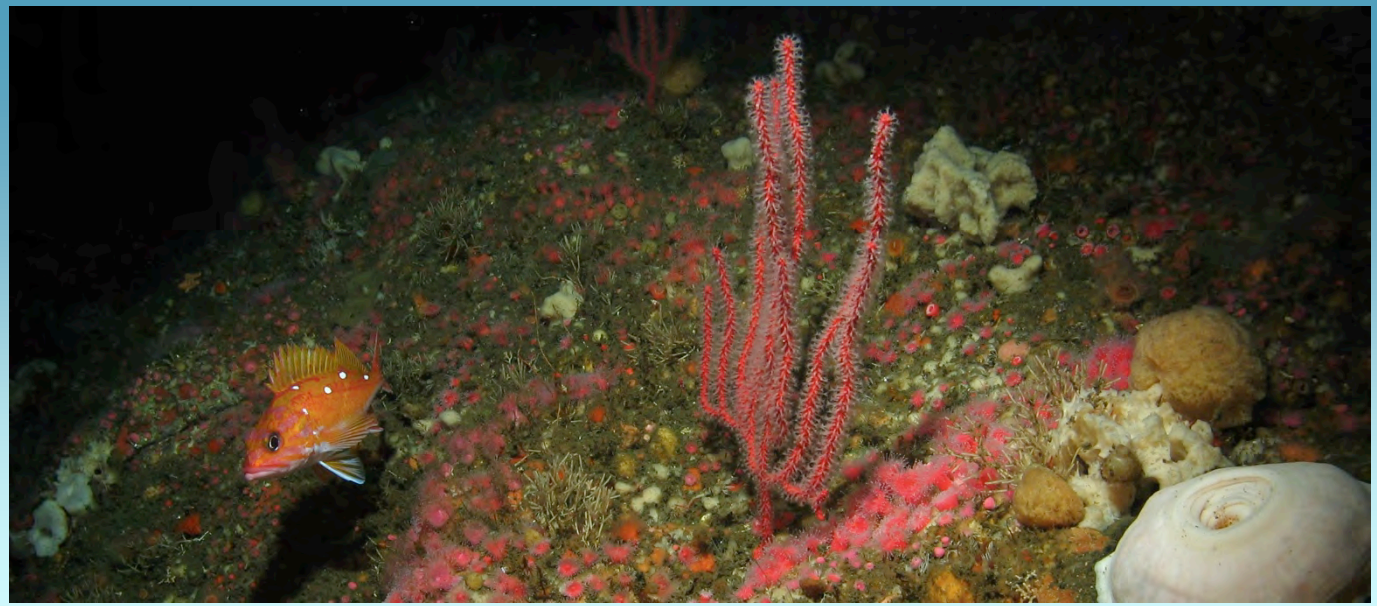
# Habitat Characterization in the Gulf of the Farallones National Marine Sanctuary Research Cruise, October 2012


***Jan Roletto and Karen Reyna***

*Peter Etnoyer, Guy Cochrane, Gary Williams*

National Centers for Coastal Ocean Science, Gulf of the Farallones National Marine Sanctuary, United States Geological Survey, California Academy of Sciences, Marine Applied Research and Exploration, and R/V *FULMAR*

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# Participants

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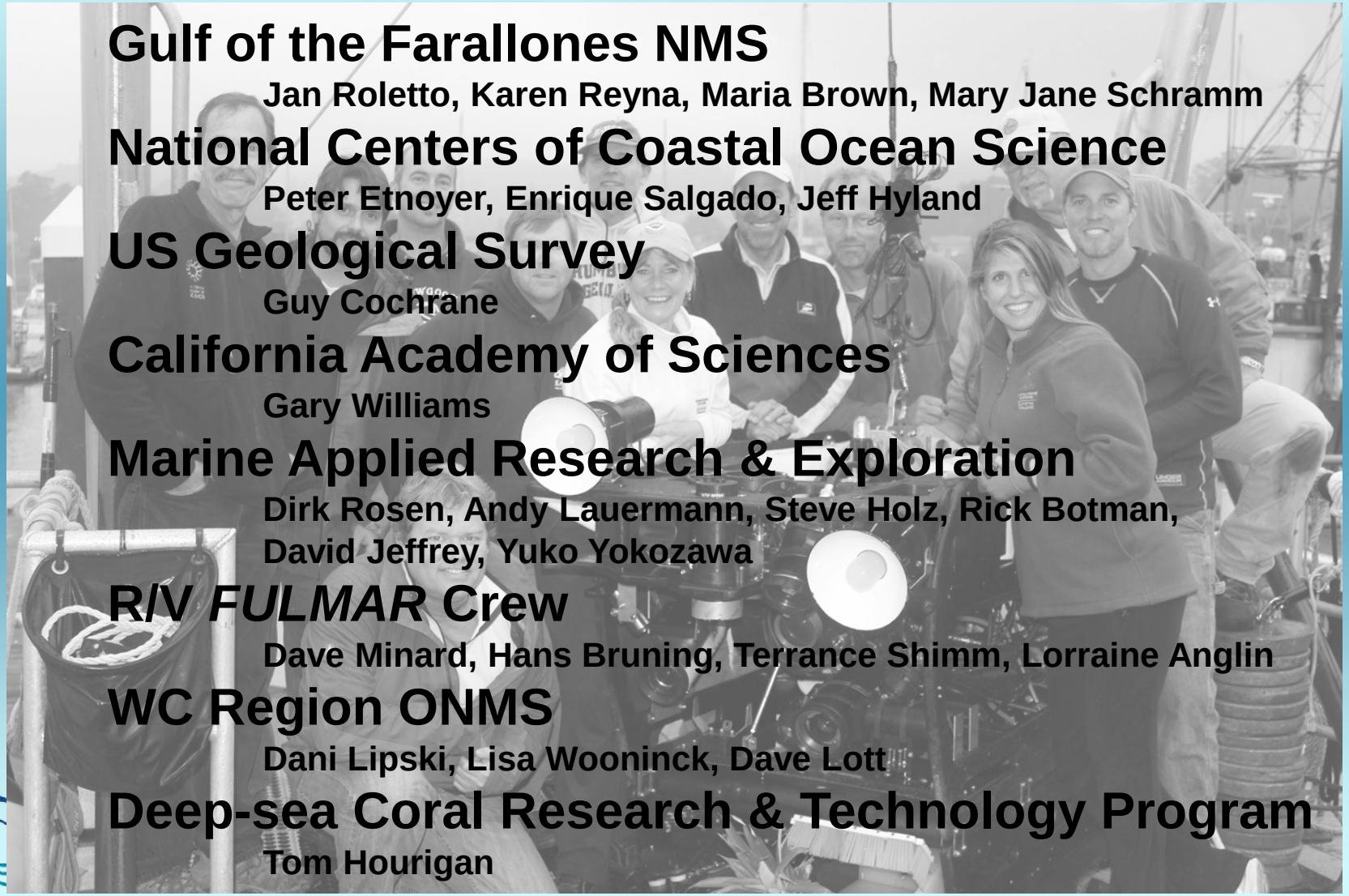

**Gulf of the Farallones NMS**
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**US Geological Survey**
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**Marine Applied Research & Exploration**
Dirk Rosen, Andy Lauermann, Steve Holz, Rick Botman, David Jeffrey, Yuko Yokozawa

**R/V *FULMAR* Crew**
Dave Minard, Hans Bruning, Terrance Shimm, Lorraine Anglin

**WC Region ONMS**
Dani Lipski, Lisa Wooninck, Dave Lott

**Deep-sea Coral Research & Technology Program**
Tom Hourigan

# Platforms and Operations


R/V *FULMAR*


ROV *BEAGLE*

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# Platforms and Operations

Pilot & Navigation Station

Biology & Geology Station

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# Platforms and Operations

Specimen Preparation Station

Photography

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# Project Goals & Objectives

