

# **Spatial Planning to Inform Renewable Alternative Energy Siting Off Southeast Florida**

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**Presenter: Brian K. Walker**

**26<sup>th</sup> U. S. Coral Reef Task Force Meeting**

**Special Session: Spatial Planning on the Florida Reef Tract - Pieces of  
the Coastal and Marine Spatial Planning (CMSP) Puzzle**

**Fort Lauderdale, Florida**

**October 21, 2011**

# Project team



**The US Department of Energy Golden Field Office awarded a grant to Dehlsen Associates, LLC. (Award # DE- EE0002655)**

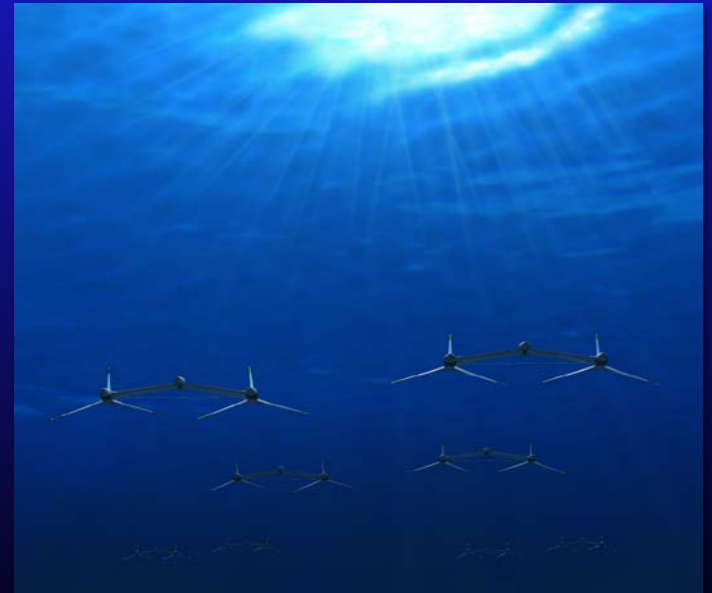
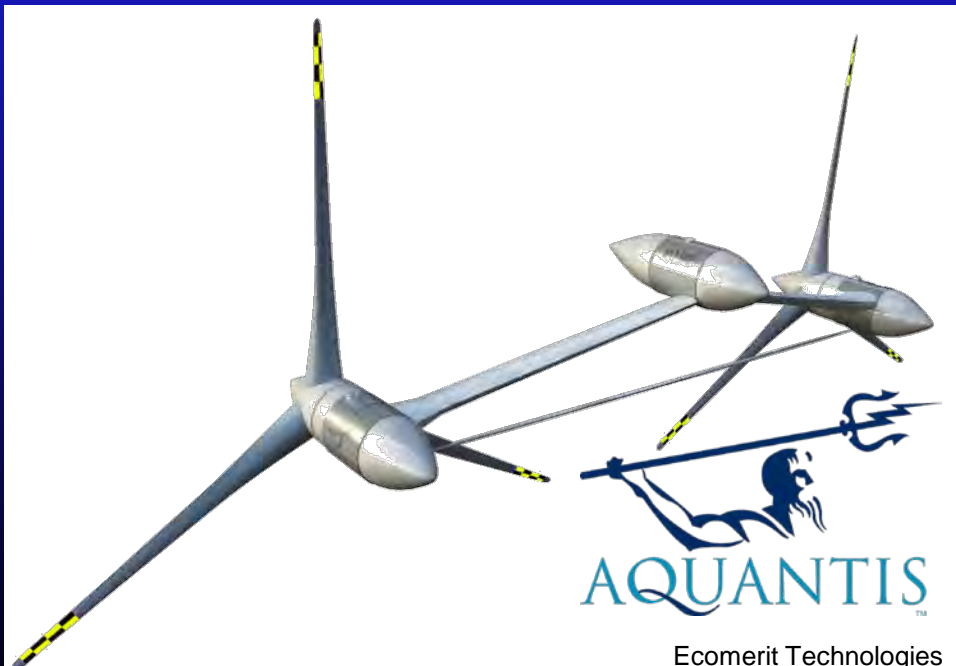
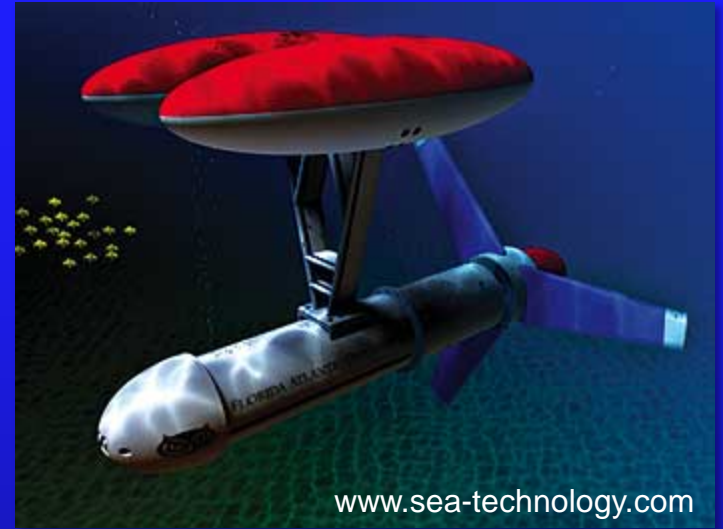
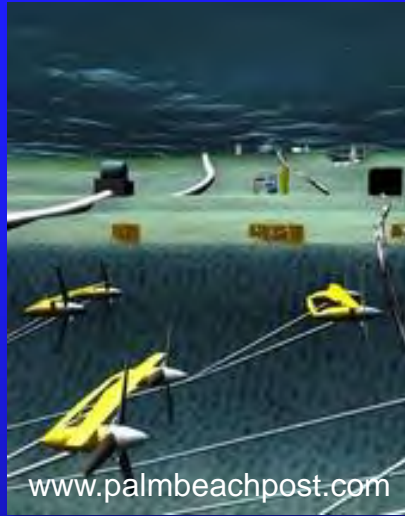
**Dehlsen Associates is working in collaboration with**

