



SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

# Ecosystem Coordination Update

Roger Pugliese  
Senior Fishery Biologist, SAFMC

Joint Habitat and Ecosystem-Based Management  
Committee Meeting

March, 2014

Savannah, Georgia



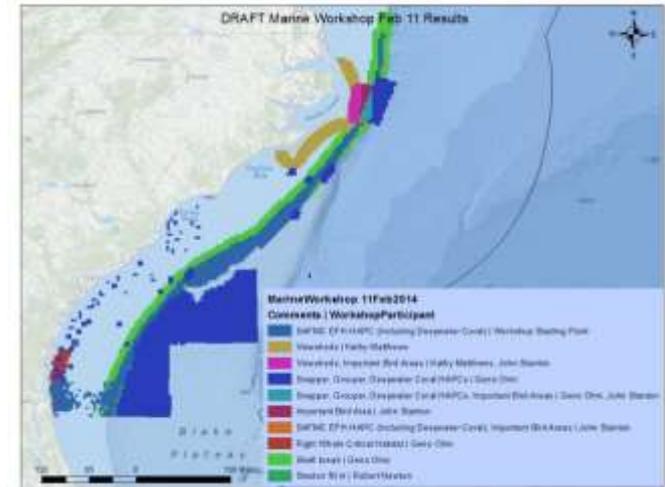
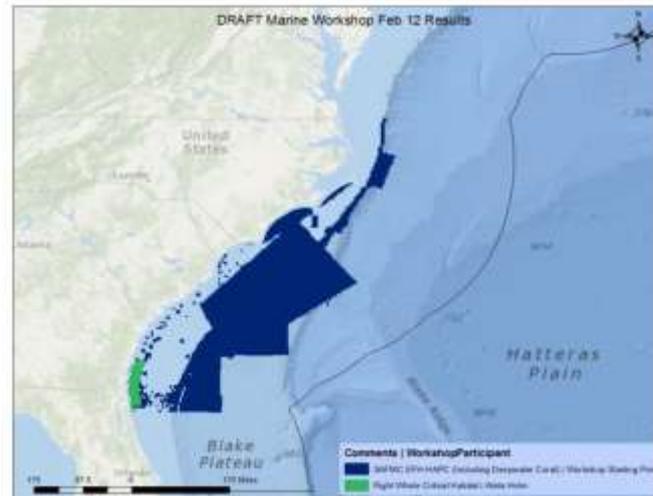
....*To Conserve and Manage*



## 2014 Developments

- Conservation Blueprint Draft Developed
- Inland and Marine Workshop Conducted
- Participation in Workshops and Key Integration of Council EFH-HAPCs as Foundation of Marine Targets

Draft South Atlantic Conservation Blueprint 1.0 (Review copy) | January 21, 2014





## 2014 Developments

- Funding: In-stream flow work in cooperation with SARP and TNC project that will enhance regional marine habitat distribution potentially supporting refinement of SAFMC EFH and EFH-HAPC spatial designations
- Steering Committee Meeting March- Review and Provide Guidance on Draft Conservation Blueprint





**SECOORA**

Southeast Coastal Ocean Observing  
Regional Association

## 2014 Developments

- Continue Support for Fisheries and Development of Species-specific Habitat Models that Integrate Remotely Sensed and In Situ Data to Enhance Stock Assessments for species managed by SAFMC
- 2015 Planning

