



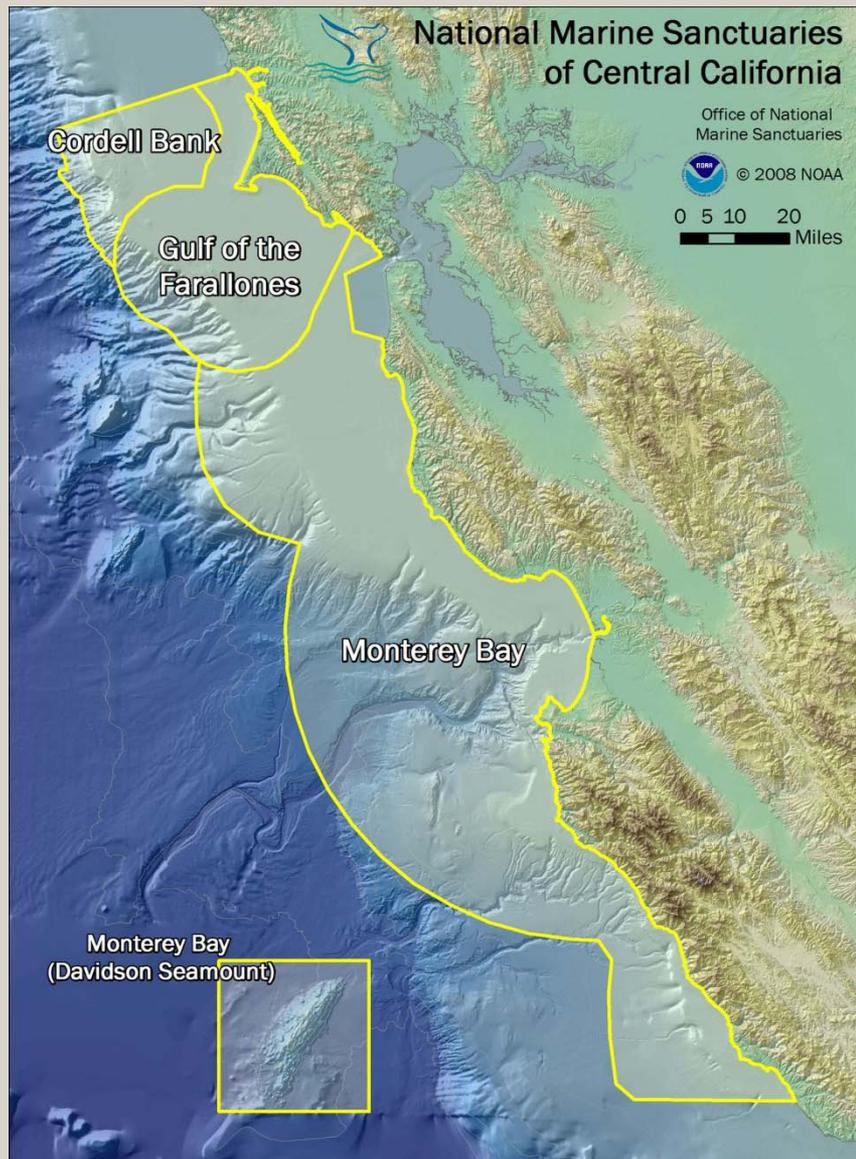
# Protecting Deep-sea Corals by Including Davidson Seamount in the Monterey Bay National Marine Sanctuary



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Research Program  
Monterey Bay National Marine Sanctuary



