Habitat Characterization in the Gulf of the Farallones National Marine Sanctuary

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A partnership between National Centers for Coastal Ocean Science, Gulf of the Farallones National Marine Sanctuary, United States Geological Survey, & NOAA's Coral Reef Conservation Program

Cordell Bank National Marine Sanctuary-juvenile rockfish above strawberry anemones, yellow hydroids, red algae, sponge encrusted Cordell Bank rocky reef

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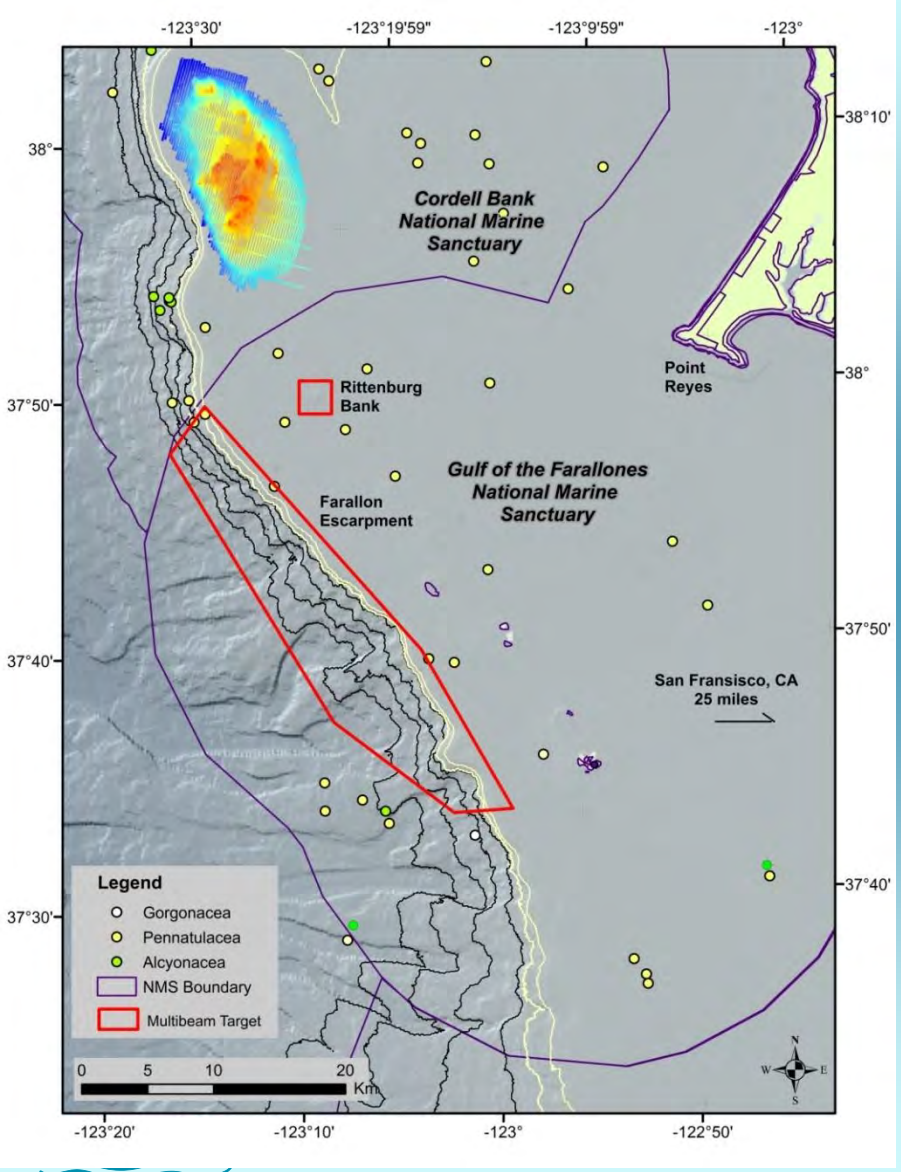
Mapping and Characterizing Areas of Interest



- Deep-sea corals and sponges are expected to occur in GFNMS because colonies occur both north and south, in similar habitats
- Seafloor depth, rugosity, and substrate suggest many steep and/or hard bottom features between 50-1000 m
- Color dots are locations where corals, sponges and sea pens have been collected or observed through NMFS research surveys
- Red boxes indicate the areas mapped via multibeam during the September 2011 cruise on board R/V *FULMAR*

This video can now be viewed on GFNMS web site:
http://farallones.noaa.gov/science/benthic_mapping.html