***Increase our understanding of sanctuary's benthic habitats, including identification, mapping and quantification of sensitive species and biogenic habitats such as deep-sea corals and sponges.***

- **Secure funding for 4-year project (2010-2013)**
- **Explore benthic habitats of the sanctuary (attempted 2010)**
- **Locate and map rocky substrates of high, moderate, and low reliefs (2011)**

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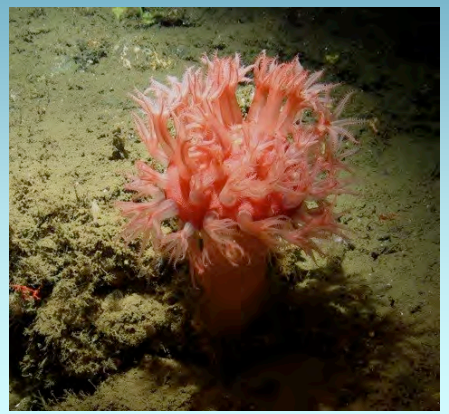
# Project Objectives

- **Identify areas of highest likelihood to have deep-sea corals and sponges (2011)**
- **Conduct fine-scale transects in a manner which replicates similar exploratory and monitoring projects in the region, to develop baseline information and compare to similar habitats that are nearby (2010-2012)**
- **Collect and archive baseline data on dissolved $O_2$, T° , and salinity (2012-2013)**



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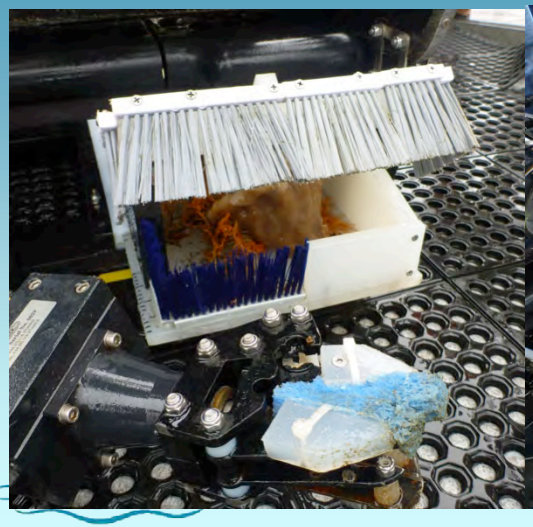
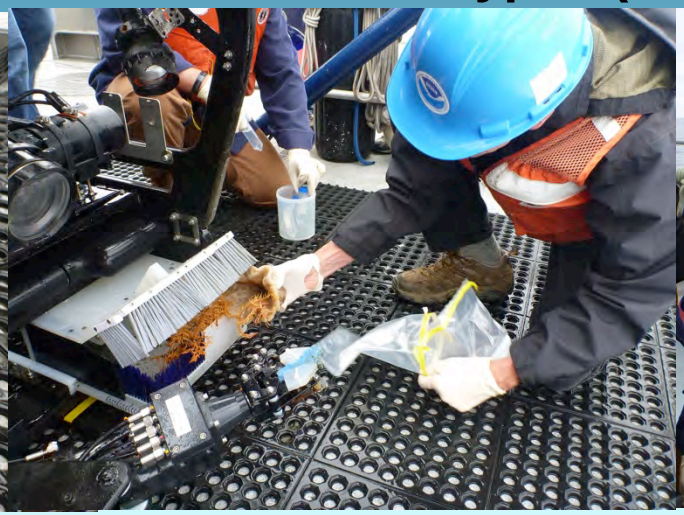
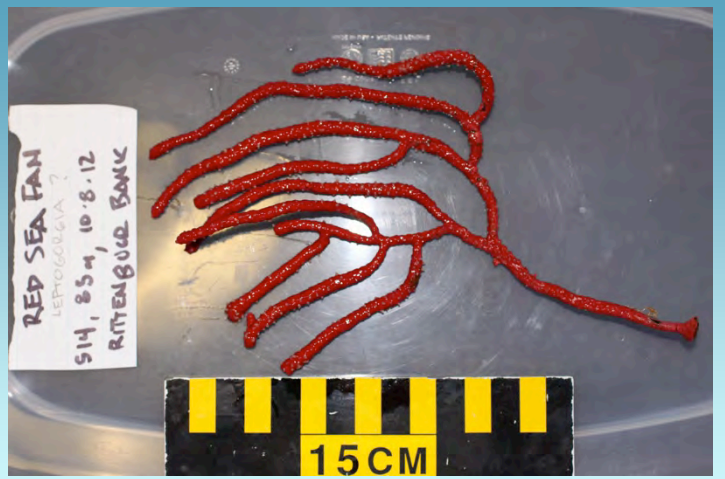
# Project Objectives

- **Collect voucher specimens to be archived for species identification through electronic micrograph imaging and DNA analysis (2012-2013)**
- **Map abundance and distribution of sensitive resources, such as structure building (biogenic) invertebrates (2013)**
- **Map abundance and distribution of associated fish and invertebrate species and substrate types (2013)**


# Project Objectives

- Map types and distribution of benthic marine debris (2013)
- Create video and still image library of benthic habitats and species (2013)
- Produce reports and analyses for sanctuary management that provides sensitivity indices and resources at risk (2013)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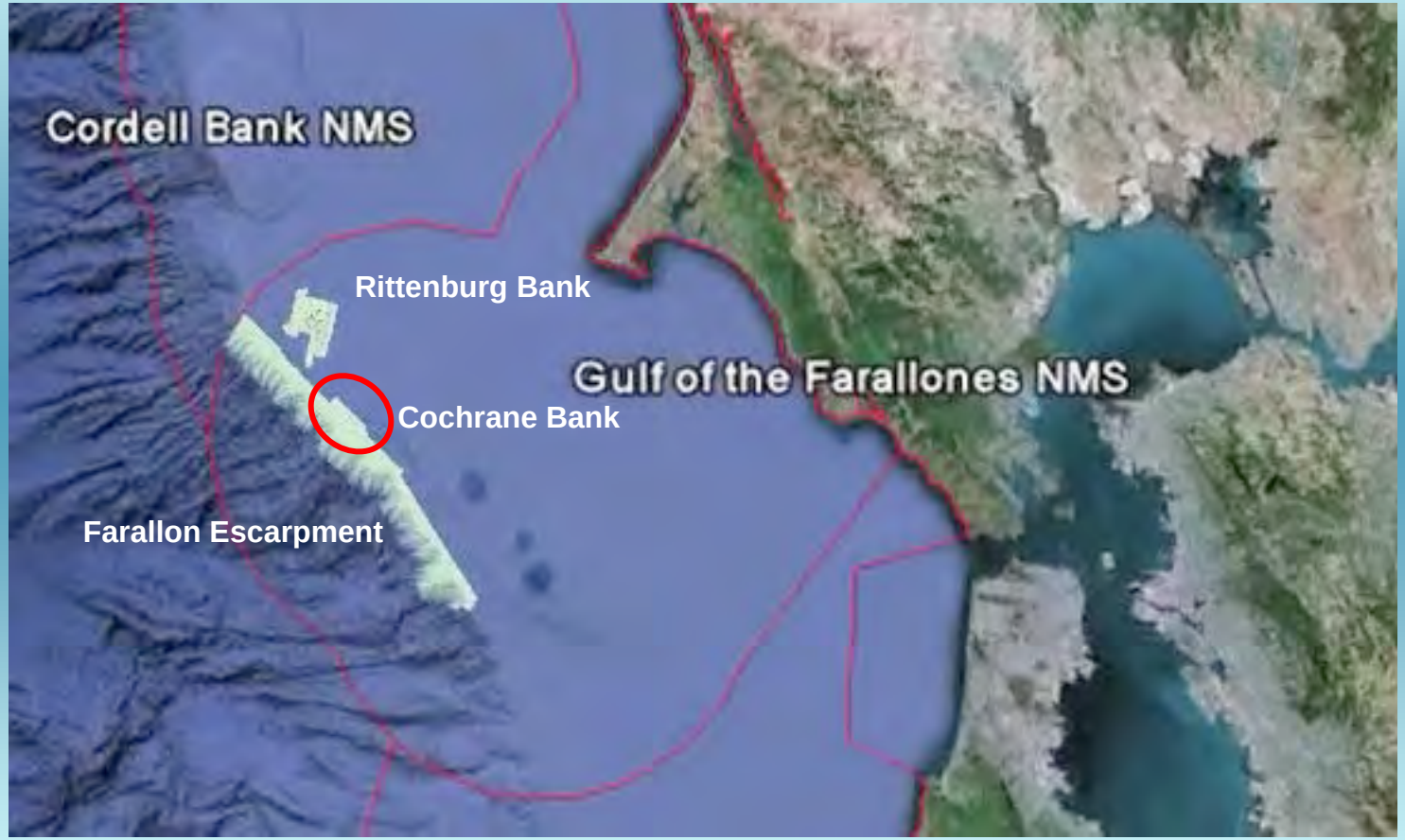
# Areas of Interest

