



Coordinating Habitat Science at NOAA Fisheries

June 28, 2013

East Coast Fisheries Forum



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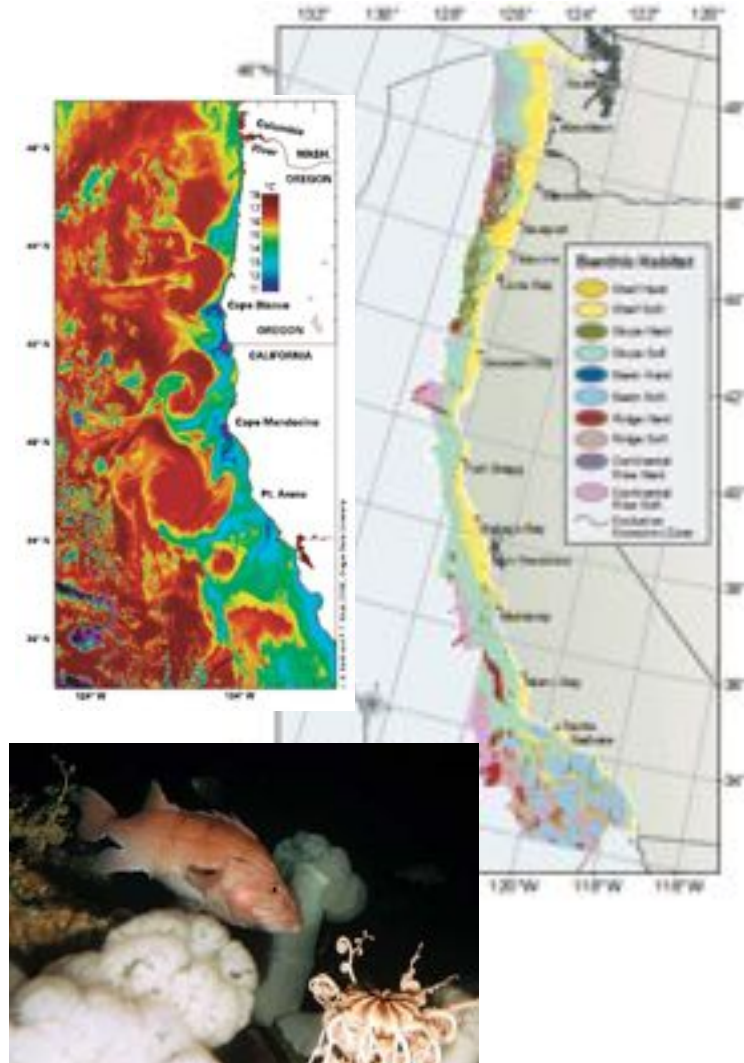
HABITAT ASSESSMENT IMPROVEMENT PLAN (HAIP)

- ❖ Overall Goal: *to improve the science to better manage our fisheries.*
- ❖ Lays out a plan to integrate habitat science into every-day decision-making for marine fisheries.
- ❖ Provides an incremental approach – don't need to wait until we have perfect information.
- ❖ Some recommendations low or no cost
- ❖ Identifies major gaps that can be filled through the budget process.

What is Habitat Science and a Habitat Assessment?

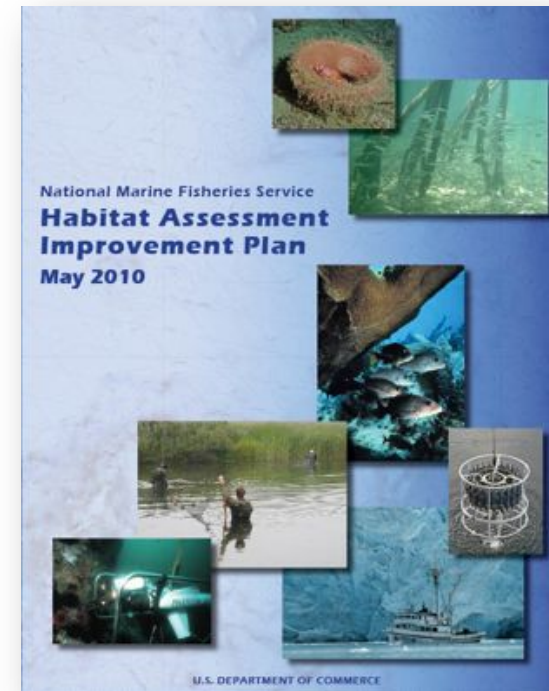
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- 🌐 Habitat Science - Study of relationships among species and their environments
- 🌐 Habitat Assessment - Process and products associated with consolidating, analyzing, and reporting the best available information on habitat characteristics relative to the population dynamics of fishery species and other living marine resources; may identify science research gaps



