



An Update on the Bureau of Ocean Energy Management, Marine Minerals Program Studies



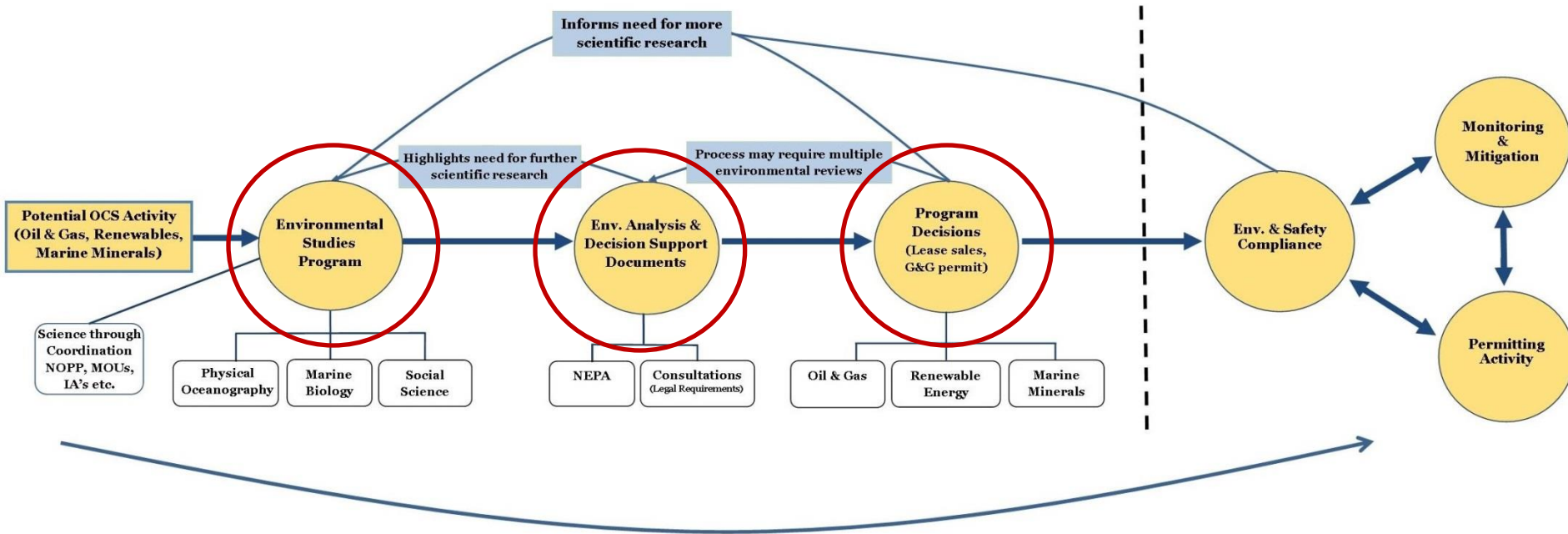
Jennifer Culbertson and Doug Piatkowski

Division of Environmental Assessment

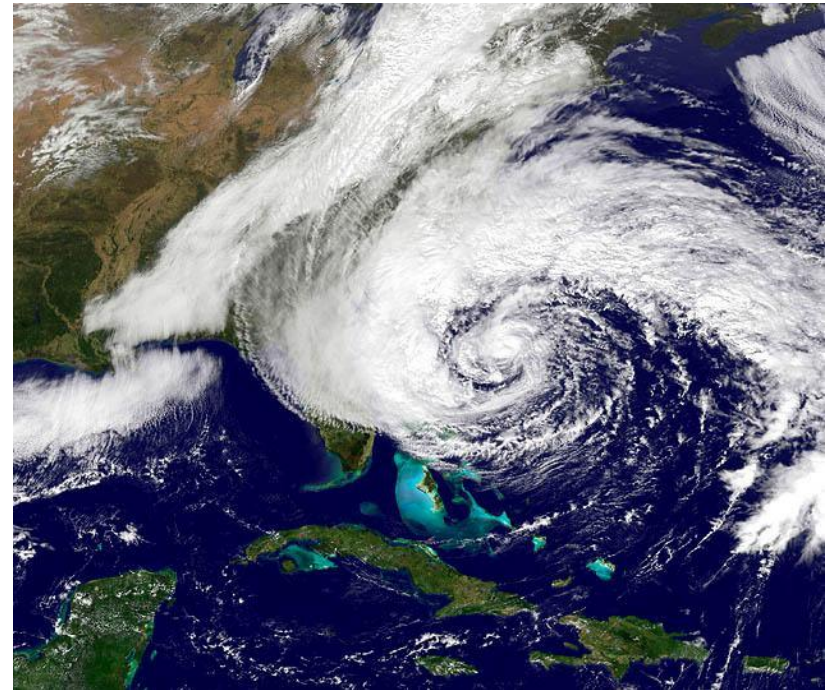


Resource Science and Management

Regulatory Enforcement



- **\$13.6 M Disaster Relief Appropriations Act**
- **Atlantic Sand Assessment Project**
 - ✓ Identify new potential sand resources
 - ✓ Along Atlantic (3 – 8 nm offshore)
- **13 State Cooperative Agreements**
 - ✓ Identify and evaluate existing data
 - ✓ Assess future sand needs
- **Environmental Monitoring**
 - ✓ Presence, movement and utilization of offshore sand shoals by fishes - Canaveral Shoals, FL
 - ✓ Long-Term Ecological Recovery Canaveral Shoals, FL
 - ✓ High Resolution Geophysical Survey Sound Source Verification