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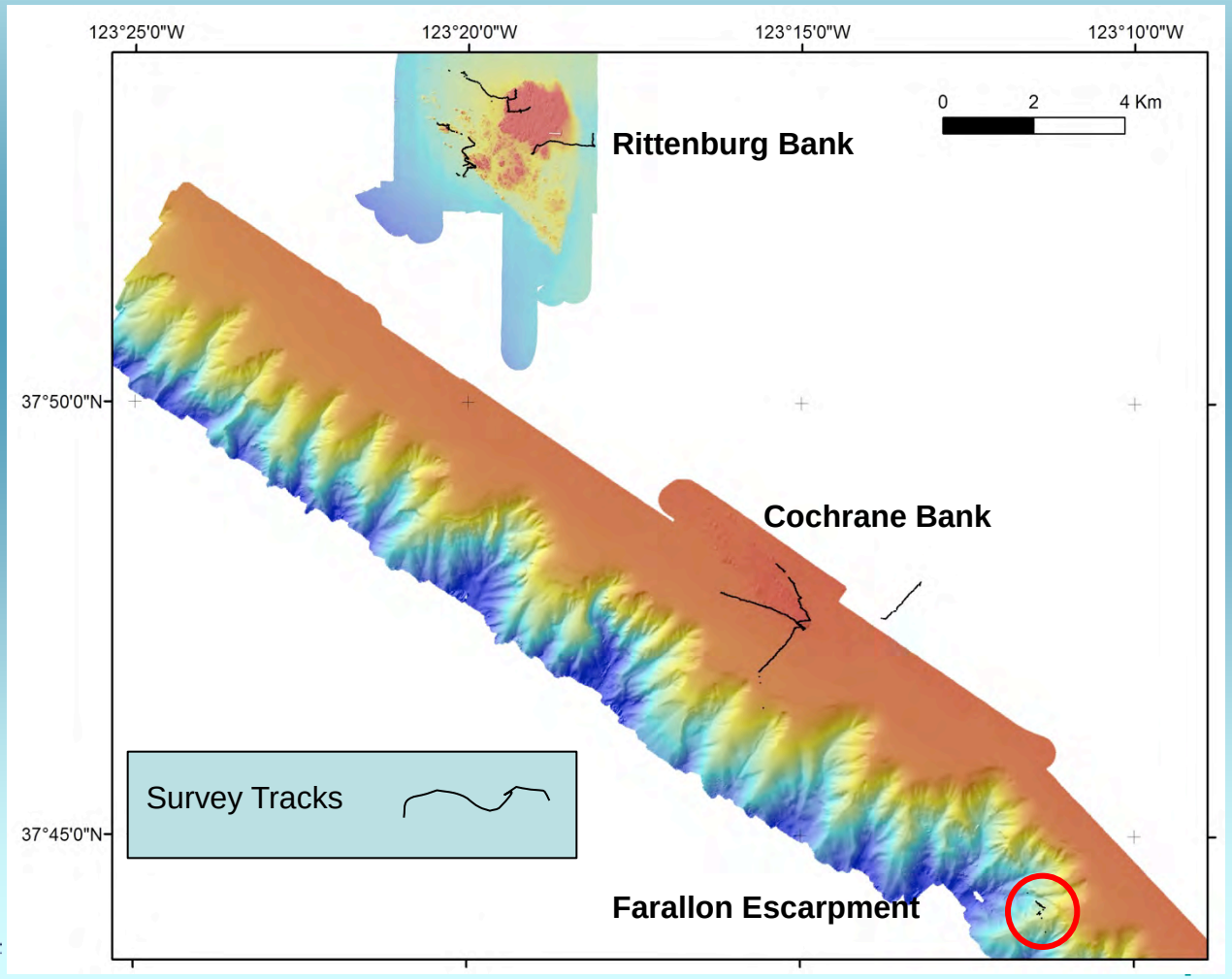
# Summary of Research Cruise, 1-12 October 2012

- **Primary target areas: Rittenburg Bank, Cochrane Bank and Farallon Escarpment**

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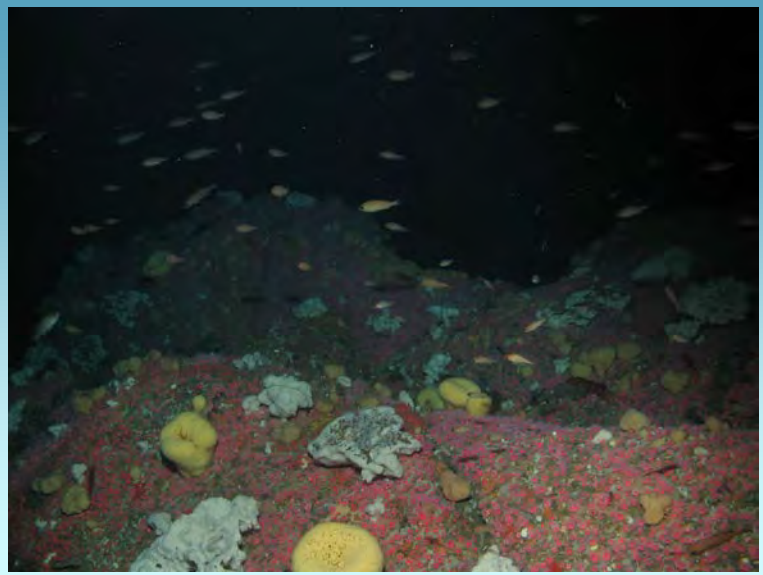
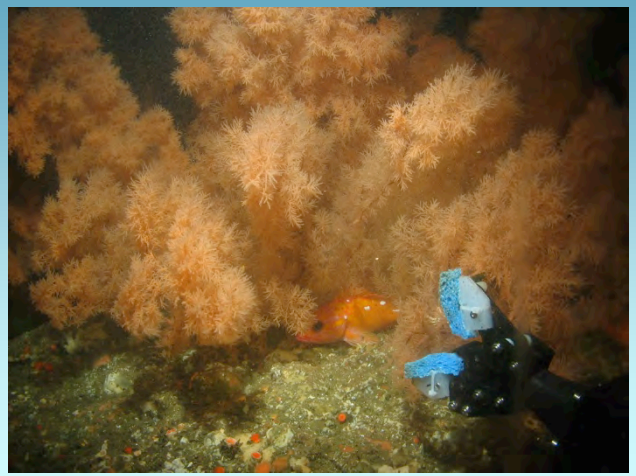
# Cruise Preliminary Findings

- **Exceeded expectations:**
  - **10 dives, over 24 hours of video collected, 1000's of stills**
  - **Dive depths between 76-457 meters (250-1500 feet)**
  - **Coldest temperature 6˚ C (43˚ F)**
- **Found rich and abundant habitats never seen before in GFNMS**
- **At least 20 species of corals and sponges**



