Atlantic Marine Assessment Program for Protected Species (AMAPPS) (AT-10-x11)

Total Cost: $7.6 million

Period of Performance: FY 2010-2014

Interagency Agreement with National Marine Fisheries Service

Other Participants: US Fish and Wildlife Service, US Navy – Chief of Naval Operations

BOEM Contact: Dr. Deborah Epperson

Objectives

1. Collect broad-scale data on the seasonal distribution and abundance of marine mammals (cetaceans and pinnipeds), sea turtles, and sea birds.

2. Collect similar data at finer scales at sites of particular interest.

3. Conduct tag telemetry studies of sea turtles, pinnipeds and seabirds.

4. Explore alternative platforms and technologies to improve population assessment studies.

5. Assess the population size of surveyed species at regional scales.

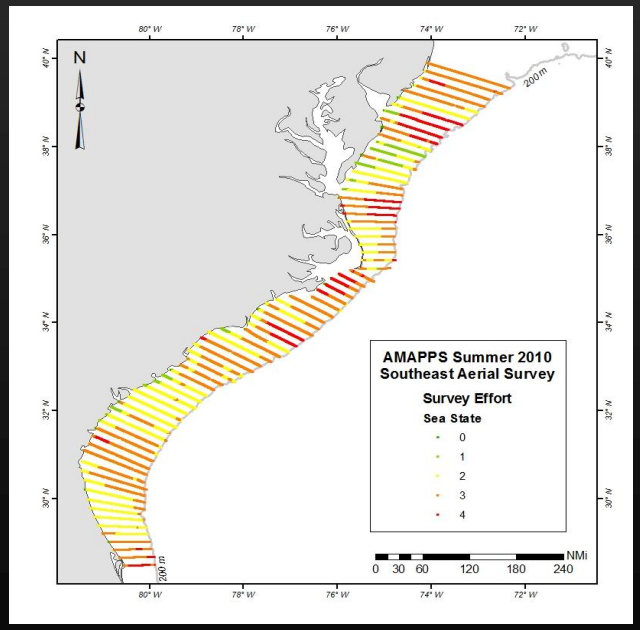
6. Develop models and associated tools to translate these survey data into seasonal, spatially-explicit density estimates incorporating habitat characteristics.

Progress Report

2010 – aerial surveys (vessels redirected to the GOM for oil spill work) and sea turtle tagging

2011 – aerial surveys, vessel surveys, seal and sea turtle tagging

2012 – aerial surveys



Biomass and Mass Balance Isotope Content of Seep Populations on the Upper Slope of Gulf of Mexico Determined from Archived Samples (GM-09-01-08)

Total Cost: $85,550

Period of Performance: FY 2010-2012

Louisiana State University Coastal Marine Institute

BOEM Contact: Maureen Mulino

Archived Samples

Bathymodiolus childressi
(mussel)
Bathynerita naticoidea
(heterotrophic snail)

Collected in Green Canyon 1989-1992
(Chemo 1)

Sample Analyses

250 mussels and 250 nerites each analyzed for

1. Biomass
2. Condition Index
3. Trophic Position Based on $\delta^{13}C$, $\delta^{15}N$, $\delta^{34}S$

Null Hypotheses To Be Tested

1. Biomass-based Condition Index of mussels and nerite snails show no difference whether collected from the inner (near the seep) or outer (at distance from the seep) portions of the mussel aggregate.
2. Trophic position as indicated by stable isotopes for mussels and the nerite snail show no significant difference whether collected from the inner (near the seep) or outer (at distance from the seep) portions of the mussel aggregate.

Characterization and Potential Impacts of Noise Producing Construction and Operation Activities on the OCS (GM-09-11)

Total Cost: $494,525

Period of Performance: FY 2009-2011

(Extended to a total of 60 months if the Option Phase II is exercised).

Contact: Dr. Donald (Tre) Glenn

Objectives

Phase I - Baseline Data: identify and characterize the levels and sources of ambient noise in surrounding waters within the areas of concern prior to construction of an offshore wind facility.

Phase II (Option): Quantify the relative contribution of construction and operation of an offshore wind facility to ambient noise levels and consequently, the potential impact(s) to marine resources.

Methods

- Study areas:
  - Horseshoe Shoal off the coast of Cape Cod – Nantucket Sound
  - Offshore New Jersey / Delaware – Delaware Bay
- Characterize ambient noise measurements on the Atlantic OCS (Phase I).
- Characterize underwater noise generated during construction and operation (Phase II).
- Characterize specific sources of noise.
- Identify major noise-producing activities.
- Record measurements of noise to estimate:
  - acoustic footprint of the activities;
  - duration;
  - frequency;
  - intensity; and
  - relative contribution to ambient noise levels.
- Estimate potential impacts to relevant species.

Deep-Water Reconnaissance of Potentially Sensitive Biological Features (PSBF's) Surrounding Shelf-Edge Topographic Banks in the Northern Gulf of Mexico (GM-11-01a and GM-11-01b)

Cost = $516,142 + $474,063 = $990,205

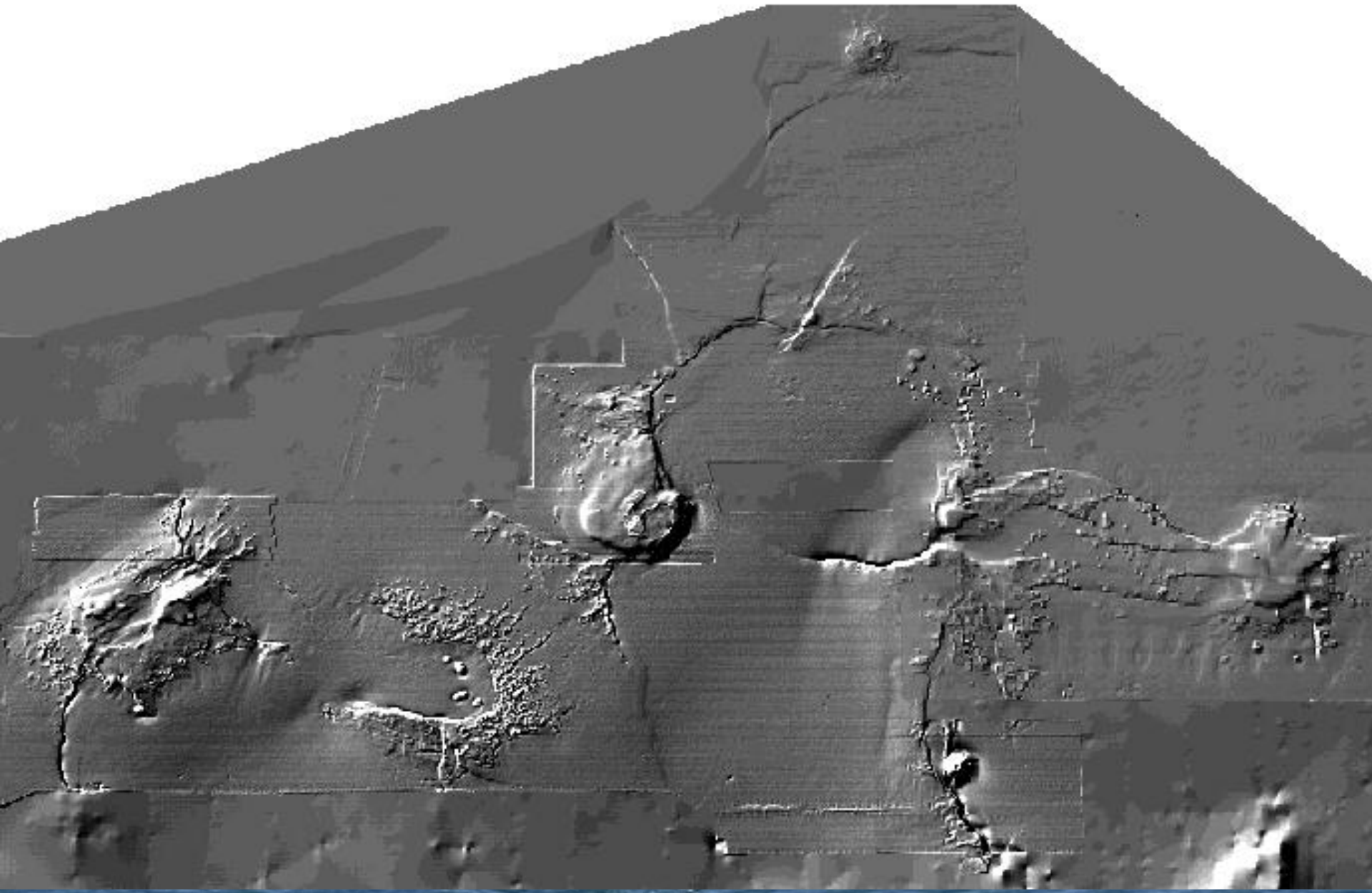
Period of Performance: FY 2011-2015

Interagency Agreement with NOAA Flower Garden Banks National Marine Sanctuary and cooperative agreement with LUMCON

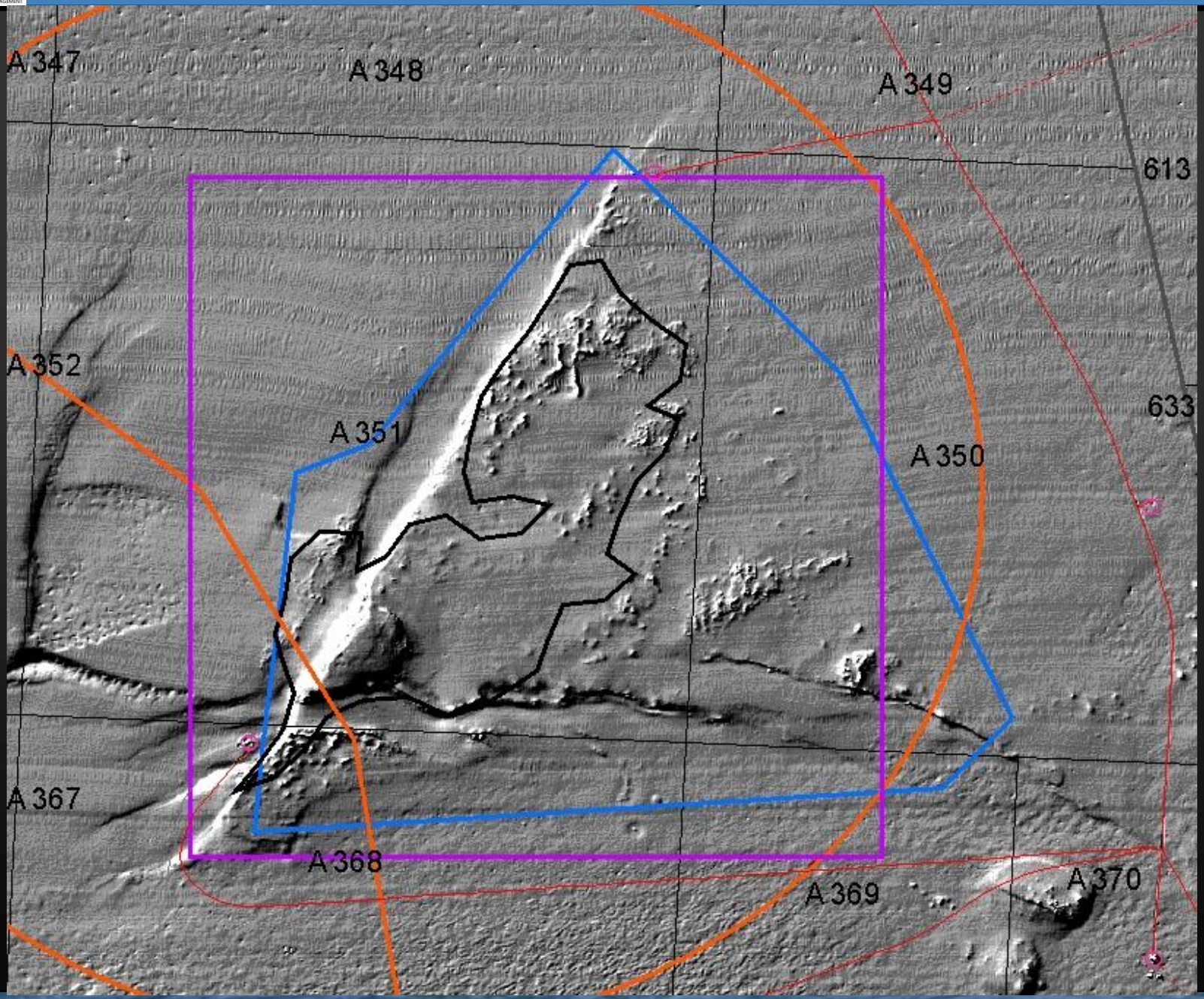
Other Participants: University of North Carolina Wilmington