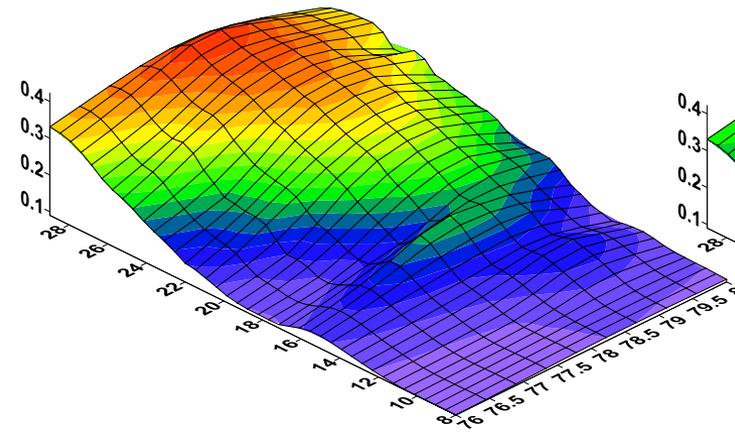
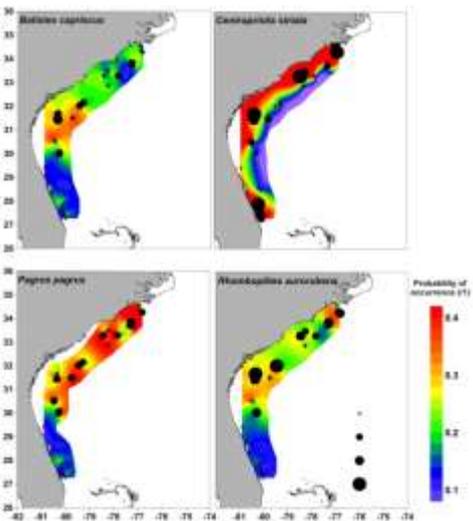




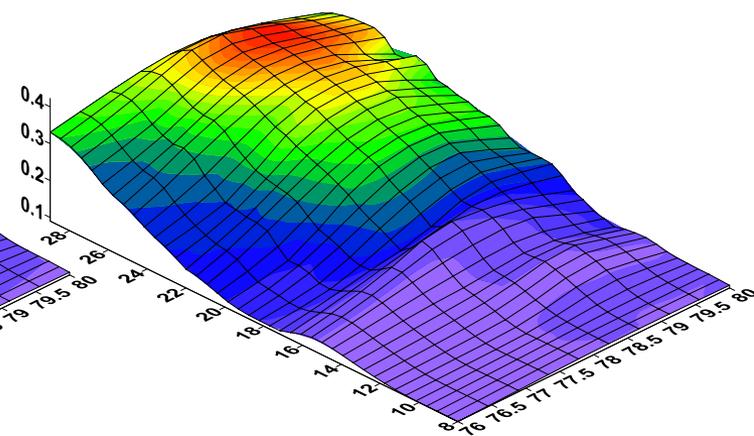
# Habitat Modeling For Fisheries-independent Trap Surveys



- Provide species-specific habitat models that integrate remotely sensed and *in situ* data to enhance stock assessment of species managed by the SAFMC
- Incorporate environmental factors into fishery independent indices of abundance



**Balistes Model**



**Rhomboplites Model**



# SECOORA

Southeast Coastal Ocean Observing Regional Association

## SECOORA Build Out Plan (e.g., Identified Mobile Platform/ Mapping Needs)

SECOORA MOBILE PLATFORM SUBSYSTEM TEMPLATE

Surface drifters	surface currents	GPS	Region: 150	\$300	
AXBTs, AXCTDs, AXCPs	water temperature and current water temperature, conductivity and depth	AXCPs/AXCTDs AXBTs	500 @ \$1.5k/probe 500 @ \$0.5k/probe Outer shelf, shelf break and deep ocean	\$750k \$250k	
Habitat	Depth (m)	Square miles	mi2 mapped	Remaining to be mapped (sq mi)	Mapping rates & costs
shelf	10 to 45	35,423	9909	25,514	100-m AUV: 24 hr dive + 6 hr battery turnaround = 150 linear km & 18.75 sq. km; \$3k/day plus support vessel
shelf edge	46 to 70	3,634	652	2,982	100-m AUV: 24 hr dive + 6 hr battery turnaround = 150 linear km & 18.75 sq. km; \$3k/day plus support vessel
shelf break	70 to 140	3,716	538	3,178	Bluefin AUV: 2 person team ~\$3k/day plus support vessel
shelf offshore	141 to 300	8,969	449	8,520	Ship Multibeam: \$12k/day
deep	> 300	138,539	9	138,530	Eagle Ray AUV: 3 person team ~11k/day plus support vessel
SA EEZ		190,281	11557	178724	



# Governor's SAA

- Develop GSAA Regional Driver Across Steering Committee, EPT and Technical Teams
- Adding Estuarine Layers to Regional Information Management System – Healthy Ecosystem Technical Team





## **South Atlantic-focused Connectivity Study Continues**

SARP and The Nature Conservancy recently launched the Southeast Aquatic Connectivity Assessment Project, or SEACAP, which aims to help identify which dams in the South Atlantic Landscape Conservation Cooperative's region have the greatest adverse impact on aquatic connectivity.

