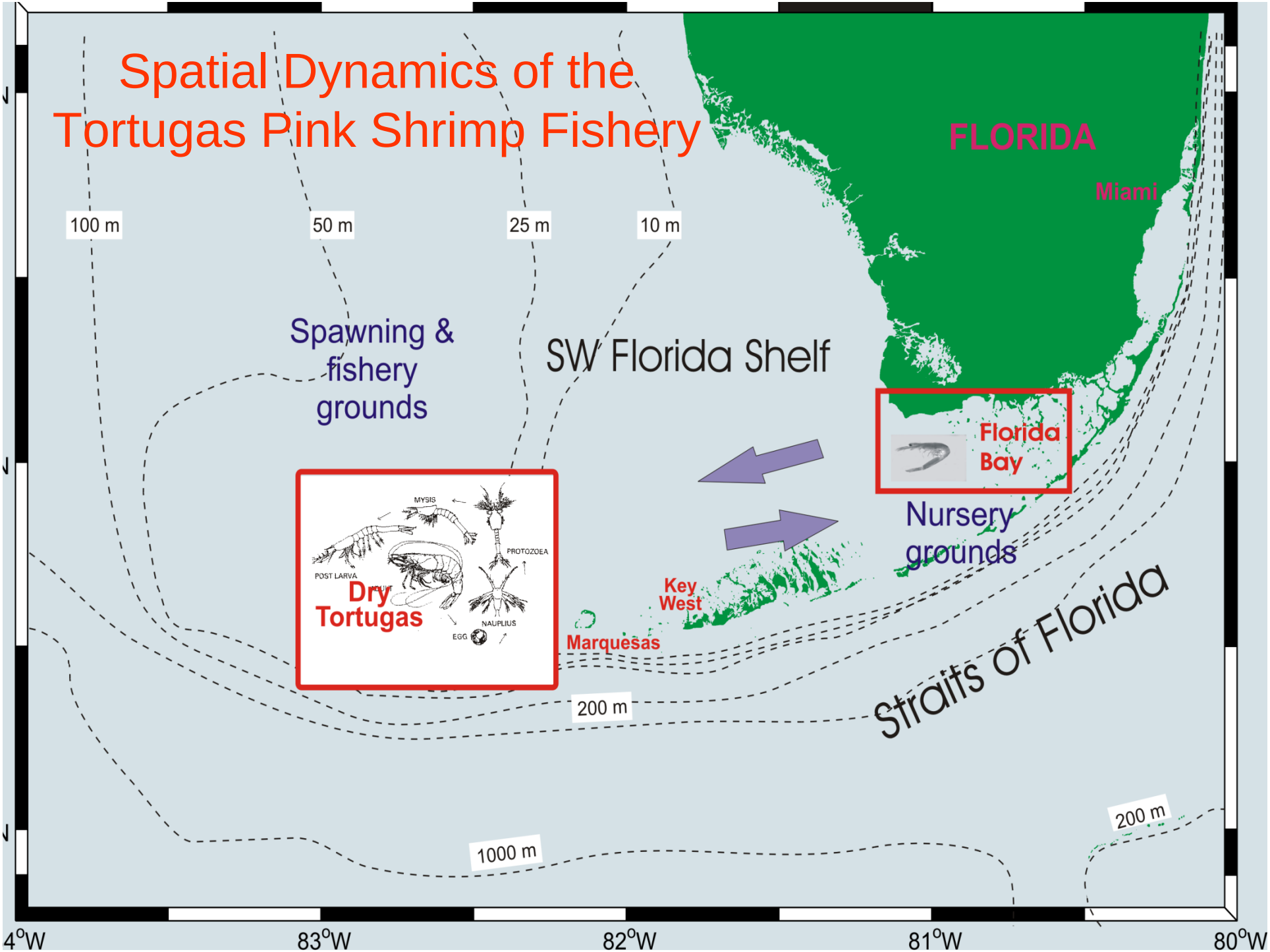
- Remote sensing (e.g. frontal boundaries, sea ice extent, inter-annual production)

- *In situ* oceanographic measurements (e.g. moorings, hydrographic lines, water column properties, underway oceanography)

- Large-scale atmospheric and oceanographic fields (e.g. Pacific Decadal Oscillation, downscaling IPPC climate scenarios)

Larval Shrimp Project

- Combine oceanographic transport processes with shrimp behavior to simulate cross shelf migration from spawning to nursery grounds.
- Investigate spatial and temporal variation in migration success in relation to environmental conditions.
- Relate abundance trends in inshore and offshore life stages.
- Develop a recruitment index that can be used to improve stock assessments.