BOEM Contact: James Sinclair

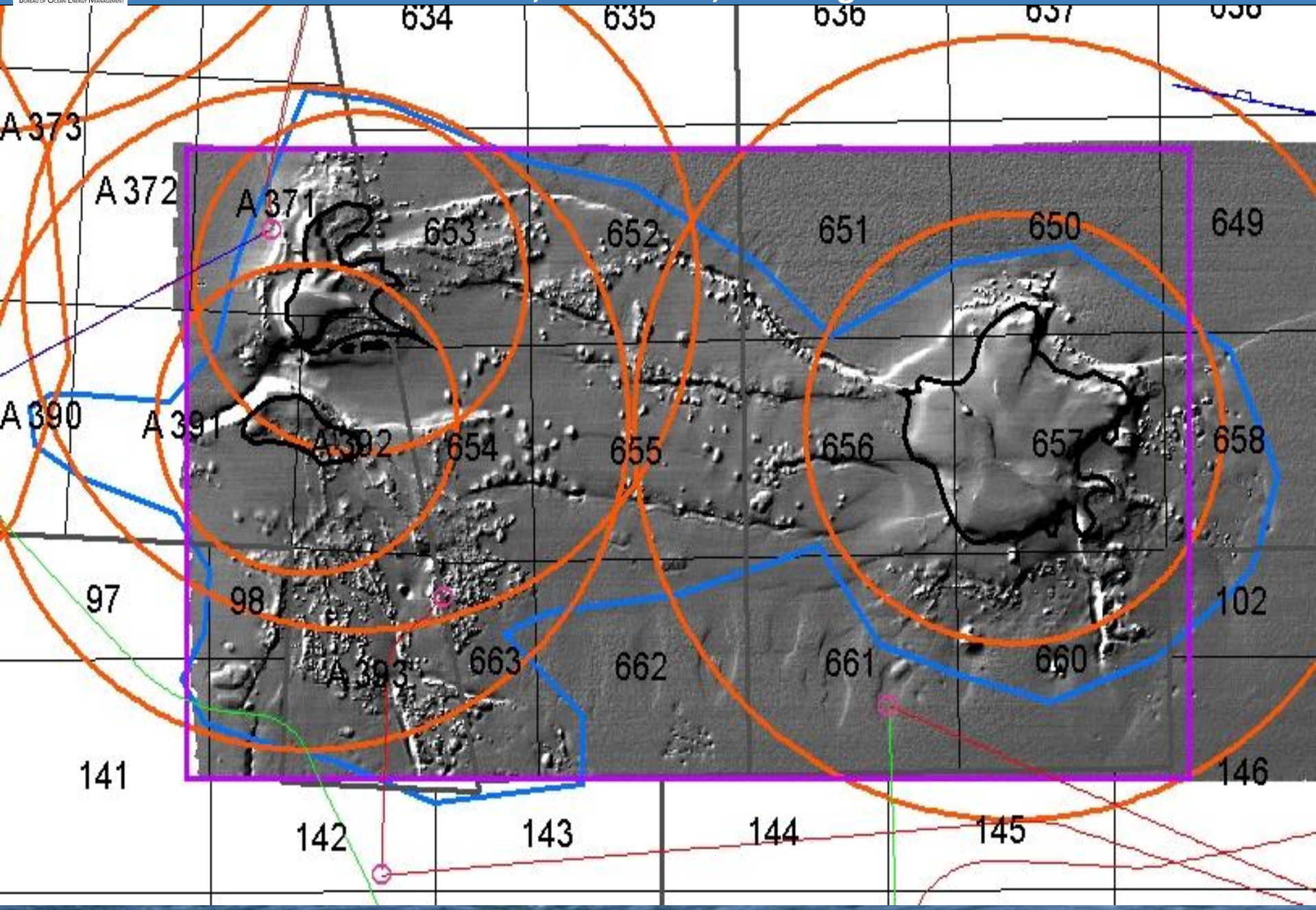
West Flower Garden Bank to Bright Bank



MacNeil Bank



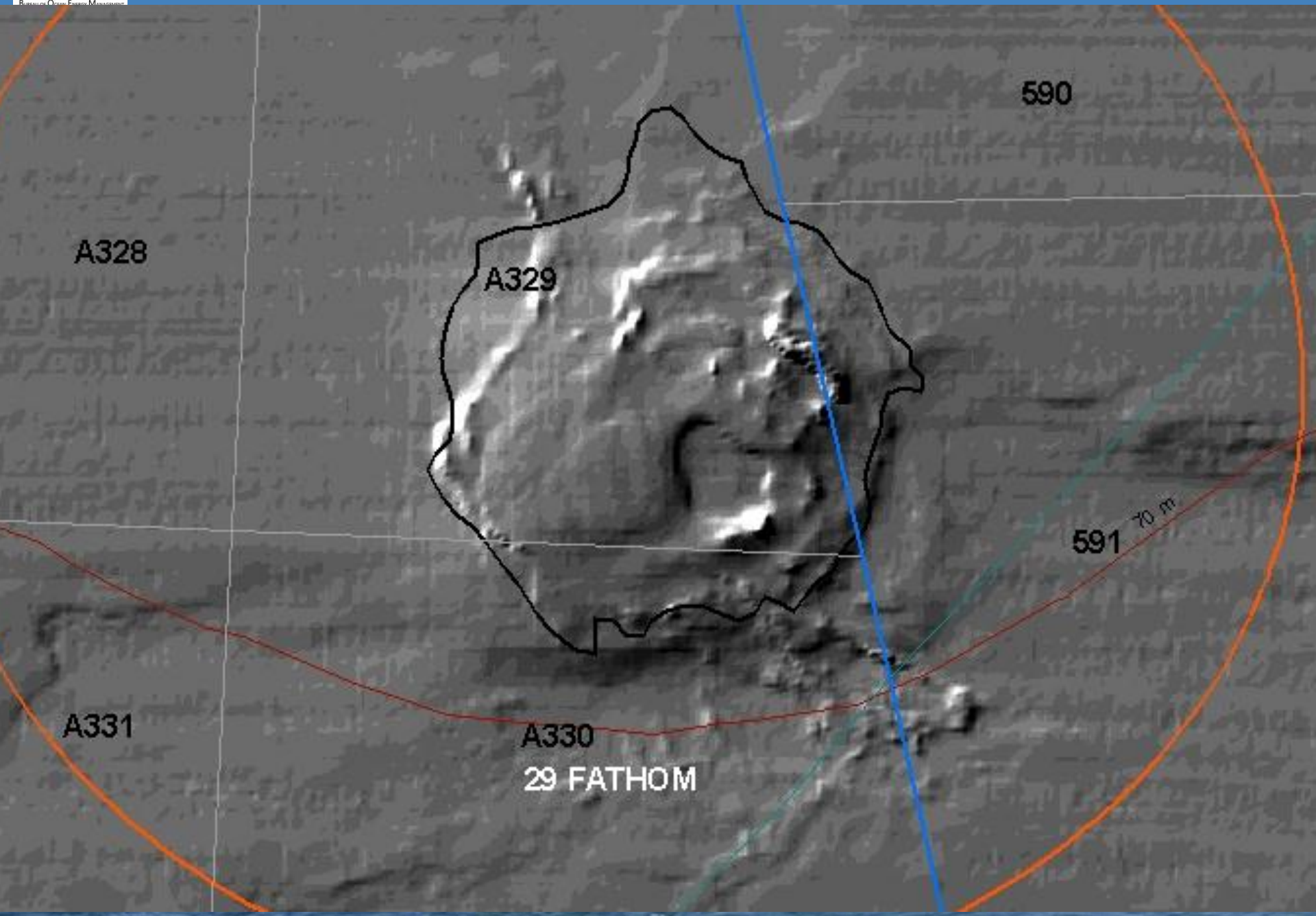
Rankin, 28 Fathom, and Bright

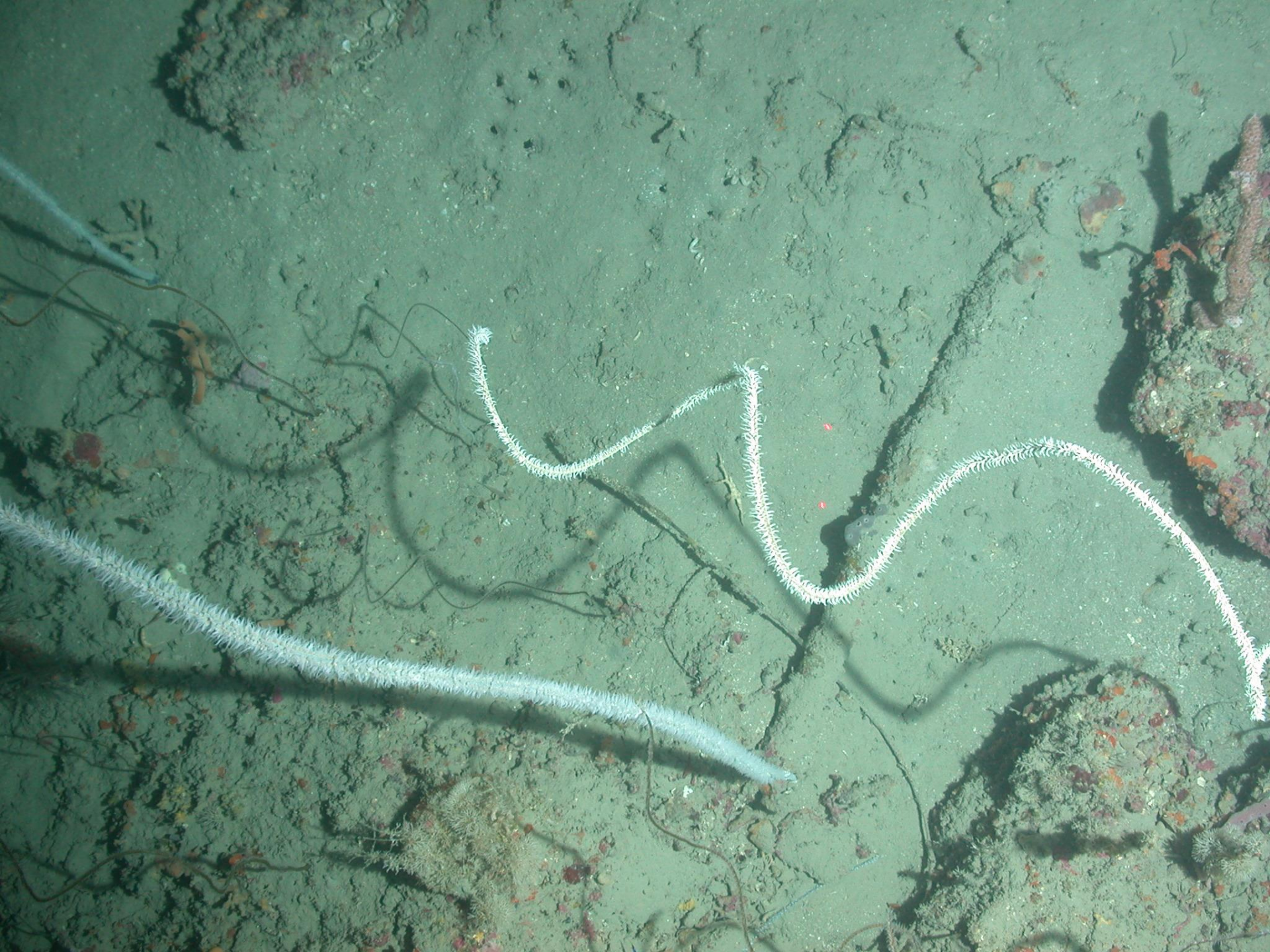


Objectives

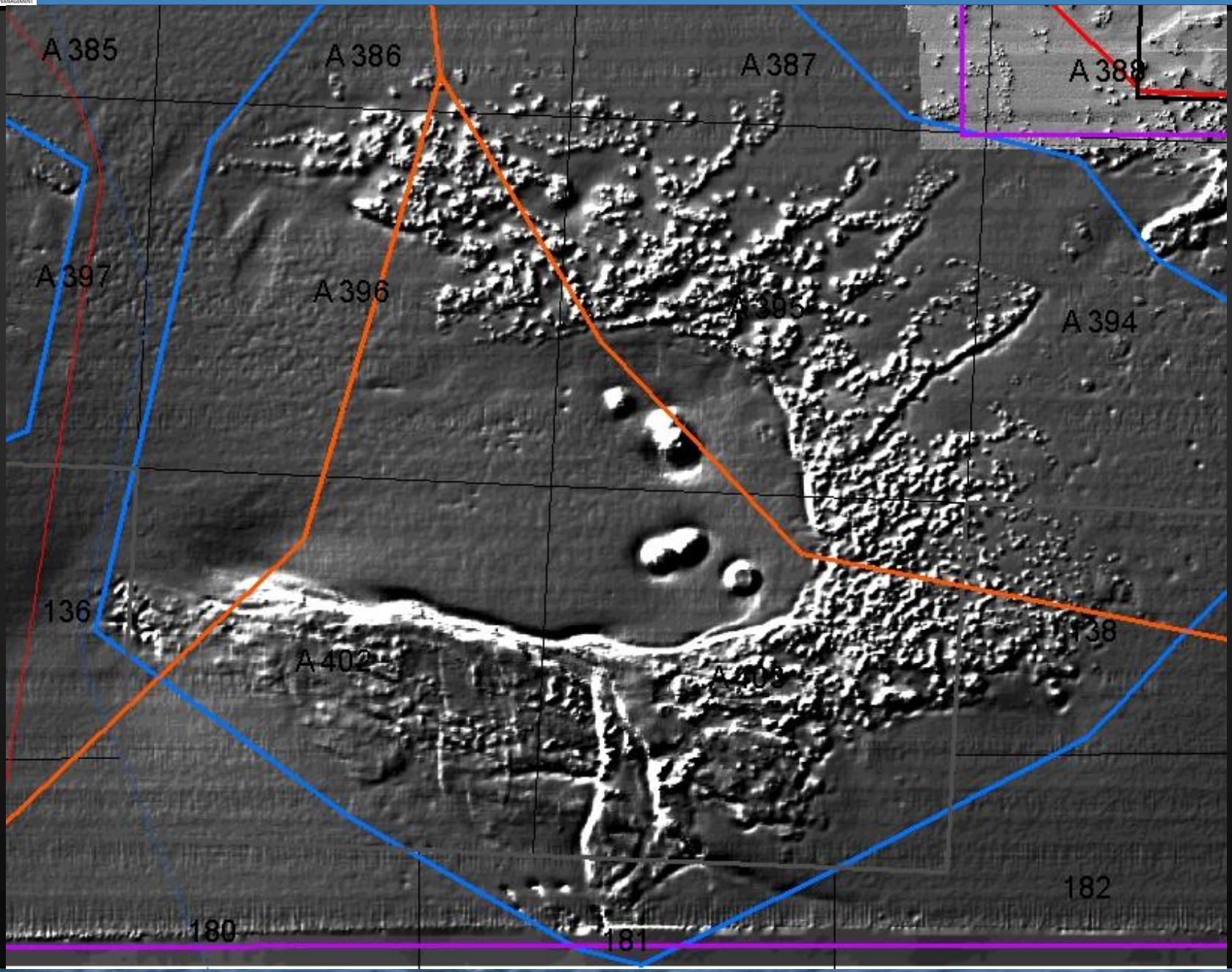
1. Characterize the biological communities.
2. Log and identify any new species or extended distributions.
3. Document the physical character of shelf-edge PSBF's.
4. Correlate biologic variables with physical characteristics to predict the community character of shelf-edge PSBF's.
5. Development habitat characterization maps.