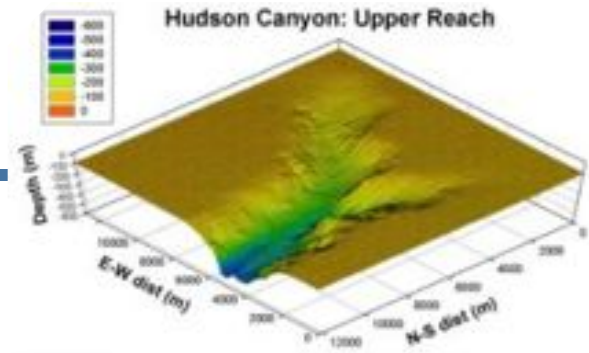
GOALS OF THE HAIP

- Meet Magnuson-Stevens Act mandates
- Improve identification and impact assessments of EFH
- Reduce habitat-related uncertainty in stock assessments and facilitate a greater number of advanced stock assessments
- Contribute to assessments of ecosystem services
- Help NOAA Fisheries to address climate change
- Support EBM, IEAs, CMSP



SCOPE OF THE PLAN (HAIP)

- Habitat science for managed fisheries stocks (230 FSSI stocks)
- Includes all aspects of marine habitats
- Considers temporal and spatial scales
- Considers ecological linkages
- Takes into account current data availability and state of NOAA Fisheries habitat assessments



BLUEPRINT SCIENCE GOAL

- Implement a systematic and strategic approach to habitat science for effective decision making
- Prioritize our science and use a more integrative approach for planning and conducting quality habitat science



BLUEPRINT SCIENCE APPROACH

- Assess current activities to identify gaps and synergies
 - Focus ongoing efforts to fill gaps
 - Prioritize science activities to fulfill habitat needs
- Coordinate and leverage efforts across NOAA
- Integrate science with management actions to foster better decisions
- Improve delivery of habitat science

Why prioritize habitat science?

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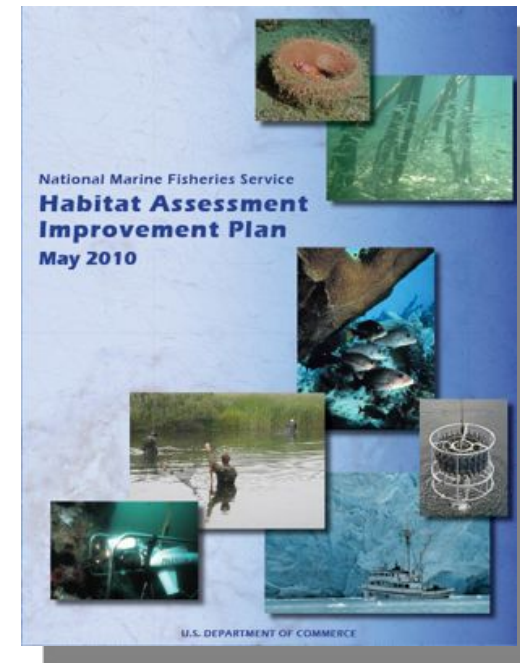
- NOAA Leadership putting a renewed emphasis on habitat conservation to rebuild harvested stocks and endangered species
- Provides defensible priority lists for current funding constraints and future funding opportunities
- Opportunity to fill data gaps and improve essential fish habitat (EFH) consultations
- Improve biomass estimates and reduce uncertainty in stock assessments



Prioritization resulted from the Habitat Assessment Improvement Plan (HAIP)

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- 🌐 NMFS should develop criteria to prioritize stocks and geographic locations that would benefit from habitat science and assessment
- 🌐 NMFS should identify and prioritize data inadequacies for stocks and their respective habitats, as relevant to information gaps identified in the HAIP



Habitat Assessment Prioritization

Charge:

- ☑ Nationally consistent approach
- ☑ Specific criteria most appropriate for prioritizing habitat assessments and science
- ☑ Recommendations on applying prioritization criteria at the regional level to develop lists of regional habitat priorities
- ☑ Working group members: habitat scientists, ecologists, stock assessment scientists, habitat managers