## **SARP Collaboration with SALCC on Instream Flow**

**Provides:** Hydrologic Foundation, Ecological Databases, Flow-ecology Literature Review, Flow Alteration Assessment, River Classification and Aquatic Conservation Priorities

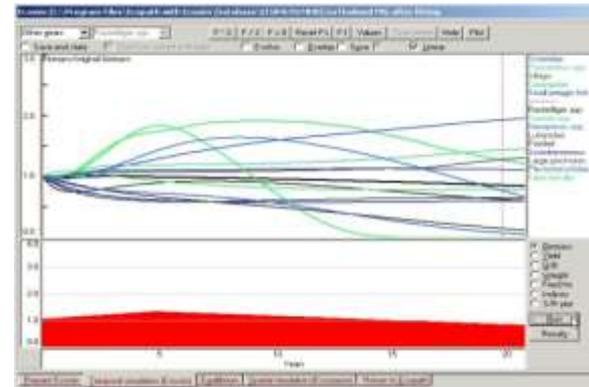
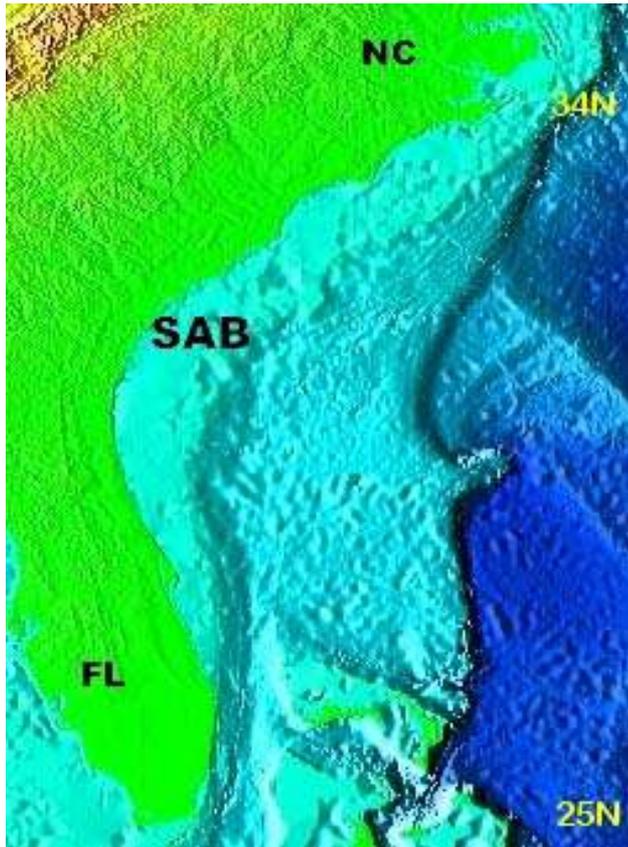


# Ecosystem Coordination Activities (Continued)

- Pulley Ridge Connectivity Project Oversight
- Coordination with NOAA Ocean Exploration Program and Okeanos Explorer 2014 Gulf Mission – Transit Mapping of South Atlantic Habitats
- Ecopath Model – Forage Fish in SA Region
- SEAMAP Data Management System Going Live
- Atlantic Coast Climate and Fisheries Governance Workshop
- Coordination with ESRI Ocean Staff – Potential Development of Proposal to Support Integration of ESRI Tools / Platforms and Refinement of SAFMC Fishery Spatial Information Systems