- Ecology & Environment, Inc.**
- Nova Southeastern University Oceanographic Center**
- Florida Atlantic University/Harbor Branch Oceanographic Institute**



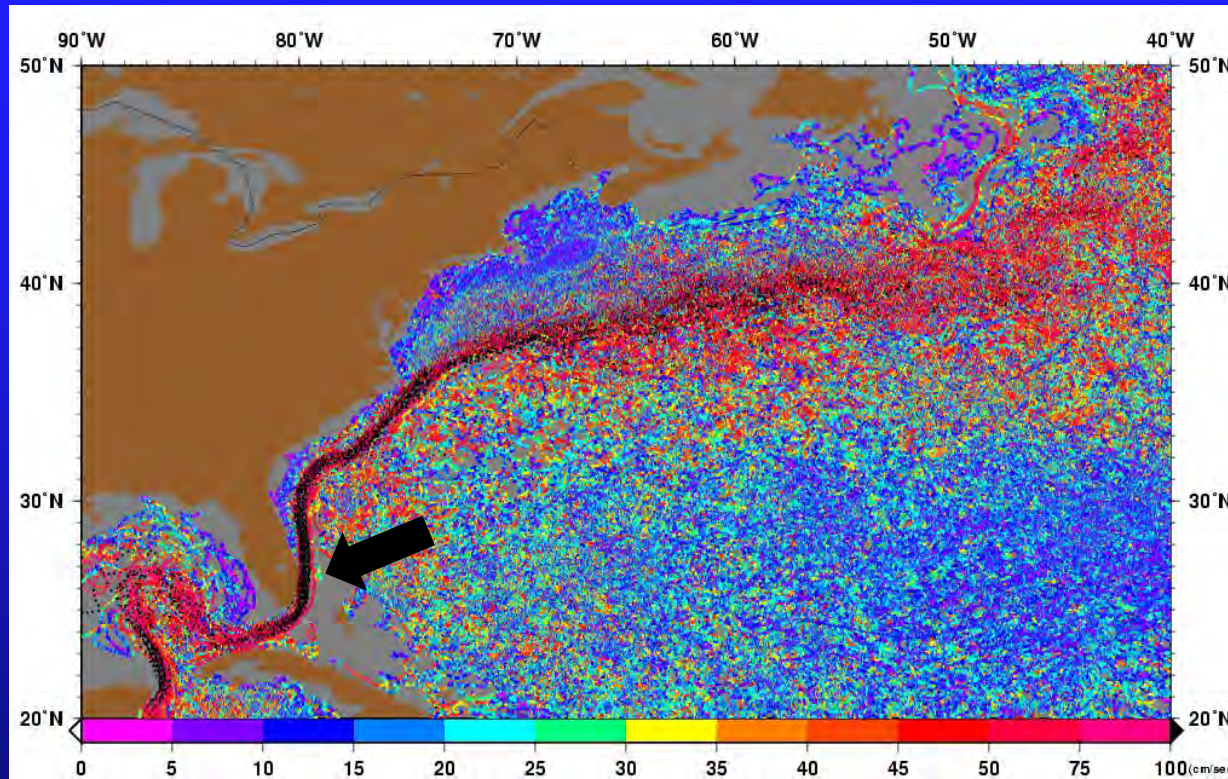
# Renewable Alternative Energy

Anchored  
Hydrokinetic  
Turbines that float  
below the surface  
and utilize the  
Florida Current.





# Favorable Oceanographic Conditions



<http://oceancurrents.rsmas.miami.edu/atlantic/spaghetti-speed/gulf-stream.jpg>

- The Florida Current is a concentrated, fast thermal ocean current located between S.E. Florida and the Bahamas.
- It's speed and proximity to high density coastal populations make it an ideal candidate to extract energy from ocean currents for electricity.

# Project Goals -

- Develop acceptable benthic habitat survey protocols in consultation with regulatory & resource management stakeholders.
- Apply these protocols as an example and to provide baseline information for portions of suitable areas.



# Outcomes -

- Reduce the uncertainty of the survey requirements and regulatory review processes.
- Reduce the time and costs associated with siting and permitting of these projects.