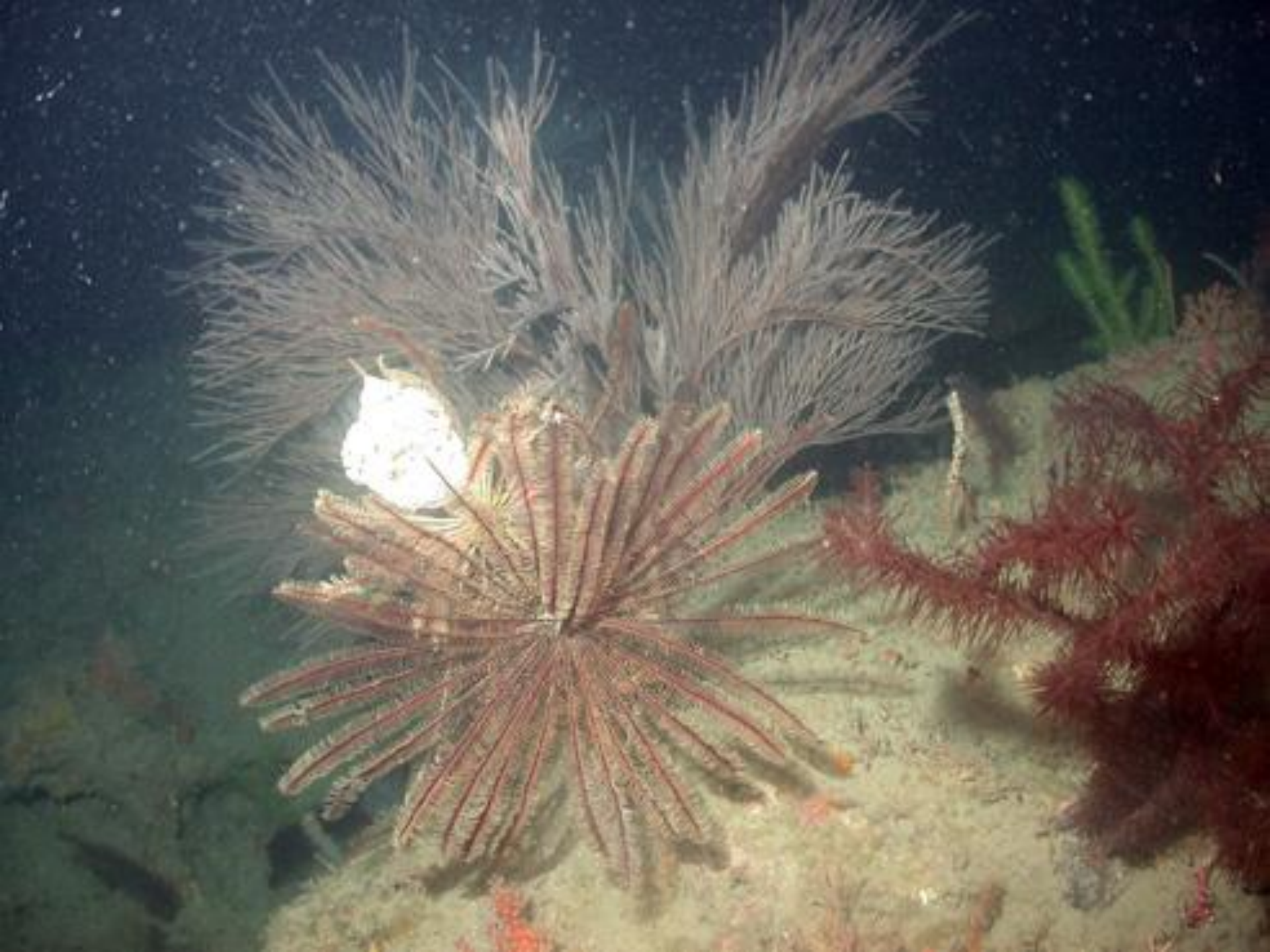
29 Fathom Bank

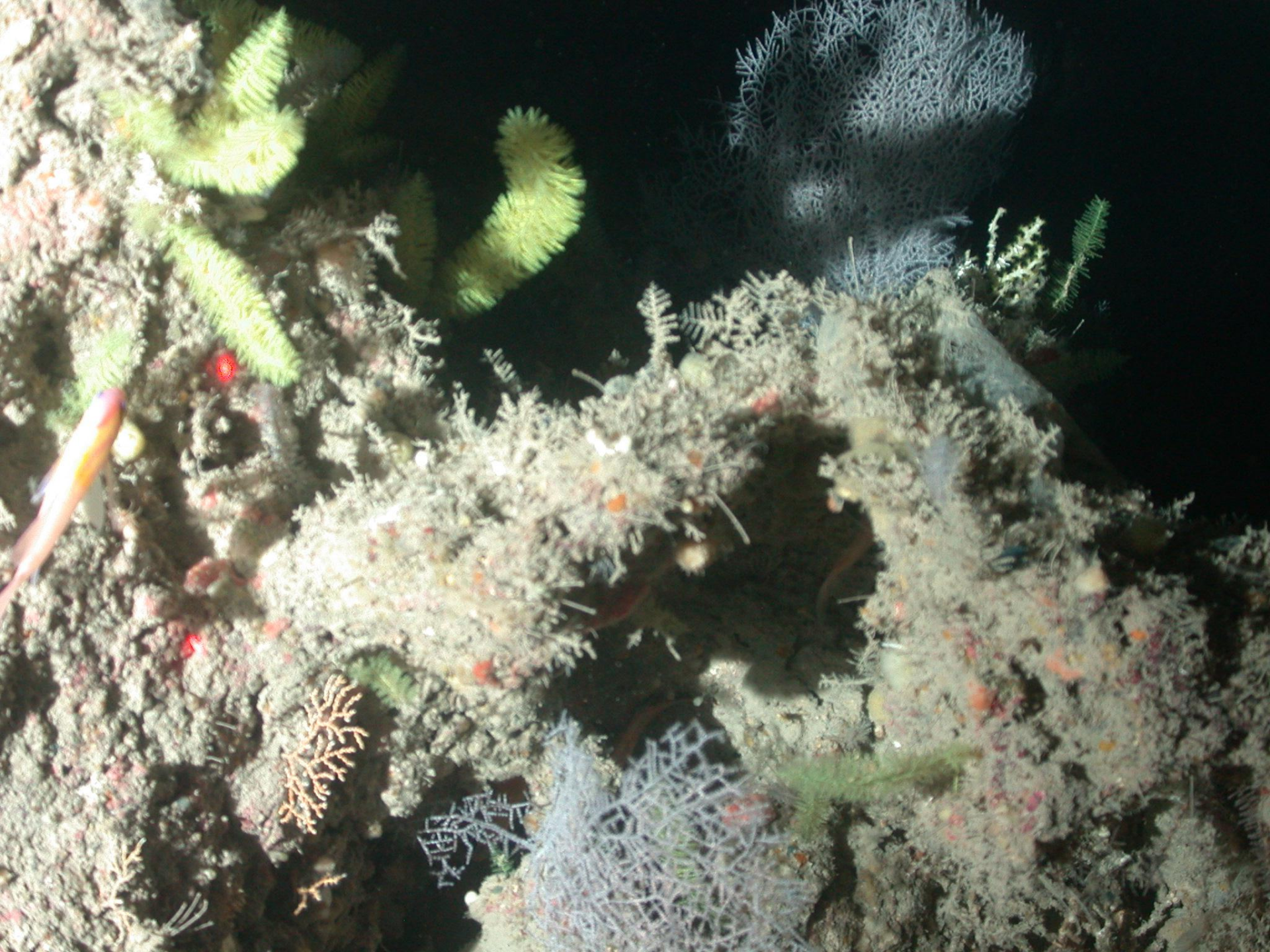


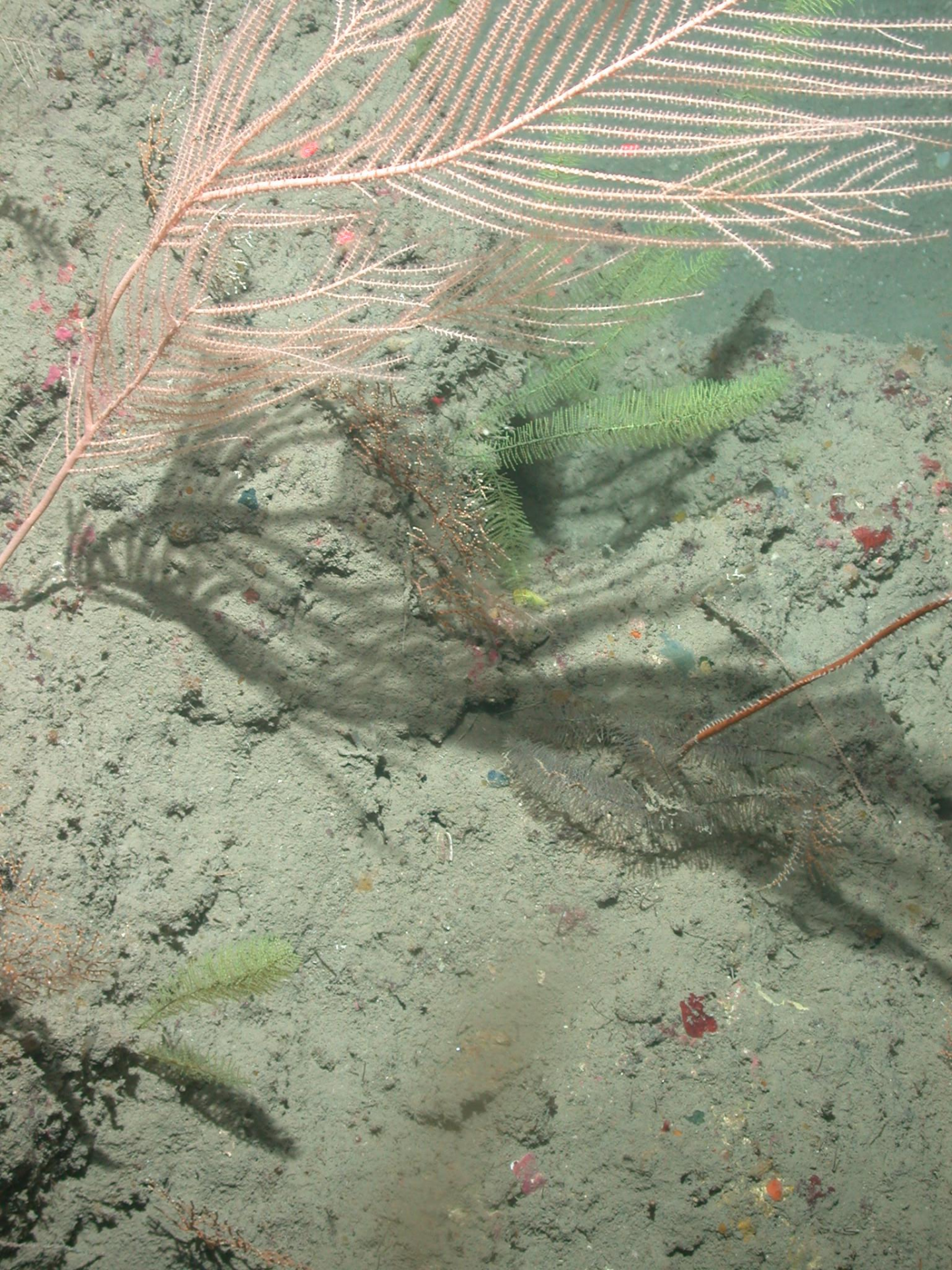


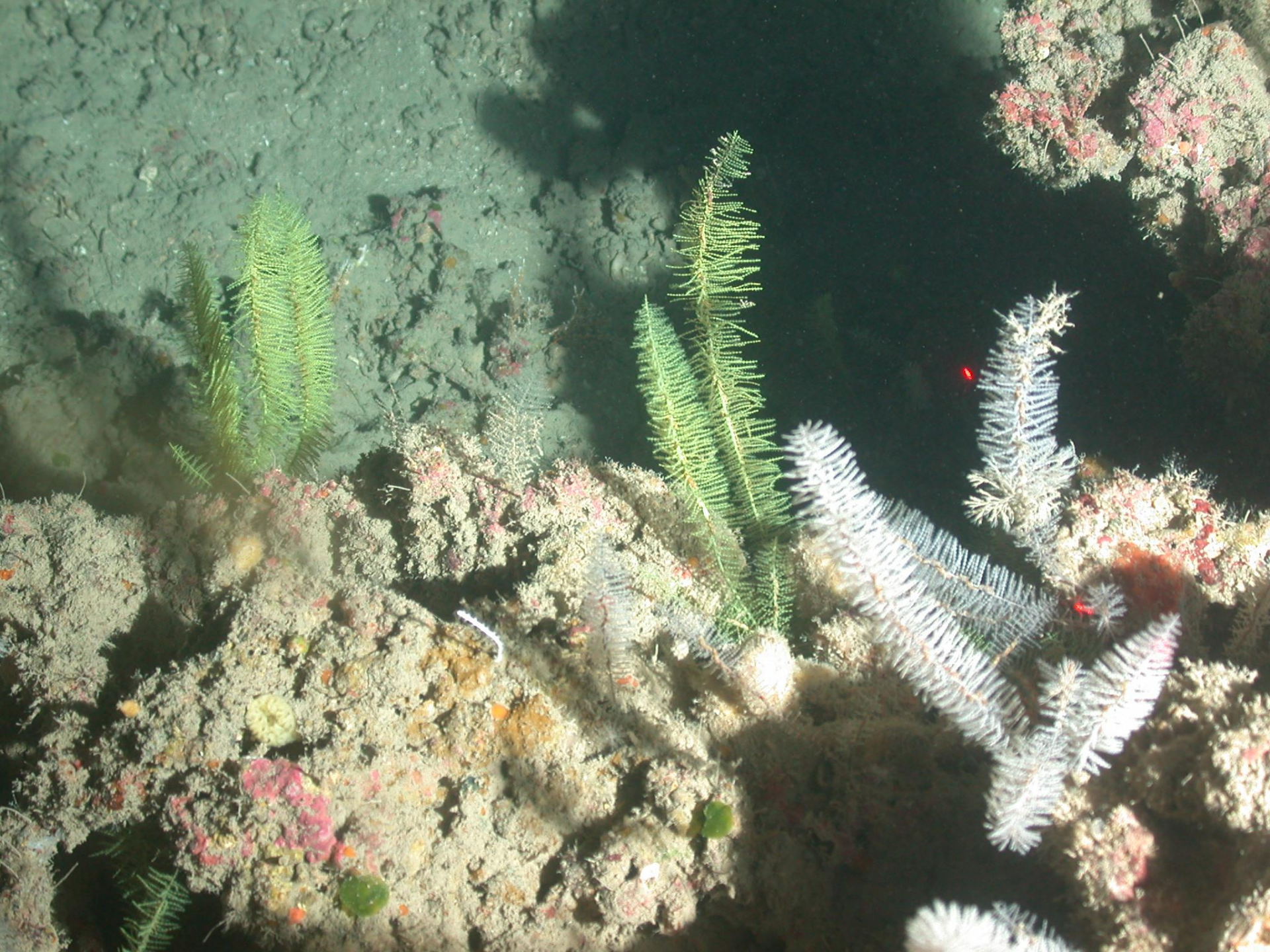
Horseshoe Bank











Digitization and Reanalysis of Northern Gulf of Mexico Continental Slope Study Seafloor Photographs

Total Cost: $117,281

GM-92-42-140

Period of Performance: FY 2008-2012

Contact: Michelle Nannen

Purpose of Study

- BOEM funded an extensive benthic photographic survey 1983-1985 that has yet to be fully analyzed.
  - Since survey advances in:
    - Image processing
    - Data storage
    - Digital imaging
    - Spatial statistics
- Digitize and reanalyze existing survey data
- Importance to BOEM:
  - Increase understanding of the distribution of megafauna on the continental slope of the GOM.

Objectives of Study

- Digitize and examine all images previously collected.
- Estimate faunal abundance from photographs.
- Estimate the degree of patchiness across the continental slope.
- Test two hypotheses:
  - the composition and abundance of megafauna are homogenous across all transects
  - megafauna are randomly distributed within transects.

Methodology

- Digitization of 45,000 images
- Images tagged for incorporation of analysis
- Images examined and categorized
- Images stored on DVD
- Summary statistics for each image will be calculated based on color and texture
- Products: Final report and digital image archive

Status

- All images digitized and in binders
- Work outstanding
  - Submission of final report
  - Submission of archival digital files
  - Submission of the original film to an accepted archive

Forcing Functions Governing Salt Transport Processes in OCS Navigation Canals and the Surrounding Wetland Landscape, Utilizing Houma Navigation Canal (HNC) as a Surrogate Canal (GM-10-01)

Total Cost: $278,532

GM-10-01

Period of Performance: FY 2010-2011

Contact: Arie Kaller

BOEM NEEDS

Baseline salinity behavior must be established in these canals in order to determine if OCS activities alter this behavior in a way that may induce canal widening and eventual wetland loss.

Background

- Saltwater intrusion can occur through a variety of processes (e.g. wind-driven estuary-shelf exchanges, baroclinic exchanges, and tidal diffusion).
- Understanding these processes is important to accurately anticipate the effects future actions and circumstances may have on salt transport in estuarine settings.
- The Houma Navigation Canal (HNC), which serves as a major conduit for salt to the marshes that surround it, was chosen for the study.

Objectives

- Determine how salt transport in OCS navigation canals is governed by forcing functions.
- Determine how salt flux between OCS navigation canals and the fringing marsh landscape relates to the extent of salt wedge development in the canal, and how OCS vessel traffic may augment or inhibit this salt flux.
- How salinity fluctuations in the fringing marsh landscapes vary with salt flux measured through cuts or channels that connect them to nearby OCS navigation canals.

Methods

- **Continuous salinity and velocity data:** collection of monthly high temporal resolution current velocity and salinity at multiple depths along the length of the channel with acoustic Doppler current profilers (ADCP's) and conductivity-temperature (CT) loggers
- **Synoptic (25-hour tidal cycle) salinity and velocity data:** collection of high vertical resolution current velocity and salinity data hourly with boat-mounted ADCP's and conductivity-temperature-depth (CTD) profilers during high (tropic) and low (equatorial) tide ranges and during periods of high (spring) and low (autumn) buoyancy forcing

Methods

- **Monthly salt wedge mapping:** collection of high vertical resolution salinity data monthly at 20 locations
- **Salt flux from HNC to surrounding marshes:** collection of high temporal resolution of current velocity and salinity data at two locations where HNC water can exchange freely with water in the surrounding marsh with acoustic Doppler velocimeters (ADV's) and CT loggers
- **Marsh salinity monitoring**: collection of high temporal resolution of salinity at 5 locations in the marsh landscape that are hydrologically connected to the HNC

Current Activities

- Continued collection of continuous salinity and current velocity at 3 locations along the HNC main channel
- Continued spring and fall synoptic salinity and velocity surveys over tidal cycles
- Continued monthly Conductivity-Temperature-Depth (CTD) Transect along HNC

Future Activities

- Data assimilation and QA/QC
- Assessment of the impacts of vessel wakes on salt transport from HNC to surrounding marshes
- Data analysis
- Draft report preparation, internal review, and revisions
- Submission of final report

EcoSpatial Information Database – U.S. Atlantic Region (GM-08-x13)

Total Cost: $2,050,952

Period of Performance: FY 2009-2012

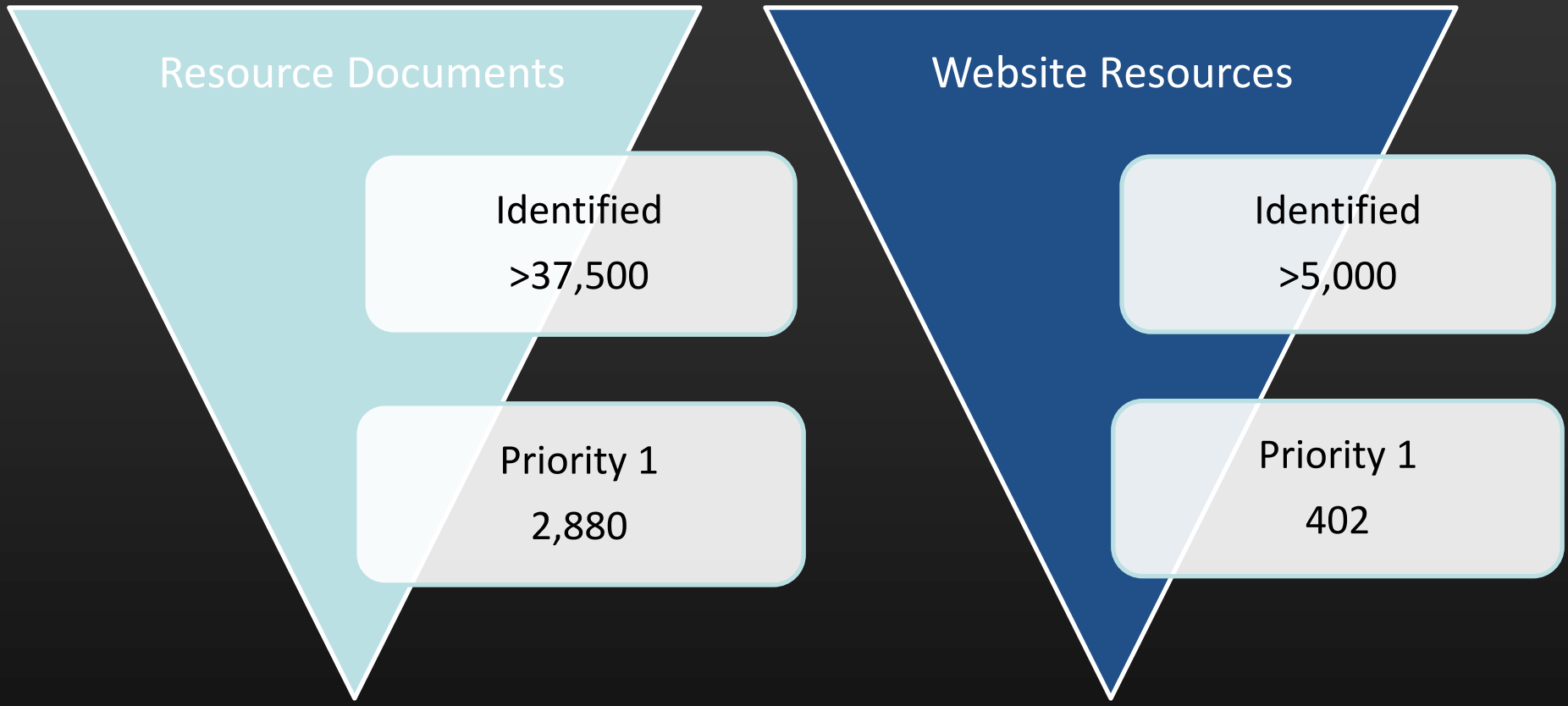
AMEC Earth & Environmental, Inc.