# Ecopath modelling in the South Atlantic Bight



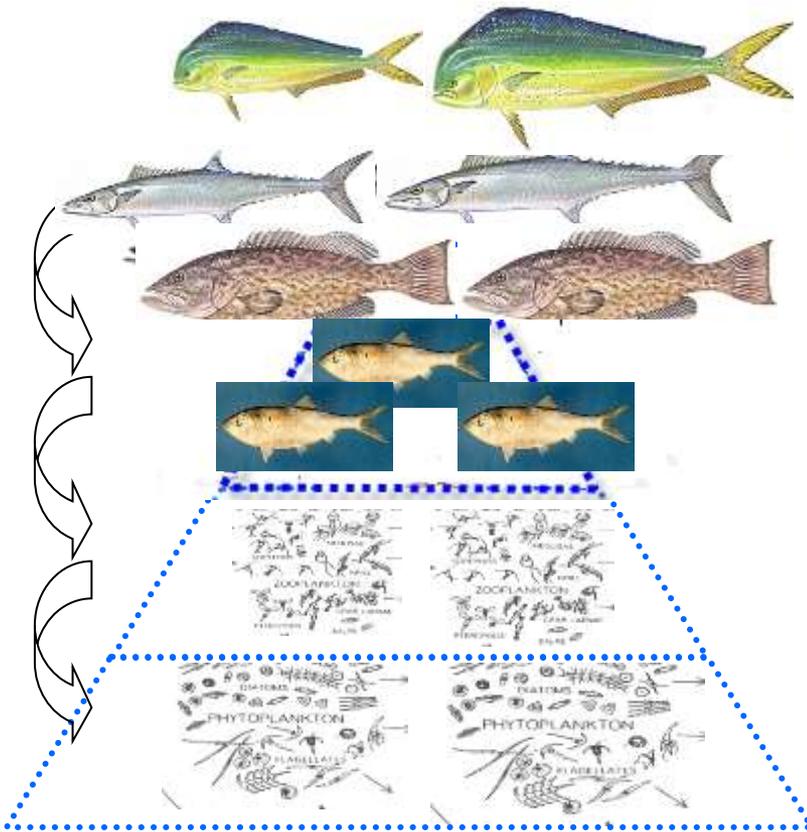
UBC/UVic/SAFMC/PEW



# Food Web Modeling

Strawman and Preliminary Ecopath models developed in cooperation with Sea Around Us Project and SAFMC for the South Atlantic Region

Recent collaboration used the preliminary model as the foundation, to develop a South Atlantic forage species focused Ecopath with Ecosim model



*Image Adapted from: S. Murawski. 2004. The challenge of Managing Marine Resources in 5 Dimensions. Workshop on GIS Tools Supporting Ecosystem Approaches to Management . NOAA-CSC.*



# History of the SAB model

- 2001 - Strawman 48-box model
- 2003 - Preliminary 98-box model
- 2013 - Model refined to address forage fish questions
- UBC Fisheries Centre Working Paper Highlighting Revised Model will be Finalized late March – Presentation Proposed During SAFMC Modeling Workshop Summer/Fall 2014



# SEAMAP Data Management System



**SOUTHEAST AREA MONITORING AND ASSESSMENT PROGRAM - SOUTH ATLANTIC**

[Home](#) | [SEAMAP.org](#)