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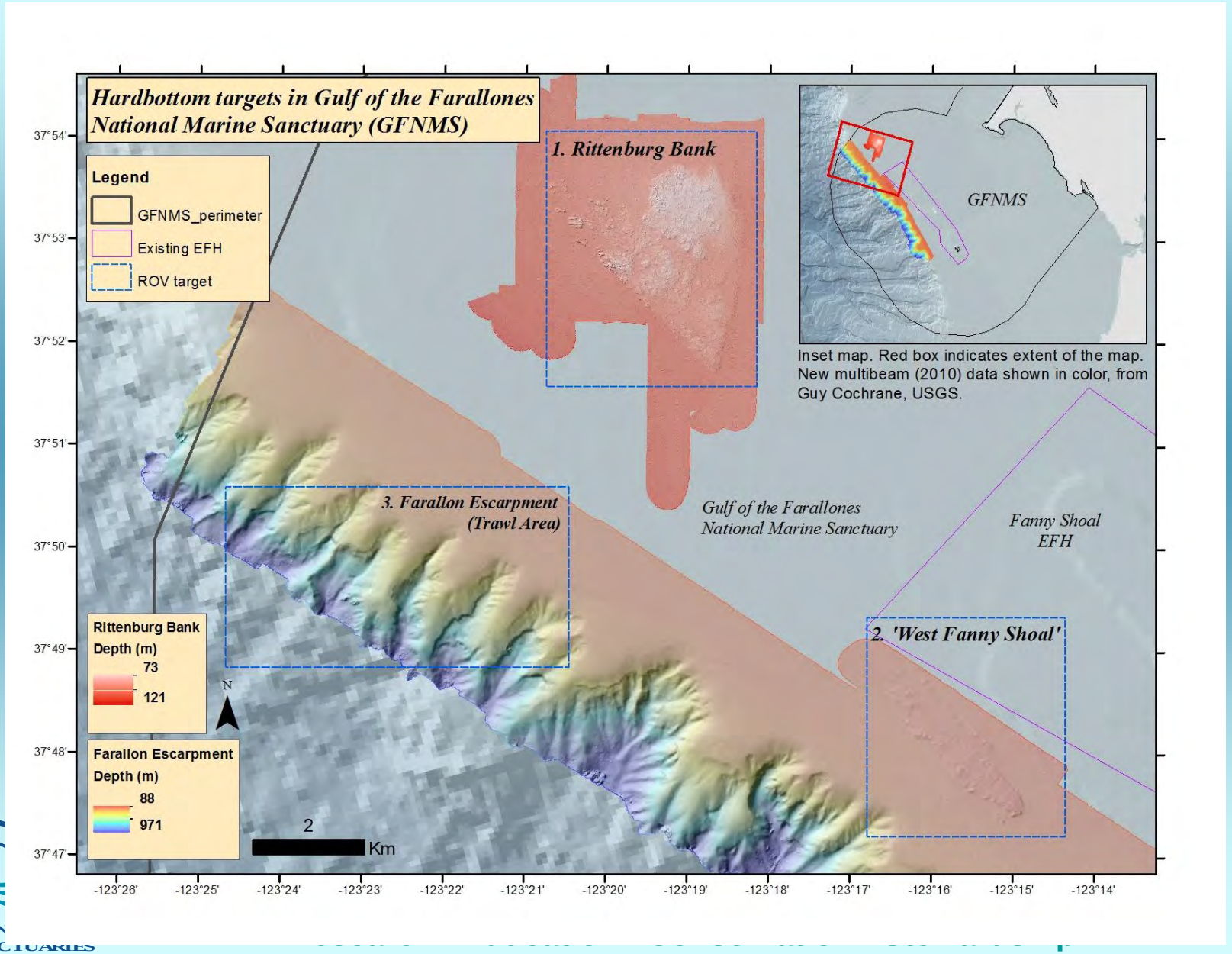
Proposed Transects for Exploration Cruise October 2012