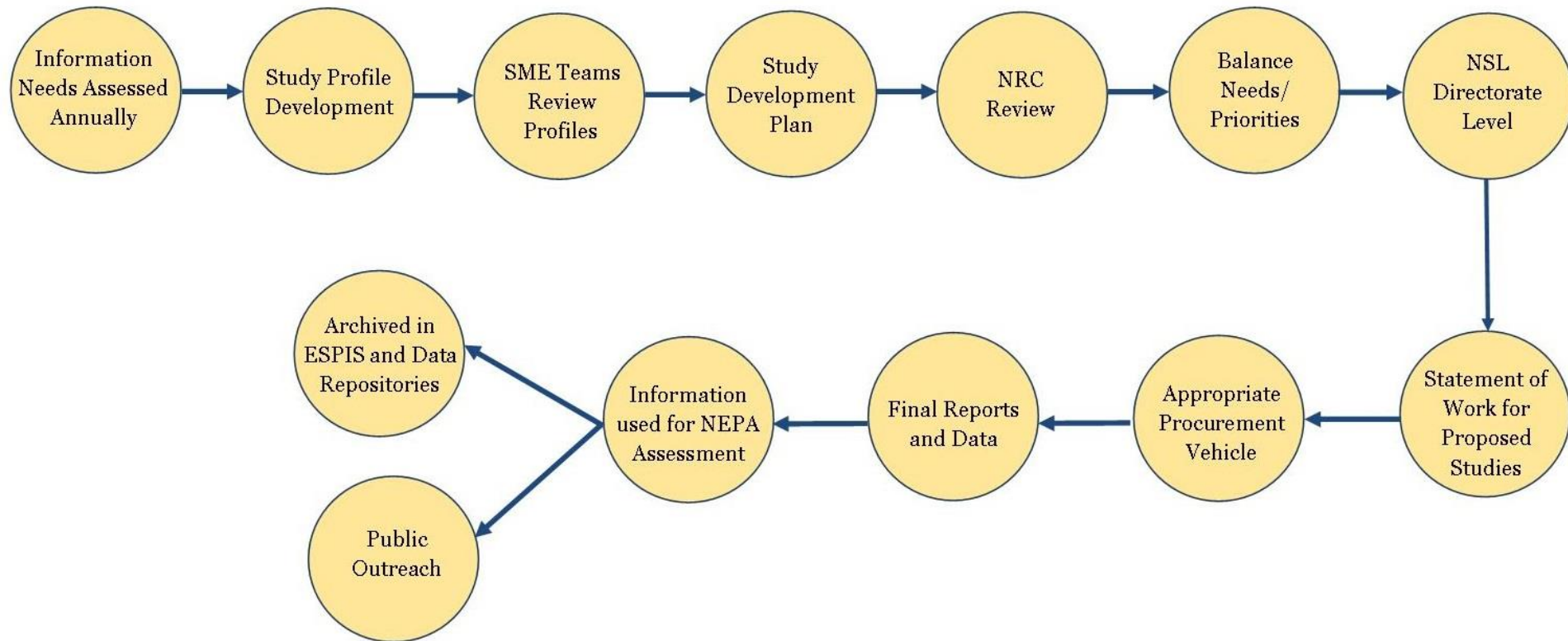


MMP Studies Background



- Provide the information needed to predict, assess, and manage impacts from offshore marine mineral exploration, development, and production activities on human, marine, and coastal environments
- About \$40 million over the past 22 years
- Potential mitigation and minimization measures derived from research findings
- Provide information for consultations
- Identify critical data gaps for guiding future research needs
- <http://www.boem.gov/Marine-Mineral-Studies/>
 - Studies organized by state and/or programmatic relevance
- <http://marinecadastre.gov/espis>





BOEM Environmental Studies Program (ESP) is dynamic and flexible to the changing information requirements. New information needs routinely arise outside the annual planning process and in response proposed studies are often added/deleted. This schema is a simplified version of the program process and does not entirely capture its complexity and variability.

Note to Stakeholders

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Oct. 26, 2015



BOEM invites ideas for Environmental Studies, Fiscal Year 2017

Good morning,

The Bureau of Ocean Energy Management (BOEM) is responsible for ensuring that the effects on the natural and human environment are taken into consideration during the leasing and development of oil, natural gas, renewable energy and marine mineral resources on the Outer Continental Shelf (OCS).



Pacific waves

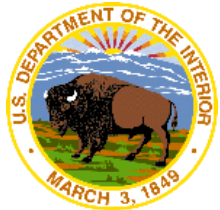
To help inform management decisions affecting the OCS, BOEM develops, oversees and funds the collection of environmental information as directed by the Outer Continental Shelf Lands Act through its [Environmental Studies Program](#) (ESP). The ESP focuses on applied science, including baseline information about the environment and the effects from activities that result from the leasing and development processes under our authority. The goals of the ESP are to establish the information needed to assess, predict, monitor and manage environmental impacts on marine biota and the human, marine and coastal environments. BOEM is beginning to formulate its FY 2017 Environmental Studies Development Plan covering all BOEM energy and minerals activities.

BOEM invites your input in identifying potential study ideas for consideration on Alaska, Atlantic, Gulf of Mexico and Pacific OCS areas. BOEM's ESP is

- Solicit input from stakeholders
- Fill data gaps identified through past study investments
- Internal and external collaboration
- Prioritization based on the resource management implications and regional interests
- Develop a “road map” of study ideas