BOEM Contact: James Sinclair

Objectives of ESID

1. Support ecosystem-based management of activities permitted by BOEM by creating a database with the following characteristics.
    1. Use a GIS map interface.
    2. Georeference ecological information resources and associated data.
    3. Contains full text of ecological documents and data.
    4. Includes annotated bibliography, metadata, and shapefile for study footprint.
    5. All resources and all pertinent fields are text searchable.
    6. Graphic search via map.
    7. All resources are available for download. (Includes copyright permission and/or link to the copyright owner).
    8. Unlimited in capacity, geography, subject matter, and file type.
2. This project collates ecological information for the North, Mid-, and South Atlantic Planning Areas (limited subjects).
3. Expect future projects for other Planning areas and subjects.
4. Provide public access

Data Collection and Evaluation Results



3,286 Ecological resources included with full bibliographic entries

EcoSpatial Information Database

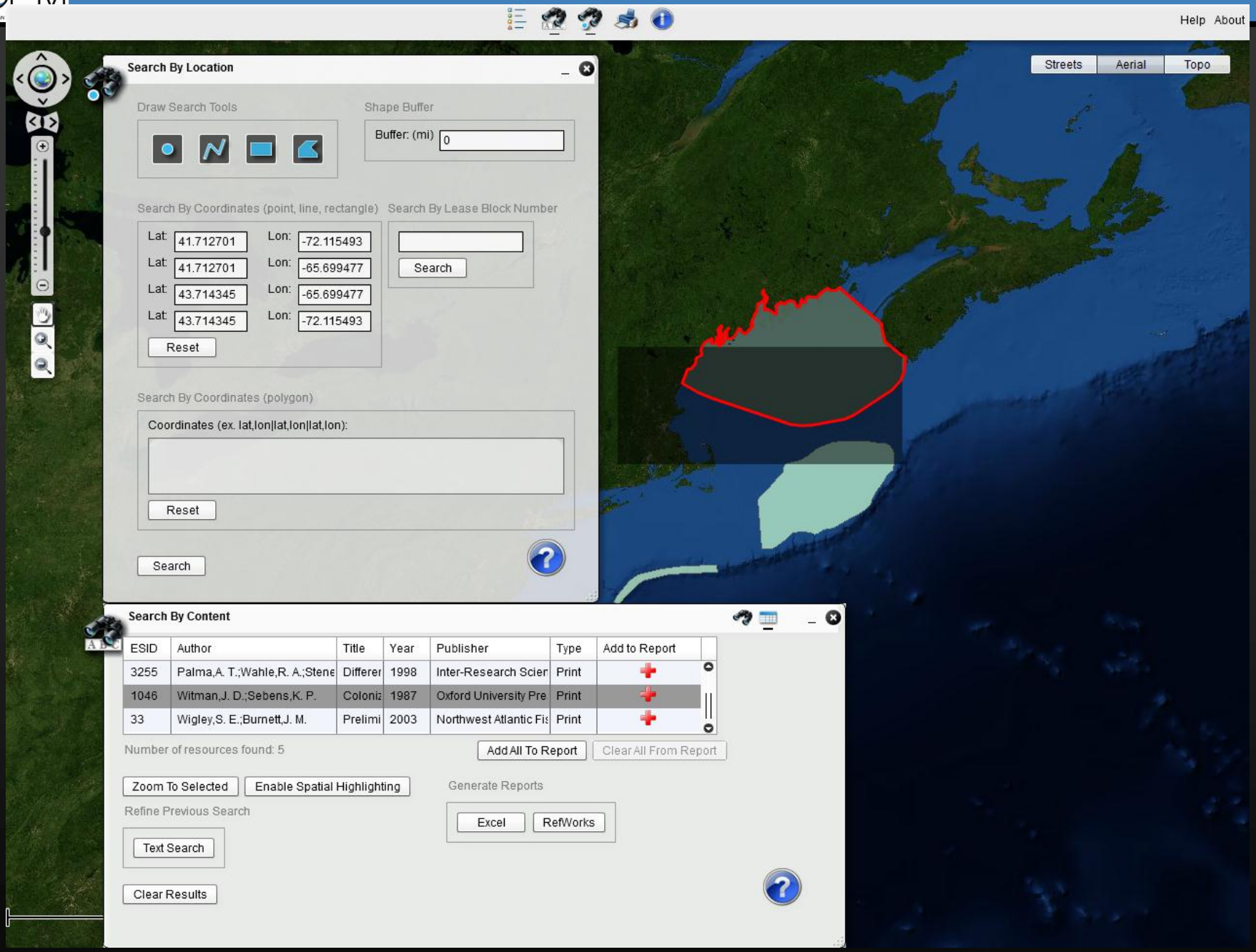
Bureau of Ocean Energy Management

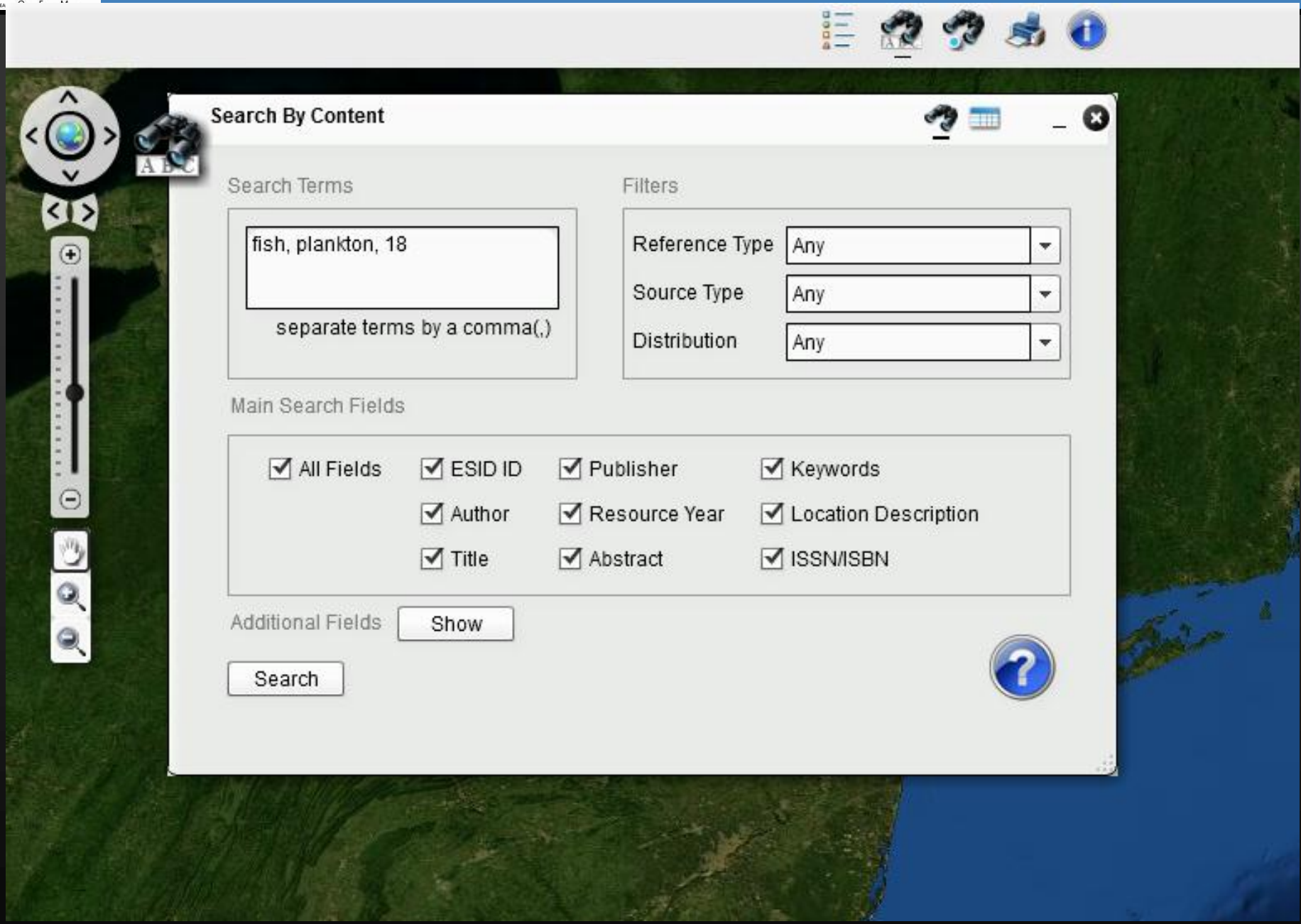
Help About

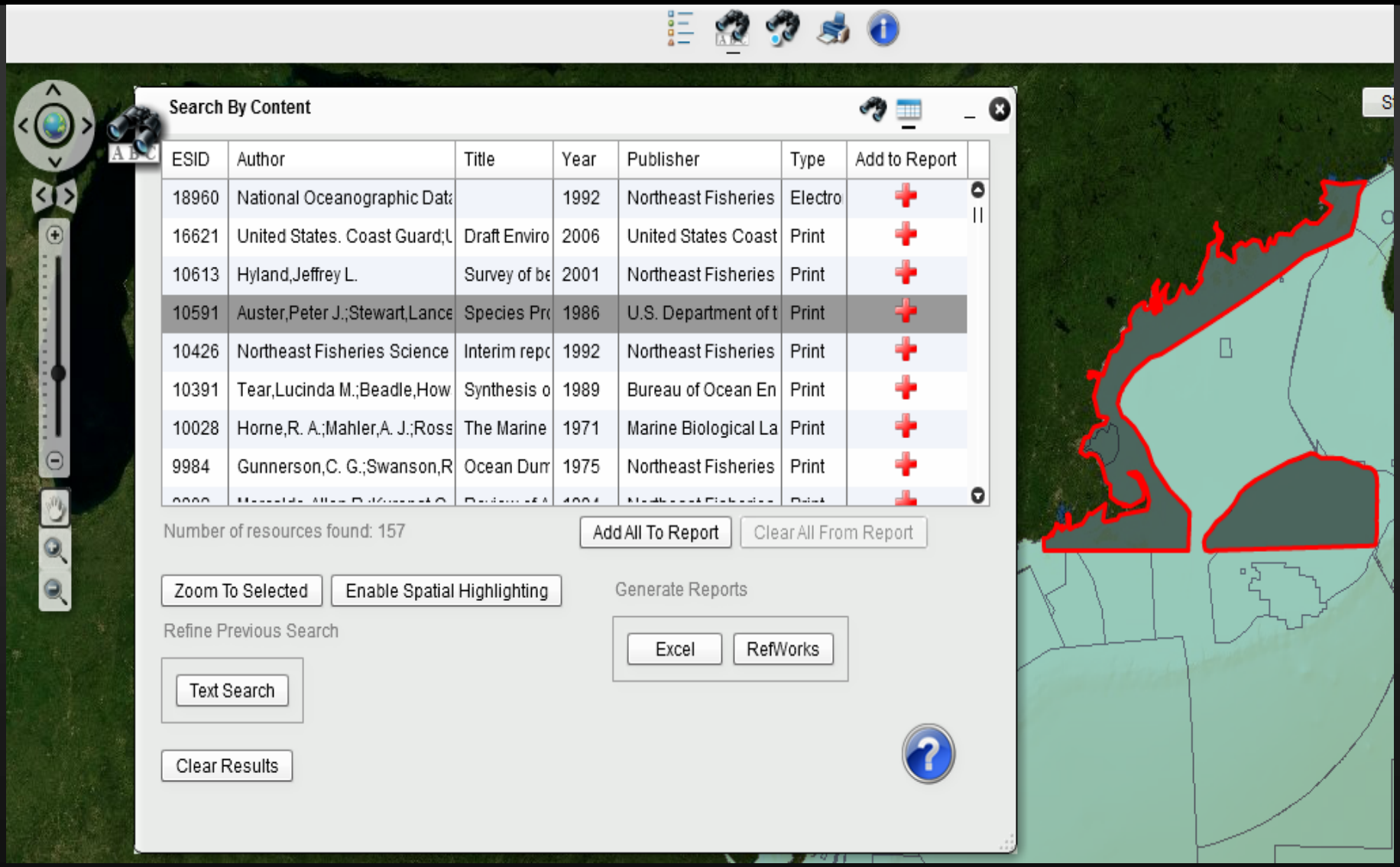
Done

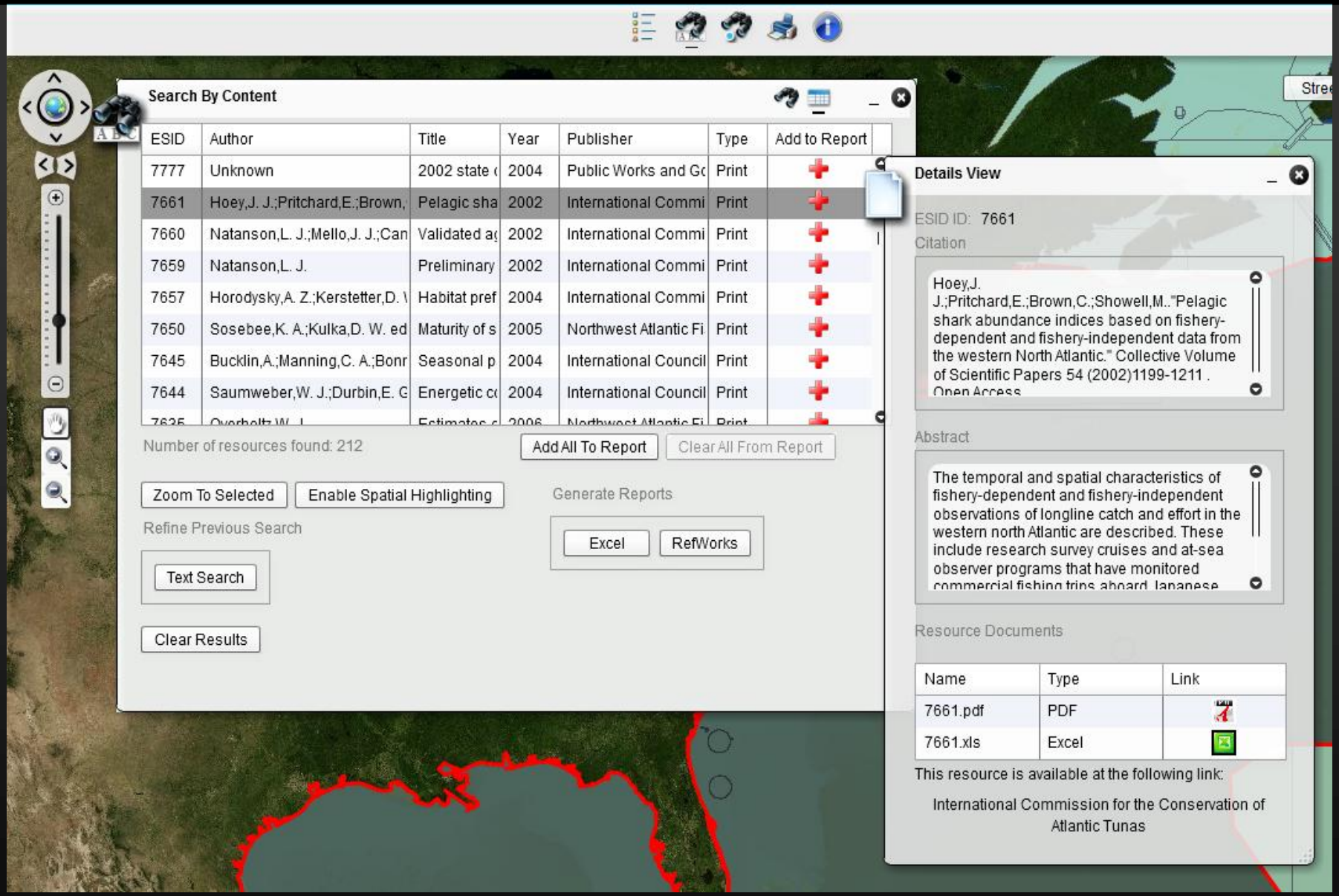
Internet

100%


Help About
Streets Aerial Topo
Search By Location
Draw Search Tools
Shape Buffer
Buffer: (mi) 0
Search By Coordinates (point, line, rectangle)
Search By Lease Block Number
Lat: 41.712701 Lon: -72.115493
Lat: 41.712701 Lon: -65.699477
Lat: 43.714345 Lon: -65.699477
Lat: 43.714345 Lon: -72.115493
Reset
Search
Search By Coordinates (polygon)
Coordinates (ex. lat,lon|lat,lon|lat,lon):
Reset
Search
Search By Content
ESID Author Title Year Publisher Type Add to Report
3255 Palma,A. T.;Wahle,R. A.;Stene Differer 1998 Inter-Research Scier Print
1046 Witman,J. D.;Sebens,K. P. Coloniz 1987 Oxford University Pre Print
33 Wigley,S. E.;Burnett,J. M. Prelimi 2003 Northwest Atlantic Fis Print
Number of resources found: 5
Add All To Report
Clear All From Report
Zoom To Selected
Enable Spatial Highlighting
Generate Reports
Refine Previous Search
Excel
RefWorks
Text Search
Clear Results