# Cruise Preliminary Findings

- **Black coral on an uncharted bank, nicked named Cochrane Bank, estimated to be at least 100 years old; this is the first sighting of black coral within GFNMS**
- **Many rocky reefs providing sheltering habitat and with abundant adult and juvenile rockfish at each target location**
- **Verified the extent of Rittenburg and Cochrane Banks**



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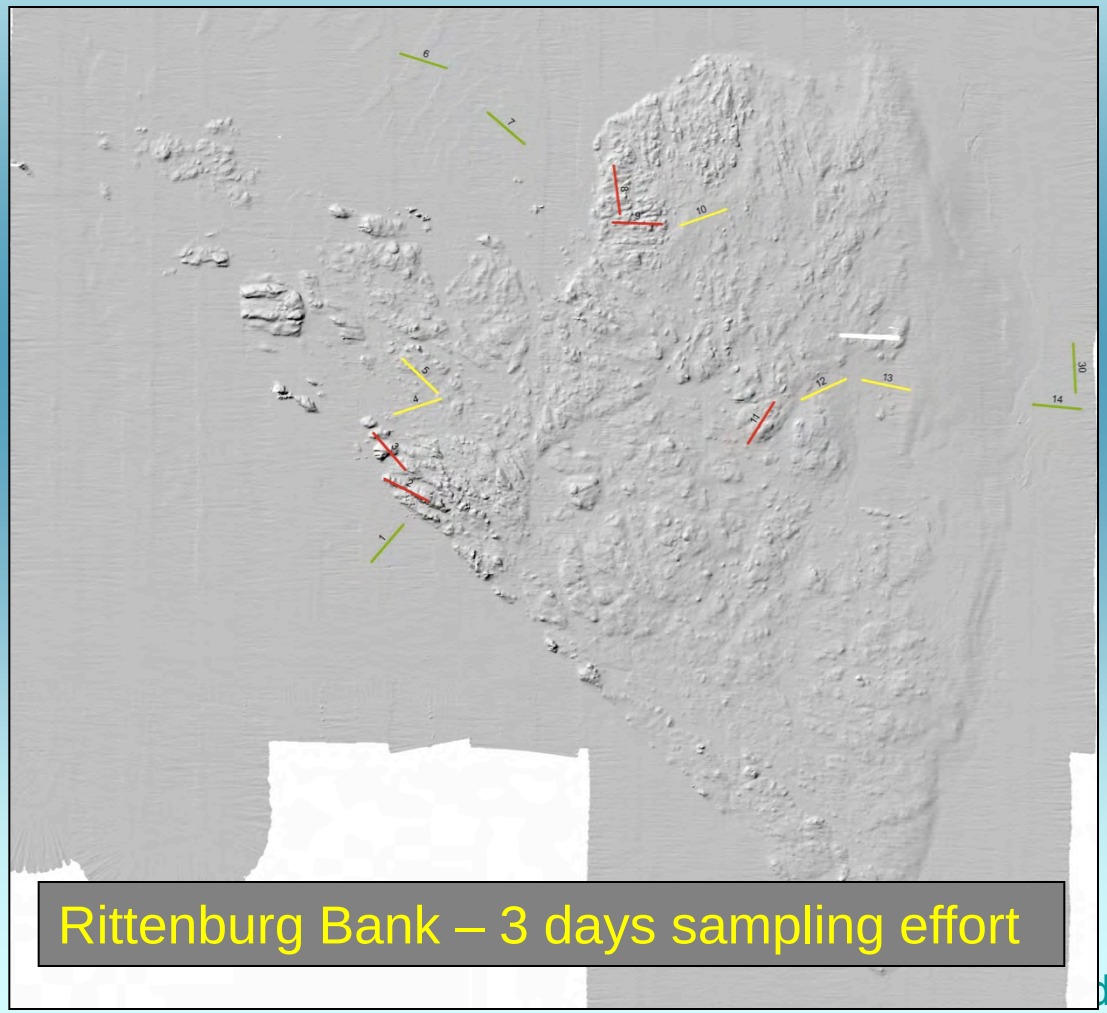
# Cruise Preliminary Findings

- **Every location had potentially damaging marine debris**

# Summary of Research Cruise, 1-12 October 2012

- **Substrate types to define sensitive habitats and map sonar data: hard-flat (yellow), hard-rugose (red), soft flat (green)**