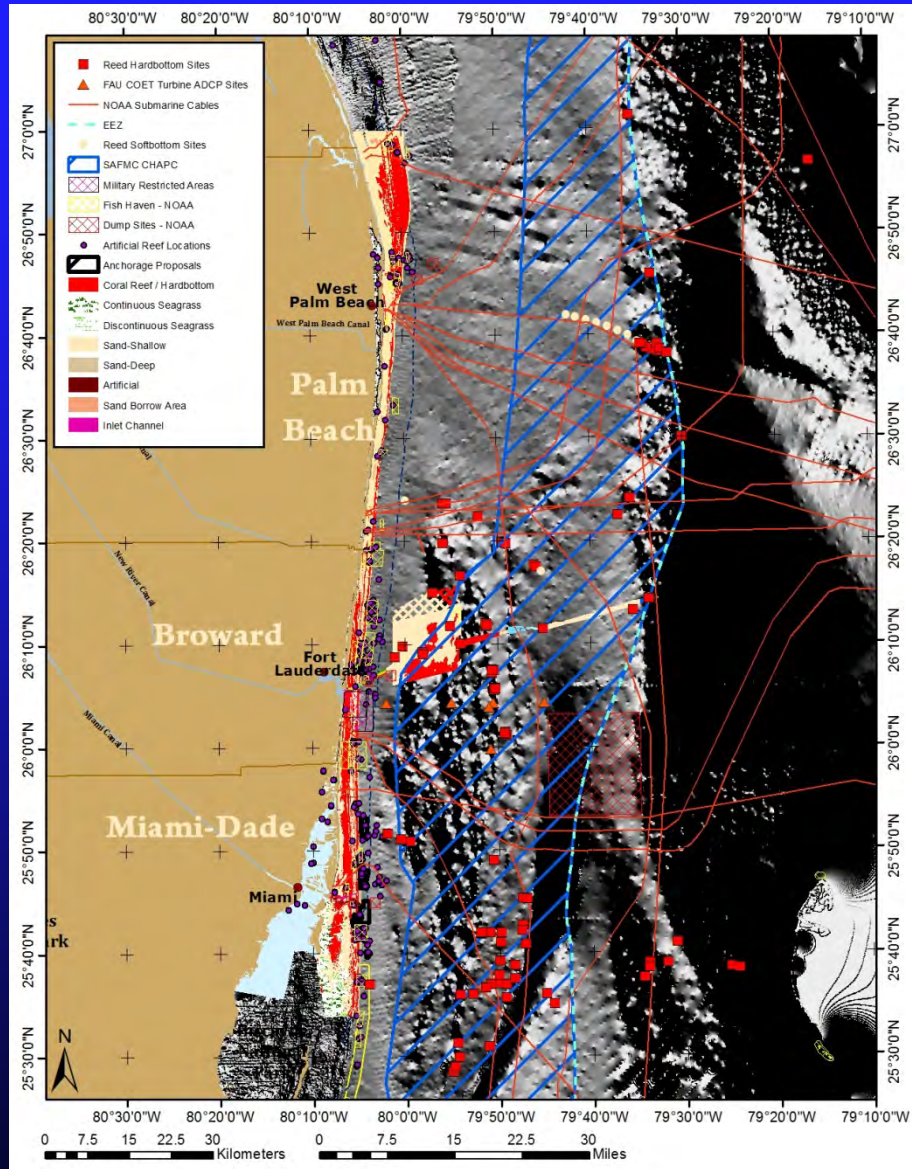


# Compile Existing Data

Compile existing benthic data sets with objectives of:

- Assessing currently known coverage of benthic habitats
- Identifying areas of potential use conflicts (submerged cables, dump sites, etc.)
- Developing common terminology for previously mapped habitat types and biotic assemblages.

Over 40 data sources were consulted, including NOAA, SAFMC, FDEP, FFWCC, etc.



# Engage Stakeholders

**Collect Information from project developers to understand their needs.**

- **A workshop was conducted with representatives from industry, regulators, utilities, consultants, attorneys, academia, government and NGO's to understand the needs from a development perspective.**
- **A questionnaire was distributed to all known potential project developers and utilities interested in siting renewable ocean energy facilities in SE Florida.**

# Engage Agencies

Understand what's required for siting an area from an agency's perspective.



- Bureau of Ocean Energy Management, Regulation and Enforcement (BOEM); formerly known as Mineral Management Services (MMS)
- FDEP Office of Intergovernmental Programs Offshore Projects Section
- National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries)
- Florida Fish and Wildlife Conservation Commission
- South Atlantic Fishery Management Council
- Florida Department of State - State Historic Preservation Office



# Develop Framework

Prepare a work plan based on the following:

- Information from previously acceptable siting studies
- Information collected from project developer consultation
- Information gained by agency consultation

Vet work plan through agency review process.

