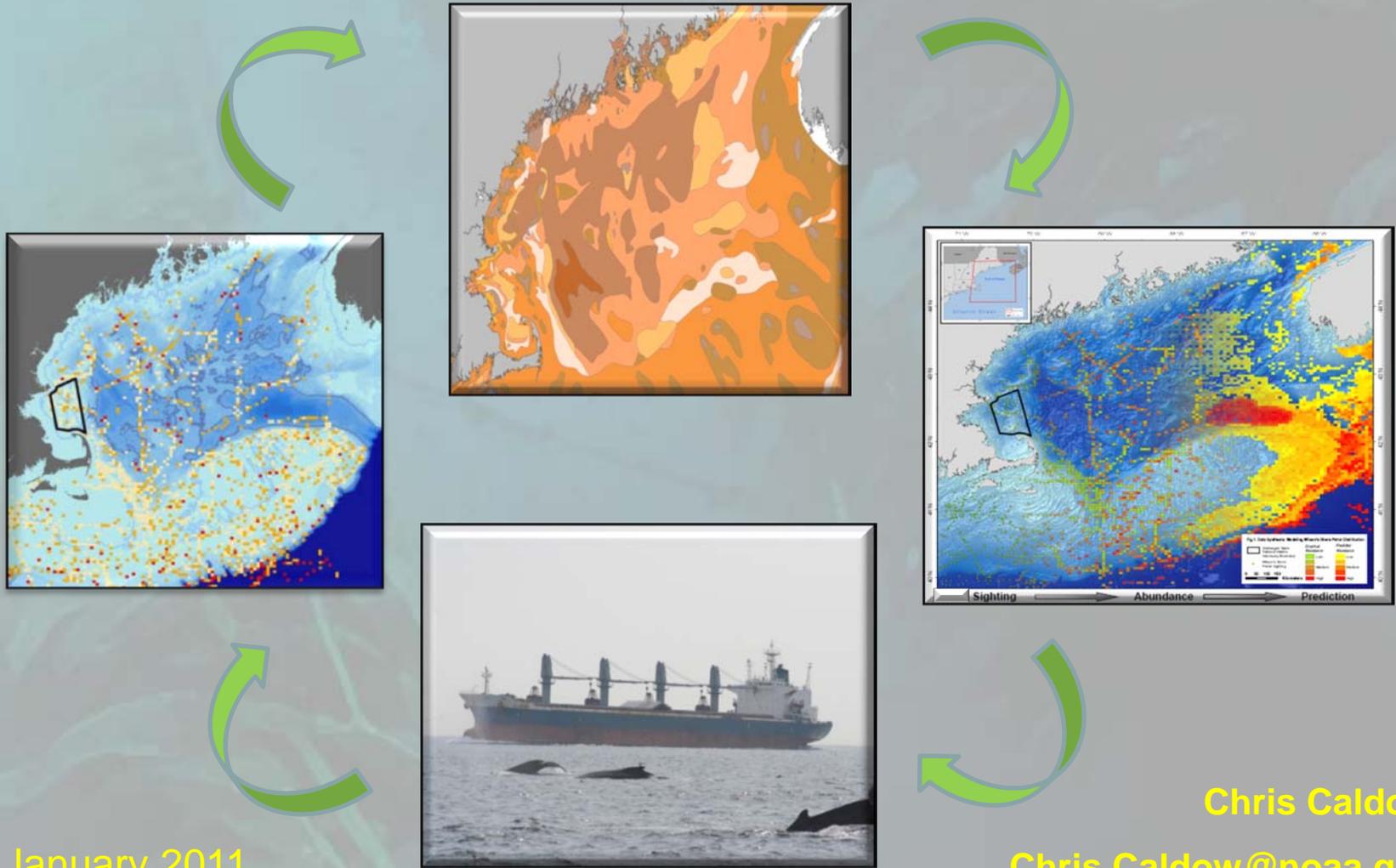


Biogeographic Assessments to Meet Local & Regional MSP Needs



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WCMM January 2011



NOAA / NOS
Center for Coastal Monitoring and Assessment

NOAA's Biogeography Branch

Science to support coastal and marine spatial planning



THE WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY

*Final Recommendations
Of The
Interagency Ocean Policy
Task Force
July 19, 2010*



NOAA / NOS
National Centers for Coastal Ocean Science

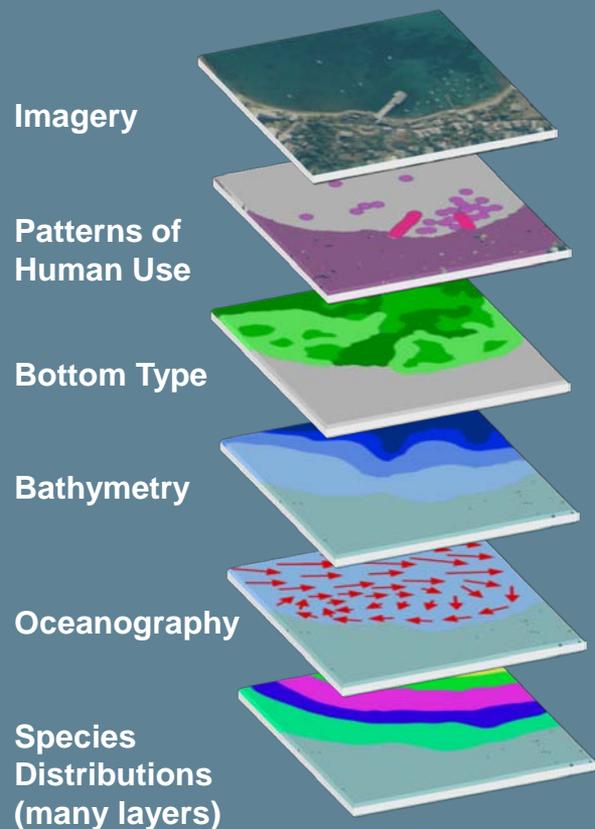
10 Steps to MSP

- 1) Identifying need and establishing authority
- 2) Obtaining financial support
- 3) Organizing the process through pre-planning
- 4) Organizing stakeholder participation
- 5) Defining and analyzing existing conditions
- 6) Defining and analyzing future conditions
- 7) Preparing and approving the spatial management plan
- 8) Implementing and enforcing the spatial management plan
- 9) Monitoring and evaluating performance
- 10) Adapting the marine spatial management process