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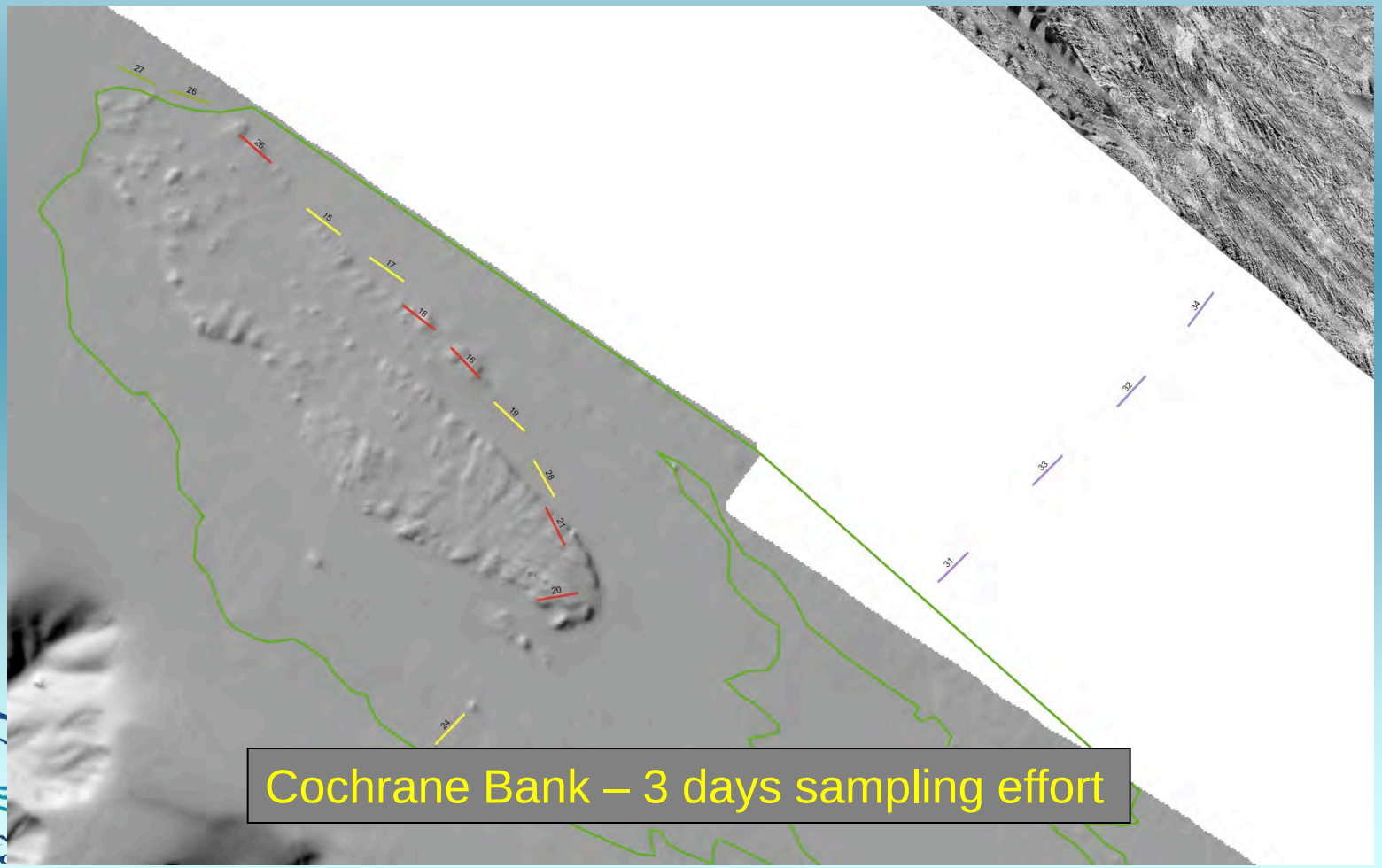
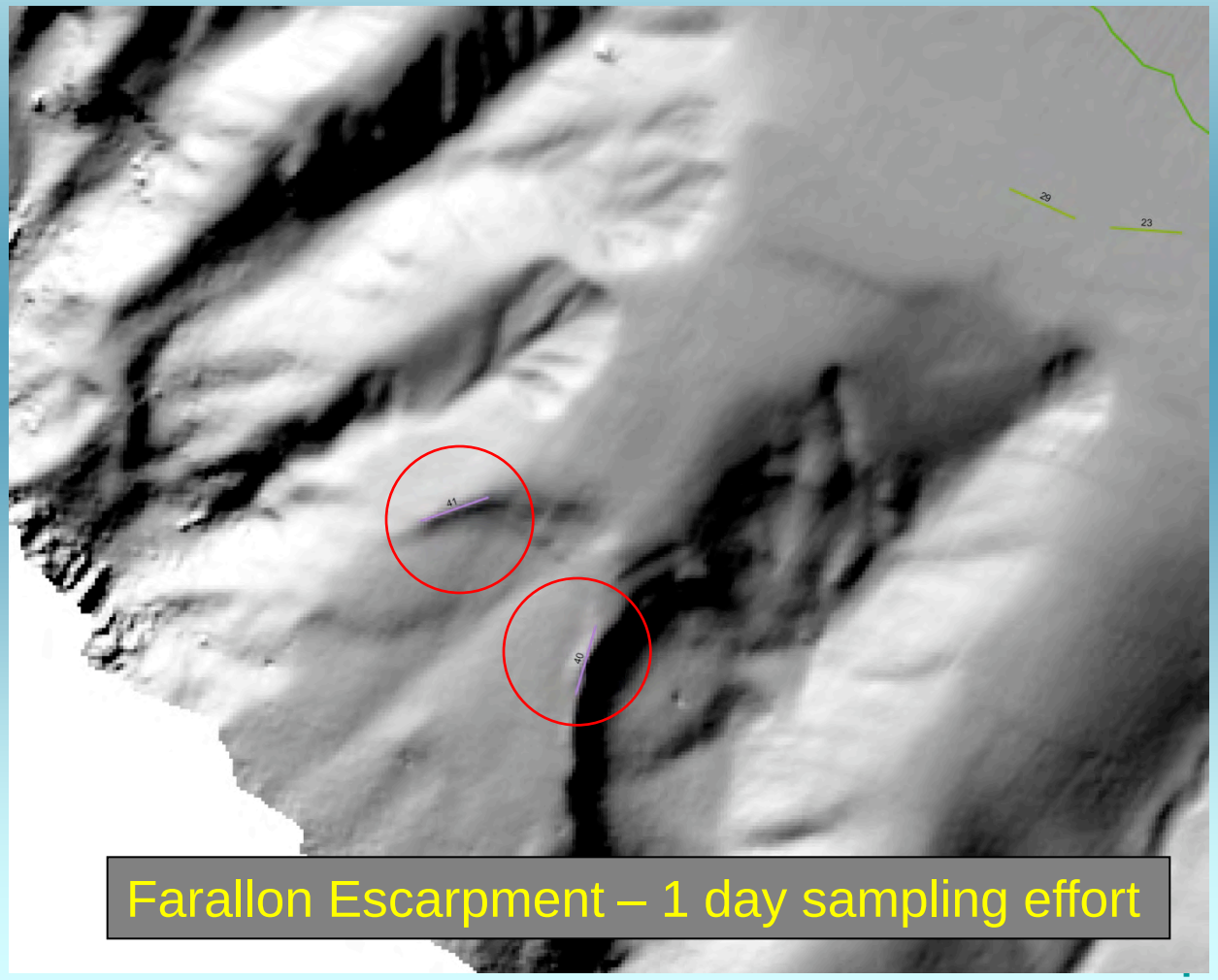



Cochrane Bank – 3 days sampling effort

# Summary of Research Cruise, 1-12 October 2012

- **Substrate types on Farallon Escarpment were not predetermined, as indicated by purple lines**




Farallon Escarpment – 1 day sampling effort

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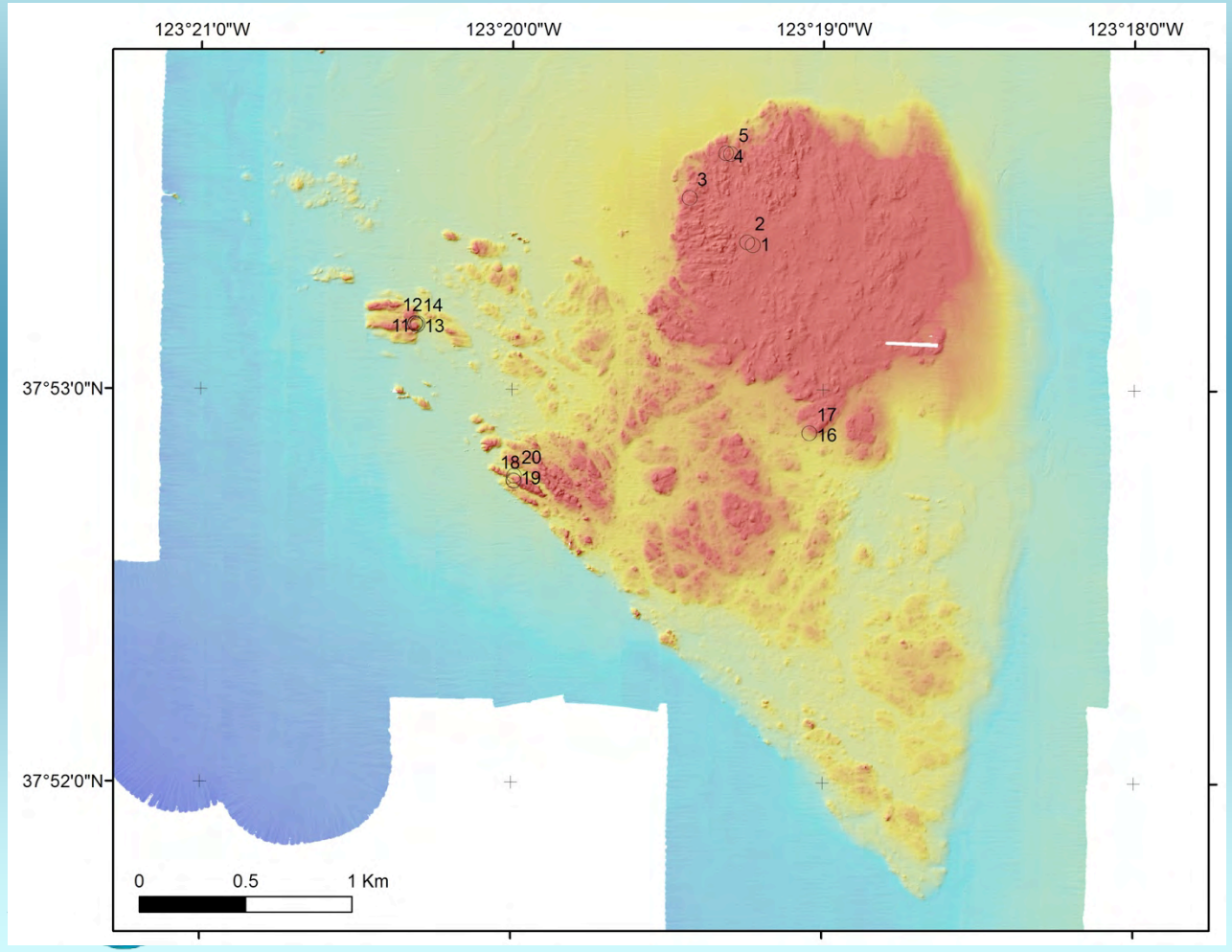
# Summary of Research Cruise, 1-12 October 2012