**SEAMAP-SA - Southeast Area Monitoring and Assessment Program - South Atlantic**

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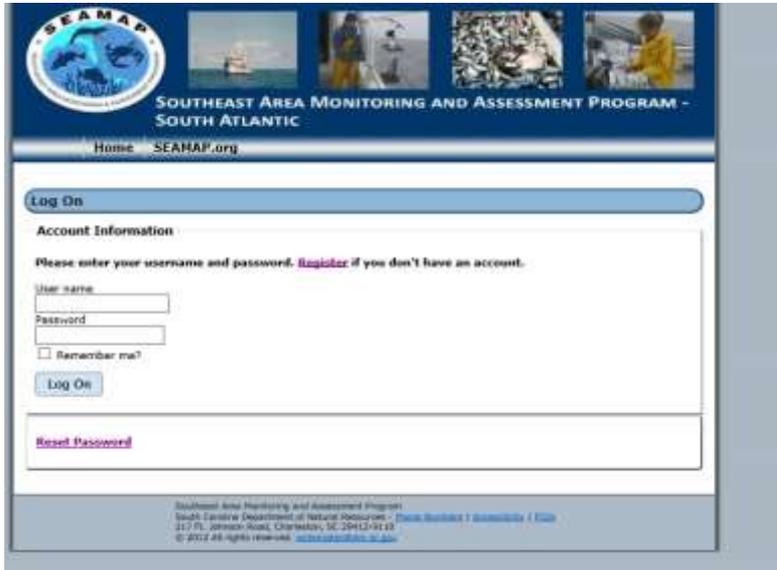
[Admin Test Site](#)

SEAMAP logo: Southeast Area Monitoring and Assessment Program

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# SEAMAP Data Management System (cont.)



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Please enter your username and password. [Register](#) if you don't have an account.

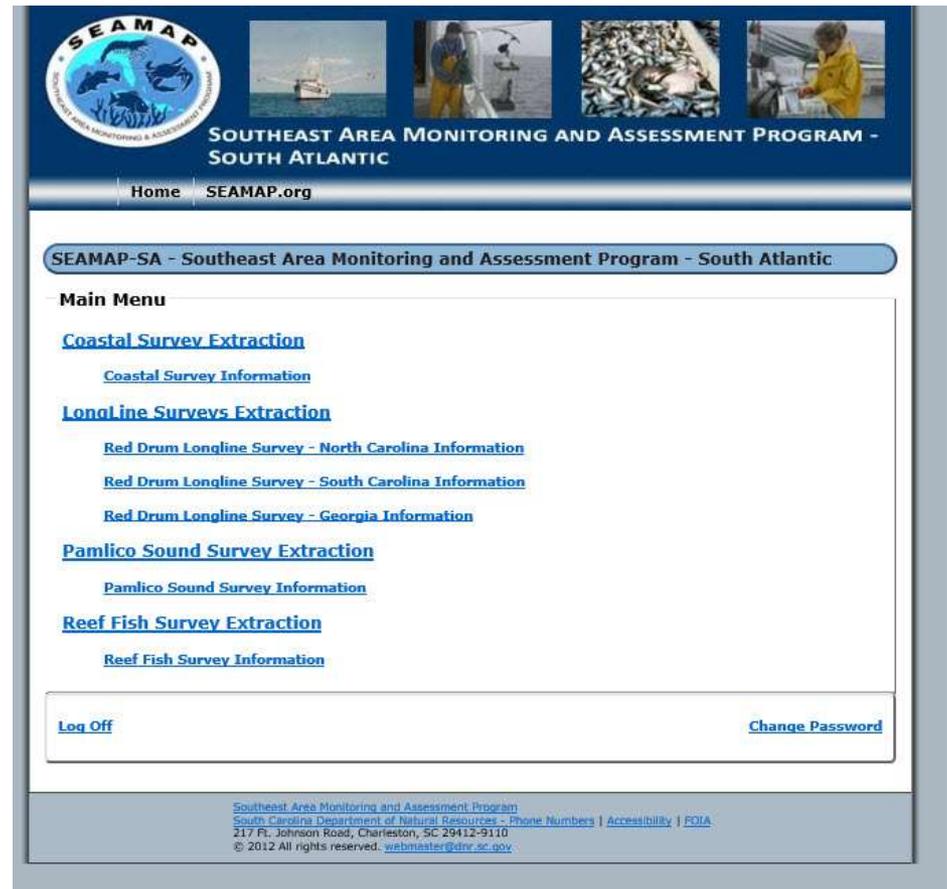
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**Main Menu**

- [Coastal Survey Extraction](#)
  - [Coastal Survey Information](#)
- [Longline Surveys Extraction](#)
  - [Red Drum Longline Survey - North Carolina Information](#)
  - [Red Drum Longline Survey - South Carolina Information](#)
  - [Red Drum Longline Survey - Georgia Information](#)
- [Pamlico Sound Survey Extraction](#)
  - [Pamlico Sound Survey Information](#)
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# SEAMAP Data Management System (cont.)