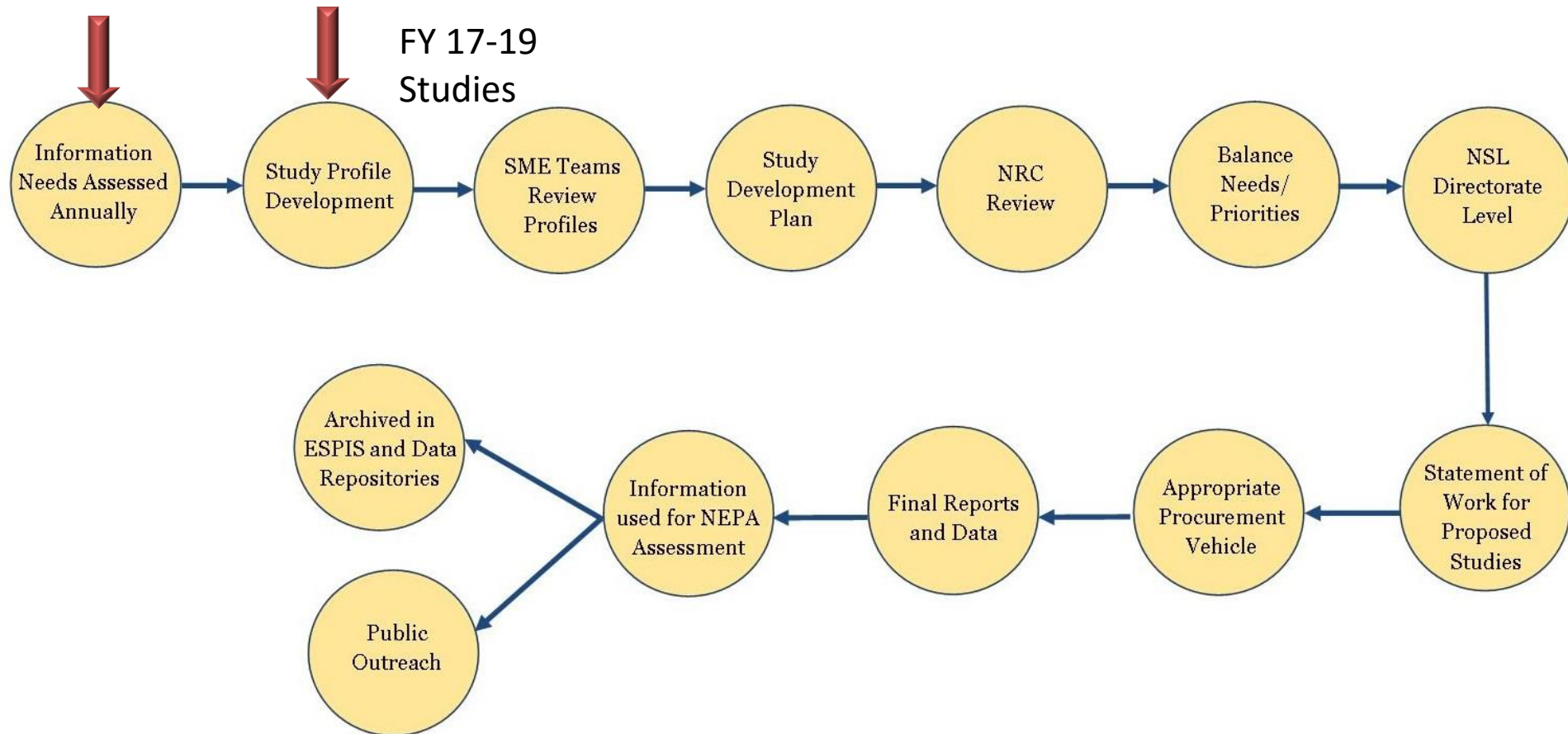


- Ecological Function and Recovery of Biological Communities within Sand Shoal Habitats within the Gulf of Mexico
- Assessing Biological Processes that Drive Fisheries Productivity on New England Sand Shoals



Environmental Studies Program Process

FY 17-19
Studies



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Environmental Studies Program

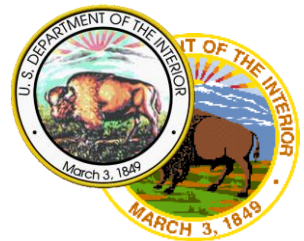
Studies Development Plan Fiscal Years 2016-2017

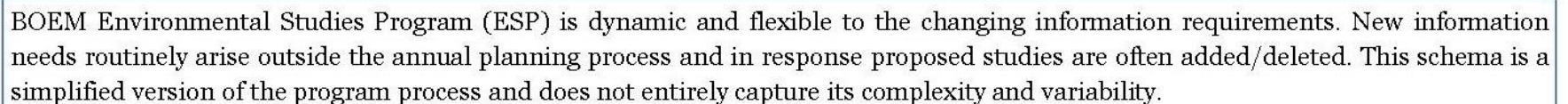
Studies Development Plan (SDP)

- Internal, strategic planning tool for the upcoming two years of studies and beyond.
- Describes a cohesive and integrated plan to collect and generate the environmental information needed to support the Bureau's activities.
- Lays the foundation on which to make future decisions regarding the National Studies List (NSL)



- BOEM entered into a contract with NRC to:
 - establish a standing Committee on Environmental Science and Assessment for Offshore Energy
 - provide advice on diverse issues and ESP priorities
 - develop issue-specific scientific review groups
 - review of SDP

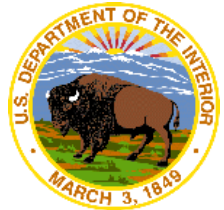




- Identify and fill data gaps on resources of concern in advance of project implementation to inform NEPA and other relevant consultation documents and avoid, minimize, and/or mitigate impacts accordingly.
- Strategic stakeholder engagement and regional partnering initiatives to identify and implement effective resource management strategies.
- Utilize data associated with regional Geological & Geophysical (G&G) investigations of potential sediment resource areas to support programmatic consultations within the Atlantic and Gulf of Mexico OCS in order to more strategically manage impacts.