Biogeographic Assessment Approach

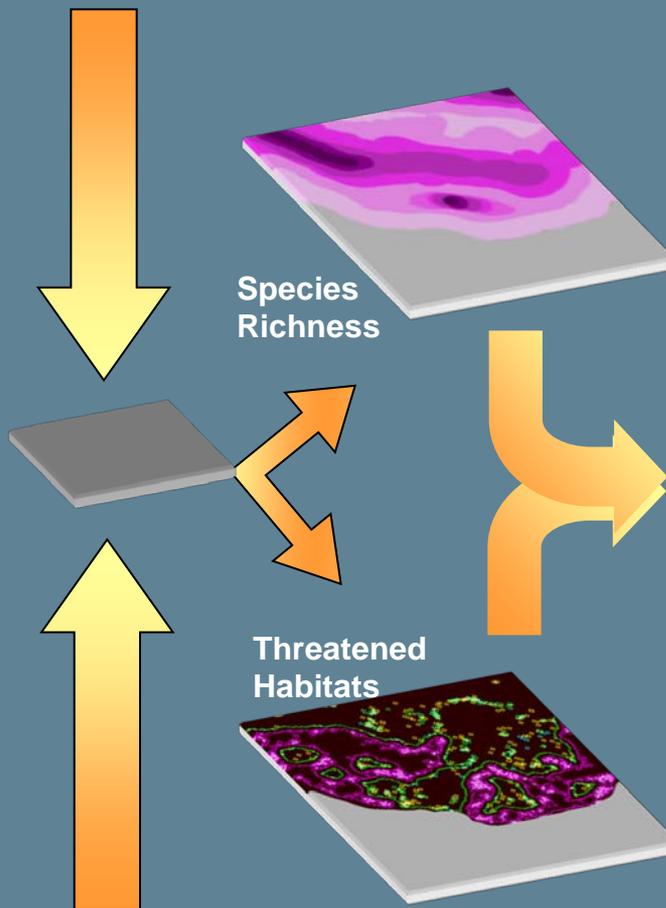
Biogeographic Data Layers



Combine Biogeographic Layers for Analysis

Example Integrated Biogeographic Analyses*

* Specific analyses targeted to management needs



Products to Aid Management

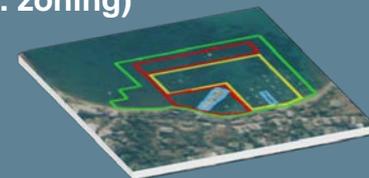
Defining and analyzing existing conditions



Defining and analyzing future conditions



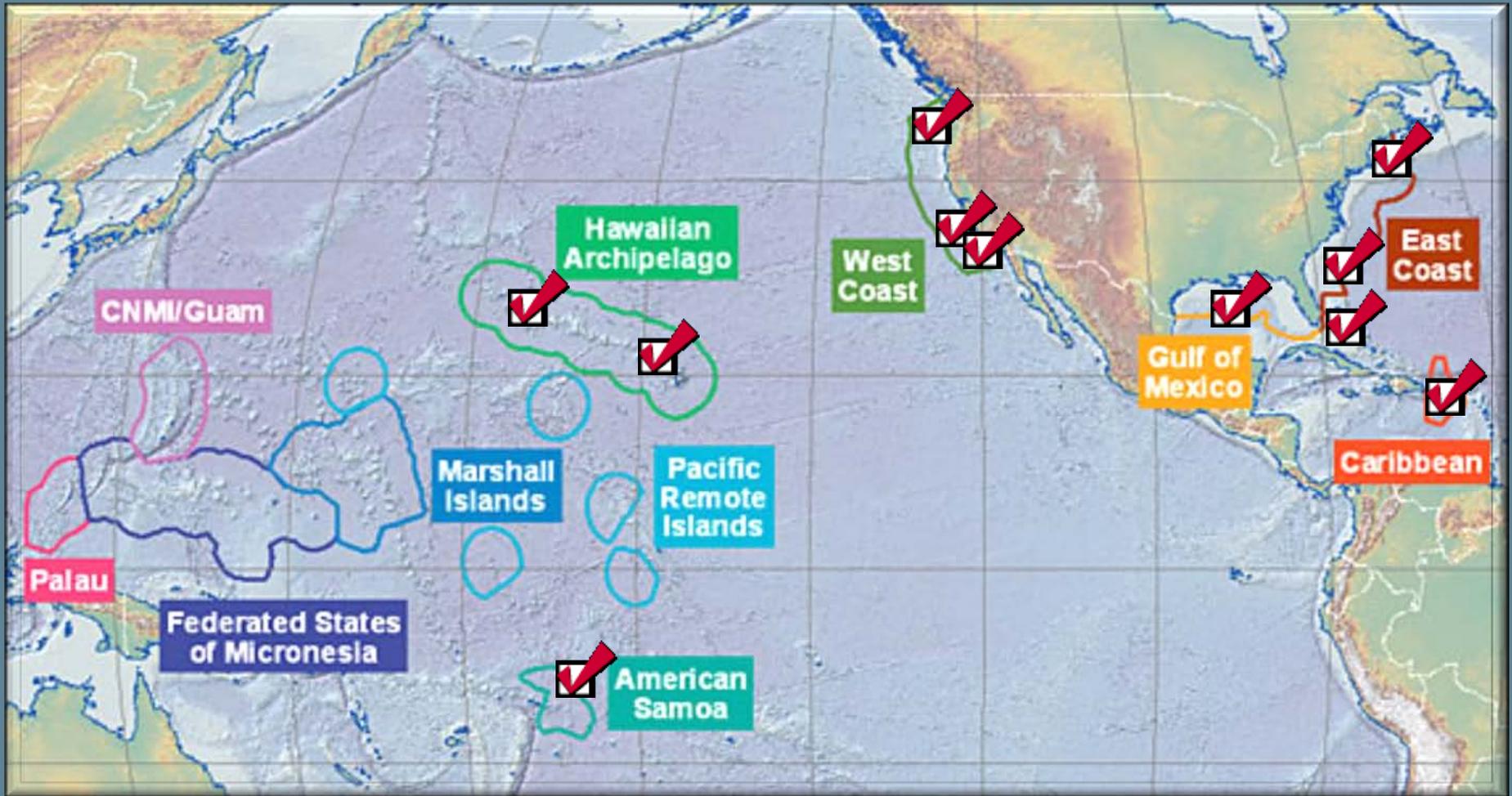
Evaluate alternative management strategies (e.g. zoning)