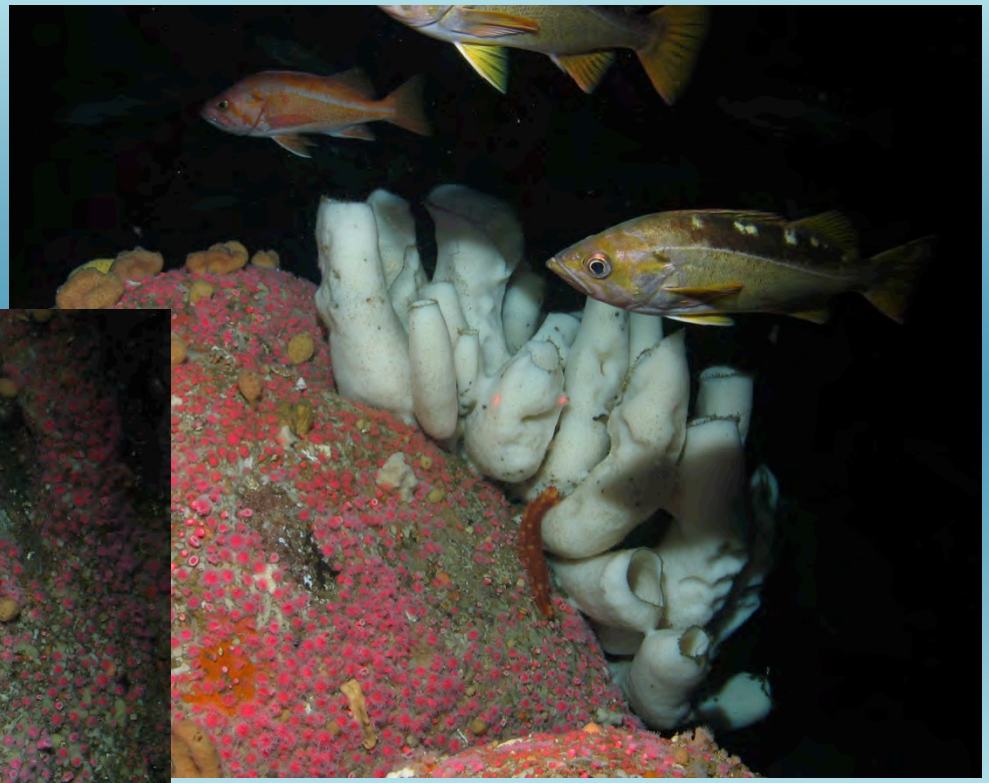
## Rittenburg Bank Samples

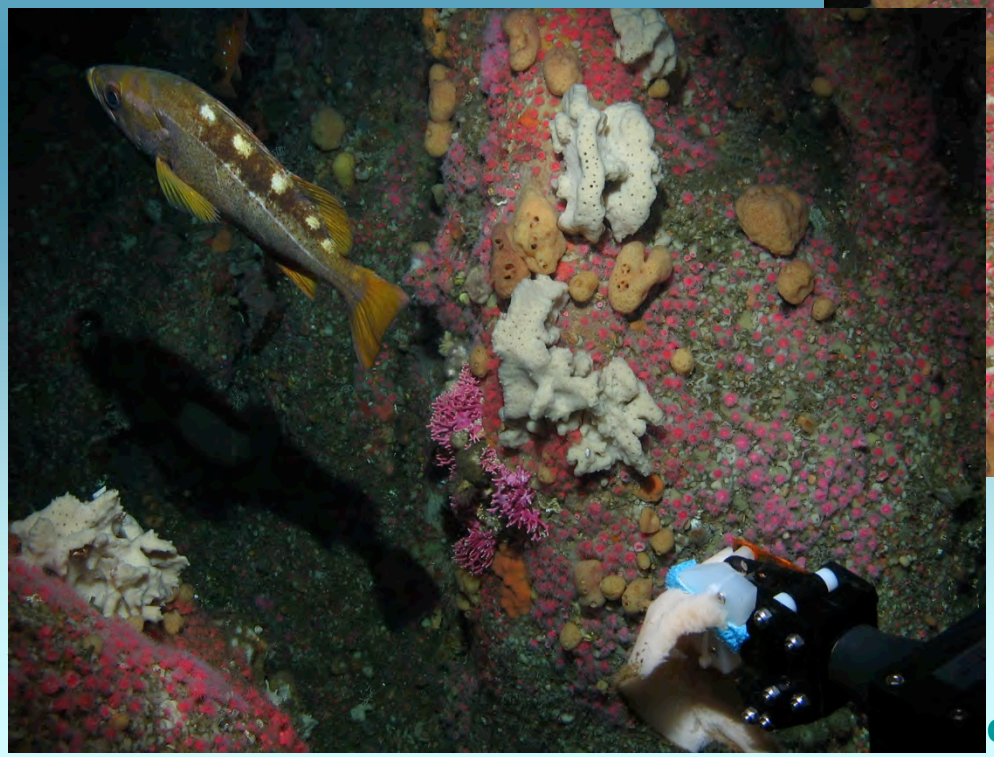



- 10 various sponges
- 2 *Euplexaura*-type Gorgonian corals
- 1 *Stylaster* coral

# Summary of Research Cruise, 1-12 October 2012

## Rittenburg Bank Highlights





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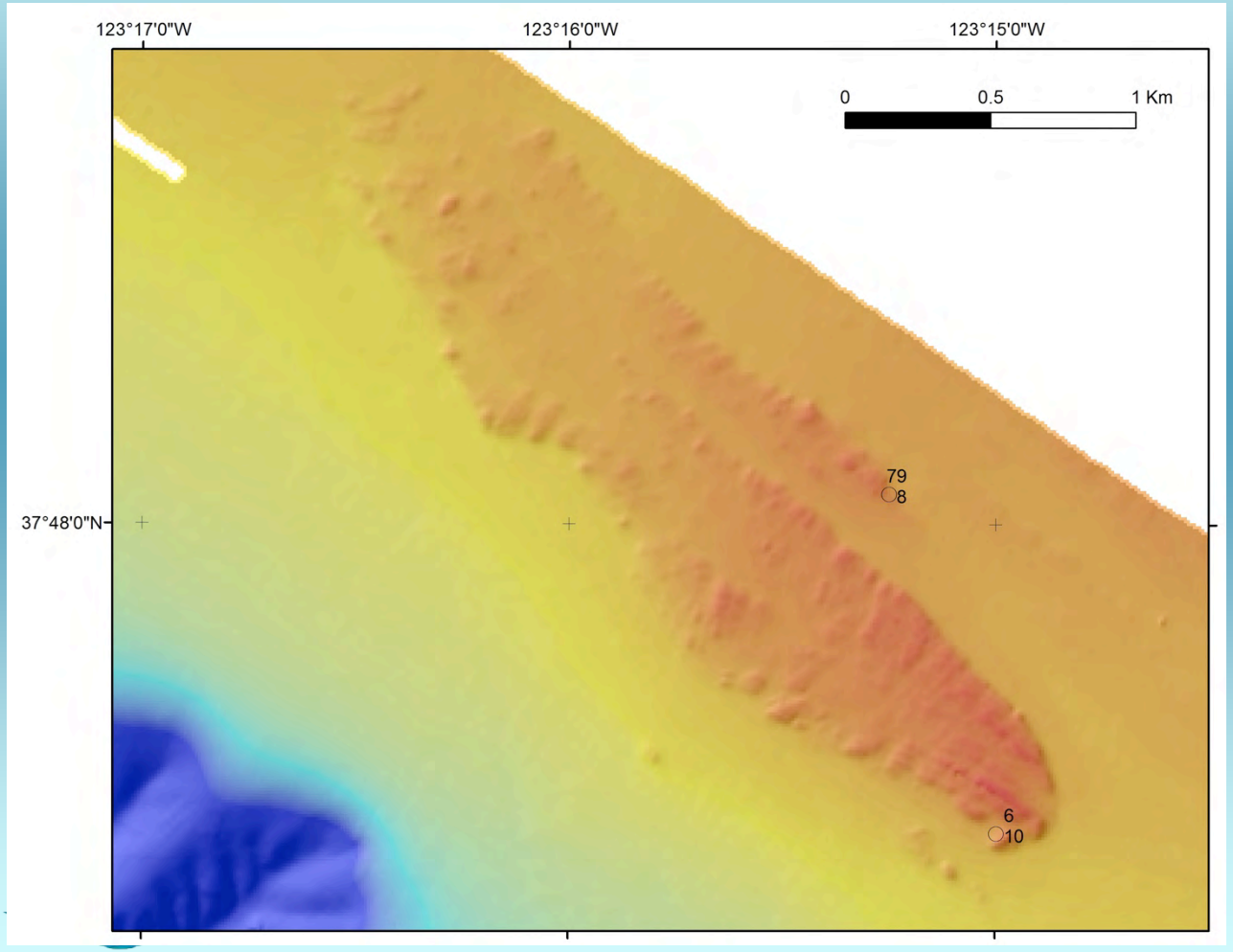
# Summary of Research Cruise, 1-12 October 2012