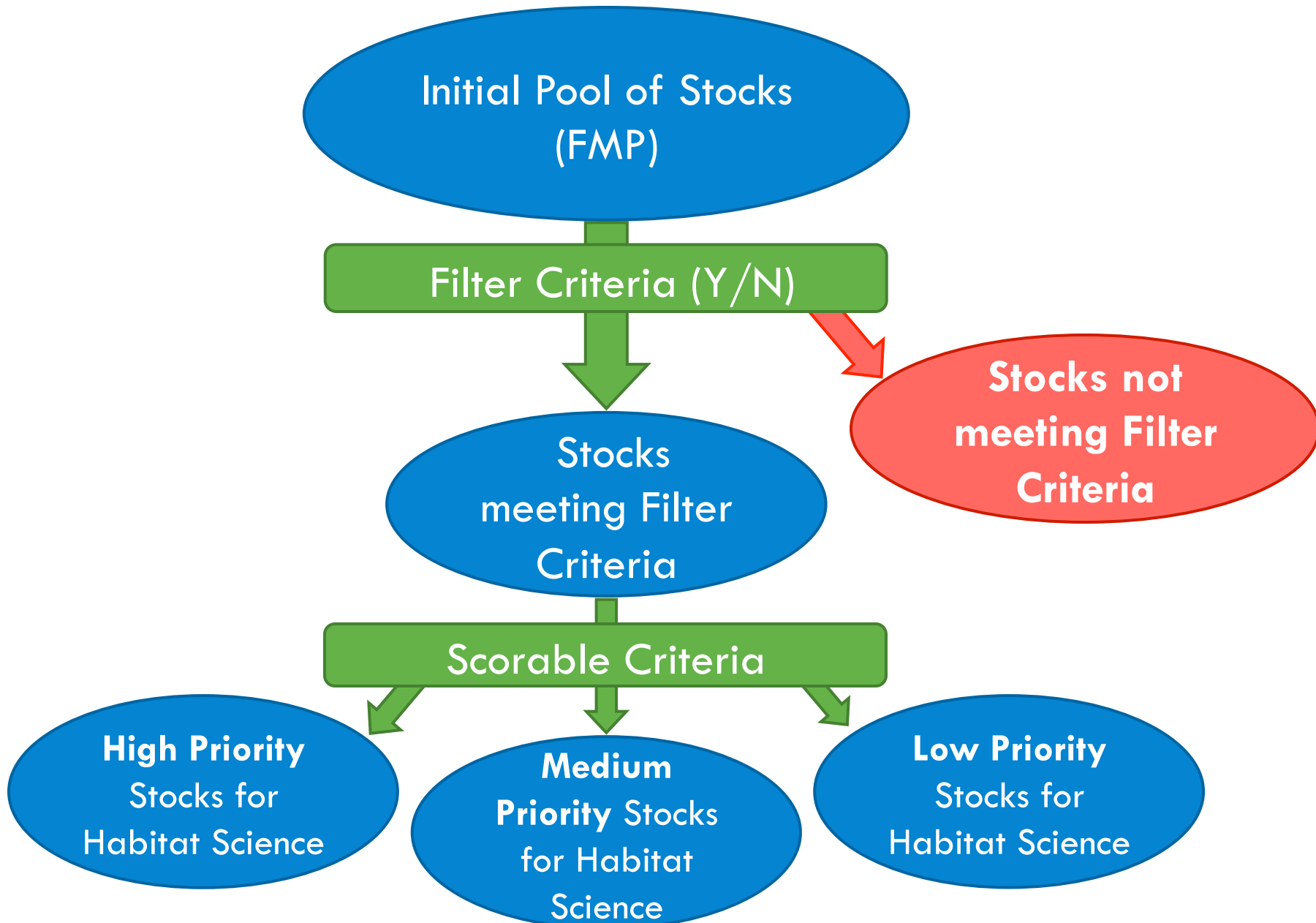


Habitat Assessment Prioritization Overview

- ☑ Two primary uses for habitat assessments
 - Improve stock assessment surveys and models
 - Improve or refine EFH determinations for use in both consultations and restoration/conservation efforts
- ☑ Two separate but similar sets of criteria will be applied to generate priority lists for EFH and stock assessment improvement
- ☑ **Stocks** are the unit to which the criteria will be applied
- ☑ Criteria will be used sequentially: 1) as a filter to eliminate stocks from the prioritization list, and 2) as a scored item to determine ranking of the remaining stocks
- ☑ Stocks will be assigned as high, medium, or low priority based upon final rankings for both stock assessment improvement and EFH improvement