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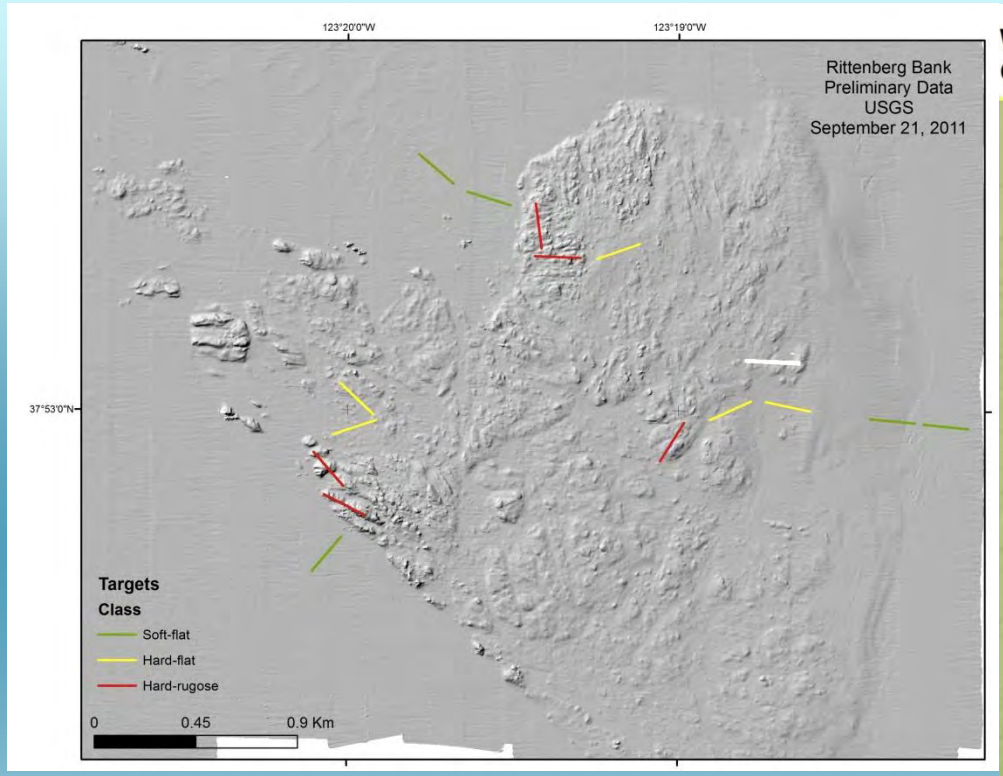

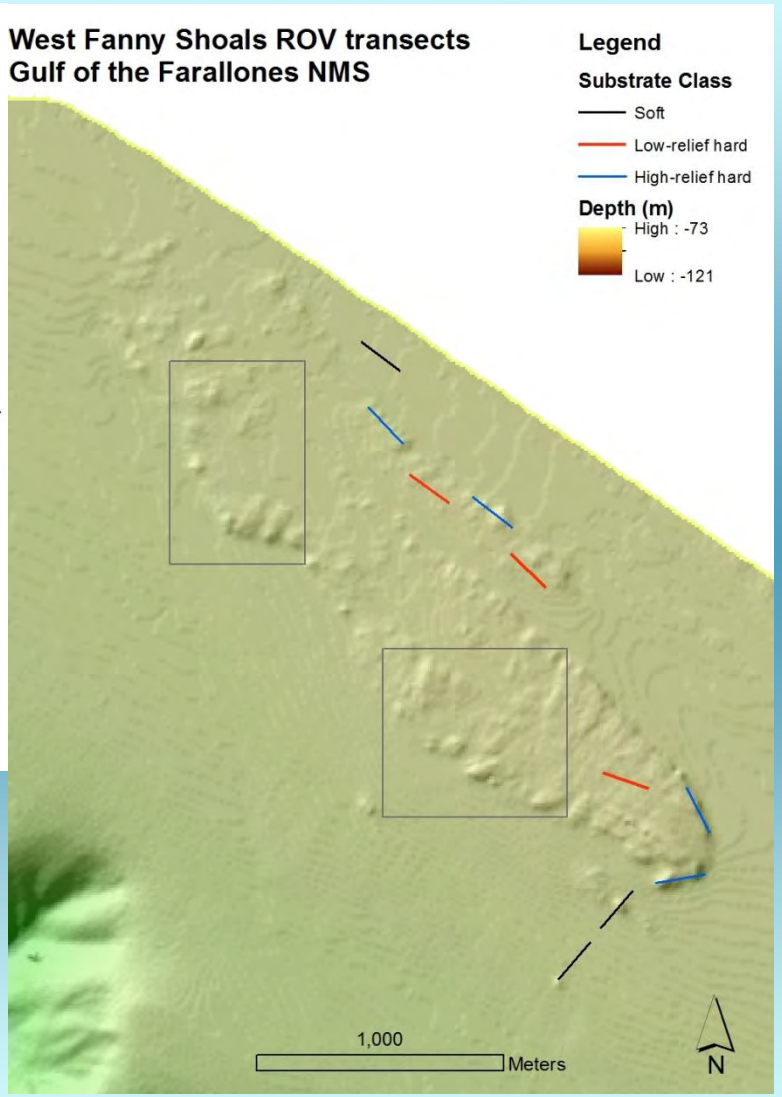

Preliminary Transects

- Three to five transects per substrate type
  - Hard, high-relief
  - Hard, low-relief
  - Soft, low-relief