SC Project Webpage

## COASTAL SURVEY

The SEAMAP - South Atlantic Coastal Survey, funded by the National Marine Fisheries Service (NMFS) and conducted by the South Carolina Department of Natural Resources - Marine Resources Division (SCDNR-MRD), began in 1986. This survey provides long-term, fishery-independent data on the distribution and relative abundance of resident and transient fishes, elasmobranchs, decapod and stomatopod crustaceans, sea turtles, horseshoe crabs, and cephalopods that are accessible by high-rise trawls. Twenty-three finfish, four decapod species, all marine turtles, all coastal shark species, and horseshoe crabs were selected as priority species by the SEAMAP-SA Committee. Additional data recorded for priority species include measurements of length or width for all priority species, sex and individual weights for blue crab, sharks, sea turtles, and horseshoe crabs, and reproductive information on commercially important penaeid shrimp and blue crabs.

Samples are taken by trawl from the coastal zone of the South Atlantic Bight (SAB) between Cape Hatteras, North Carolina, and Cape Canaveral, Florida (Figure 1). Multi-legged cruises are conducted in spring (early April - mid-May), summer (mid-July - early August), and fall (October - mid-November).

Stations are randomly selected from a pool of stations within each stratum. From 1989 through 2000, stations were initially selected using proportional allocation. In 2001, the method of allocation changed to optimal allocation and the number of stations allocated to each stratum was determined annually. From 2001 to 2008, a total of 102 stations are sampled each season (306 stations/year) within twenty-four shallow water strata, representing an increase from 78 stations previously sampled in those strata by the trawl survey (1990-2000). In 2009, the number of stations sampled each season increased to 112 (336 total). Strata are delineated by the 4 m depth contour inshore and the 10 m depth contour offshore. In previous years (1990-2000), stations were sampled in deeper strata with station depths ranging from 10 to 19 m in order to gather data on the reproductive condition of commercial penaeid shrimp. Twenty-seven stations located within ten outer strata in the southern half of the SAB were sampled in spring to collect data on spawning of white shrimp. Sixteen additional stations in the seven outer strata off North Carolina were sampled in fall to gather data on the reproductive condition of brown shrimp. No stations in the outer strata were sampled in summer. Outer strata were abandoned in 2001 in order to intensify sampling in the more shallow depth-zone.

### Coastal Survey

#### Download Data

##### Type of Data:

Choose Data to Download

[Data Types](#)

##### Depth Zone:

no selected option 2 available options

INNER

[Depth-Zones](#)

##### Year Range:

no selected option 24 available options

1989

1990

1991

##### States:

no selected option 4 available options

FL

GA

NC

##### Latitude Range:

no selected option 418 available options

28.75

28.76

28.77

28.80

##### Seasons:

no selected option 3 available options

Spring (March, April, and May)

Summer (June, July, and August)

Fall (September, October, and November)