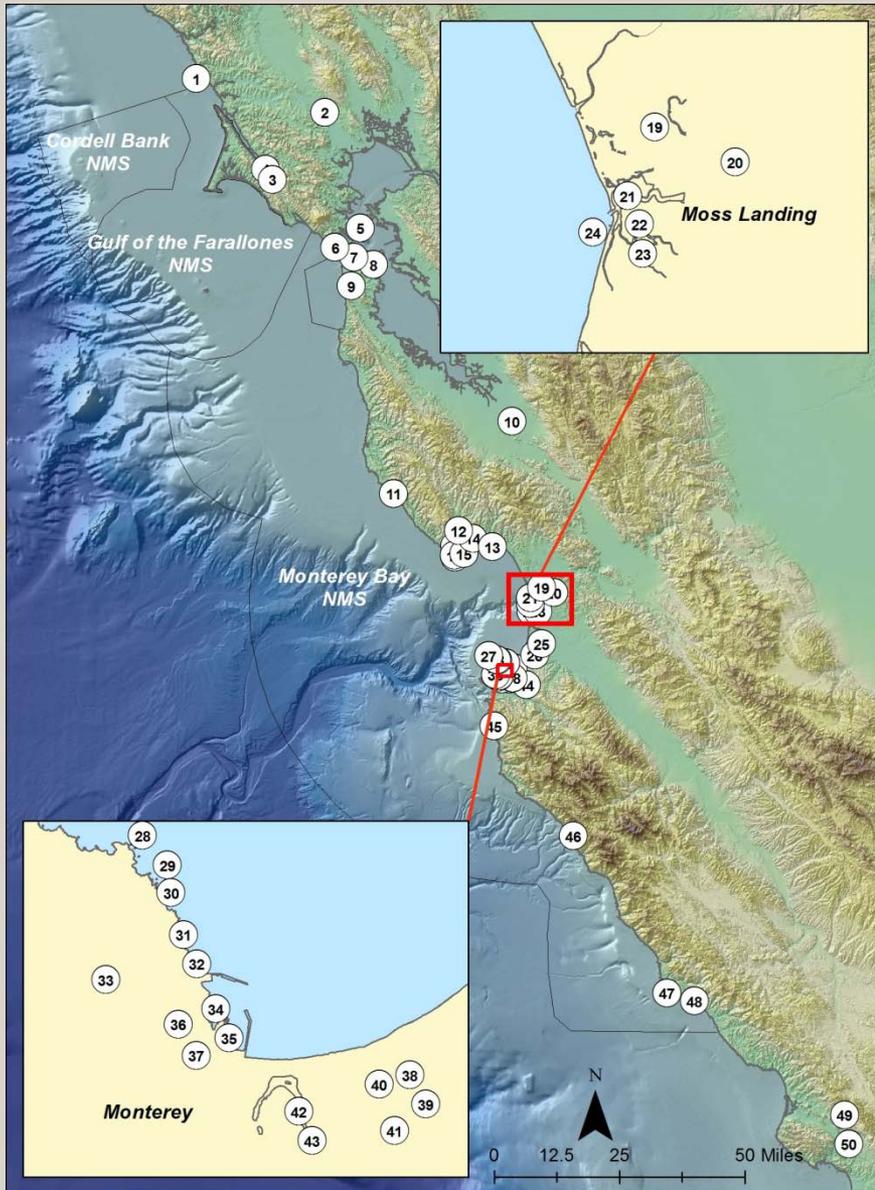
# Davidson Seamount



- 80 miles SW of Monterey, CA
- One of the largest seamounts on West Coast, U.S.
- 26 miles long
- 8 miles wide
- 1,250 meters at summit
- 3,875 meters at base
- Last erupted ~9.8 million yrs ago
- 237 organisms identified
- Added to MBNMS in 2008
- One of the best studied seamounts in the world



# Regional Research Collaborations



[sanctuarysimon.org](http://sanctuarysimon.org)