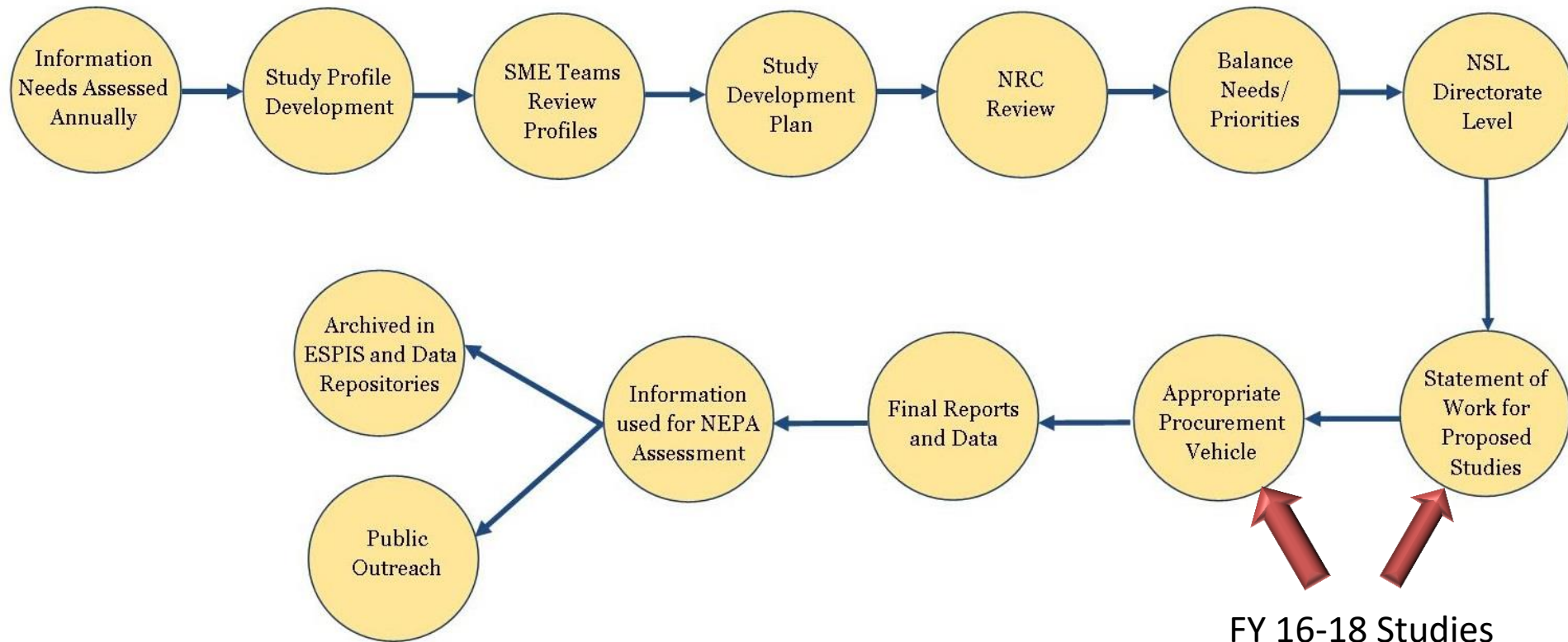
- Glider-based fish tracking – Canaveral Shoals, FL
- Regional Essential Fish Habitat Geospatial Assessment and Framework of Offshore Sand Features
- **Discerning behavioral patterns of sea turtles in the Northern Gulf of Mexico to inform management decisions**
- Sediment sorting during coastal restoration projects: implications for resource management, environmental impacts, and multiple use conflicts



POC: Jessica Mallindine; 504-736-7516; Jessica.Mallindine@boem.gov

- **Interagency Agreement:** BOEM / USGS
- **Objective :** Capture and tag sub-adult, juvenile, and adult sea turtles in the Northern GOM using trawling operations.
- **Specific goals:**
 - Determine the extent of movements and seasonal site fidelity
 - Fine scale characterization of dive profiles
 - Identify and assess physical and biological features to characterize habitats
 - Assess the population structure and isotopic signatures
 - Status of abundance and distribution





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- **Managing Dredge Impacts by Optimizing the Use of Sand Resources**
- **Development of a Decision Support Tool to Reduce Sea Turtle Dredging Entrainment Risk**
- Ecological Function and Recovery of Biological Communities within Dredged Ridge-Swale Habitats in the South-Atlantic Bight. University of Florida
- **Natural Habitat Associations and the Effects of Dredging on Fish at the Canaveral Shoals, East-central Florida. Navy Interagency Agreement**
- Propagation Characteristics of High-Frequency Sounds Emitted During High-Resolution Geophysical Surveys

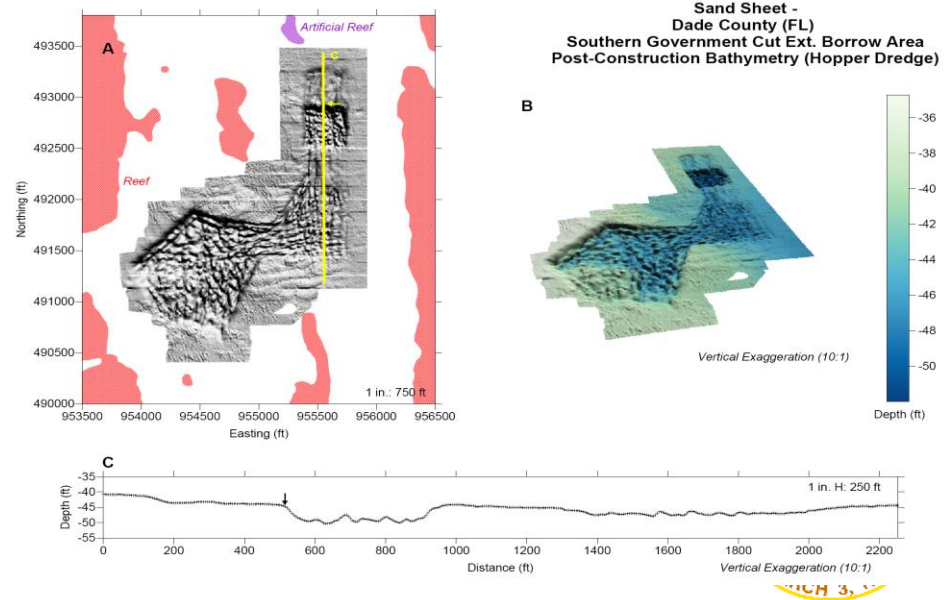
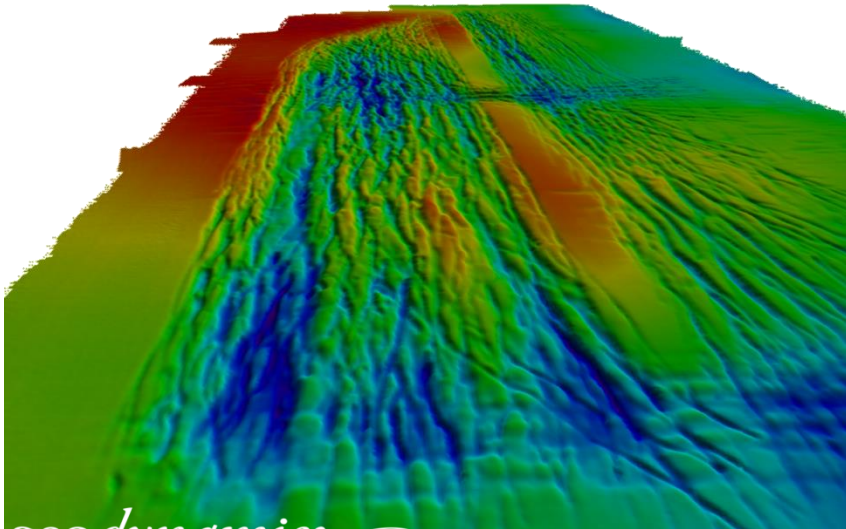