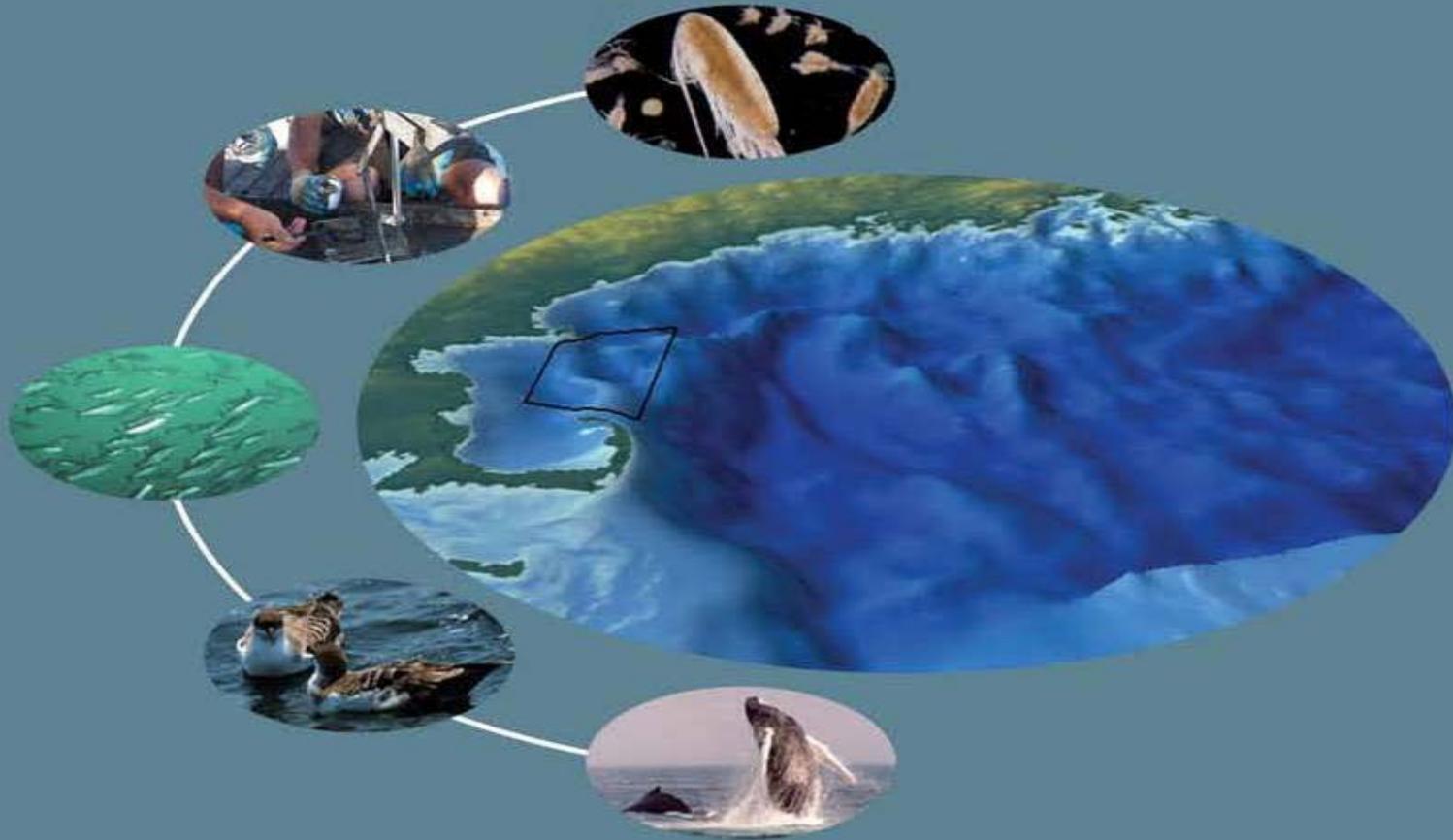
Analytical Products to Meet Management Objectives



Efforts To-Date



Assessment: Stellwagen Bank, MA

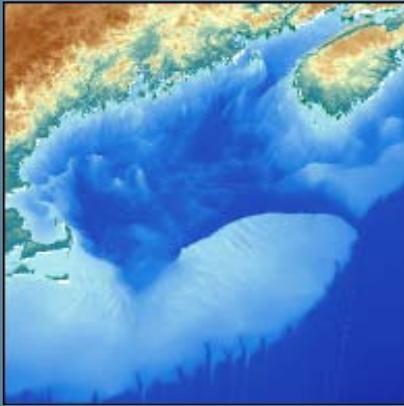


Objective: To synthesize and integrate ecological data to support management plan review process. To provide spatial models of resource distribution to inform MA Ocean Plan. *Balancing needs of shipping community and conservation*