Spatial Dynamics of the Tortugas Pink Shrimp Fishery
FLORIDA
Miami
100 m
50 m
25 m
10 m
Spawning & fishery grounds
SW Florida Shelf
Florida Bay
Nursery grounds
MYSIS
PROTOZOEA
POST LARVA
JUVENILE
Dry Tortugas
NAUPLIUS
EGG
Key West
Marquesas
200 m
Straits of Florida
1000 m
200 m
84°W
83°W
82°W
81°W
80°W

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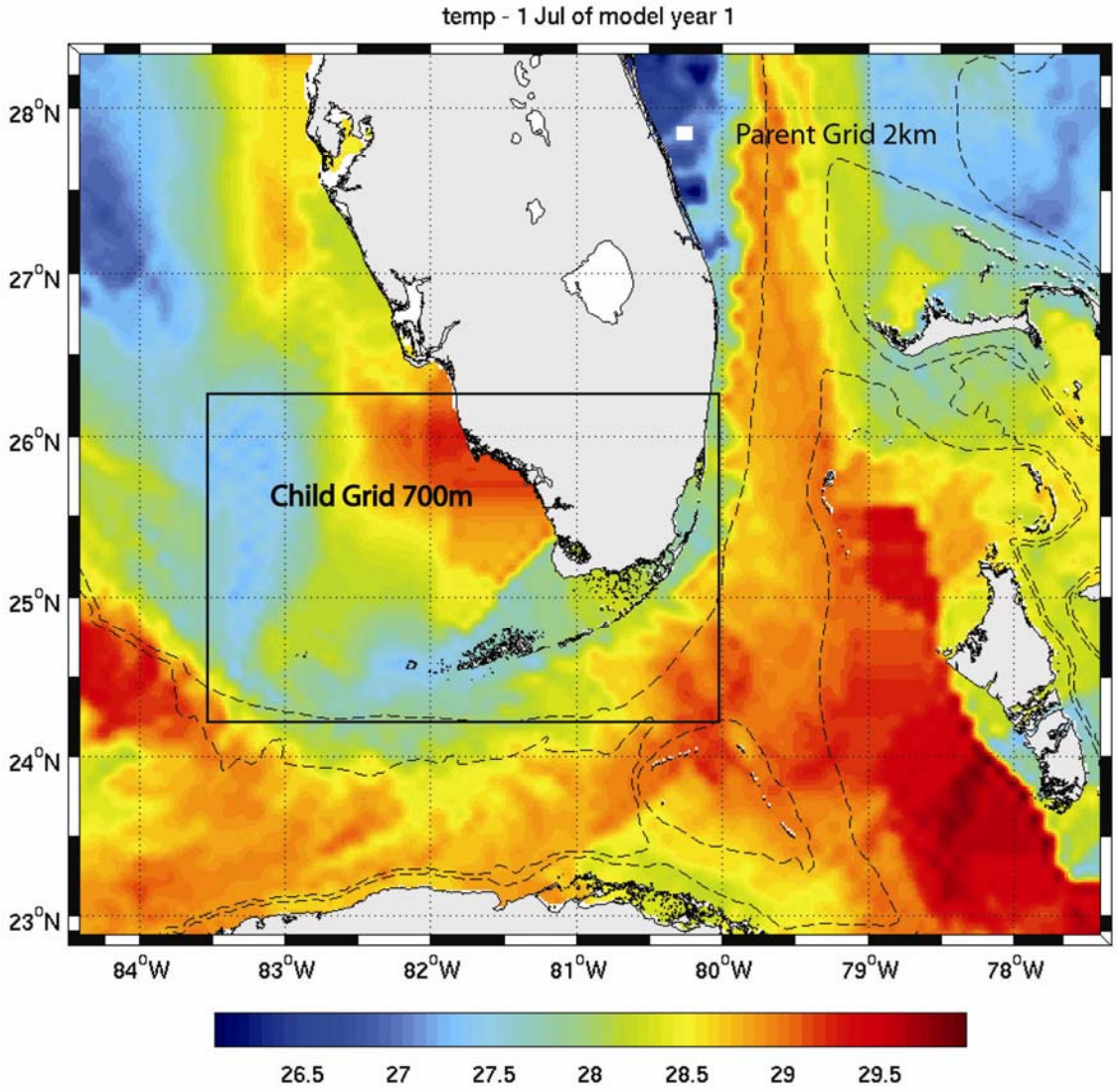
Modeling larval transport with ROMS