Managing Dredge Impacts by Optimizing the Use of Sand Resources

POC: Paul Knorr; 703-787-1524; paul.knorr@boem.gov

Objective: Optimize borrow area use by integrating geological, engineering, economic, environmental, and dredge operation variables in a common analytical framework. A draft sediment source management plan will be developed for Canaveral Shoals, FL.

Four Tiered Approach: (1) Assess resources, dynamics, and engineering requirements, (2) Integrate environmental and multiple use conflicts, (3) Best practices and mitigation measures, (4) determine cost effectiveness and quantitatively analyze decision tradeoffs.



Development of a Decision Support Tool to Reduce Sea Turtle Dredging Entrainment Risk

POC: Doug Piatkowski; 703-787-1833;douglas.piatkowski@boem.gov

Interagency Agreement: BOEM / NOAA

Objective: Develop a standardized decision support tool to assess project specific dredging entrainment risk and improve the effectiveness of mitigation planning decisions within federal marine mineral resource areas

Goals:

- Solicit input regarding distribution of sea turtles relative to OCS sand
- Identify and leverage existing sea turtle telemetry data
- Solicit information pertaining to the various parameters that may impact the efficacy of current mitigation measures to reduce entrainment risk
- Solicit from technical experts specific risk-reduction methodologies
- Assess and evaluate the mitigation suite currently implemented to reduce risk
- Solicit ideas for modifying, removing, and/or adding mitigation measures for future consideration
- Develop a standardized DST



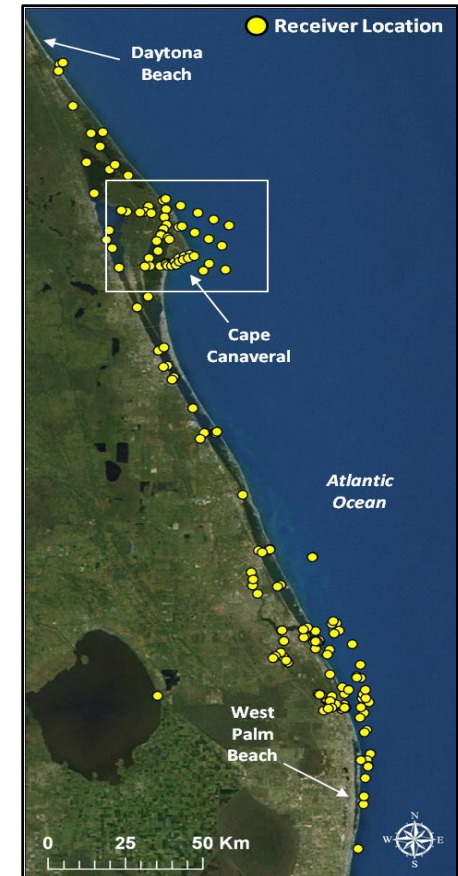
POC: Jennifer Culbertson; 703-787-1742; Jennifer.Culbertson@boem.gov

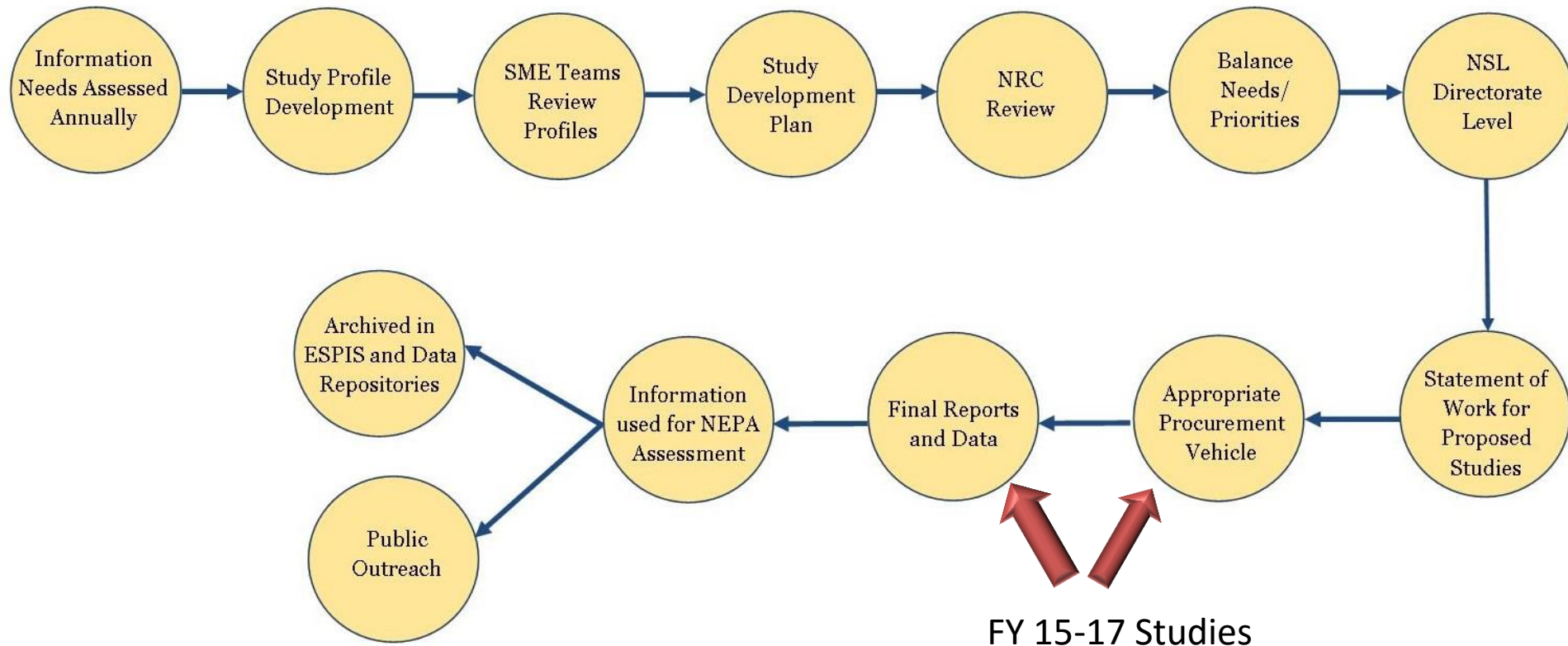
Interagency Agreement: BOEM / Navy /NASA