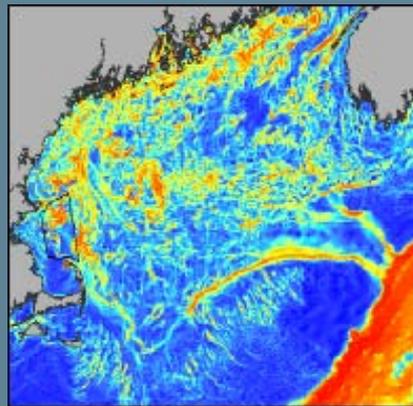


Abiotic: Spatio-Temporal Data

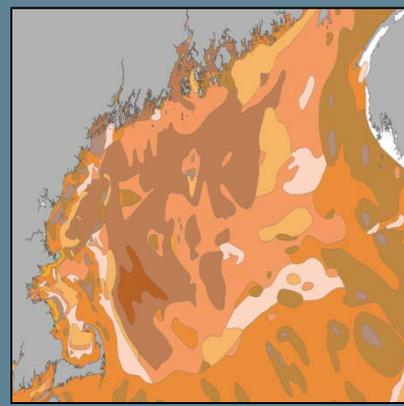
STATIC VARIABLES



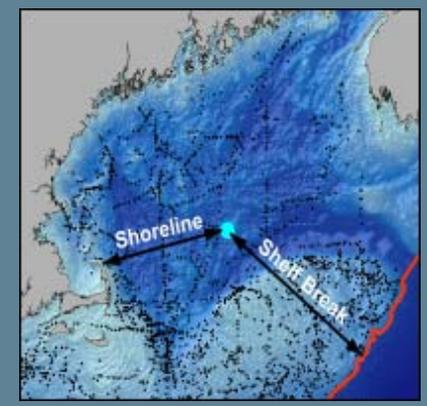
Bathymetry



Slope

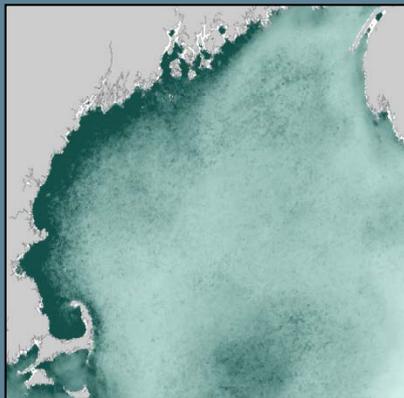


Substrate

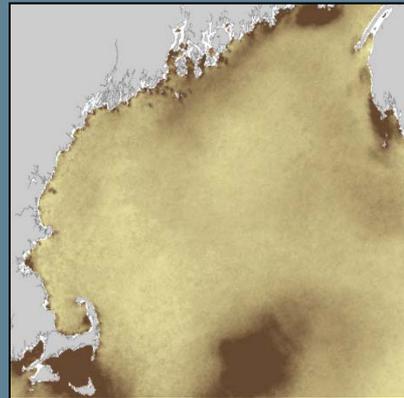


Distance to Features

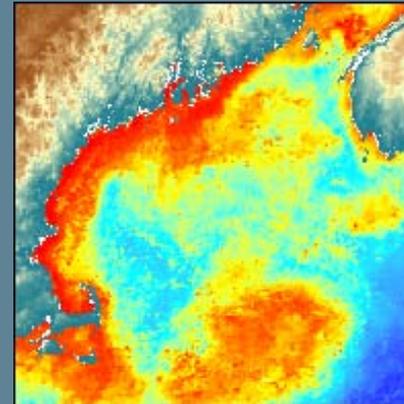
DYNAMIC VARIABLES



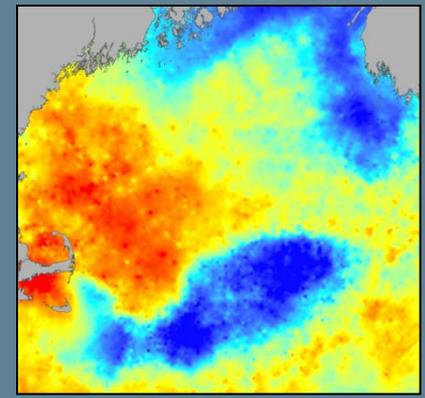
Chlorophyll a



Turbidity



Sea Surface Temp.

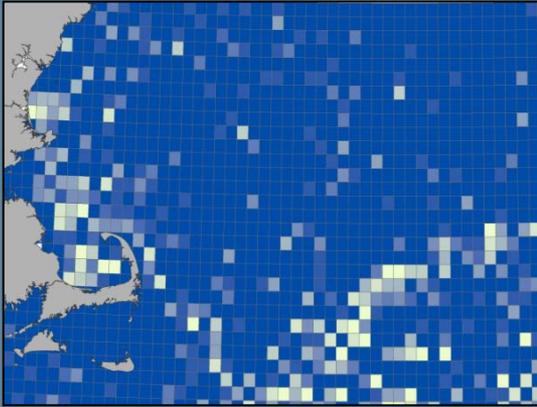


Seasonal Water Stratification

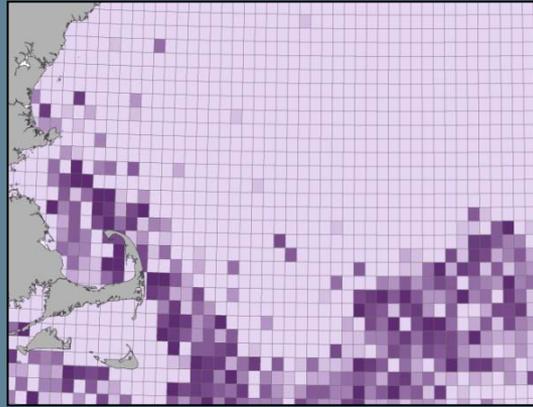


Biotic: Spatio-Temporal Data

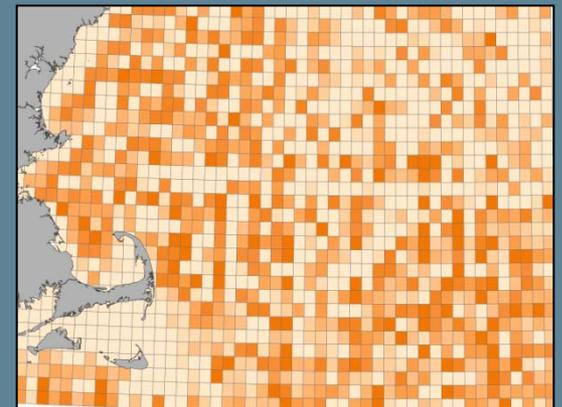
CETACEAN ABUNDANCES PREY ABUNDANCES



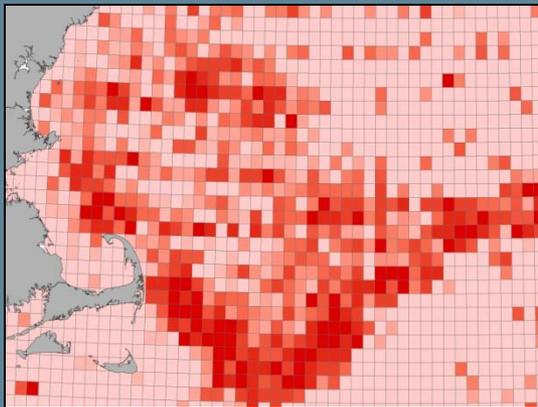
Atlantic Mackerel



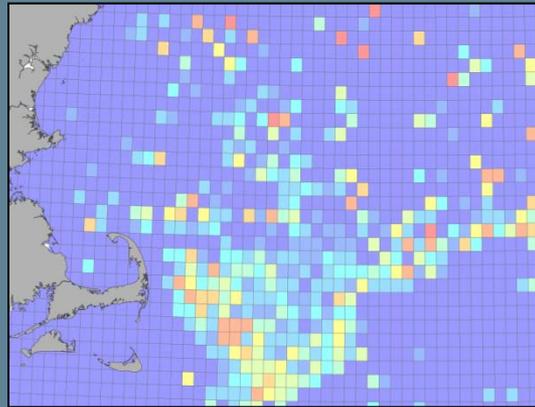
Northern Sand Lance



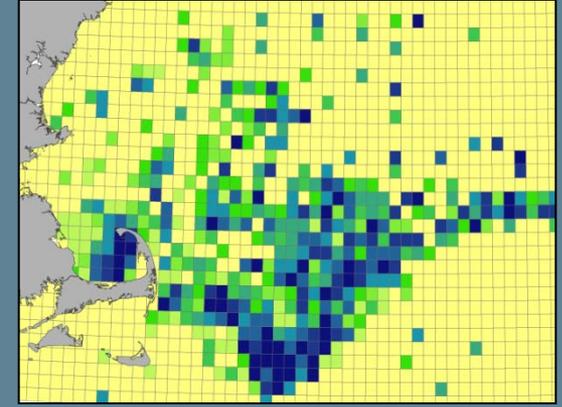
Zooplankton



Mysticeti
(Baleen Whales)