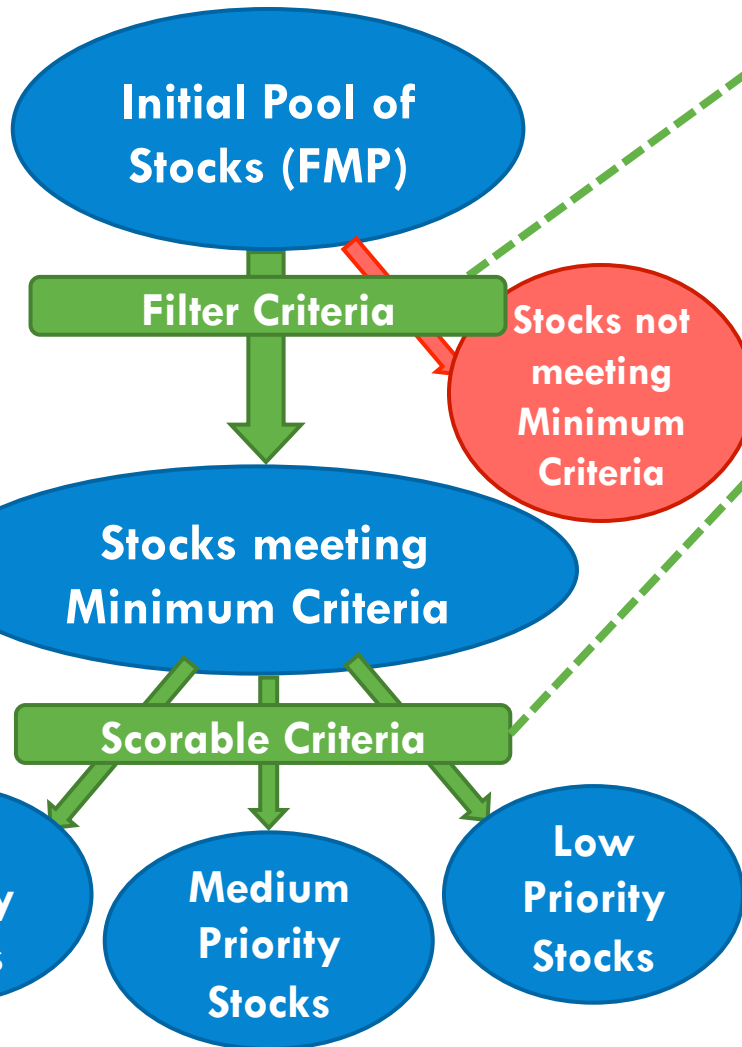


Prioritization Process



Stock Assessment Improvement

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Filter Criteria (Y/N)