Objective : Improved understanding of habitat use by residential and transient fishes

Goals:

- More information on movements of small-bodied demersal and keystone pelagic fish species
- Movements on a local and regional scale
- Characterization and assessment of habitat value and function

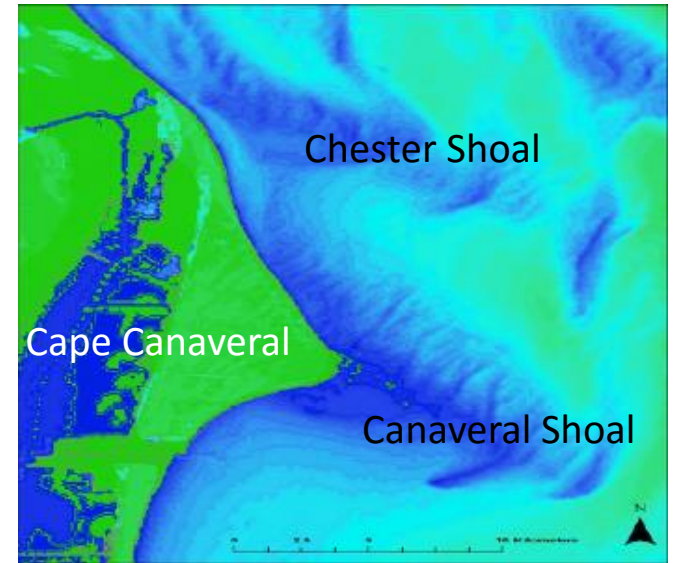




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Use of Telemetry to Monitor Fishes

- Finetooth shark (*Carcharhinus isodon*) (60)
- Red drum (*Sciaenops ocellatus*) (80)
- Scalloped hammerhead (*Sphyrna lewini*) – NASA
- Blacknose shark (*Carcharhinus arconotus*) (60)
- Spanish mackerel (*Scomberomorus maculatus*) (60)
- King mackerel (*Scomberomorus cavalla*) (40)
- Bluefish (*Pomatomus saltatrix*) (40)
- Spot Croaker (*Leiostomus xanthurus*) (120)
- Atlantic Croaker (*Micropogonias undulatus*) (120)

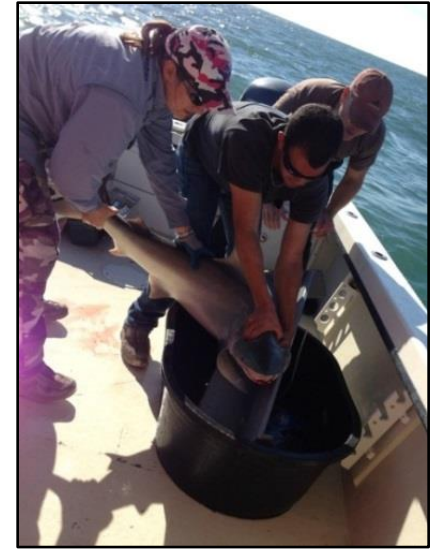


Approximately 400 tags deployed since project start



Preliminary Results - Tagging

- BOEM-tagged animals have generated 614,000 local position detections locally
- The database contains nearly 861,000 detections when all tagged animals are included
- 51 BOEM animals (32 finetooth, 17 blacknose, 2 red drum) have been detected in GA or SC
- Return rates have been very high; 28 of 30 fish (27 finetooth, 1 red drum) which migrated to GA/SC in spring-summer 2014, returned again at Cape Canaveral in late fall 2014