## Cochrane Bank Samples




- 1 sponge with attached inverts
- 1 *Antipathes*, black coral with attached goose-necked barnacles

# Summary of Research Cruise, 1-12 October 2012

## Cochrane Bank Highlights

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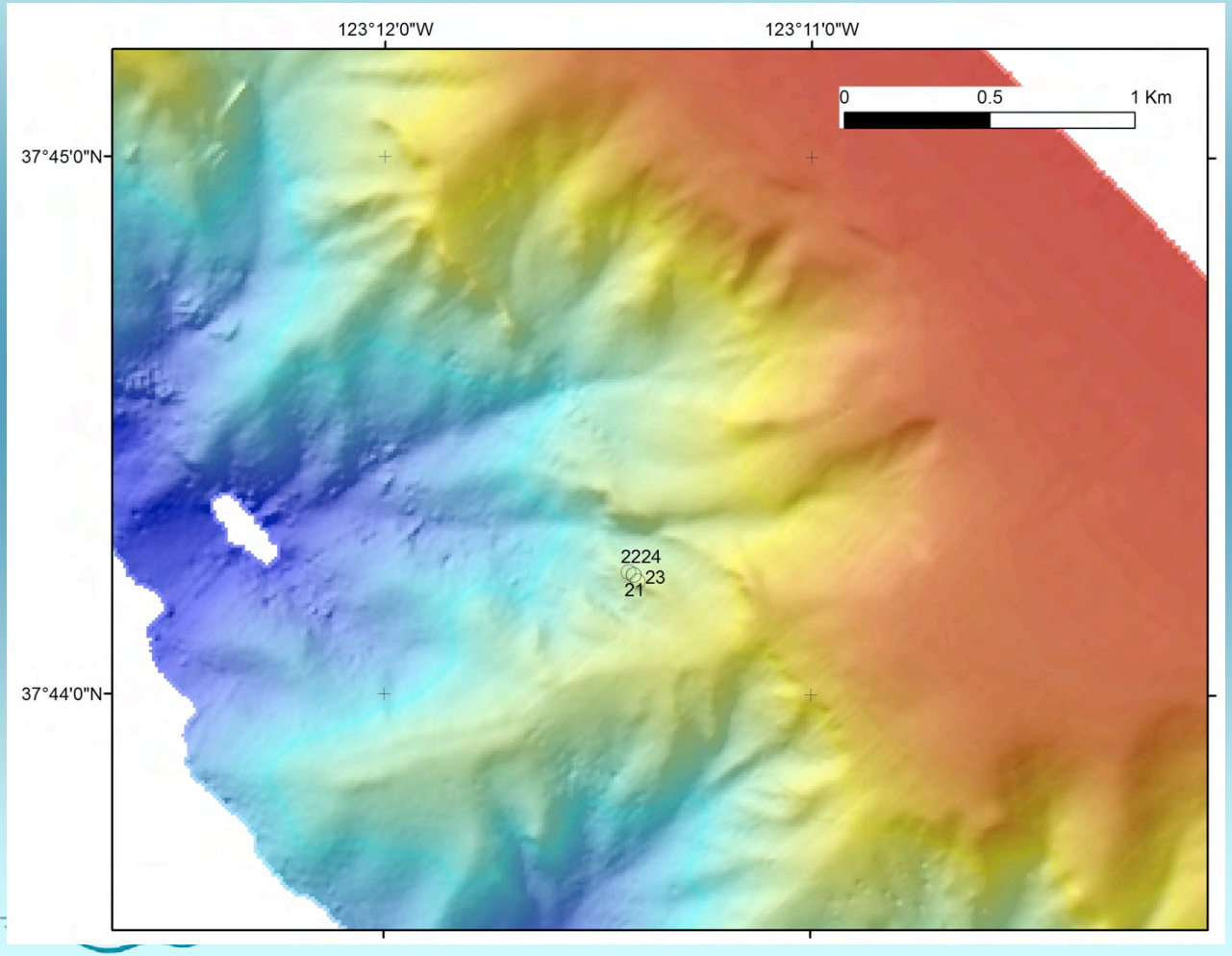
# Summary of Research Cruise, 1-12 October 2012