AOML Data We are Using

- SWF Shelf ADCP mooring data
- Florida Bay and SW Shelf Cruise data
- NOAA South Florida Program (Oceanographic Data Archive)
- http://www.aoml.noaa.gov/sfros/database/
- ftp://ftp.aoml.noaa.gov/pub/sfros/database/sfros/moorings/

Request to AOML

- Make data (mooring, drifters, cruises) available to us through a web platform so that we can access processed data and use it right away.
- A useful data file format for us would be netcdf.

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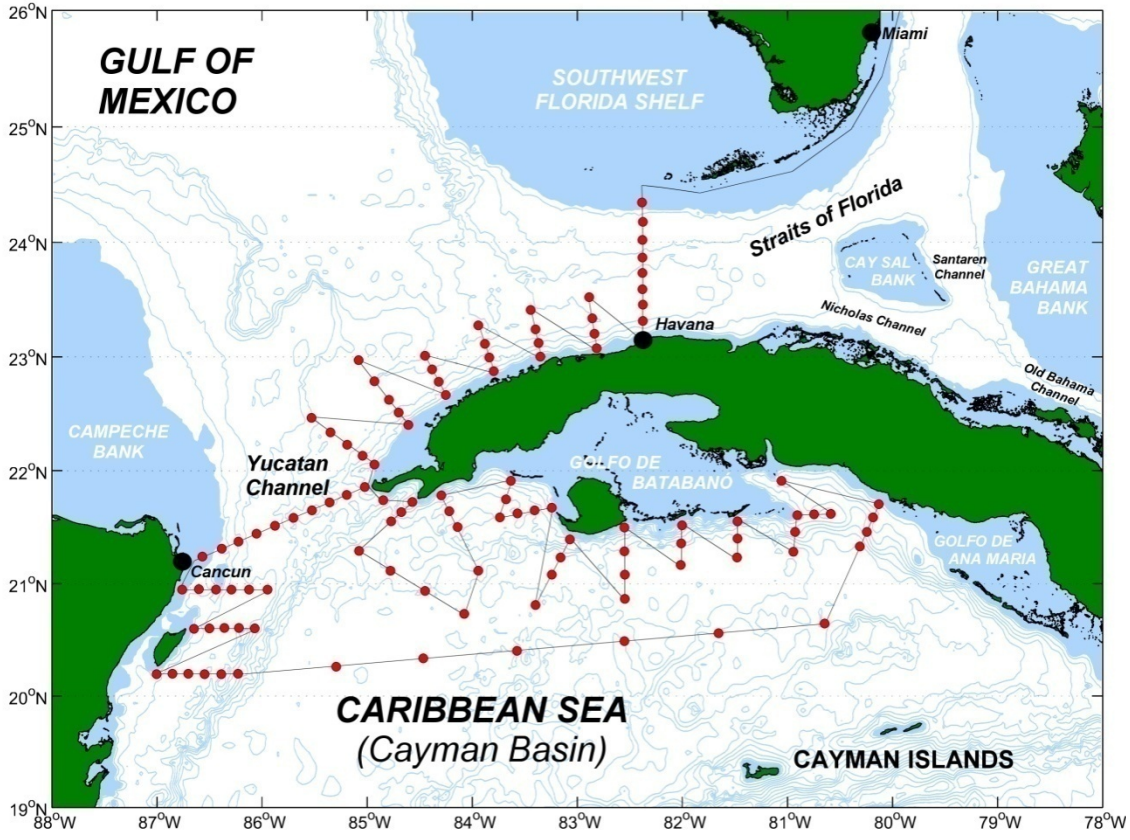
Example



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IDEAS...