Preliminary Results - Tagging

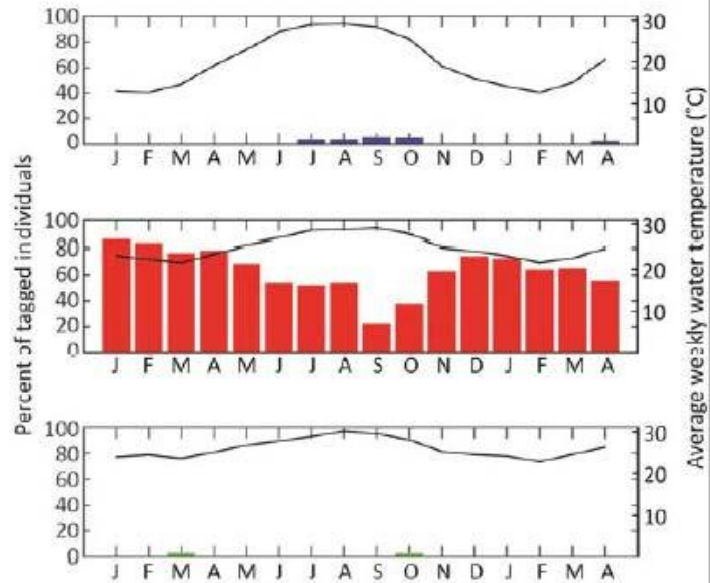
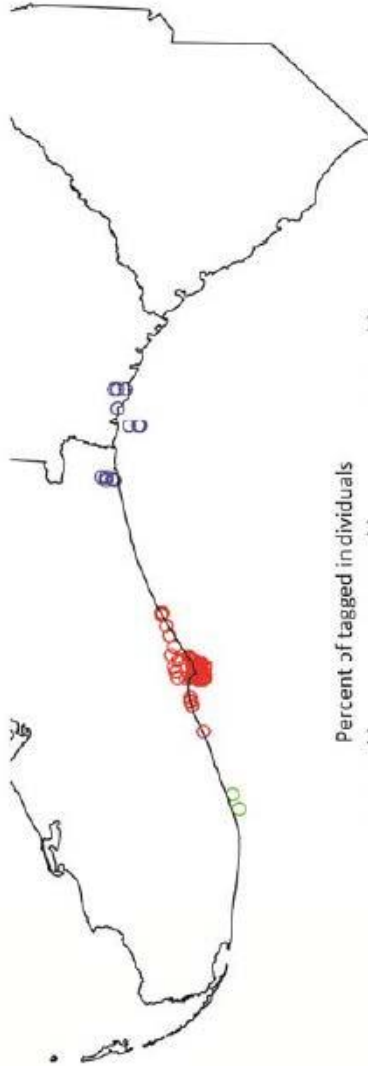
- Red drum greater number of detections and more receiver stations visited than other tagged spp
 - Majority of detections for red drum came offshore Cape Canaveral
 - Red drum presence year-round in Canaveral waters, with a decrease in tagged individuals in late summer coinciding with spawning in estuaries, followed by a return in November

Species	Number Released	FL (mm; mean [SD])	Number of Detections (mean [SD])	Stations Visited (mean [SD])
Red drum	62	820 (304))	6322 (6412)	35 (16.2)
Finetooth shark	35	1114 (323)	3159 (3648)	43 (17.7)
Blacknose shark	41	991 (78)	2003 (4056)	21 (14.9)
Scalloped hammerhead shark ¹	49	496 (216)	2208 (13100)	6 (9.3)
Spanish mackerel	11	408(23)	n/a	n/a

¹Note: This number represents scalloped hammerhead sharks released since the beginning of 2013