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## WORK PLAN

Siting Study Framework and Survey Methodology  
for Marine and Offshore Hydrokinetic Energy Projects  
in the  
Atlantic Ocean, Offshore Southeast Florida

April 6, 2010

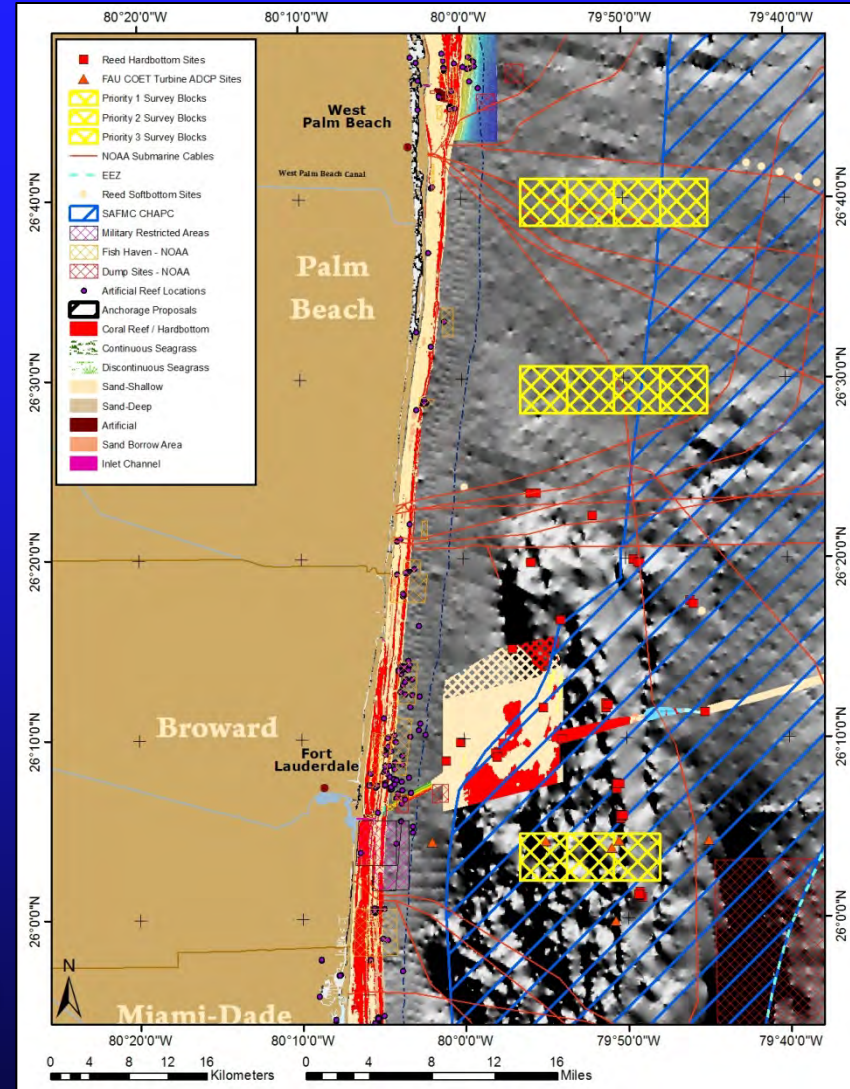
Submitted to:  
Dehlsen Associates, LLC

Submitted by:  
Ecology & Environment, Inc., Miami Lakes, Florida,  
Nova Southeastern University Oceanographic Center, Dania Beach, Florida,  
and  
Florida Atlantic University Center for Ocean Energy Technology/  
Harbor Branch Oceanographic Institute, Dania Beach, Florida

# Implement Work Plan

## Conduct Field Surveys

- Identify most suitable sites using developer data and existing mapping data.
- Conduct Geophysical Mapping to obtain high resolution bathymetry and backscatter.
- Conduct ROV survey to collect GPS referenced video and still photography.
- Interpret ROV and Bathymetric data into a benthic habitat map.