- FSSI stock or Council research priority
- Likely to benefit a stock assessment

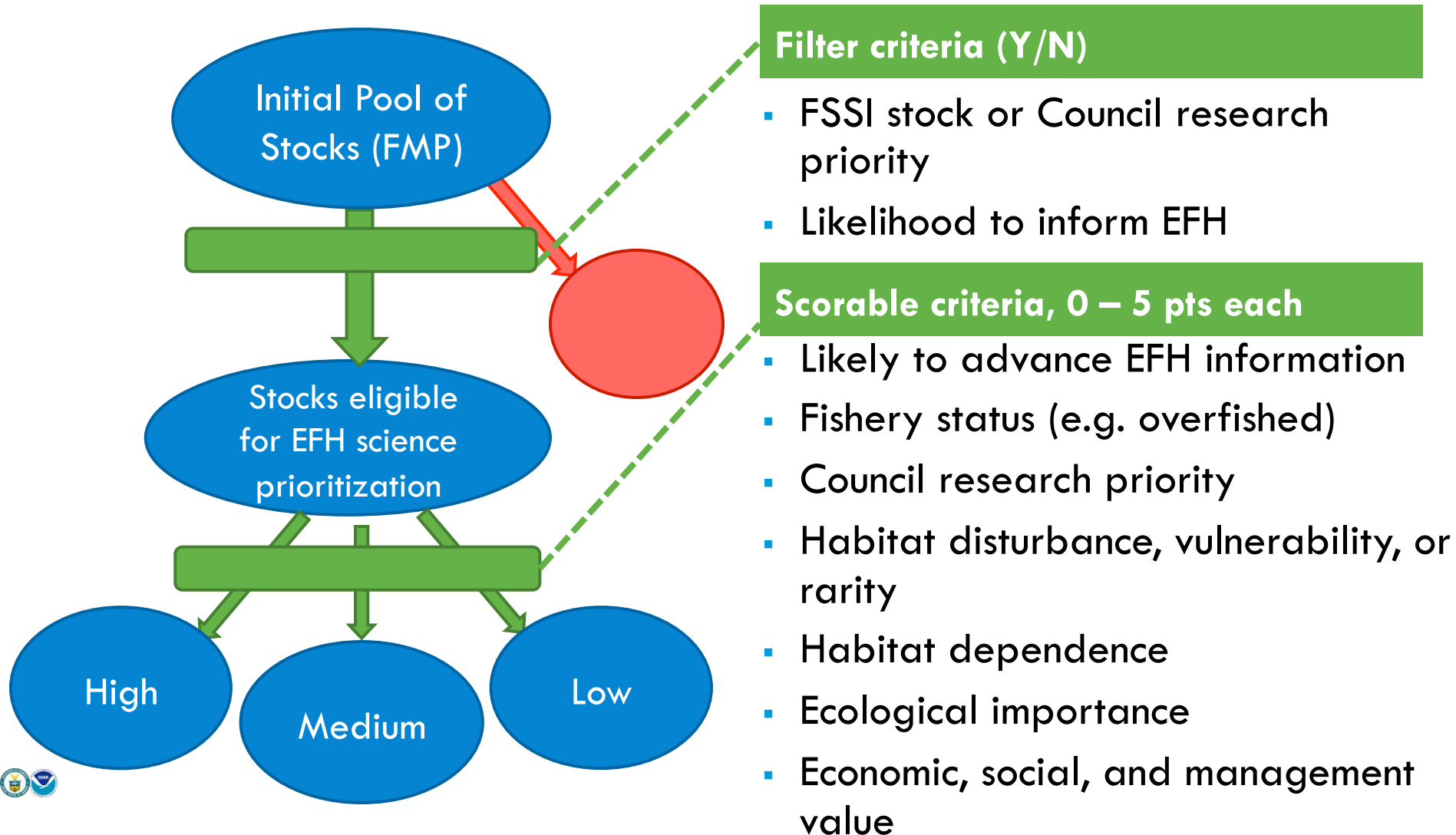
Scorable Criteria, 0 – 5 pts each

- Benefit to stock assessment survey or model
- Fisheries status (e.g. overfished)
- Habitat disturbance, vulnerability, and rarity
- Habitat dependence
- Ecological importance
- Economic, social, managerial value



Prioritization for EFH Designations

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Example Scoring Rubric – Fishery Status

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Score	Criteria for individual stocks
5	Overfished, approaching overfished, experiencing overfishing, in a recovery plan
3	Below 80% Bmsy
2	Fully exploited
1	At risk of overexploitation
0	Not at risk



Example Scoring Rubric – Ecological Value

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Score	Criteria for individual stocks
+1	Important Predator
+1	Important Prey
+1	High Biomass
+1	Habitat Altering Species
+1	Historically important predator, prey, or high biomass



Southwest Region - Pilot

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- Was the pilot region for habitat Focus Areas (Blueprint strategy)
- 136 stocks Pacific Fisheries Management Council jurisdiction
- 103 stocks considered for prioritization
 - Coastal Pelagics, 6
 - Highly Migratory Species, 11
 - West Coast Groundfish, 77
 - Salmon, 9



Southwest Region - Pilot

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Total Stocks	EFH	Stock Assessment
Initial Stocks	103	103
Filter: FSSI Stock or Council Priority	85	85
Filter: Likely to benefit EFH or be applied to SA	85	51
Score Range (max=35)	5-33	6-33
HIGH	18	12
MEDIUM	27	20
LOW	40	25



Southwest Region – EHF High Priority

Pacific Coast Salmon	Chinook salmon - California Central Valley: Sacramento (fall)	33
Pacific Coast Groundfish	Bocaccio - Southern Pacific Coast	30
Pacific Coast Salmon	Chinook salmon - California Central Valley: Sacramento (winter)	28
Pacific Coast Salmon	Chinook salmon - Northern California Coast: Klamath (fall)	28
Pacific Coast Groundfish	Canary rockfish - Pacific Coast	27
Pacific Coast Groundfish	Cowcod - Southern California	27
Pacific Coast Groundfish	Yelloweye rockfish - Pacific Coast	27
Pacific Coast Salmon	Coho salmon - Oregon Production Index Area: Central California Coast	27
Pacific Coast Salmon	Coho salmon - Oregon Production Index Area: Northern California	27
Pacific Coast Salmon	Chinook salmon - Northern California Coast: Eel, Mattole, and Mad (fall/spring)	26
Pacific Coast Groundfish	Blue rockfish - California	24
Pacific Coast Groundfish	Widow rockfish - Pacific Coast	24
Pacific Coast Salmon	Chinook salmon - California Central Valley: Sacramento (spring)	24
Pacific Coast Groundfish	Darkblotched rockfish - Pacific Coast	23
Pacific Coast Groundfish	Pacific ocean perch - Pacific Coast	23
Pacific Coast Groundfish	Starry rockfish - Pacific Coast	23
Pacific Coast Groundfish	Yellowtail rockfish - Northern Pacific Coast	23
Pacific Coast Groundfish	Yellowtail rockfish - Southern Pacific Coast	23

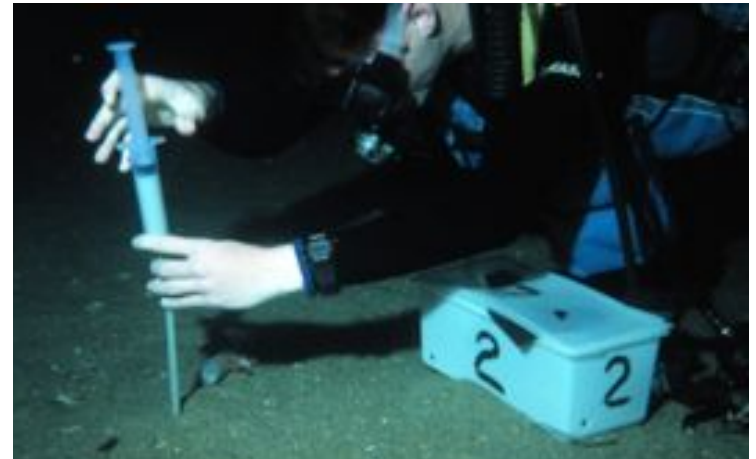


HABITAT ASSESSMENT WORKSHOPS

Purpose:

1. Improve the scientific support of the agency's habitat management programs,
2. Increase communication and collaboration between stock and habitat assessment scientists.