##### Scientific Names

no selected option 366 available options

ABLENNES HIANS

ACANTHILIA INTERMEDIA

ACANTHOSTRACION QUADRICORNIS

ACANTHURUS CHIRURGICUS

##### Common Names

no selected option 343 available options

AMERICAN SHAD

AMERICAN SLIPPER LOBSTER

AREOLATED HAIRY CRAB

ATI ANTIC RONITO

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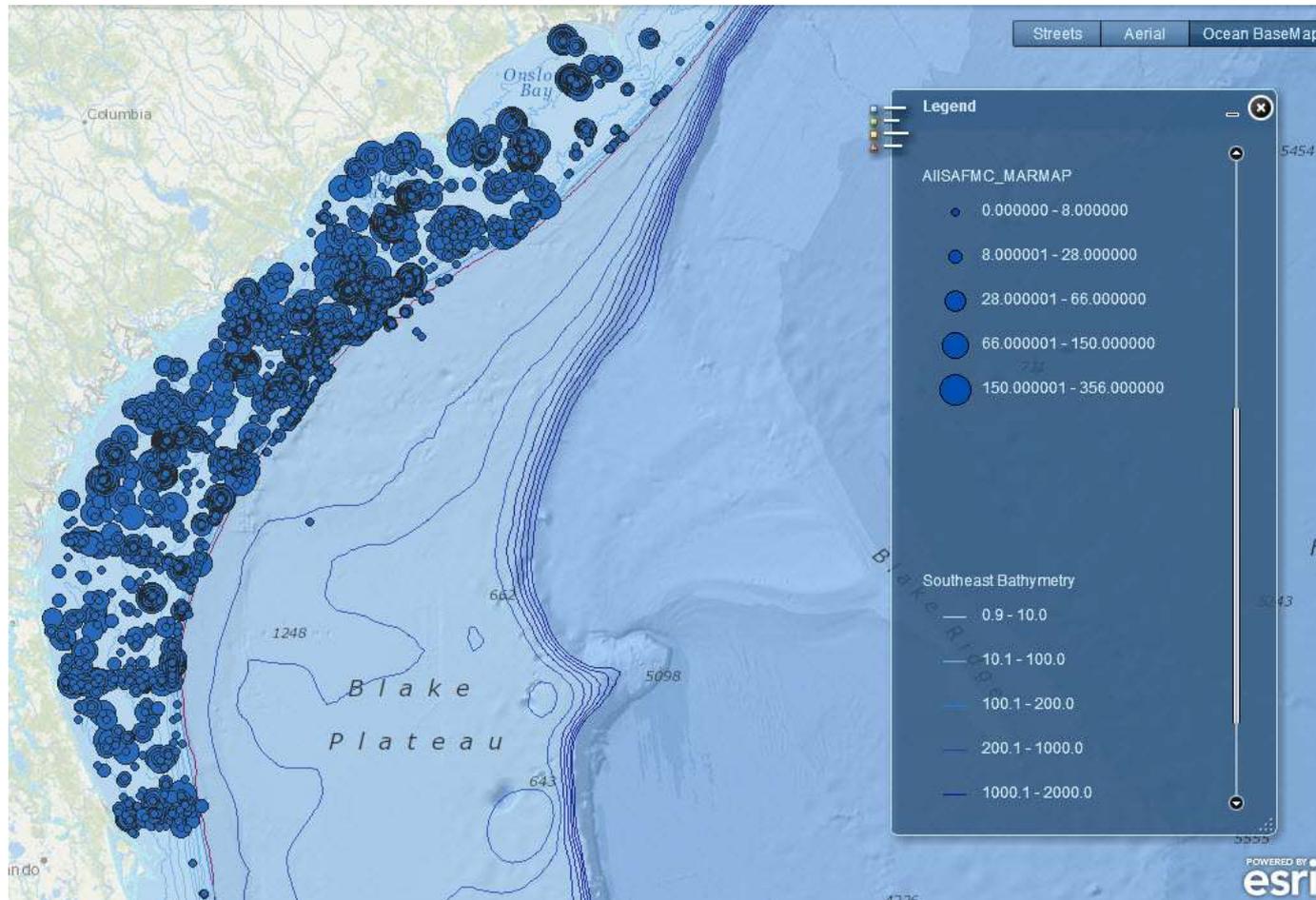
# SEAMAP Data Management System (cont.)