# Siting Considerations

Goal - Take advantage of the Florida current in depths between 200 and 500 m

## Challenges

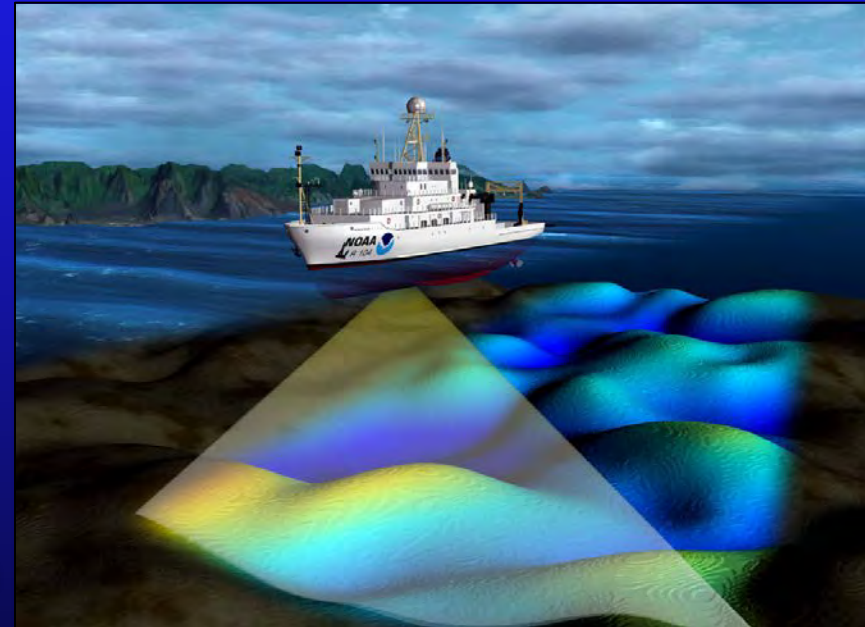
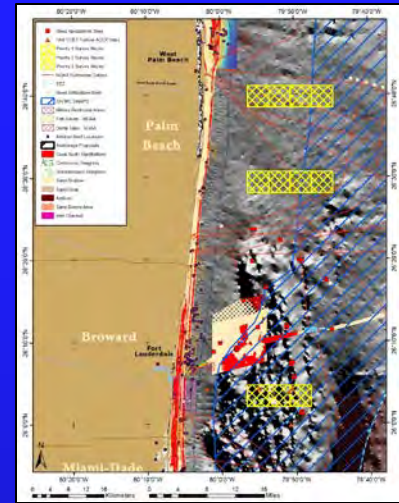
- **Many potential use conflicts**
  - Navy's offshore testing range (Naval Surface Warfare Center Carderock Division, Dania, FL)
  - Areas designated as Fish Havens and dump sites
  - Fiber optic cable crossings
  - Existing offshore mining sites of beach-quality sand
  - Ship Traffic, proximity to shipping lanes, and major ports
- **Presence of ecologically sensitive and important benthic habitats**
  - Extensive shallow-water shore-parallel reefs and ridge complex (Northern extension of Florida Reef Tract), particularly in Miami-Dade and Broward Counties.
  - Extensive deep-water reefs (Miami Terrace) that extend from Miami-Dade to southern Palm Beach County.
- **Resource Management Designations**
  - Coral Habitat Areas of Particular Concern offshore of the S.E. United States
  - Critical Habitat for threatened acroporid coral species
  - Essential Fish Habitat