Discussion and dialog between the agency's stock assessment scientists, habitat scientists and habitat managers resulted in improved understanding and commitments to increase coordination.

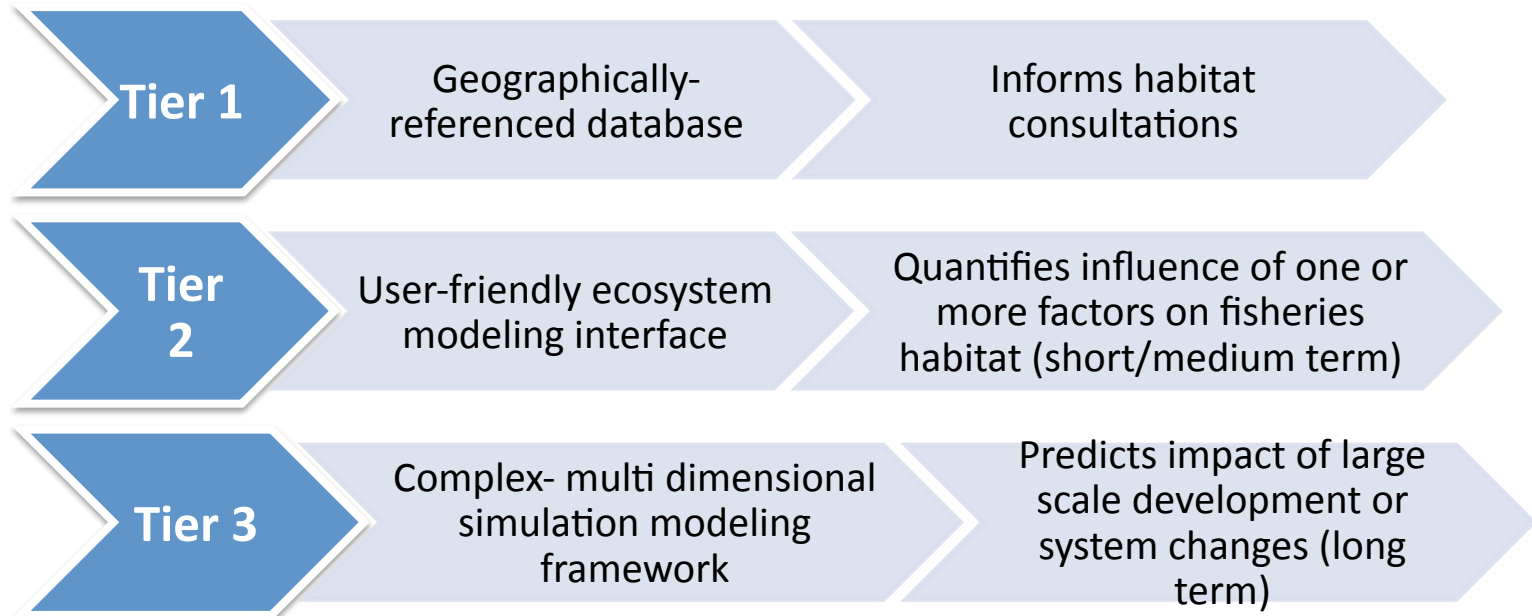


ONSHORE/OFFSHORE DECISION SUPPORT TOOL

Need: Centralized data and improved modeling tools to evaluate the physical and biological connections between coastal habitat and offshore fisheries, to inform both habitat consultations and stock assessments.