Red Drum

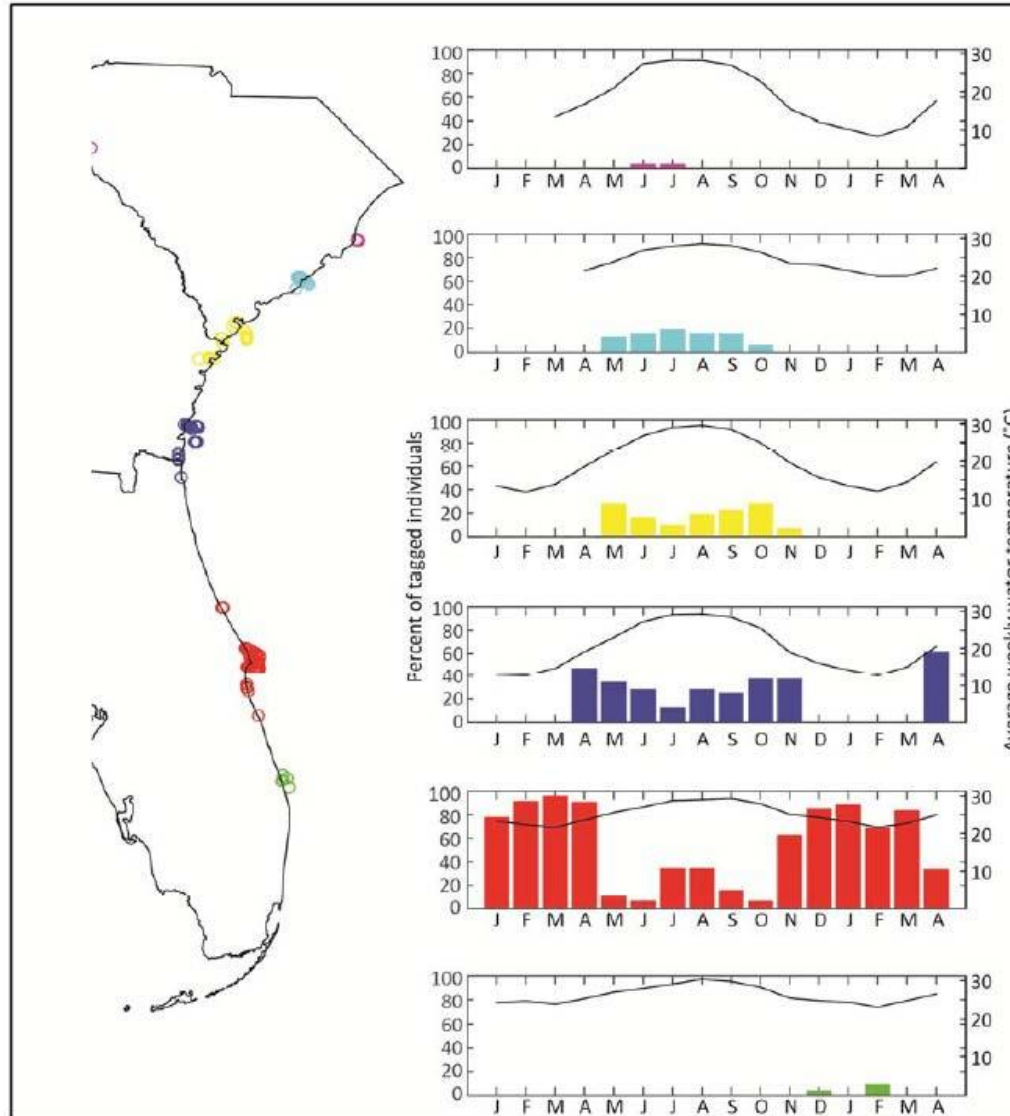


Preliminary Results - Tagging

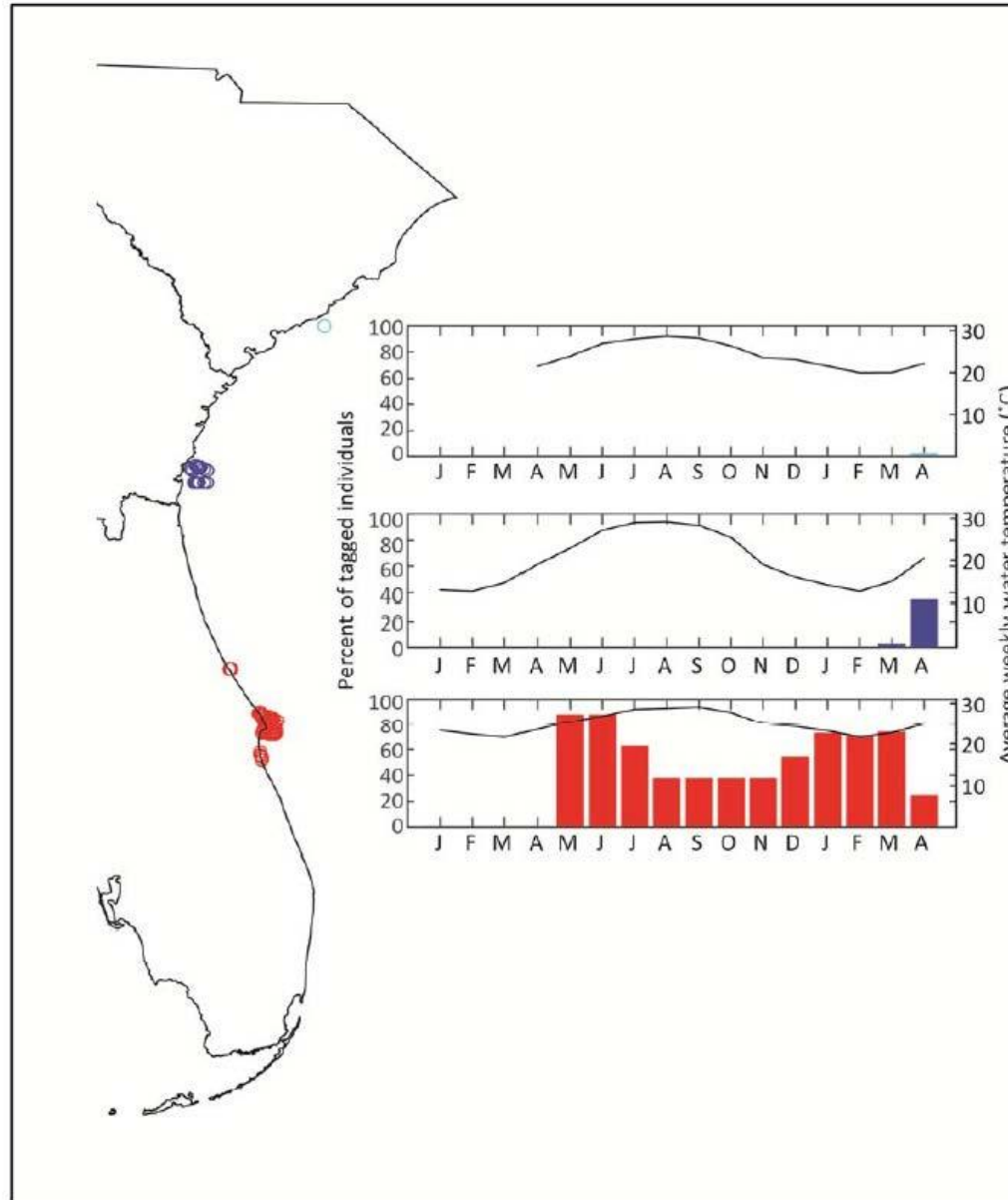
- Finetooth shark greatly expand their range during the warmer months with detections as far north as South Carolina
- Blacknose shark have a more consistent year-round presence in Canaveral, with some individuals detected outside Canaveral during spring months
- Data confirm the high mobility of scalloped hammerhead sharks



Finetooth sharks



Blacknose sharks




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Environmental Studies Southeastern United States Atlantic Outer Continental Shelf: 1976 - 1977

📍 Atlantic 📅 1976 - 1979 📁 Geology


The U.S. Department of the Interior, through a series of meetings with State, Federal, and academic representatives, developed a studies program in chemical, biological, physical, and geological oceanography of the South Atlantic Outer Continental Sh



A Regional Assessment of Potential Environmental Hazards to and Limitations on Petroleum Development of the Southeastern United States Atlantic Continental Shelf, Slope, and Rise, Offshore North Carolina

📍 Atlantic 📅 1981 - 1982 📁 Fates and Effects

An environmental geologic map depicting features that may be potential geologic hazards and limitations to petroleum development of the Continental Shelf, Slope, and Rise off North Carolina (pl. 1) was constructed from regional high-resolution seism



North Atlantic Geographical Studies - First Year

📍 Atlantic 📅 1976 - 1980 📁 Geology

Georges Bank is an OCS area that has been targeted for petroleum exploration and development. Effects of these activities on marine, coastal, and social environments are important considerations in leasing decisions. The U.S. Department of the Interi

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ADDITIONAL BACKGROUND & FACT SHEETS:

MMP Science Exchange: <http://www.boem.gov/Science-Exchange-Presentations-2015/>

EFH Working Group Report: <http://www.boem.gov/OCS-Study-BOEM-2015-012/>

Website: <http://www.boem.gov/Marine-Minerals-Program/>

Fact sheets: <http://www.boem.gov/BOEM-Fact-Sheets/>

Contact us: Jennifer.Culbertson@boem.gov and Douglas.Piatkowski@boem.gov