## Cochrane Bank Highlights

# Summary of Research Cruise, 1-12 October 2012

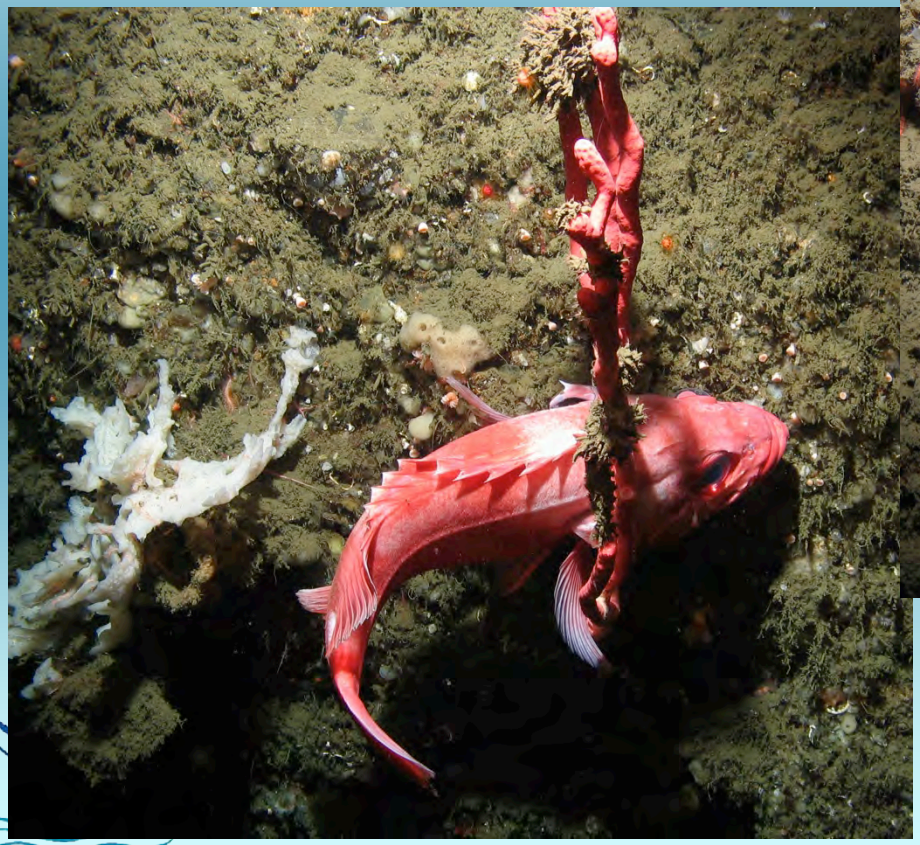
## Farallon Escarpment Samples

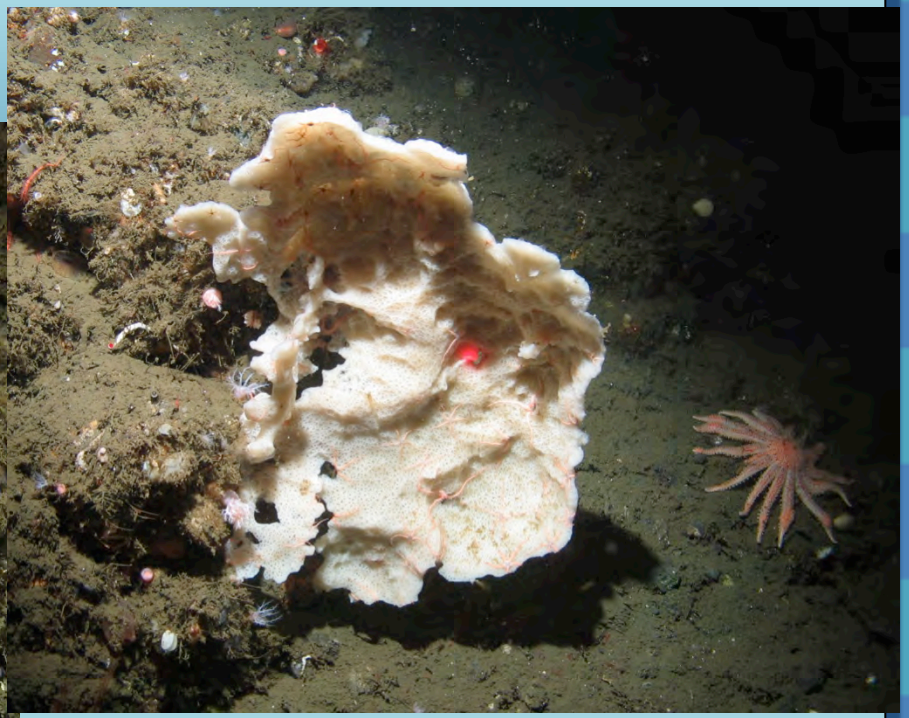



- 1 sponge (nick-named Catcher's Mitt Sponge)
- 1 *Swiftia* sp., red sea fan coral w/attached invert
- 1 Paragorgiidae, bubblegum coral

# Summary of Research Cruise, 1-12 October 2012

## Farallon Escarpment Highlights





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# Next Steps

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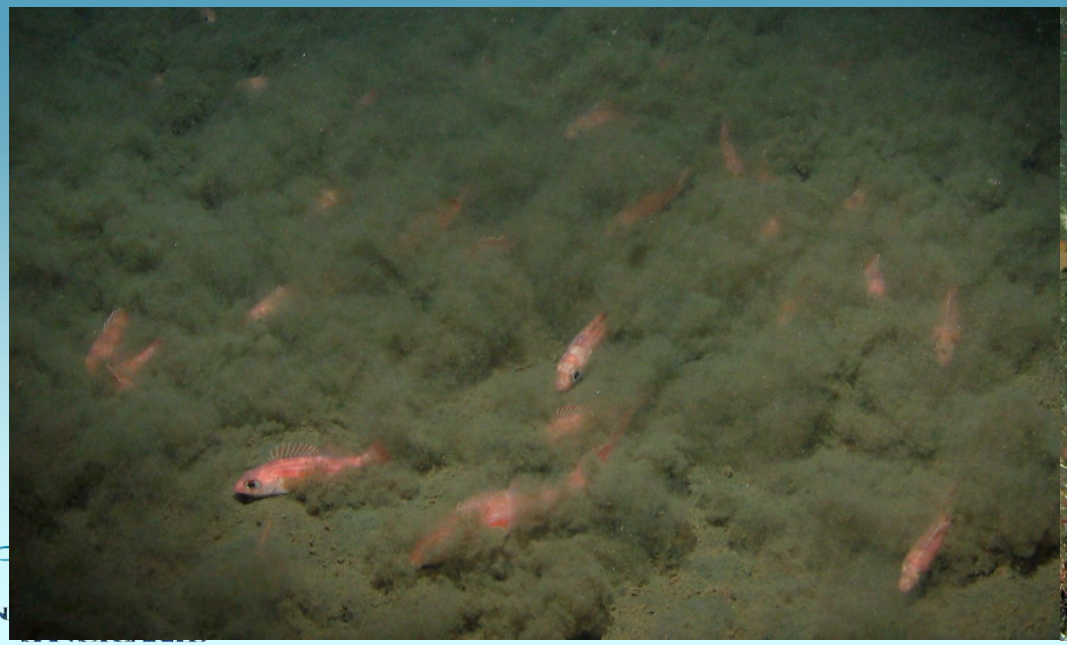
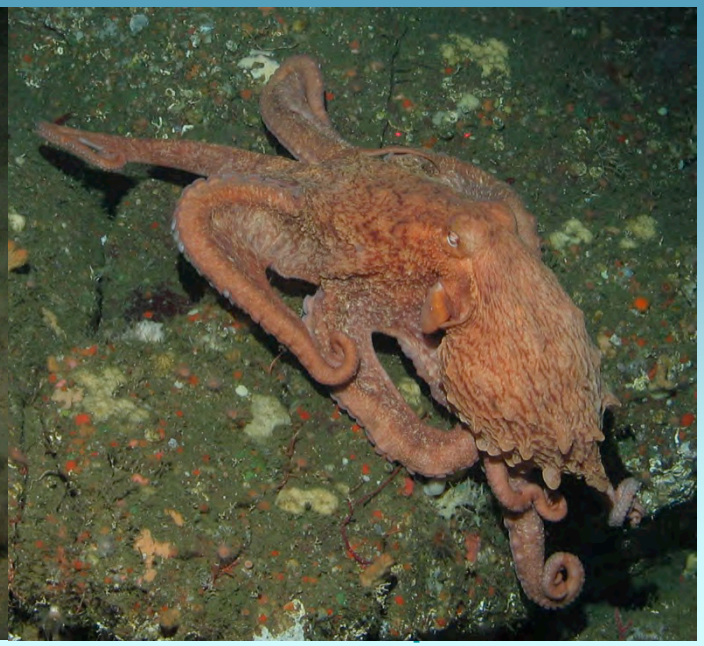
- **Map abundance and distribution of associated fish species (2013)**
- **Map types and distribution of benthic marine debris (2013)**





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- Identify voucher specimens through electronic micrograph imaging and DNA analysis (2012-2013)
- Create video and still image library of benthic habitats and species (2013)
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# Overview Video

## Pause for Video

# The EFH Review Process & GFNMS Participation

- *Preliminary maps*
- *Coordination with 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 "Phase 1" Report is completed and sent to Council

September 2012: Council reviews "Phase 1" EFH Report and determines if a proposal process is warranted for new EFH Conservation Measures.

Sept 2012–March 2013: NMFS Science Center Synthesis of Report: Characterize Habitat, species-habitat relationships, spatial distribution, human impacts to areas of high abundance and diversity

April 2013: **PFMC Decision Point** - Council reviews EFH Report and determines if a proposal process is warranted for new EFH protections

**July 2013: Proposals Due** - 90 days from the Council "Request for Proposals"

August 2013
EFH Review Committee analysis of proposals and recommendations to the Council

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

- *Participation in EFH Review Committee*
- *Potentially submit a proposal and/or review proposals*

- *Coordination with NMFS on Synthesis of Data*
- *Analyze data and determine if additional protections are warranted*
- *Meetings with fishermen and PFMC*

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# Questions