SEAMAP Chair.Reef Fish Survey.EVENT.2014-03-02T21.45.01 - Microsoft Excel

	A	B	C	D	G	H	N	O	P	Q	R	S	T	U	V	W	X	AF	AH	AI
1	PROJECTNAME	PROJECTAGENCY	DATE	EGEARNAME	EVENTTYP	TEMPBOT	SALINITYB	LIGHT	TIMES	TIMEZC	DEPTHSTART	LATITUDESTART	L	LONGITUDESTART	LONGITUI					
2	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:19	GMT	15	32.51						32.51		-79.69
3	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:30	GMT	16	32.5						32.5		-79.69
4	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:37	GMT	16	32.5						32.5		-79.7
5	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:44	GMT	15	32.5						32.5		-79.7
6	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:51	GMT	16	32.5						32.5		-79.7
7	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.8053	35.8024	DAY	19:58	GMT	15	32.5						32.5		-79.69
8	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.7655	35.9118	DAY	21:43	GMT	16	32.49						32.49		-79.68
9	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.7655	35.9118	DAY	21:50	GMT	16	32.49						32.49		-79.69
10	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.7655	35.9118	DAY	21:57	GMT	16	32.49						32.49		-79.68
11	Reef Fish Survey	SCDNR-MARMAP	5/21/2007	F CHEVRON TRAP	REEF FISH RA	21.7655	35.9118	DAY	22:05	GMT	16	32.48						32.48		-79.68
12	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	11:38	GMT	49	32.28						32.28		-79.15
13	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	11:43	GMT	50	32.28						32.28		-79.15
14	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	11:49	GMT	48	32.27						32.27		-79.16
15	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	11:59	GMT	48	32.27						32.27		-79.16
16	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	12:08	GMT	50	32.27						32.27		-79.16
17	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.2721	36.4132	DAY	12:19	GMT	50	32.26						32.26		-79.16
18	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	14:56	GMT	50	32.34						32.34		-79.04
19	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	15:02	GMT	45	32.34						32.34		-79.05
20	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	15:14	GMT	51	32.34						32.34		-79.04
21	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	15:19	GMT	50	32.34						32.34		-79.04
22	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	15:22	GMT	46	32.35						32.35		-79.04
23	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.1641	36.4257	DAY	15:25	GMT	48	32.35						32.35		-79.04
24	Reef Fish Survey	SCDNR-MARMAP	5/22/2007	F CHEVRON TRAP	REEF FISH RA	22.6328	36.4113	DAY	17:57	GMT	47	32.4						32.4		-78.99



# SA Fisheries Spatial Representation of SEAMAP Data System- Test Variable CPUE : All Species



# East Coast Climate Change and Fisheries Governance Workshop

## March 19 – 21, 2014

### Washington, D.C.

## Workshop objectives

Convene representatives of the NEFMC, MAFMC, SAFMC, ASMFC and NOAA Fisheries to discuss the potential governance challenges arising from the impacts of climate change on East Coast marine fisheries. Specifically, workshop participants will work collaboratively to:

- Explore the existing and potential impacts of climate change on the management and governance of East Coast marine fisheries, with an emphasis on the policy implications of shifting fishery distributions and changing productivity;
- Evaluate processes for documenting and acknowledging climate-related changes and initiating a management response;
- Identify key management questions, concerns and information needs to guide future research and coordination between management bodies;
- Examine the flexibility of the existing management framework to accommodate climate-related governance challenges; and
- Discuss potential solutions, next steps, and opportunities to maintain a dialogue between East Coast fishery management partners and NOAA Fisheries.



# Ecosystem Tools - Links

- [SAFMC Dashboard](http://ocean.floridamarine.org/safmc_dashboard/)  
[http://ocean.floridamarine.org/safmc\\_dashboard/](http://ocean.floridamarine.org/safmc_dashboard/)
- [SAFMC EFH](http://ocean.floridamarine.org/sa_efh/)  
[http://ocean.floridamarine.org/sa\\_efh/](http://ocean.floridamarine.org/sa_efh/)
- [SAFMC Managed Areas](http://ocean.floridamarine.org/safmc_managedareas/)  
[http://ocean.floridamarine.org/safmc\\_managedareas/](http://ocean.floridamarine.org/safmc_managedareas/)
- [SAFMC Atlas](http://ocean.floridamarine.org/safmc_atlas/)  
[http://ocean.floridamarine.org/safmc\\_atlas/](http://ocean.floridamarine.org/safmc_atlas/)

## **NEW**

- SEAMAP Online Data Management System  
<https://www2.dnr.sc.gov/seamap/>
- [SAFMC Fisheries](http://ocean.floridamarine.org/SA_Fisheries/) (Updated)  
[http://ocean.floridamarine.org/SA\\_Fisheries/](http://ocean.floridamarine.org/SA_Fisheries/)