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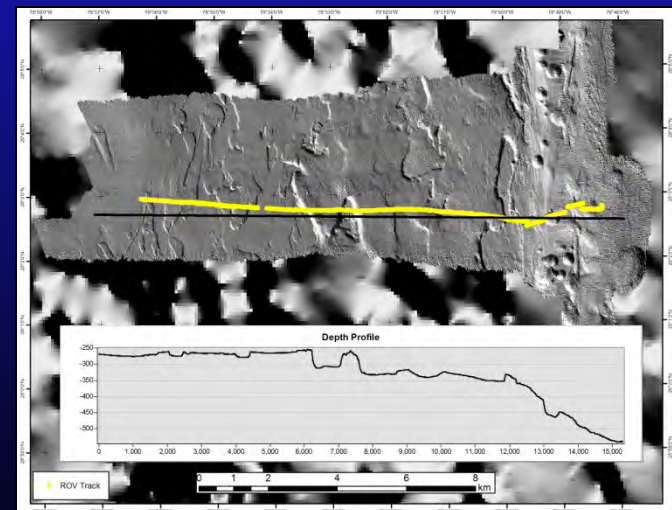
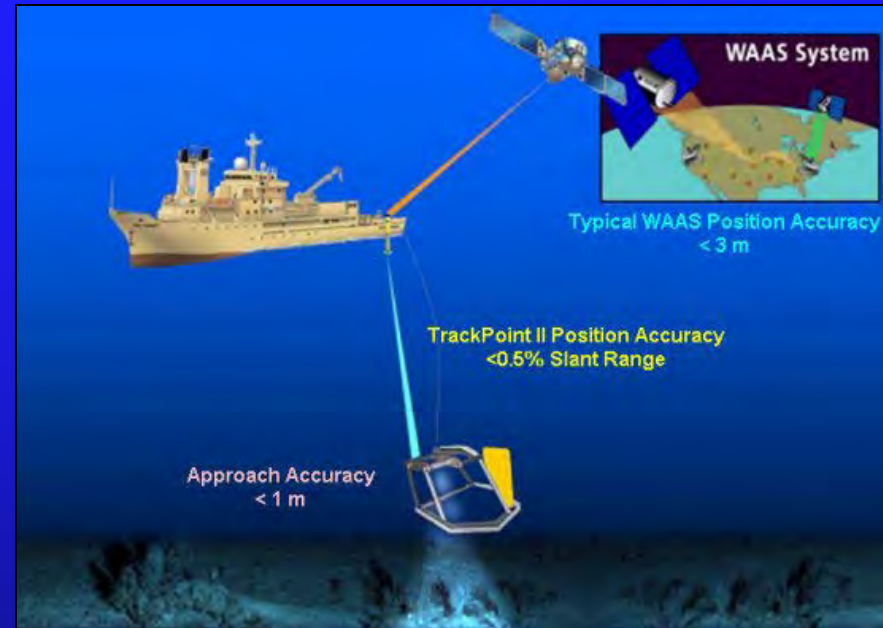
Conceptual Multibeam Sonar survey