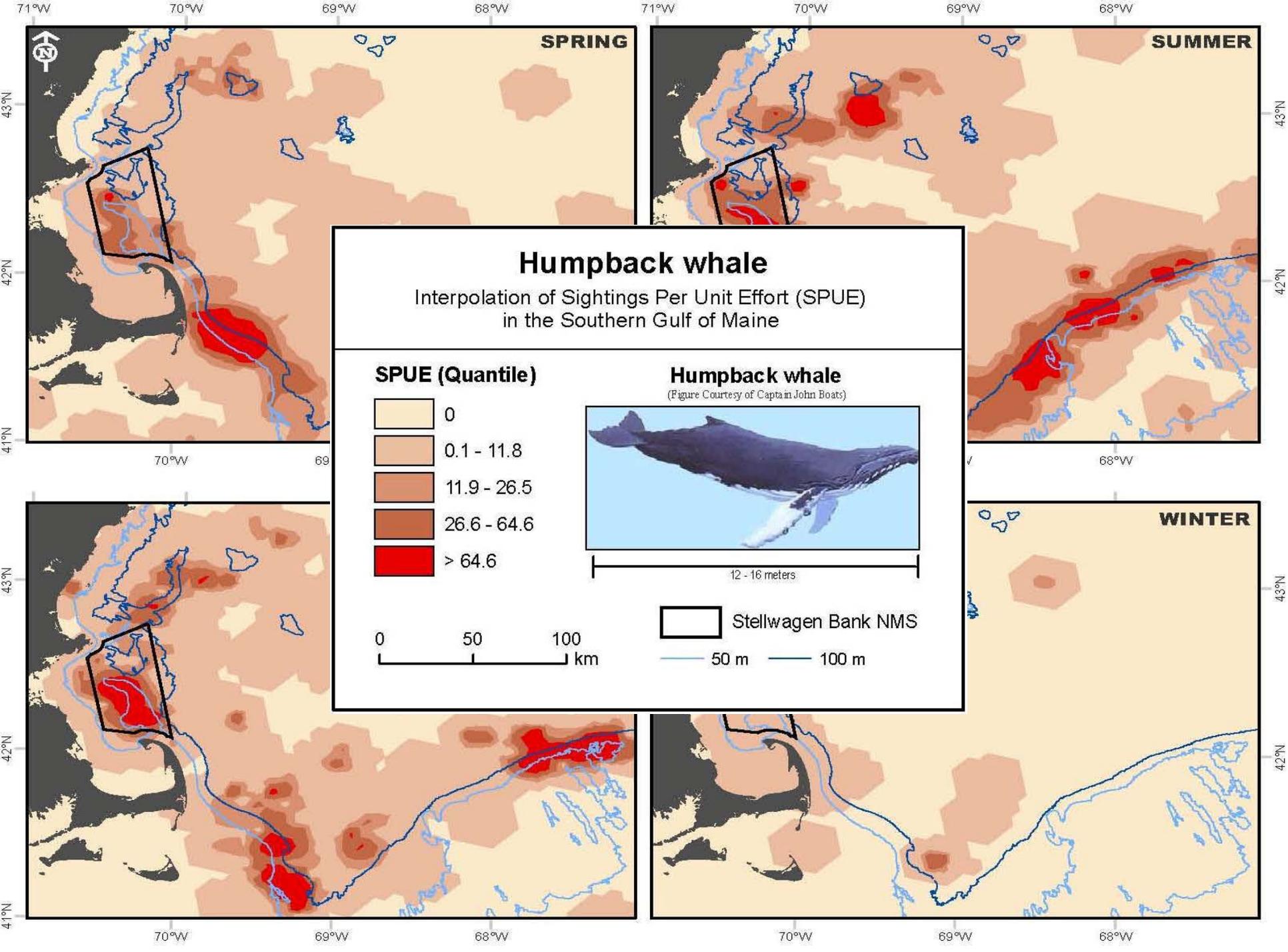


Atlantic White-Sided
Dolphin

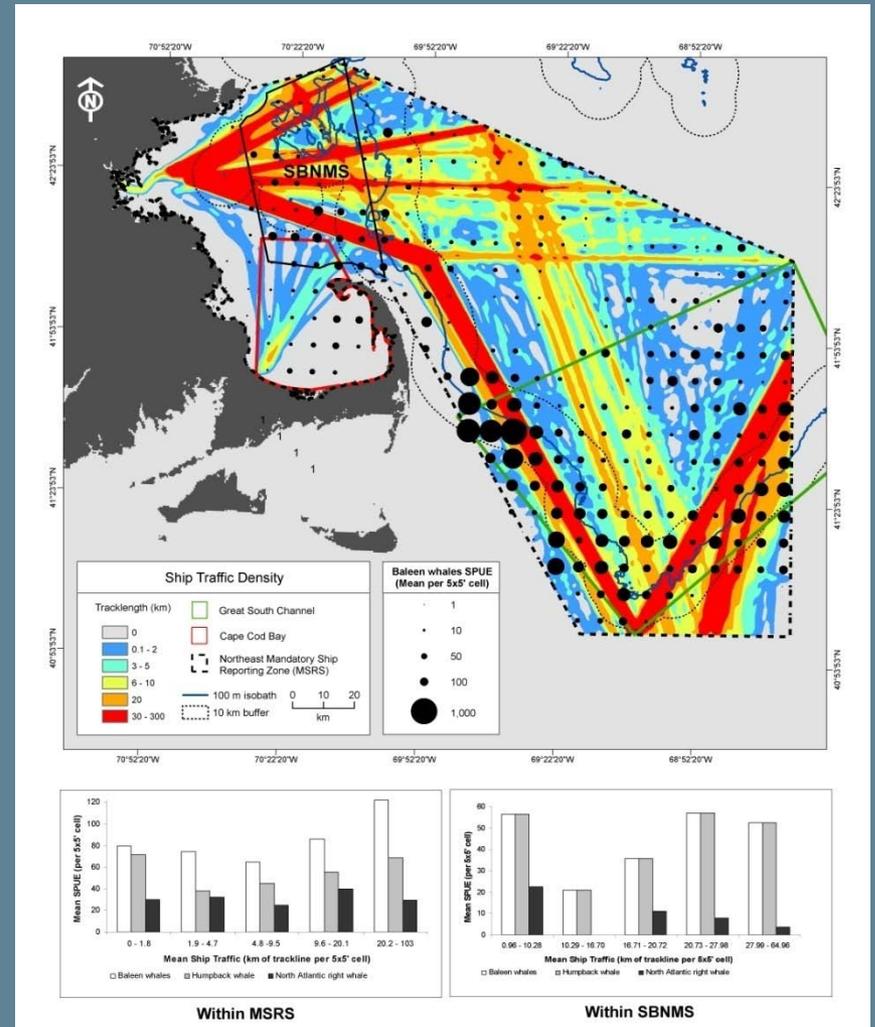
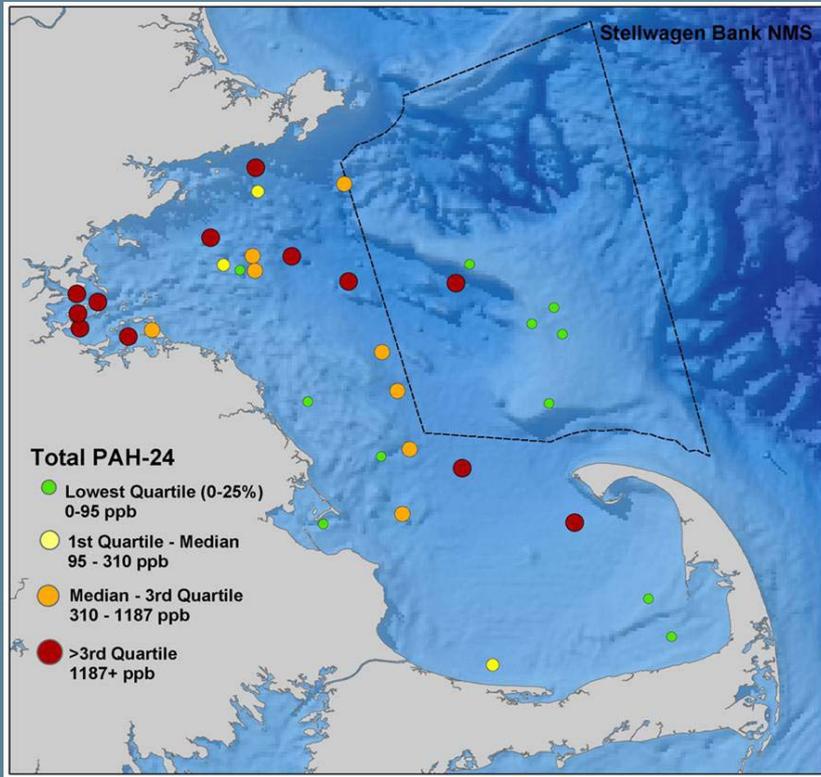


Northern Atlantic
Right Whales





Applications



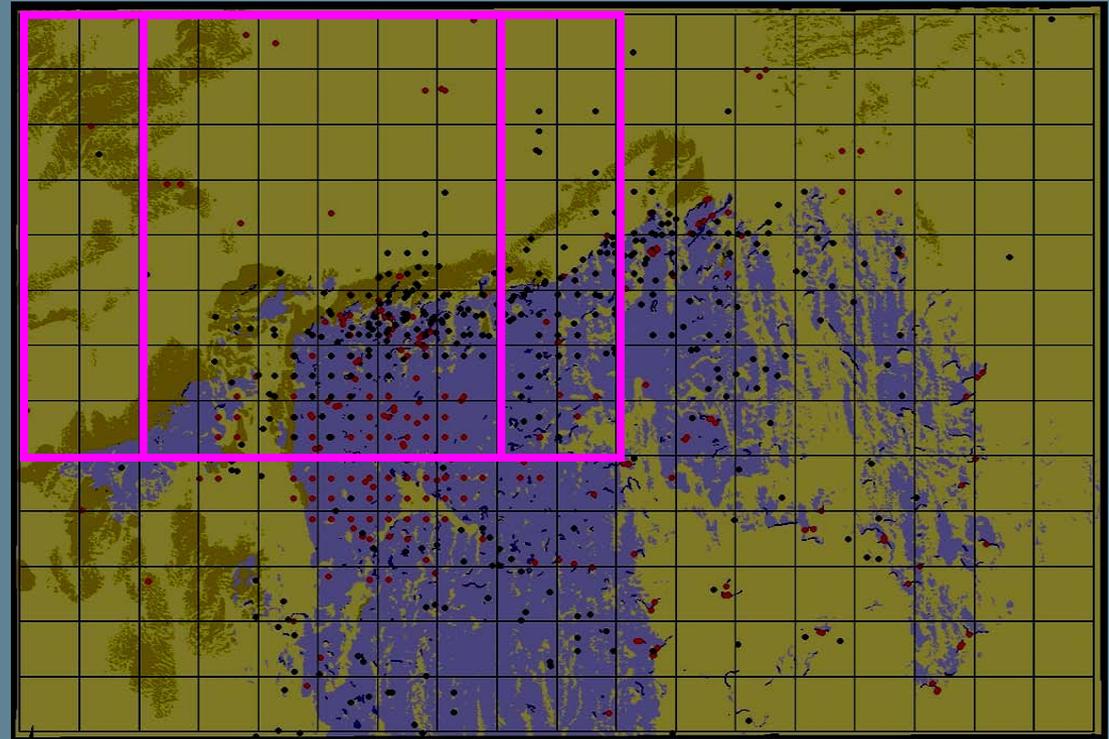
Partnerships

- ❖ NMSP
- ❖ NMFS/NEFSC
- ❖ WHOI
- ❖ NESDIS
- ❖ USGS
- ❖ USFWS
- ❖ Bedford Institute of Oceanography
- ❖ Mass. DMF
- ❖ Maine DMR
- ❖ MWRA
- ❖ Manomet Center for Cons. Sci.
- ❖ Univ. of Connecticut
- ❖ Univ. of Mass.-Boston
- ❖ Univ. of New Hampshire
- ❖ Univ. of Alaska-Fairbanks
- ❖ Univ. of Rhode Island
- ❖ Duke Univ.
- ❖ Mem. Univ. of Newfoundland
- ❖ Middlebury College
- ❖ Univ. of New Brunswick
- ❖ National Audubon Society