Search By Content
Search Terms
fish, plankton, 18
separate terms by a comma(,)
Filters
Reference Type
Any
Source Type
Any
Distribution
Any
Main Search Fields
All Fields
ESID ID
Publisher
Keywords
Author
Resource Year
Location Description
Title
Abstract
ISSN/ISBN
Additional Fields
Show
Search


Search By Content
ESID
Author
Title
Year
Publisher
Type
Add to Report
18960 National Oceanographic Dat 1992 Northeast Fisheries Electro
16621 United States. Coast Guard;U Draft Enviro 2006 United States Coast Print
10613 Hyland,Jeffrey L. Survey of be 2001 Northeast Fisheries Print
10591 Auster,Peter J.;Stewart,Lance Species Pr 1986 U.S. Department of t Print
10426 Northeast Fisheries Science Interim repc 1992 Northeast Fisheries Print
10391 Tear,Lucinda M.;Beadle,How Synthesis o 1989 Bureau of Ocean En Print
10028 Horne,R. A.;Mahler,A. J.;Ross The Marine 1971 Marine Biological La Print
9984 Gunnerson,C. G.;Swanson,R Ocean Dum 1975 Northeast Fisheries Print
Number of resources found: 157
Add All To Report
Clear All From Report
Zoom To Selected
Enable Spatial Highlighting
Generate Reports
Refine Previous Search
Excel
RefWorks
Text Search
Clear Results


Search By Content
ESID
Author
Title
Year
Publisher
Type
Add to Report
7777 Unknown 2002 state (2004 Public Works and Gc Print
7661 Hoey,J. J.;Pritchard,E.;Brown, Pelagic sha 2002 International Commi Print
7660 Natanson,L. J.;Mello,J. J.;Can Validated ag 2002 International Commi Print
7659 Natanson,L. J. Preliminary 2002 International Commi Print
7657 Horodysky,A. Z.;Kerstetter,D. \ Habitat pref 2004 International Commi Print
7650 Sosebee,K. A.;Kulka,D. W. ed Maturity of s 2005 Northwest Atlantic Fi Print
7645 Bucklin,A.;Manning,C. A.;Bonr Seasonal p 2004 International Council Print
7644 Saumweber,W. J.;Durbin,E. G Energetic cc 2004 International Council Print
Number of resources found: 212
Add All To Report
Clear All From Report
Zoom To Selected
Enable Spatial Highlighting
Generate Reports
Refine Previous Search
Excel
RefWorks
Text Search
Clear Results
Details View
ESID ID: 7661
Citation
Hoey,J. J.;Pritchard,E.;Brown,C.;Showell,M.."Pelagic shark abundance indices based on fishery-dependent and fishery-independent data from the western North Atlantic." Collective Volume of Scientific Papers 54 (2002)1199-1211 . Open Access
Abstract
The temporal and spatial characteristics of fishery-dependent and fishery-independent observations of longline catch and effort in the western north Atlantic are described. These include research survey cruises and at-sea observer programs that have monitored commercial fishing trips aboard Japanese
Resource Documents
Name
Type
Link
7661.pdf
PDF
7661.xls
Excel
This resource is available at the following link:
International Commission for the Conservation of Atlantic Tunas

Gulf SERPENT: Establishing a Deepwater Plankton Observation System Using Industrial ROV's (GM-92-42-133)

(**S**cientific **E**nvironmental **R**OV **P**artnership using **E**xisting I**n**dustrial **T**echnology)

Total Cost: $351,939

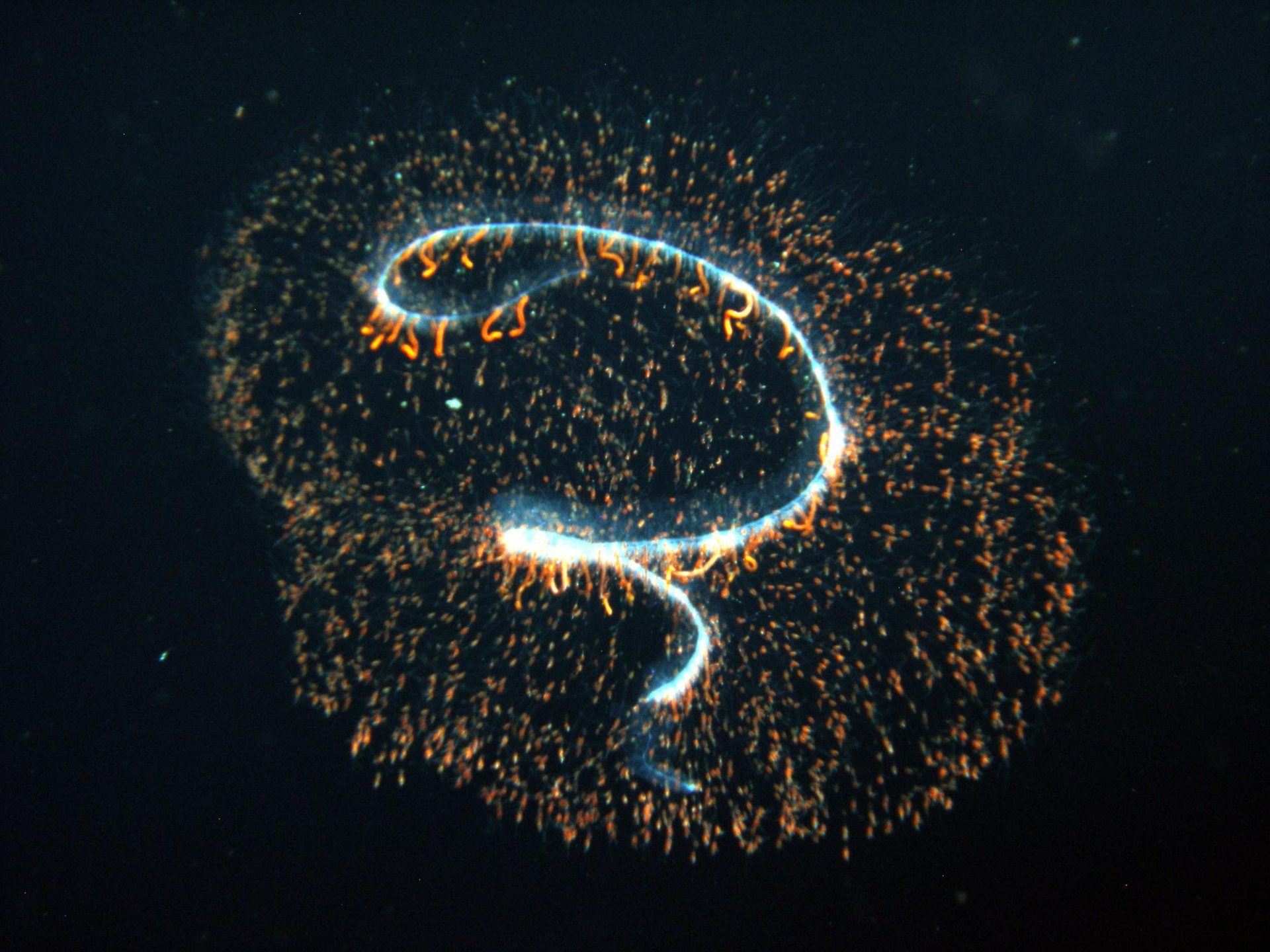
Period of Performance: FY 2008-2013 (delayed by DWH)

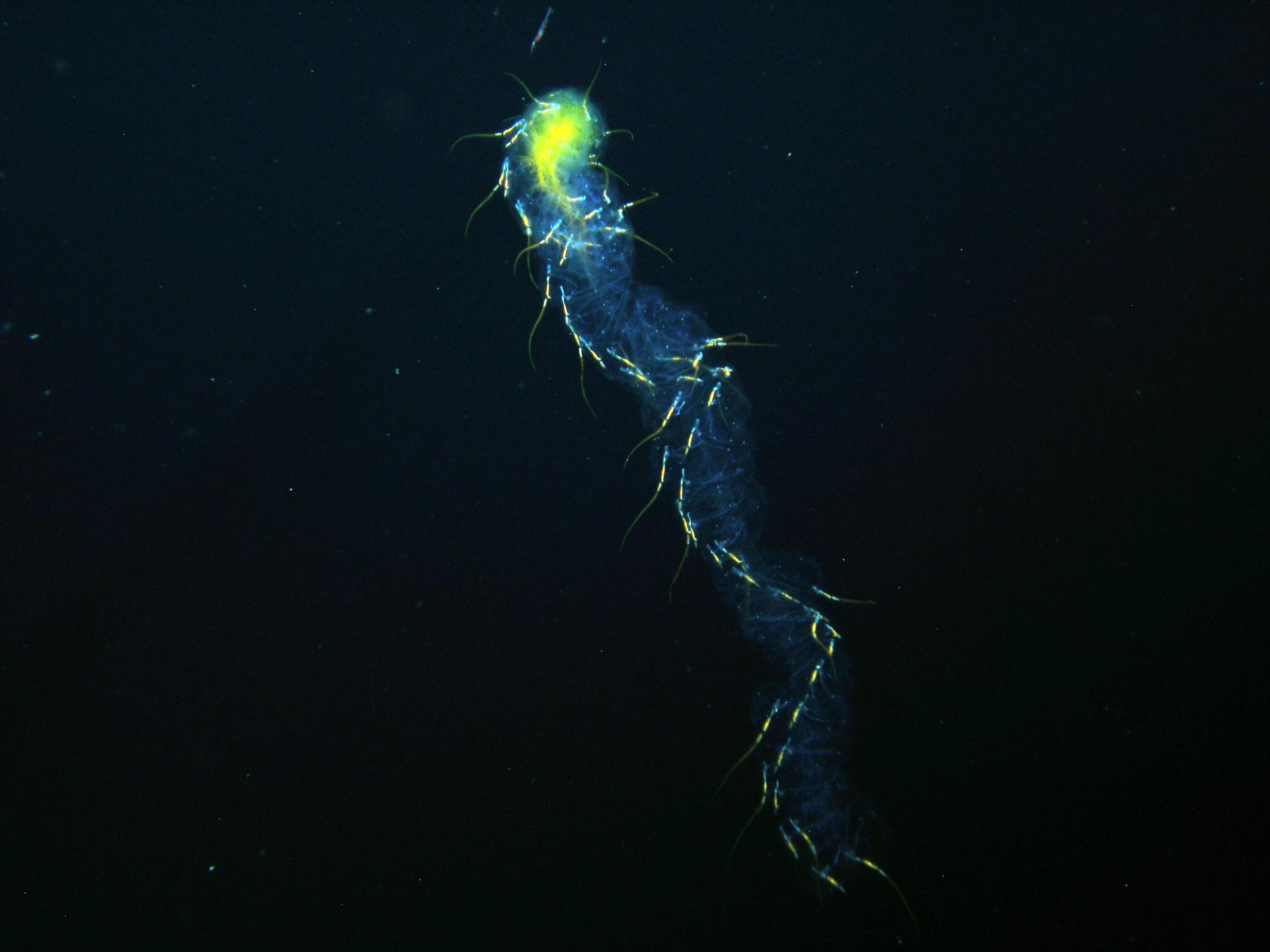
Louisiana State University, Coastal Marine Institute

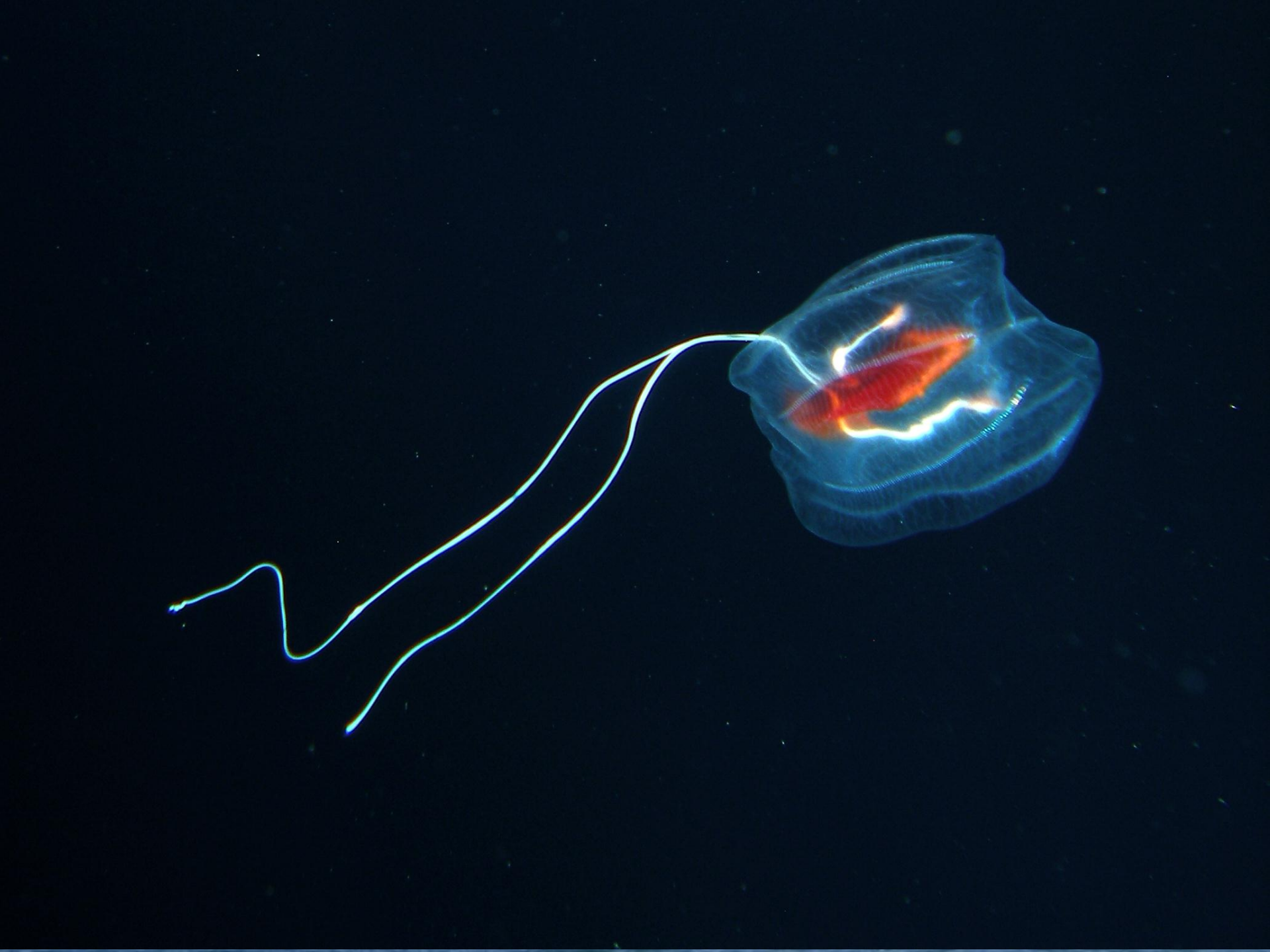
BOEM Contact: James Sinclair

Objectives of SERPENT

1. Establish a biological observatory network in the deepwater region of the northern Gulf of Mexico.
2. Employ industrial Remotely Operated Vehicles (ROV's) to conduct regular video surveys of planktonic and nektonic organisms.
3. Provide a seasonal picture of pelagic biodiversity in the deepwater region.
4. Providing research experience for undergraduate education with LSU and Marine Advanced Technologies for Education (MATE).
5. Document the settlement of hard and soft coral species and other epifauna on deepwater platforms.