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Ground-truth Multibeam and Predictive Models for Deep-Sea Corals & Sponges October 2012

Conduct fine-scale, ROV transects at:

- Rittenburg Bank (50-150 m)
- Area west of Fanny Shoal (50-150 m)
- Farallon Escarpment to ground-truth maps of depth (150-800 m)

Launching ROV BEAGLE (left) and rosethorn rockfish near basket star (right). Photos: Nature Conservancy, 2009

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Ground-truth Multibeam and Predictive Models for Deep-Sea Corals & Sponges October 2012

Rosethorn and redbanded rockfish associated with *Lophelia* and *Desmophyllum*, OCNMS 2007

Stylaster sp. & red urchin, MBNMS/SIMoN, 2009

Ground-truth multibeam substrate maps and predictive models for DSC:

- Hardness, slope, and rugosity
- Quantify benthic biological and geological features & associations
- Collect voucher specimens
- Quantify marine debris and any signs of impacts from bottom trawling
- Determine baseline conditions for long-term monitoring
- Ensure that all data collected are coordinated with the National Marine Fisheries Service

What can this data be used for?

- In many cases marine fish have been linked to the presence of structure-forming invertebrates such as deep-sea corals and sponges
  Heifetz, 2002; Krieger and Wing, 2002; Rooper and Boldt, 2005; Rooper et al., 2007

- It is generally believed that this association results in some benefit to the fish in terms of increased growth or reduced mortality

- Provide data and participate in key meetings held by the Pacific Fishery Management Council to review groundfish Essential Fish Habitat (EFH) designations

Rockfish near *Anthomastus* sp. (mushroom coral, above) and Rosethorn rockfish eating a flatfish, near *Plumarella* sp. coral, CBNMS/GFNMS, 2010

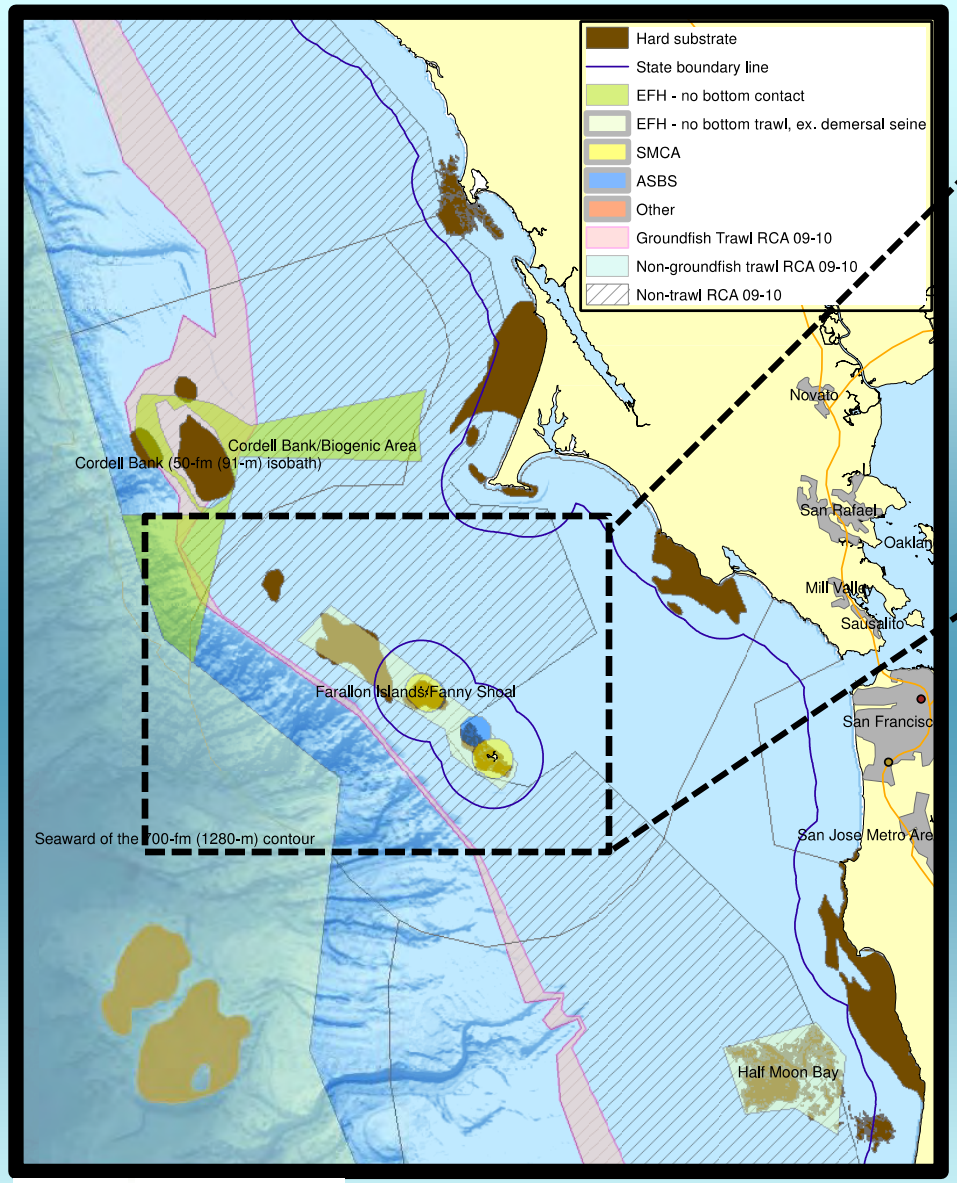
What can this data be used for?