Impetus: 2nd NHAW

Solution: Develop decision support framework



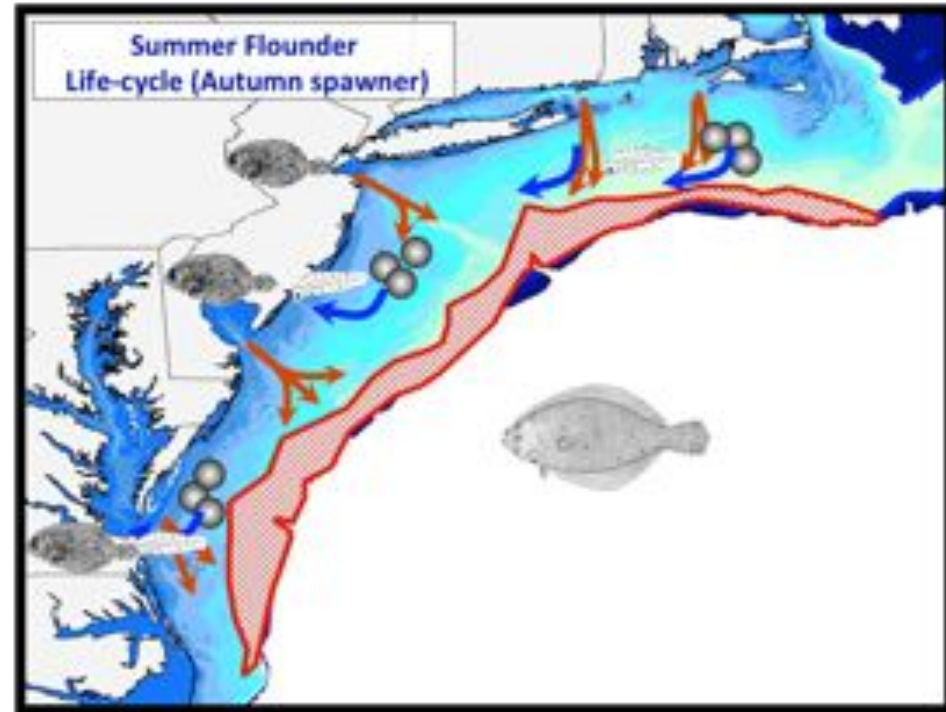
DEMONSTRATION PROJECTS

❖ Mid-Atlantic

- Using Atlantis Model to explore sensitivity of Summer Flounder to changes in estuarine habitat.

❖ Pacific Coast

- Leveraging partnerships with NFHP to improve assessment of forage fish coastal habitat utilization



Summer Flounder movement in the Mid-Atlantic Bight.

STOCK ASSESSMENT PROJECTS

- Internal call for proposals to incorporate habitat information into stock assessment efforts
- As we move into ecosystem based management of stocks, this information is essential
- 2010 – 2012, 43 proposals submitted, 12 projects funded, total > \$1.1M
- Work on species including: winter flounder, west coast groundfish, brown shrimp, blue marlin, butterfish, red king crab, etc.

MOVING FORWARD

- NOAA Habitat Coordination Team - Science
 - Cross-NOAA integration
 - Examine science funding streams for places to include habitat components
- Build partnerships outside of NOAA
- Leverage available resources and data



NEXT STEPS - NOAA

- Re-examine existing data sets for habitat applications (e.g. bathymetric data)
- Strengthen habitat and economic linkages and determine societal benefits of healthy or restored habitat
- Review existing habitat information delivery systems, tools, and capabilities throughout NOAA, assess how they are applicable to mandated objectives

NEXT STEPS - NMFS

- Examine funded projects –can results be operationalized into stock assessments?
- Field surveys
 - increase habitat data collection
 - Identify habitat information can improve design or data analysis
- Increase capacity at Science Centers to focus on supporting science needs of Regional Offices, possibly develop structural relationships
- Broaden to include more protected species (ESA and MMPA)
 - Develop a list of habitat science and research needs for listed species





THANK YOU!

Hypothetical list of prioritized stocks

Appendix 2: Example Habitat Science Supporting Stock Assessment Prioritization

Hypothetical Stock ID	Criteria Outcomes by Stock																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FSM or regional FMC priority research	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Habitat assessment likely to benefit stock assessment	-	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Benefit of a habitat assessment to stock assessment	-	-	-	1	1	4	4	4	4	4	4	4	5	4	4	4	1	5	5	5
Fisheries status	-	-	-	0	0	2	2	0	0	2	5	0	0	2	2	5	5	5	5	5
Regional FMC research priority	-	-	-	3	3	1	1	3	3	3	3	1	3	3	3	3	5	5	5	3
Habitat disturbance, vulnerability, and rarity	-	-	-	0	0	0	0	0	0	0	0	3	0	2	2	3	3	3	3	3
Habitat dependence	-	-	-	1	1	3	3	3	3	3	3	5	5	3	5	3	3	3	3	5
Ecological importance	-	-	-	1	1	1	1	3	3	3	1	2	3	3	3	2	3	1	2	3
Value - economic, social, management	-	-	-	0	0	1	1	2	2	1	1	3	2	2	2	2	4	3	3	3
Final Score	-	-	-	6	6	12	12	15	15	16	17	18	18	19	21	22	24	25	26	27
Percentile Score	-	-	-	0	0	13	13	25	25	38	44	50	50	63	69	75	81	88	94	100
Habitat and Stock Assessment Priority	-	-	-	L												M			H	

Southwest Region

Stock Assessment High Priority

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Pacific Coast Groundfish	Darkblotched rockfish - Pacific Coast	25
Pacific Coast Groundfish	Bocaccio - Southern Pacific Coast	24
Pacific Coast Groundfish	Yelloweye rockfish - Pacific Coast	23
Pacific Coast Salmon	Chinook salmon - California Central Valley: Sacramento (spring)	23
Highly Migratory Species / Pacific Pelagic Fisheries of the W. Pacific Region Ecosystem	Pacific bluefin tuna - Pacific	22
Pacific Coast Groundfish	Cowcod - Southern California	21
Pacific Coast Salmon	Chinook salmon - Northern California Coast: Klamath (fall)	21
Pacific Coast Salmon	Coho salmon - Oregon Production Index Area: Northern California	21