Long-Term Monitoring at the East and West Flower Garden Banks, Gulf of Mexico (2009-2013) (GM-09-02)

Total Cost:
FY 2009 $118,100
FY 2010 $125,000
FY 2011 $125,000 + $7,500
FY 2012 $130,000 + $89,100
FY 2013 $135,000
Total: $729,700

Period of Performance: FY 2009-2013

NOAA Flower Garden Banks National Marine Sanctuary

BOEM Contact: James Sinclair

Objectives of FGBLTM

1. Continue long-term monitoring at the East and West FGB to detect any subtle, chronic effects from natural and man-induced activities that could potentially endanger community integrity.
2. Validate and sustain our contention that BOEM lease stipulations provide effective mitigation of impacts to these sensitive and unique biological features.
3. Improve our knowledge base for management.

Methods

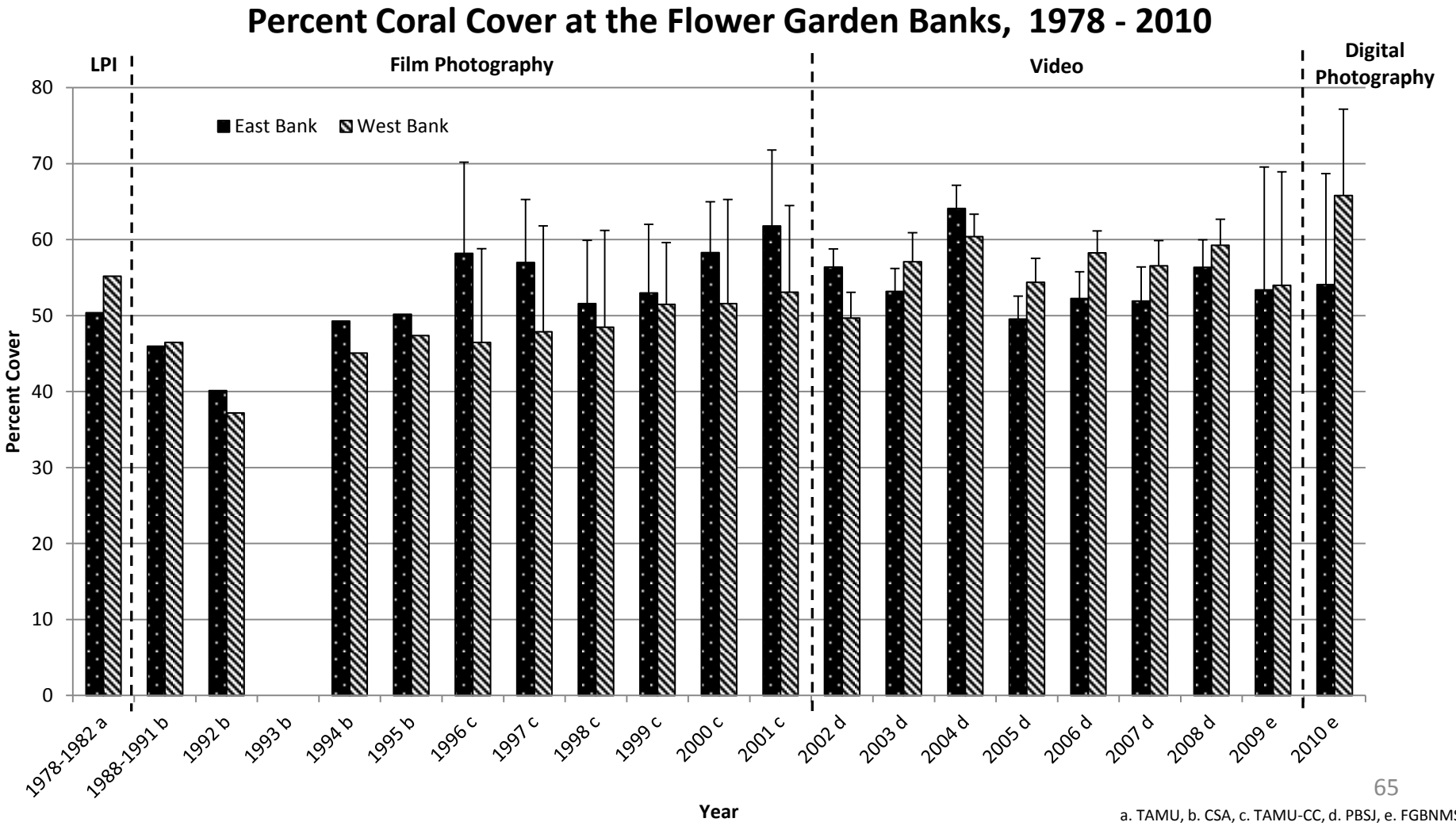
1. Random photo transects.
2. Repetitive quadrats.
3. Lateral growth stations (*Diploria strigosa*).
4. Fish surveys.
5. Urchin and lobster transects.
6. Accretion measures.
7. Water quality.
8. Qualitative observations of disease and general health.

Major Reefs Living Coral Cover

Flower Garden Banks	50.5%
Cayman Islands	21.0%
Cuba	15 - 23%
Bonaire	48%
Akumal, Mexico	16.8%
Netherlands Antilles	10 - 47%
St. Vincent Grenadines	29 - 44%
Turks and Caicos	up to 30%
Florida Keys	3 - 22%

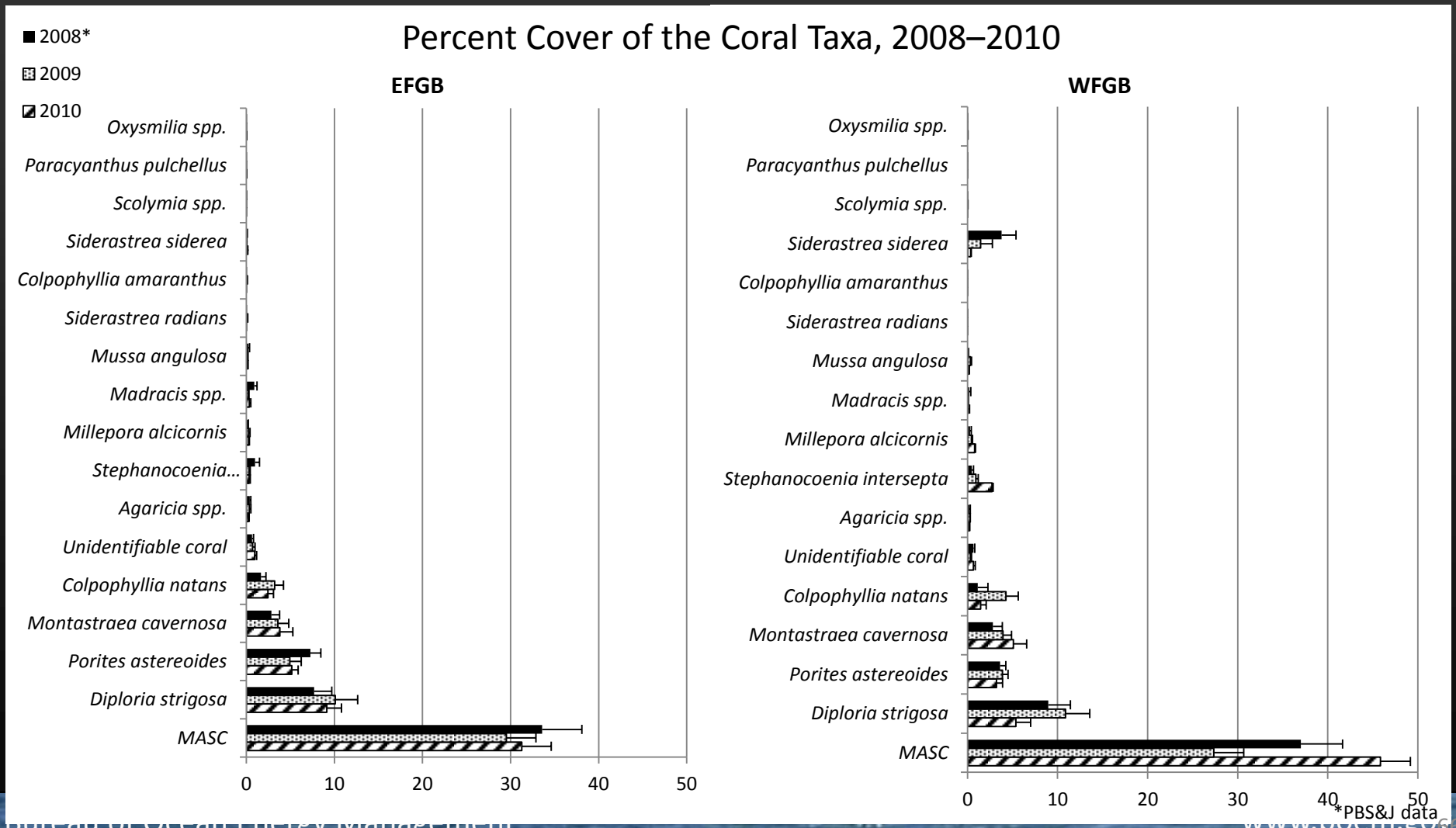
As determined by the Atlantic and Gulf Rapid Reef Assessment (AGRAA) in 2006

Historical Dataset

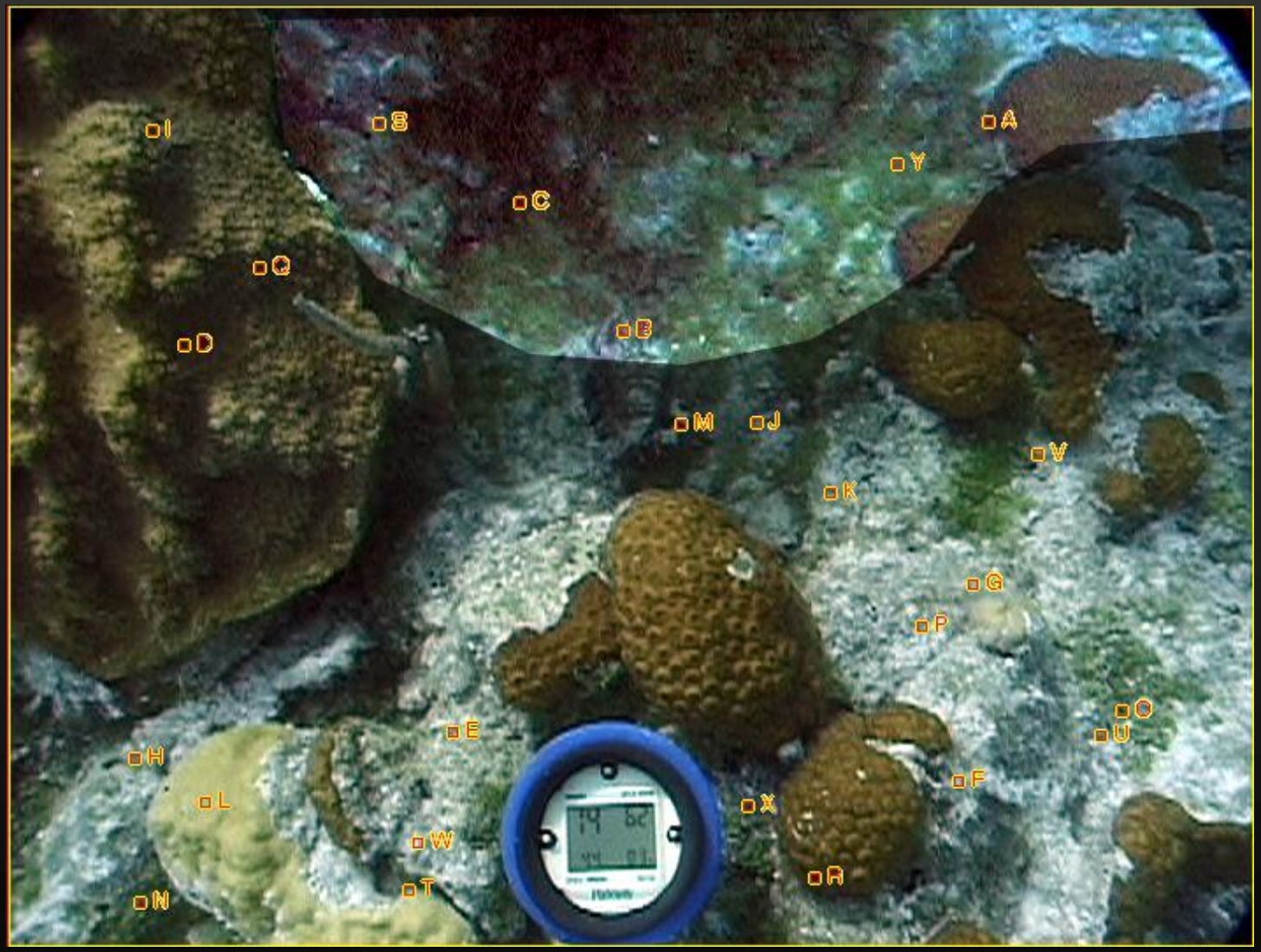


a. TAMU, b. CSA, c. TAMU-CC, d. PBSJ, e. FGBNMS

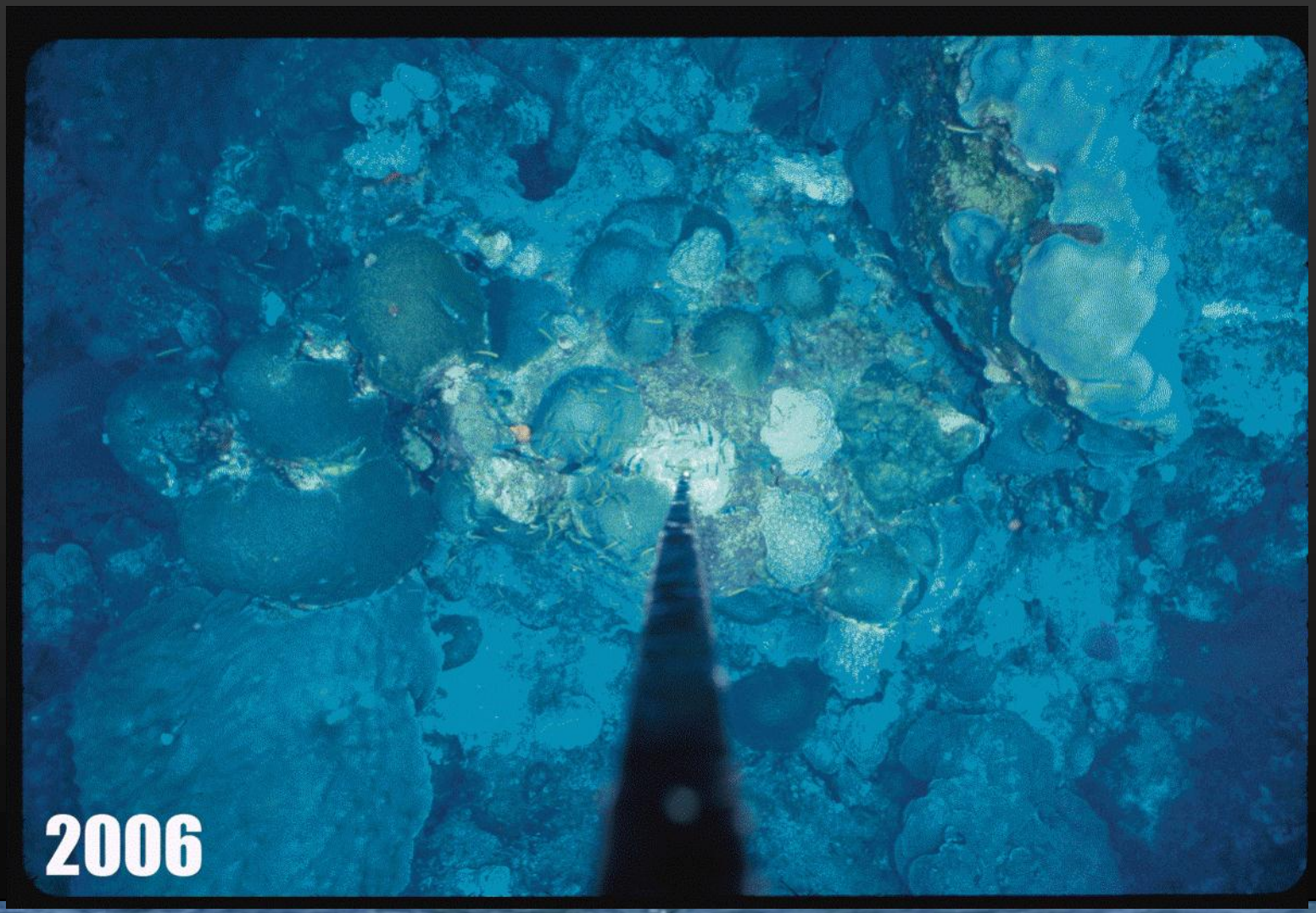
Coral Cover


Percent Cover of the Coral Taxa, 2008–2010
2008*
2009
2010
EFGB
WFGB
Oxysmilia spp.
Paracyanthus pulchellus
Scolymia spp.
Siderastrea siderea
Colpophyllia amaranthus
Siderastrea radians
Mussa angulosa
Madracis spp.
Millepora alcicornis
Stephanocoenia…
Stephanocoenia intersepta
Agaricia spp.
Unidentifiable coral
Colpophyllia natans
Montastraea cavernosa
Porites astereoides
Diploria strigosa
MASC
0
10
20
30
40
50
*PBS&J data