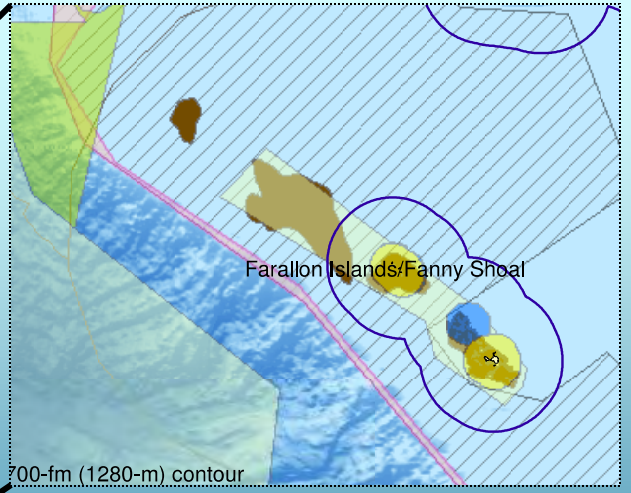
- Effects of bottom contact gear and marine debris on epibenthic invertebrate communities are important to assess

- Build partnerships, collaborative efforts, and coordinate with other agencies, institutions, and organizations to determine appropriate protections for these areas

- Provide analytical information for EFH review process, e.g. high resolution maps, biogenic information, identify pressures

Trawl tracks, long line around *Gorgonian* coral, and broken/dead *Paragorgia* sp. coral. OCNMS, 2007





Area of interest by GFNMS Conservation Science

- In 2005 PFMC identified discrete areas that are closed to fishing with specified gear types
- GFNMS reviewed Council-protected areas and unprotected areas and prioritized research needs in unprotected areas

NOTES
1. Hard substrate is course scale data used during EFH process
2. 2009-2010 RCAs are based on boundary schedule and can change. Only areas protected year round included. Trawling with limited size roller gear permitted shorward of RCA. Non-groundfish trawl same as groundfish trawl RCA in this region.
3. EFH includes waters deeper than 700fm and conservation areas

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The EFH Review Process & GFNMS Participation

- Preliminary maps
- Coordination with NMFS

- Meetings with fishermen and NMFS
- Hi-res maps & data into EFH report
- Participation in EFH Report Review and Council Meetings

Dec. 1, 2011
Data (geoTIFF and shape files) due to NMFS for EFH Report

Jan. – Aug 2012
EFH Review Committee Reviews Report

August 2012
EFH Report is completed and sent to Council

September 2012: **PFMC Decision Point -** Council reviews EFH Report and determines if a proposal process is warranted for new EFH Conservation Measures.

December 20, 2012:
Proposals Due
Scheduled for 90 days from the issuance of a Council ~~–~~Request for Proposals"

Jan-Feb 2013
Committee review of EFH proposals, Final Report Released.

April 2013
Release of all proposals and EFH Review Committee analysis of proposals.

June 2013
PFMC Decision Point
If Council determines that changes to EFH are warranted, initiate next phase.

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Questions?

Greg McFall/CBNMS/NOAA-Cordell Bank National Marine Sanctuary
— with Kaitlin Graiff, Michael C. Carver, Lisa Etherington and Jenny Stock.

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