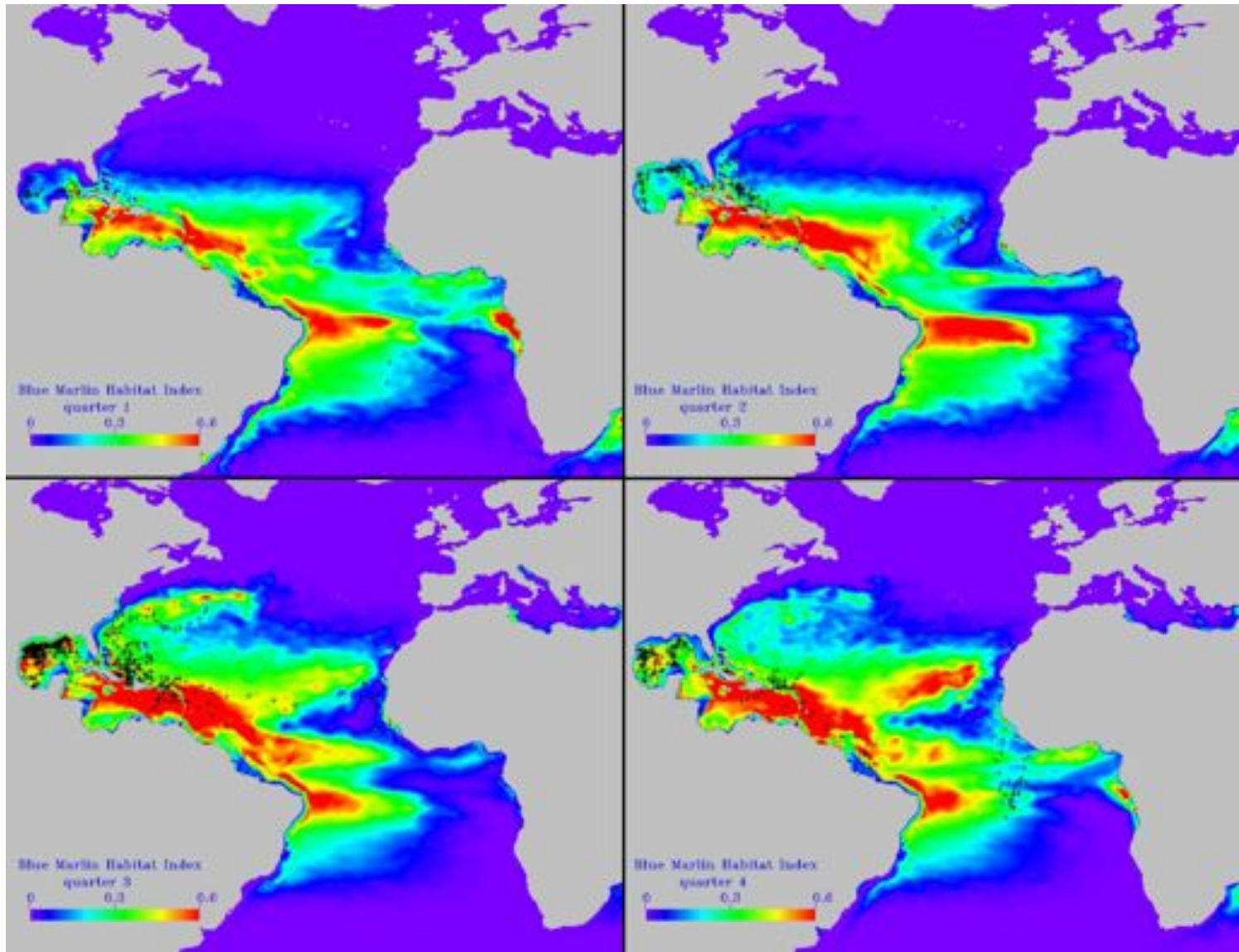


ATLANTIC BLUE MARLIN

- Standardizing Catch Per Unit Effort (CPUE)
- Estimate of the spatial distribution of blue marlin habitat using Spatial Ecosystem and Population Dynamics Model (SEAPODYM)
- Develop additional studies and new models for stock assessment



ATLANTIC BLUE MARLIN



JUVENILE WHITE SHRIMP

- Estimate natural mortality rates for several different cohorts in the study area
- Determine variation in mortality rates among cohorts.
- Incorporate into assessment model currently being developed for white shrimp in the nGoM to provide more accurate forecasts of adult abundance.