Methods: Random Transects



Repetitive Quadrat Photostations

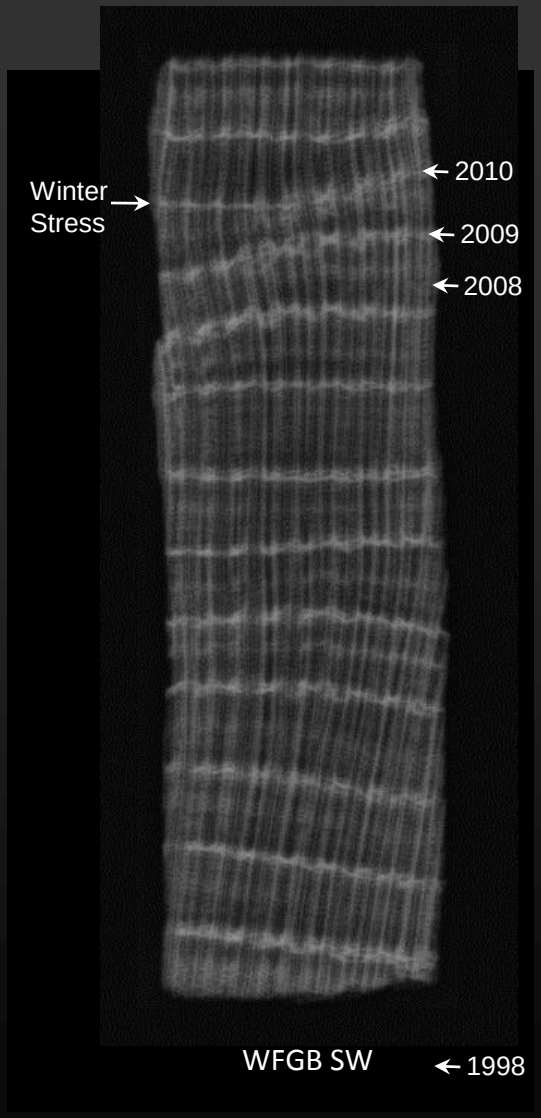


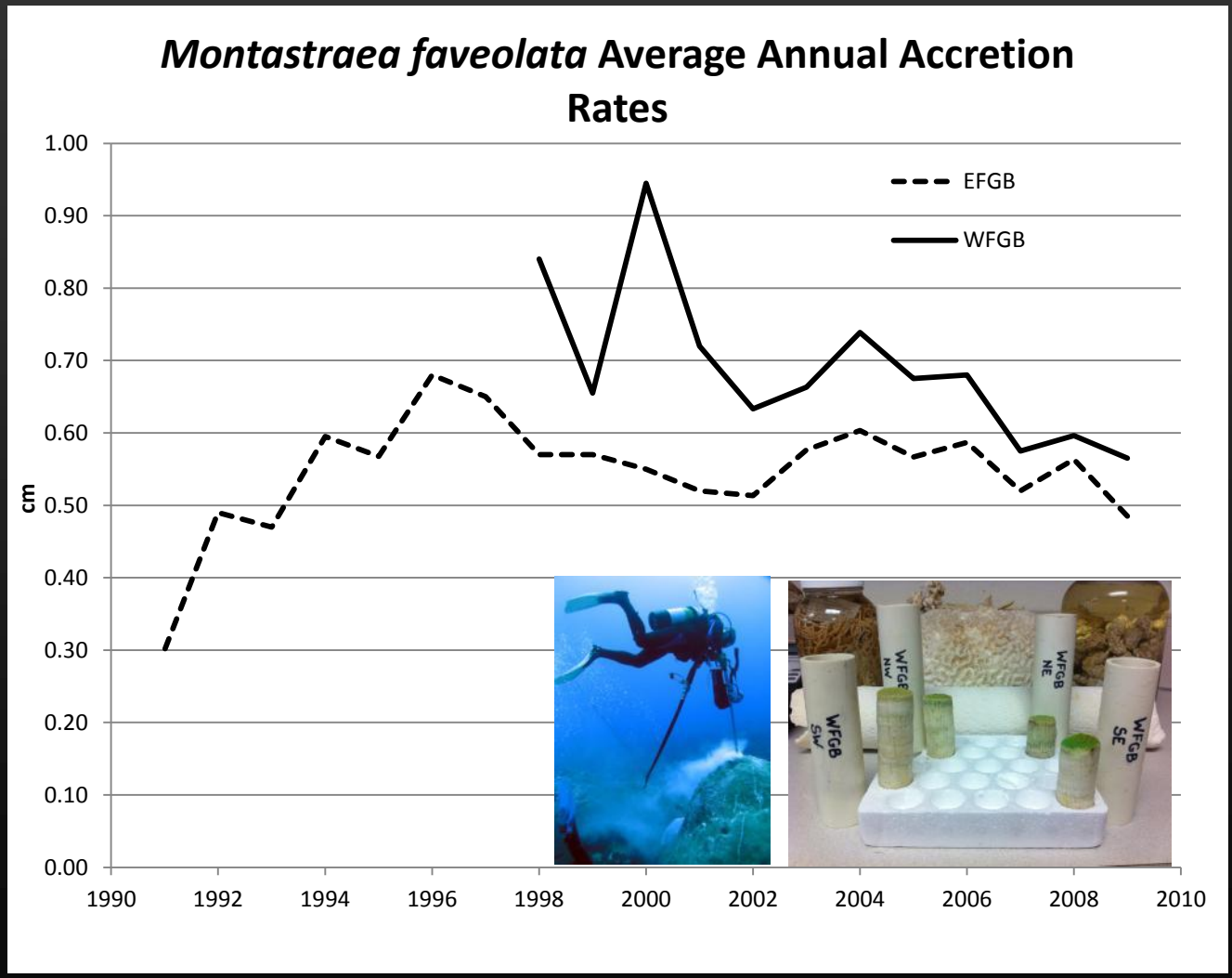
Lateral Growth Stations

2009

2010

Sclerochronology: Coral Coring





New Invasive Marine Species Colonizing Oil/Gas Platforms in the Northern Gulf of Mexico: Verification and Examination of Spread (GM-09-01-07)

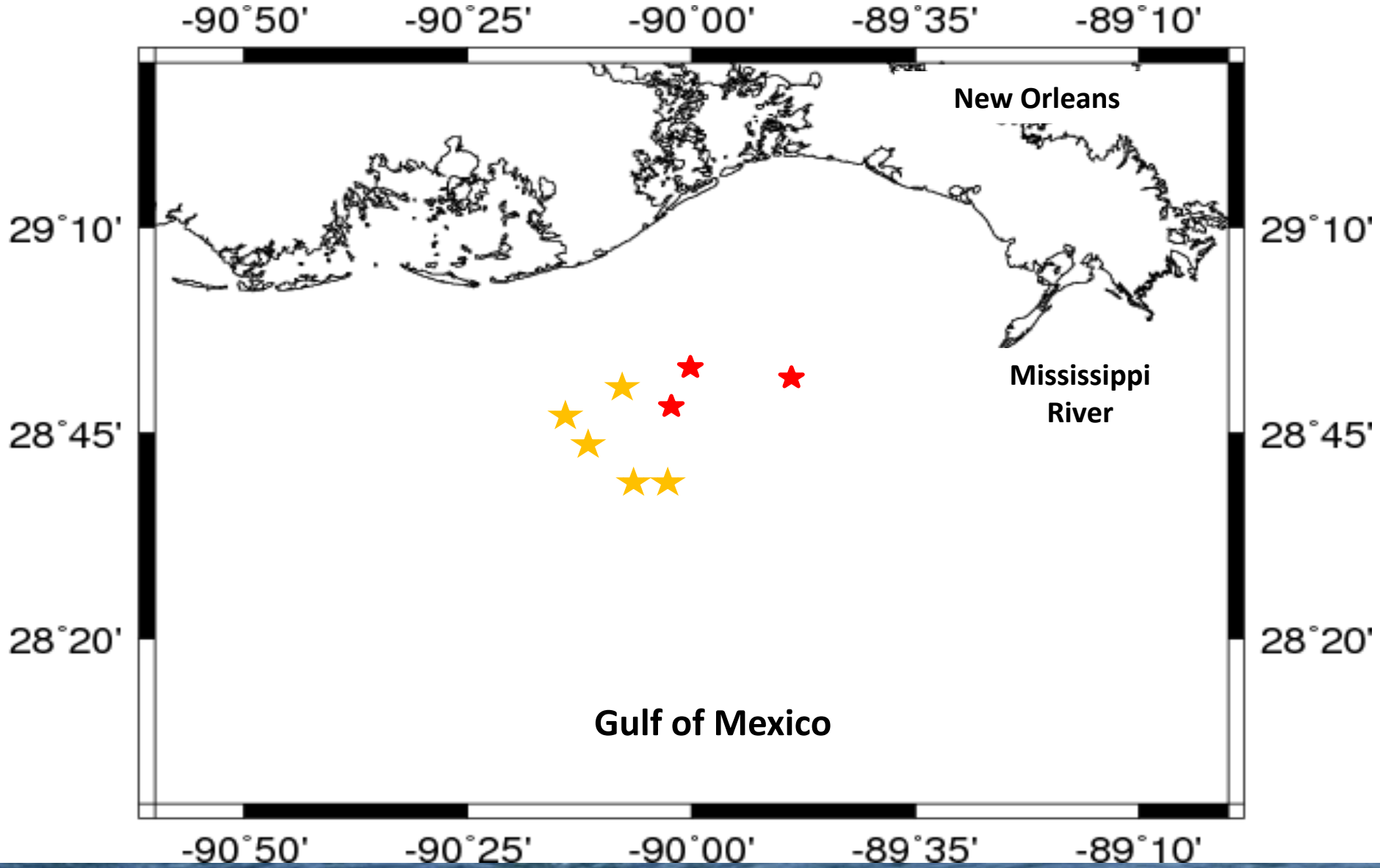
Total Cost: $339,549

Period of Performance: FY 2010-2012 (delayed by DWH)

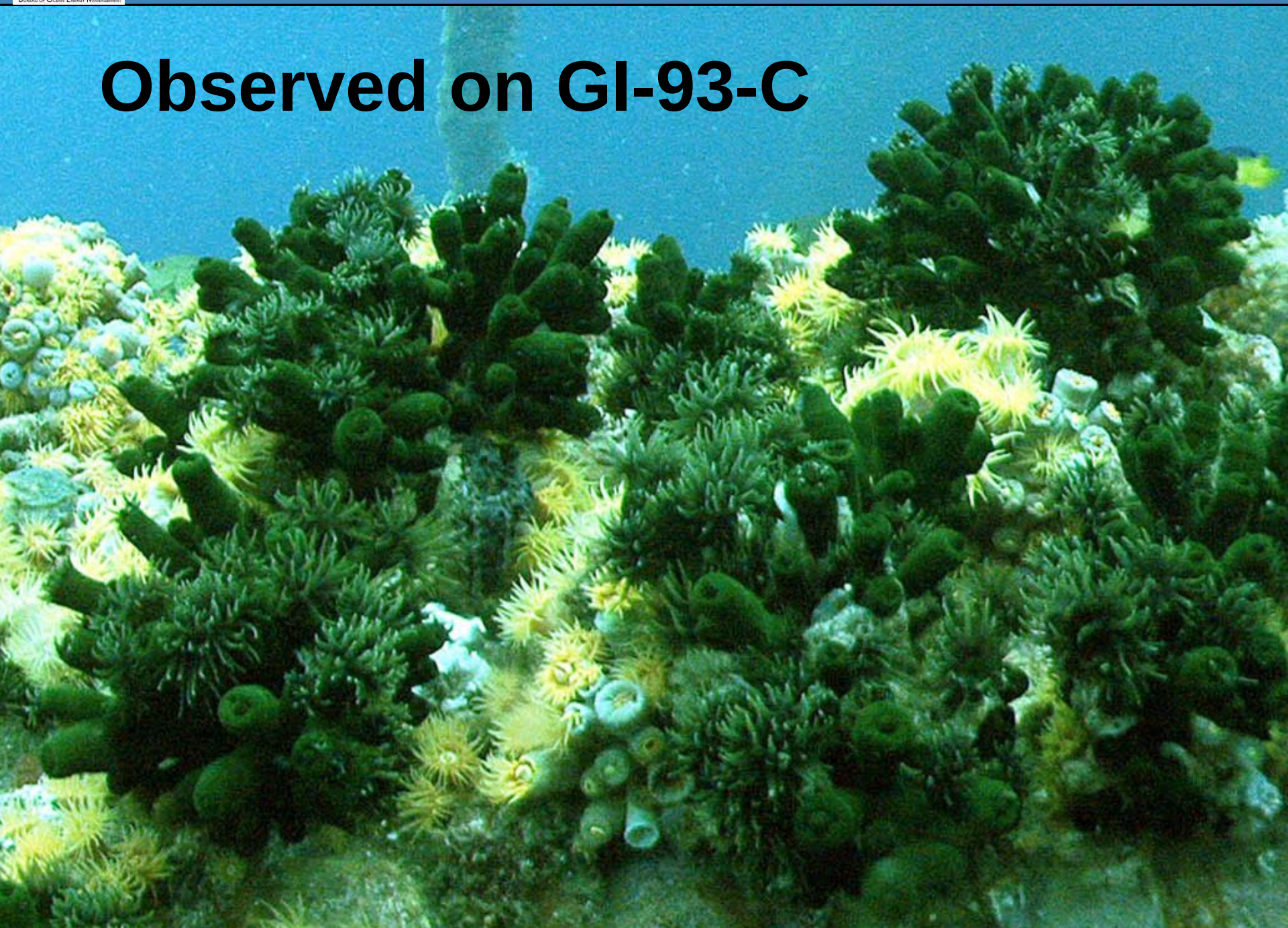
Louisiana State University, Coastal Marine Institute