Image courtesy of NOAA National Ocean Service via Flickr

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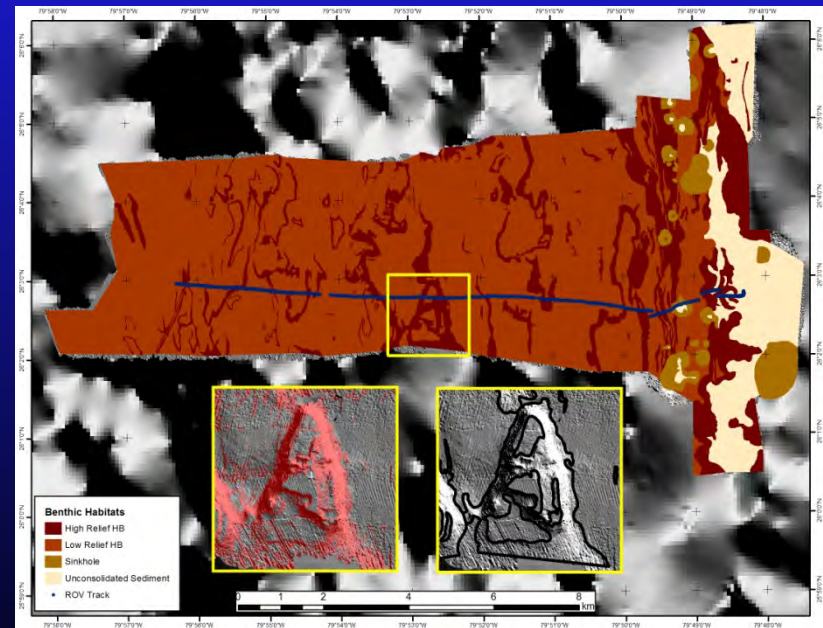
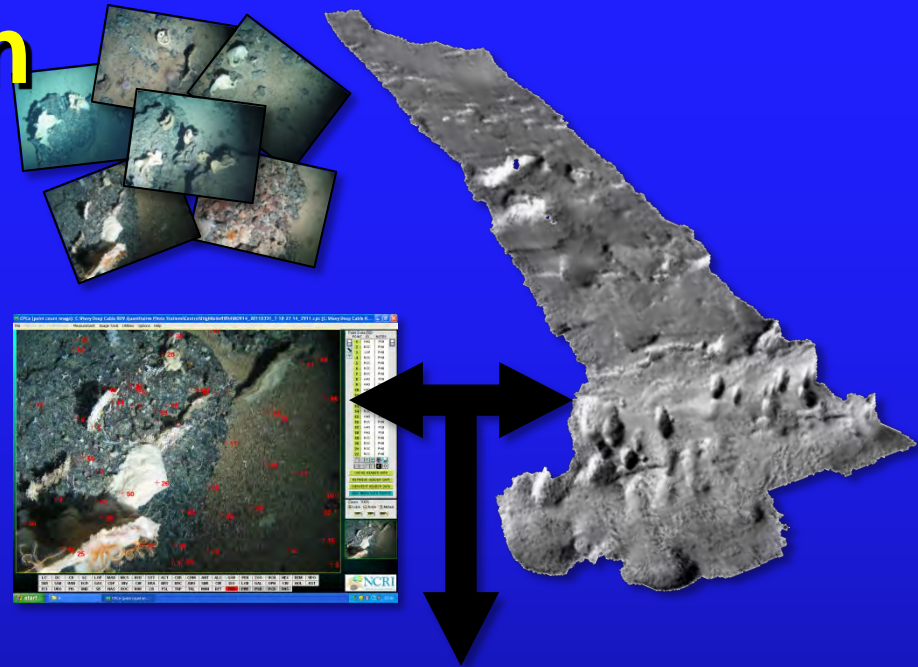




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Draft Benthic Habitat Map



# Reporting & Dissemination

## Presentation of Siting Study Results

- Submit final report to DOE for publication and release to public.
- Present the results at professional and scientific conferences and meetings.

## Project's Current Status:

- Finalize data analyses and benthic habitat maps.
- Finish drafting the final report.

**DRAFT REPORT**  
**Siting Study Framework and Survey Methodology**  
**for Marine and Offshore Hydrokinetic Energy Projects**  
**in the**  
**Atlantic Ocean, Offshore Miami-Dade, Broward and Palm Beach Counties**  
**Southeast Florida**

October 2, 2011  
**(Revision 0)**

Submitted to:  
**United States Department of Energy**  
Golden Field Office  
1617 Cole Boulevard  
Golden, Colorado 80401

DOE Grant Award Number: DE -EE0002855.000

Submitted by:  
**Dehlsen Associates, LLC**  
**in Cooperation with:**  
Ecology & Environment, Inc.,  
Nova Southeastern University Oceanographic Center,  
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# Summary

- **Methodological protocols have been created to assist the development of renewable energy projects in SE Florida using MSP principles.**
- **The protocols were created in consultation stakeholders.**
- **They provide an agency-vetted methodology for developers to site locations for projects with potential impacts to sensitive deep water benthic communities.**
- **They identify and provide present baseline information for limited portions of suitable areas for developers to utilize immediately.**
- **MSP must play an integral part in future regional energy project development.**

# Acknowledgements

## Funding & Document Review:



## Developer questionnaire participants:





**Thank You**