Assessment: Gray's Reef NMS, GA

Opt. #	# High ledges	Area H ledges	# Boats	# Res. Sites
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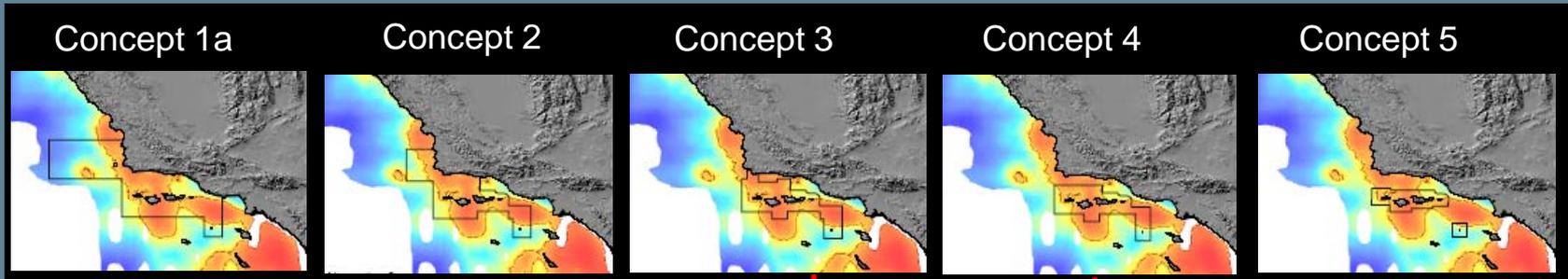


Resulted in 31,135 options!

Objective: To measure the benefits and impacts of potential management zoning actions: *Balancing needs of recreational boaters, fishermen, researchers, conservation*



Assessment: Southern California Bight, CA



Concept	Area (km ²)	Mean Bird Diversity	High Diversity Area (km ²)	Δ Area (%)	Δ Mean Diversity (%)	Δ High Diversity Area (%)	Mean Bird Diversity OAI (relative)	High Diversity Area OAI (absolute)
NAA	3745	1.485	2284	-	-	-	-	-
5	4536	1.487	2812	21	0.13	23.12	0.00638	1.094
4	7981	1.523	5507	113	2.56	141.11	0.02262	1.248
3	9044	1.53	6421	141	3.03	181.13	0.02141	1.28
2	13736	1.502	8791	267	1.14	284.89	0.00429	1.006
1a	22591	1.372	10391	503	-7.61	354.95	-0.01512	0.705
1	22613	1.375	10401	504	-7.41	355.39	-0.0147	0.705
SA	17093	1.489	9914	356	0.27	334.06	0.00076	0.937

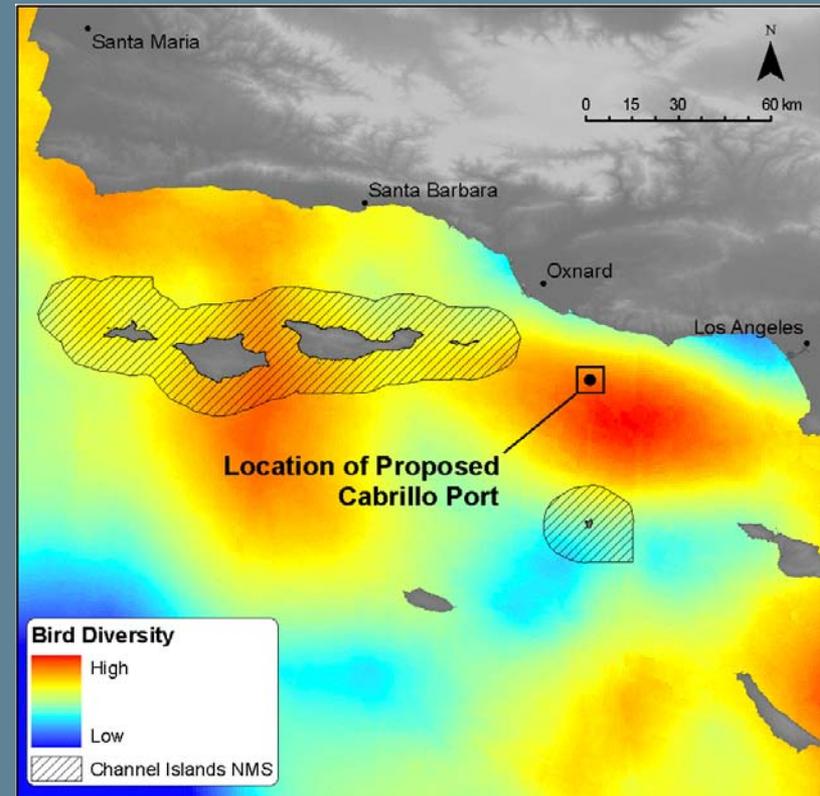
Objective: To evaluate alternative boundary concepts proposed for the Channel Islands National Marine Sanctuary: *Balancing needs of local stakeholders*



Assessment: Southern California Bight, CA



Map of proposed site

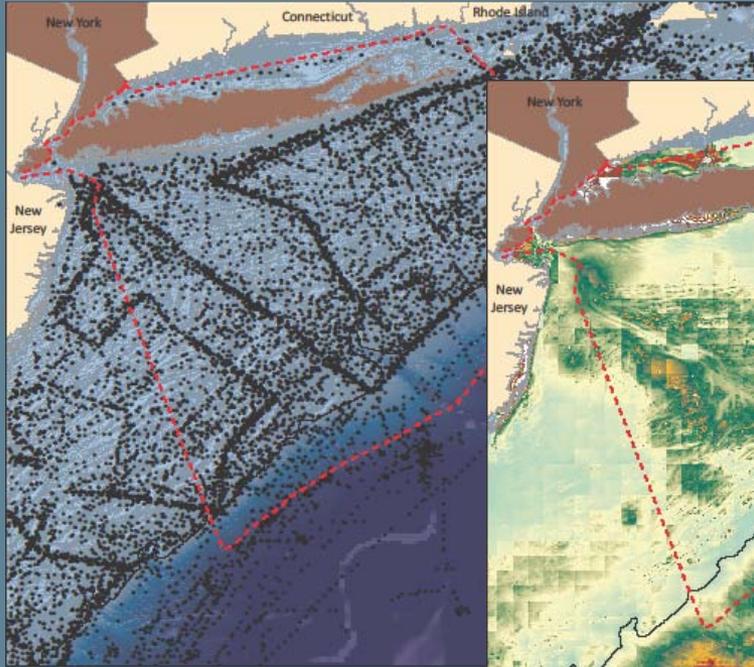


Subsequent uses: MLPA, CCC. The California Coastal Commission used predictive models of seabird distribution to identify potential ecological impacts of placing a liquid natural gas storage facility offshore of LA