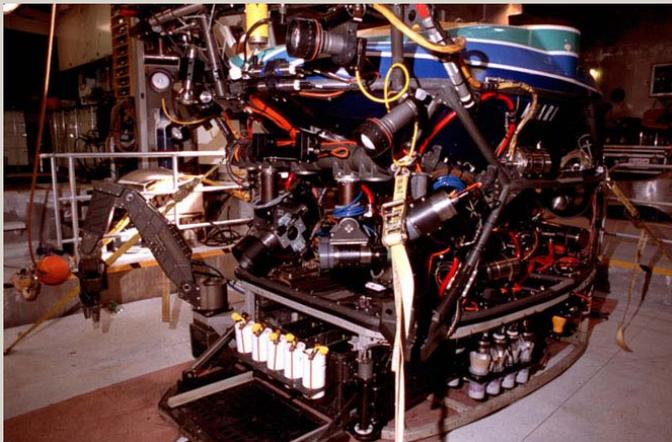
# Technology Collaborations



*R/V Western Flyer*



*R/V Zephyr*



*ROV Tiburon*

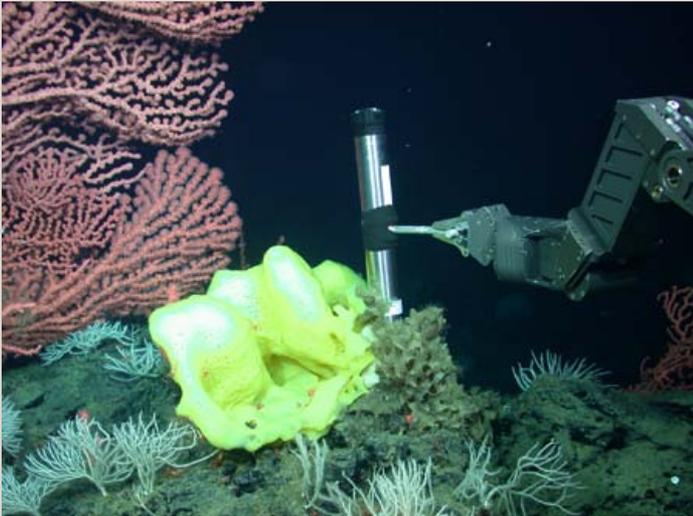


*Autonomous Underwater Vehicle (AUV)*

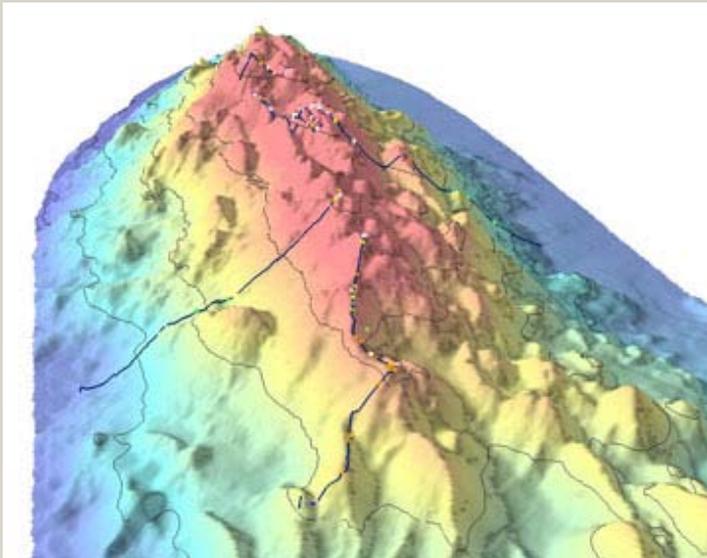
*MBARI assets*



# Research Expeditions



- Exploration
- Site characterization
- Geochronology
- Coral age determination
- Coral habitat modeling