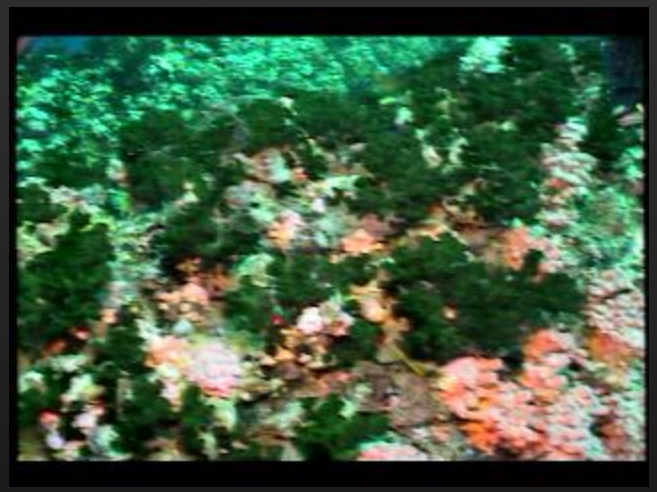
BOEM Contact: James Sinclair

Platform Locations



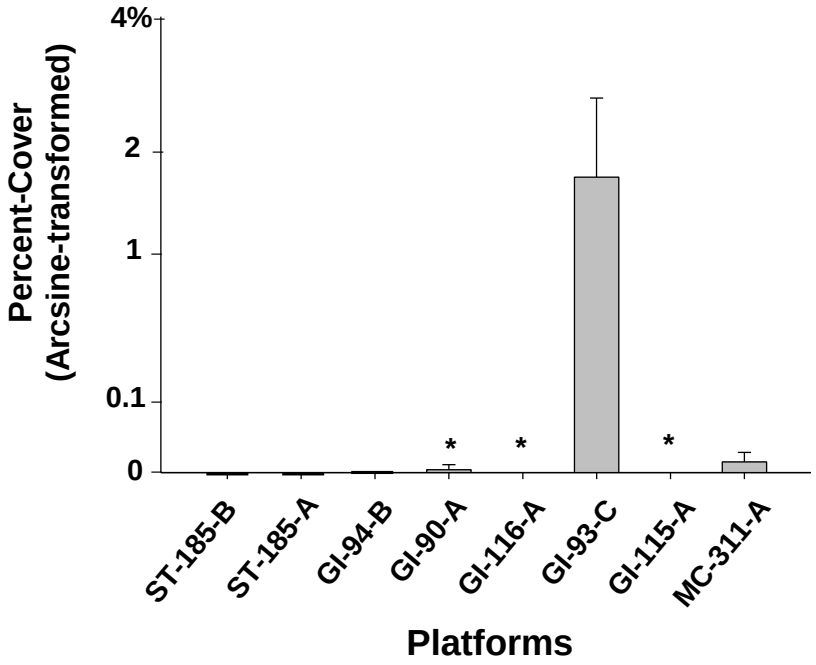
Observed on GI-93-C



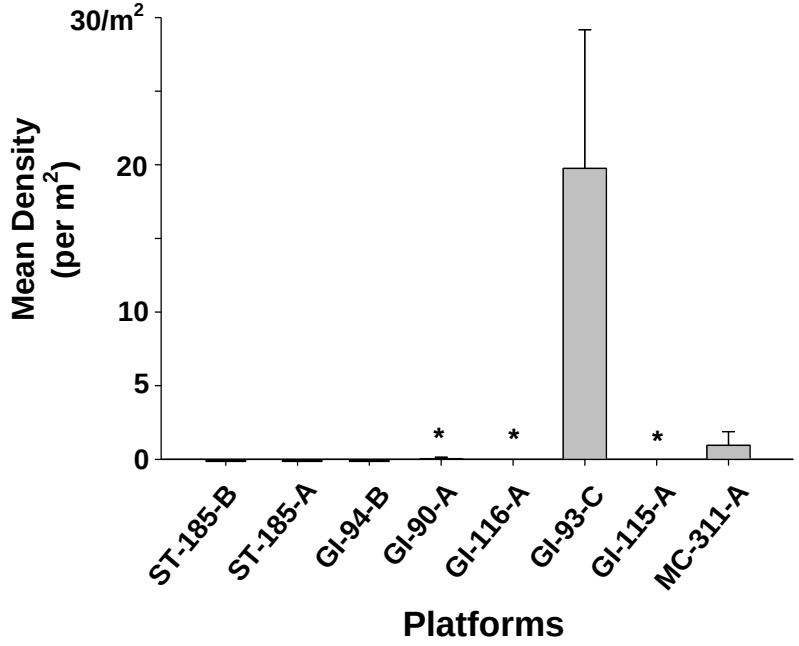


Tubastrea micranthus on Platforms

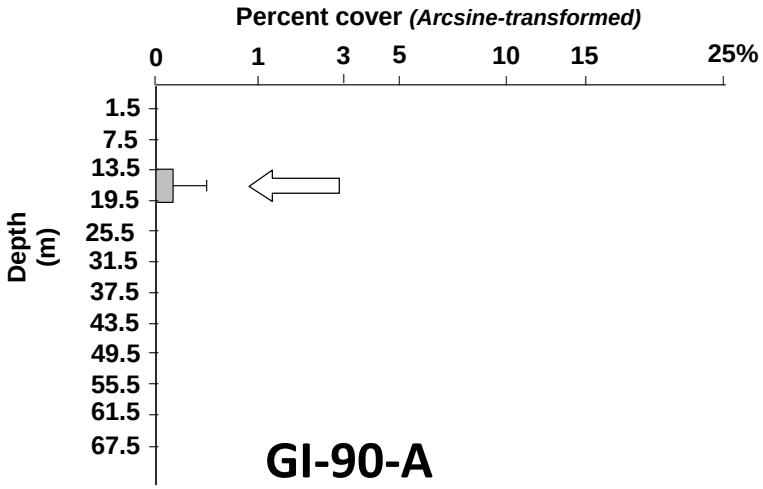
Percent-Cover



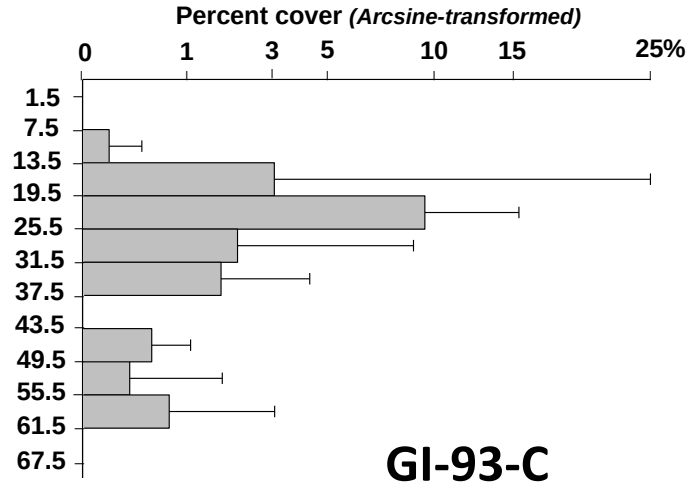
Density (no./m²)



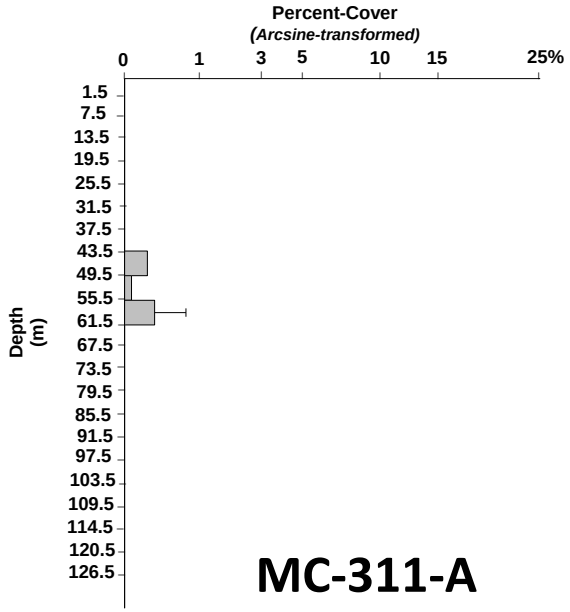
Tubastraea micranthus – Percent-Cover by Depth



GI-90-A



GI-93-C



MC-311-A


392
MC-311A LEG 1

South Atlantic Information Resources: Data Search and Literature Synthesis (GM-09-x21)

Period of Performance: FY 2009-2012
Total Cost: $678,702.69

COR: Dr. Donald (Tre) Glenn

Objectives

- The objectives of this study are:
  - To develop comprehensive information on the human and environmental aspects of the region.
  - To update the understanding of the ecological communities, the dominant physical oceanographic and other processes that drive the shelf and deep-sea ecosystems, and the potential sensitivities of the area.
- The location of the study area extended from Palm Bay, Florida, northward to North Myrtle Beach, South Carolina and included all Federal marine waters within the US Exclusive Economic Zone (EEZ) and state waters outside of the estuaries. This area included the BOEM's designated South Atlantic planning area.
- **The draft synthesis report is currently being reviewed by BOEM.**

Study Area

The study area extended from Palm Bay, Florida, northward to North Myrtle Beach, South Carolina and included all Federal marine waters within the US Exclusive Economic Zone (EEZ) and state waters outside of the estuaries. This area included the BOEM's designated South Atlantic planning area.

The draft synthesis report is currently being reviewed by BOEM.

Sperm Whale Acoustic Prey Study (SWAPS) (GM-09-05)

Total Cost: $550,000

Period of Performance: FY 2009-2012

Interagency Agreement with National Marine Fisheries Service

BOEM Contact: Dr. Deborah Epperson

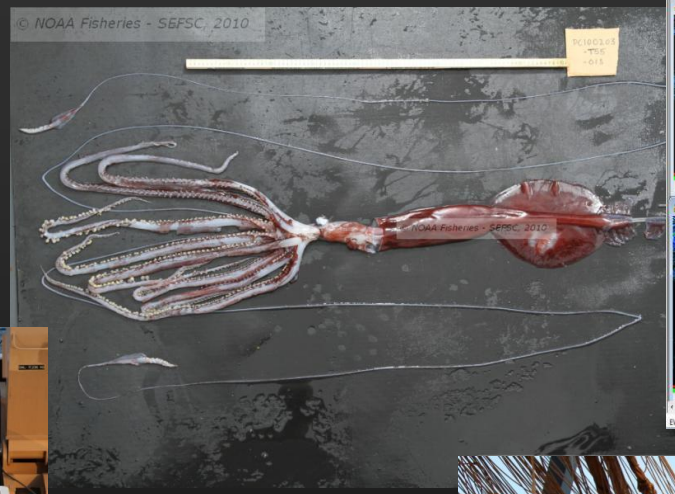
Objectives

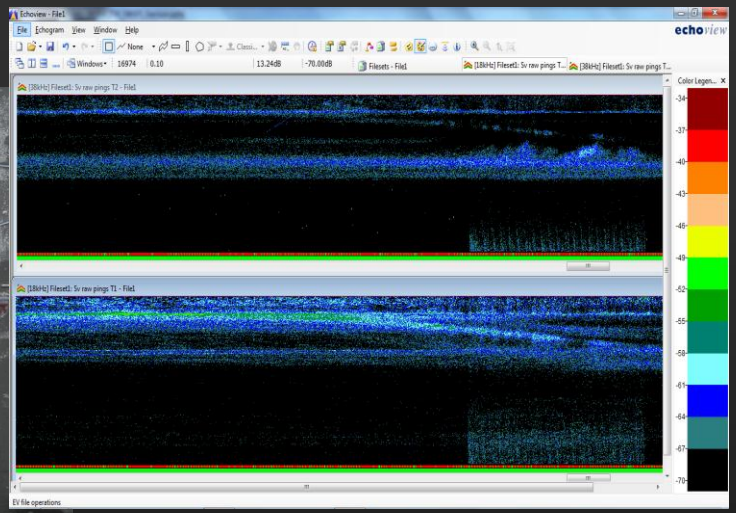
Characterize species composition and biomass of mid-water squid and small pelagic fish in the GOM that represent the apparent forage base for sperm whales.

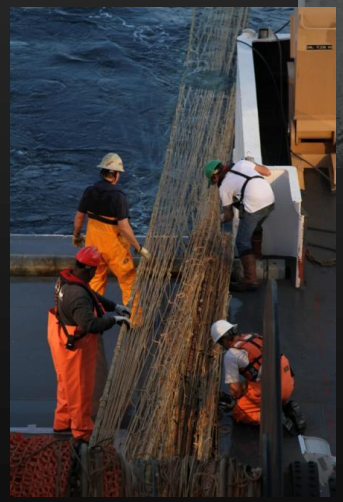
- Conducted quantitative sampling of the mid-water pelagic community within the foraging depths of sperm whales,
- Examined the relationships between acoustic backscatter and prey taxonomic composition, and
- Compared sperm whale distribution and prey composition across habitats of the northern GOM.

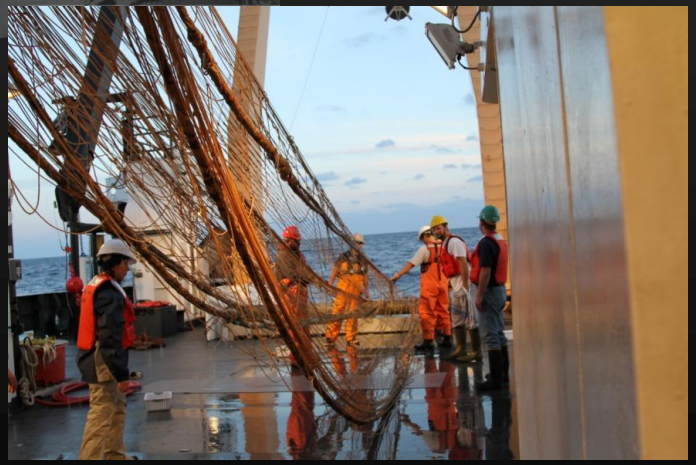
Progress Report

Field Data Collection completed 2009-2010.
Final report in preparation.









The Movement and Habitat Associations of Sea Turtles in the Northern Gulf of Mexico (GM-10-04)

Total Cost: $497,000

Period of Performance: FY 2010-2013

Interagency Agreement with National Marine Fisheries Service

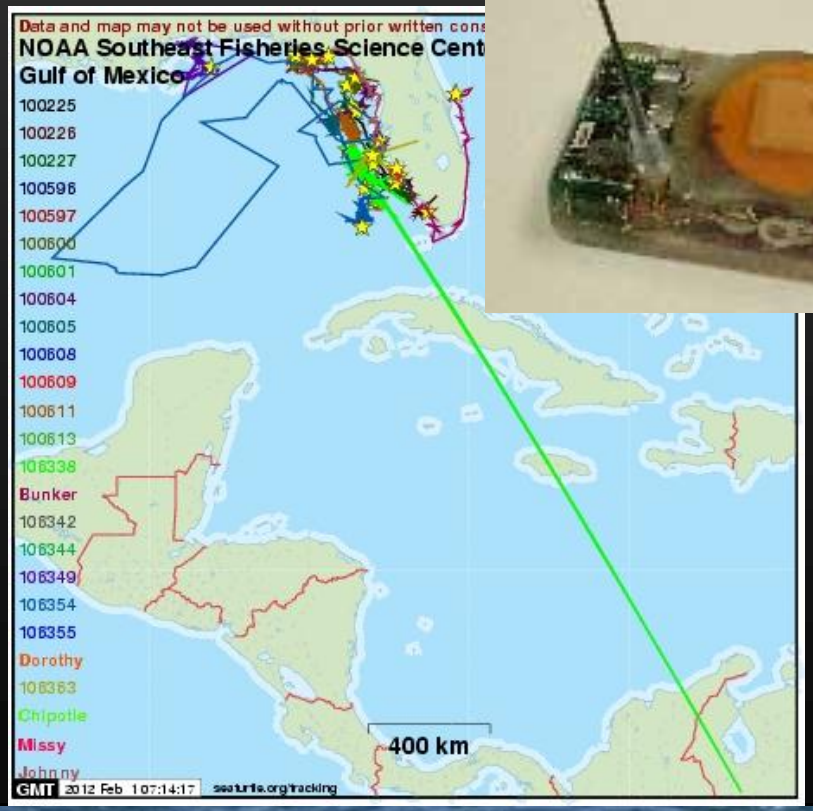
BOEM Contact: Dr. Deborah Epperson

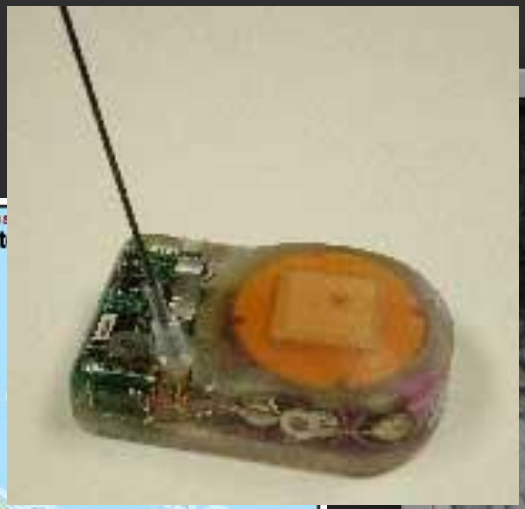
Study Objectives

Deploy satellite telemetry tags on juvenile and adult loggerhead, Kemp's Ridley, and Green turtles in the northern Gulf of Mexico between Texas (-97.5°W longitude) and southwestern Florida to:

- Study movement and habitat use
- Evaluate dive-surface behaviors

25 animals tagged to date (May 2011 to present)
More tags will be deployed in 2012 in central and western GOM





Sperm Whales and Bottlenose Dolphins in the Gulf of Mexico (GM-11-03)

Total Cost: $2.7 million

Period of Performance: FY 2011-2015

Interagency Agreement with National Marine Fisheries Service

BOEM Contact: Dr. Deborah Epperson

Objectives: Sperm Whales in the Eastern GOM

- Characterize sperm whales by sex and age distribution, genetic profiles, habitat use, and seasonal movement.
- Obtain ambient noise measurements and physical oceanographic data to allow a detailed habitat characterization.
- Geographically correlate sightings and acoustic detections of sperm whales and other cetaceans with physical oceanographic features and ambient underwater noise levels.
- Document seasonal movements, habitat use, foraging strategies and potential mixing with northern GOM and/or West Atlantic populations by the use of location only satellite tags (S-tags), time-depth recording GPS tags (TDR-tags), or short duration depth tags (D-tags).

Objectives: Estuarine and Coastal Bottlenose Dolphins

- Conduct field studies to collect skin and blubber samples from target estuarine and coastal stocks of bottlenose dolphins.
- Assess the population structure of bottlenose dolphins stocks using a combination of mitochondrial and nuclear DNA markers.
- Conduct stable isotope studies from skin samples to assess trophic status and relationships.
- Analyze contaminants within blubber samples from targeted stocks to assess environmental exposure to pollutants.

Progress Report

Sperm Whales - Project will begin in June 2012 with a 55 day cruise on the NOAA R/V Gordon Gunter

Bottlenose Dolphins – Data collection from small boats Summer 2012