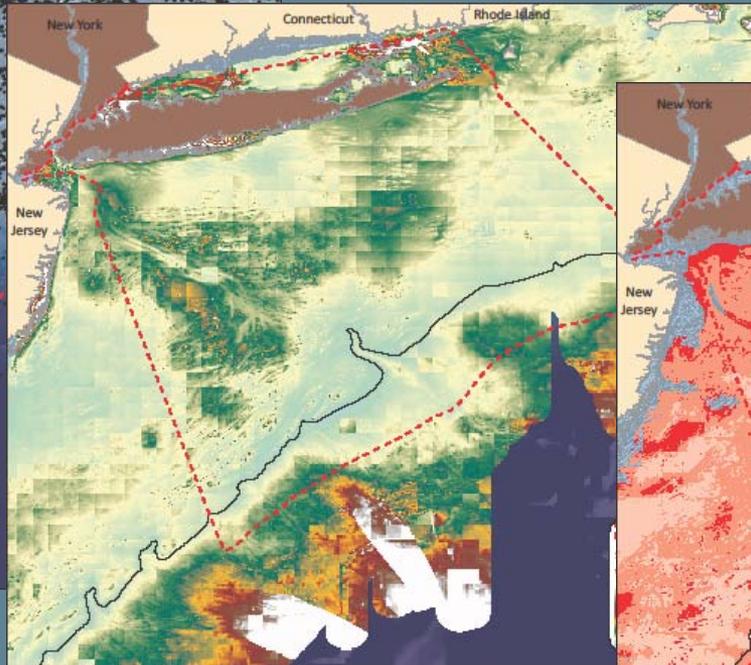


Assessment: Offshore waters, NY

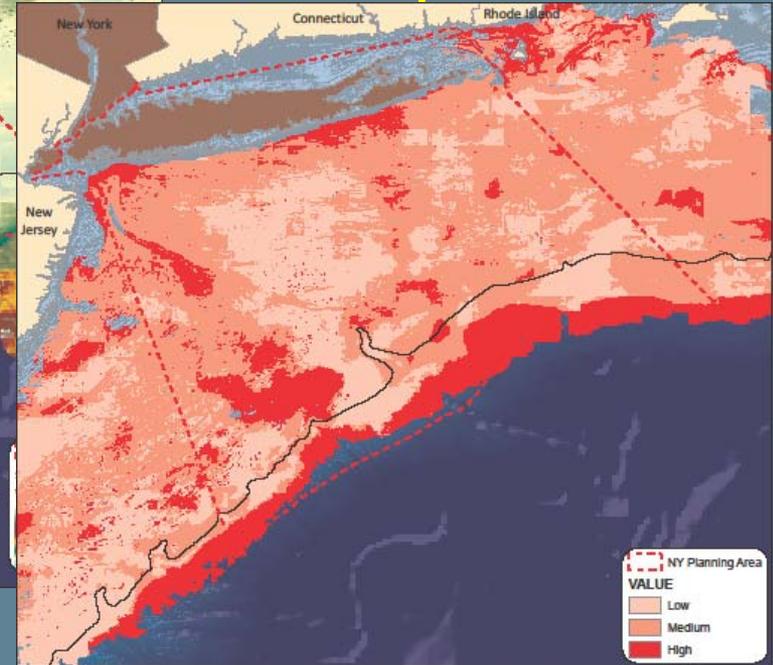
Raw data



Species of concern



Hotspots

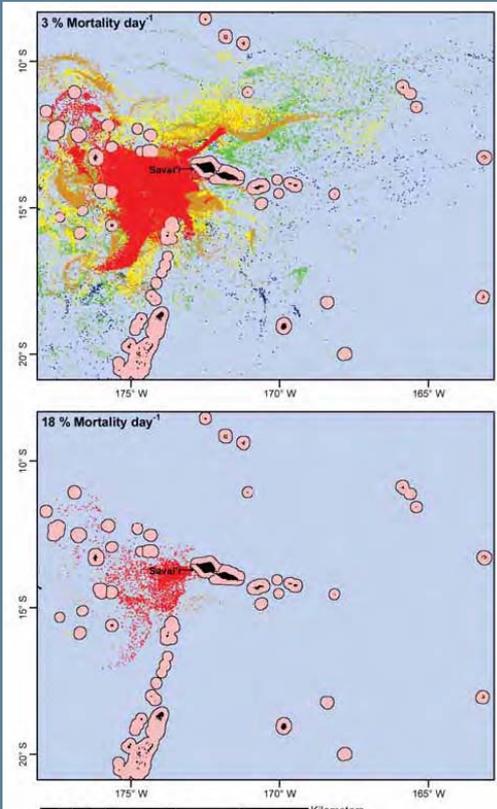


Objective: The New York Department of State needs to know the distribution of seabirds to help site offshore renewable energy projects. Spatial predictive models provide information on species of conservation concern, hotspots and resilience.

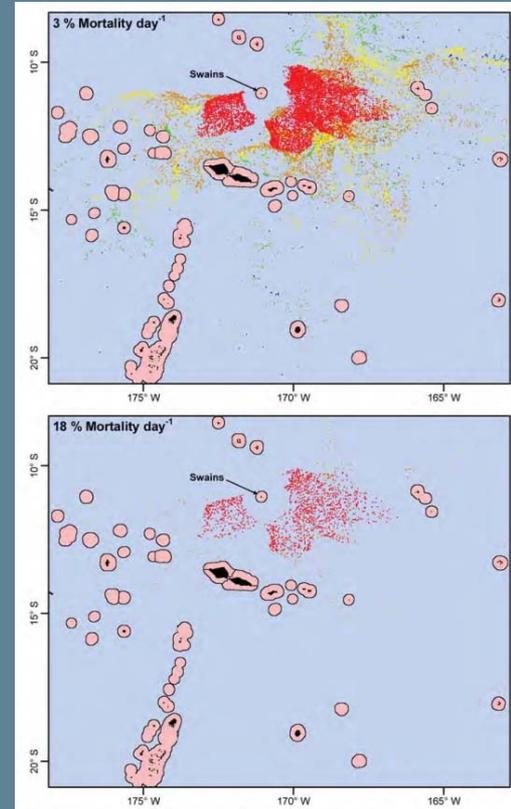


Assessment: Samoan archipelago

SAVAI'I (SOUTH COAST)



SWAINS ISLAND



Objective: To support territorial effort to implement a network of MPAs.