# Site Characterization



Sea Surface



Midwater



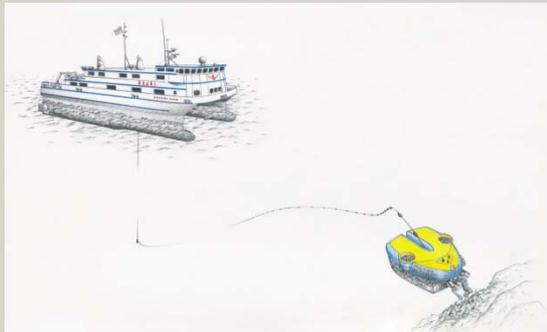
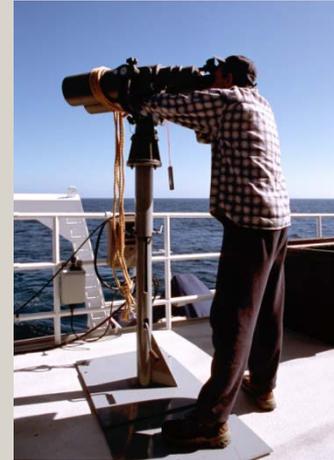
Summit



Slope



Base

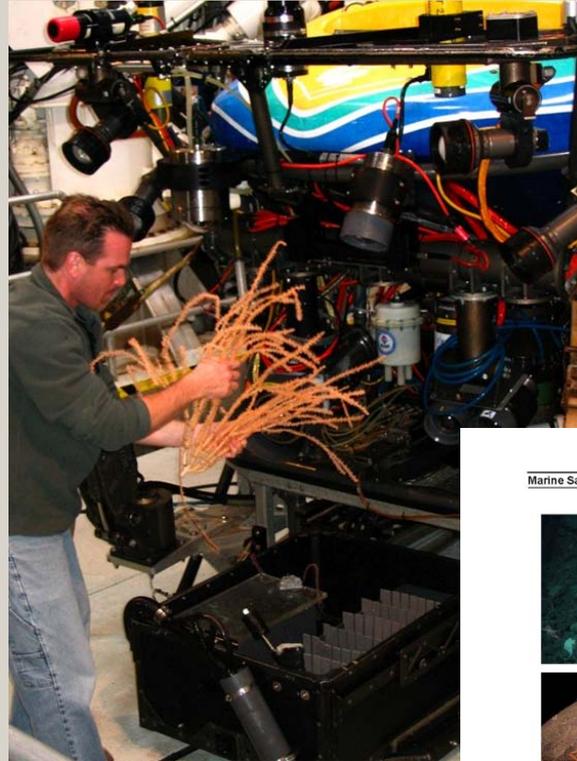




# Specimen Collections



- Species IDs
- Taxonomic Guide
  - Image guide
  - 237 organisms identified
  - Rare species
  - New species
  - Depth ranges
  - Free PDF available online



Marine Sanctuaries Conservation Series ONMS-08-08



Davidson Seamount Taxonomic Guide

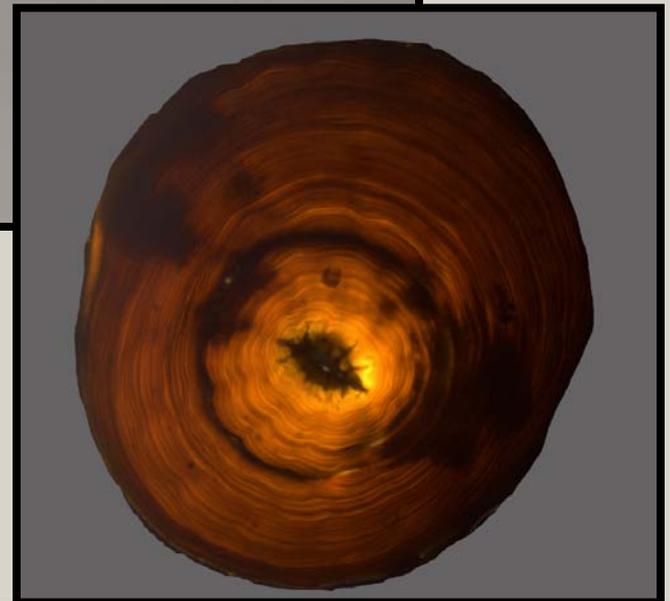
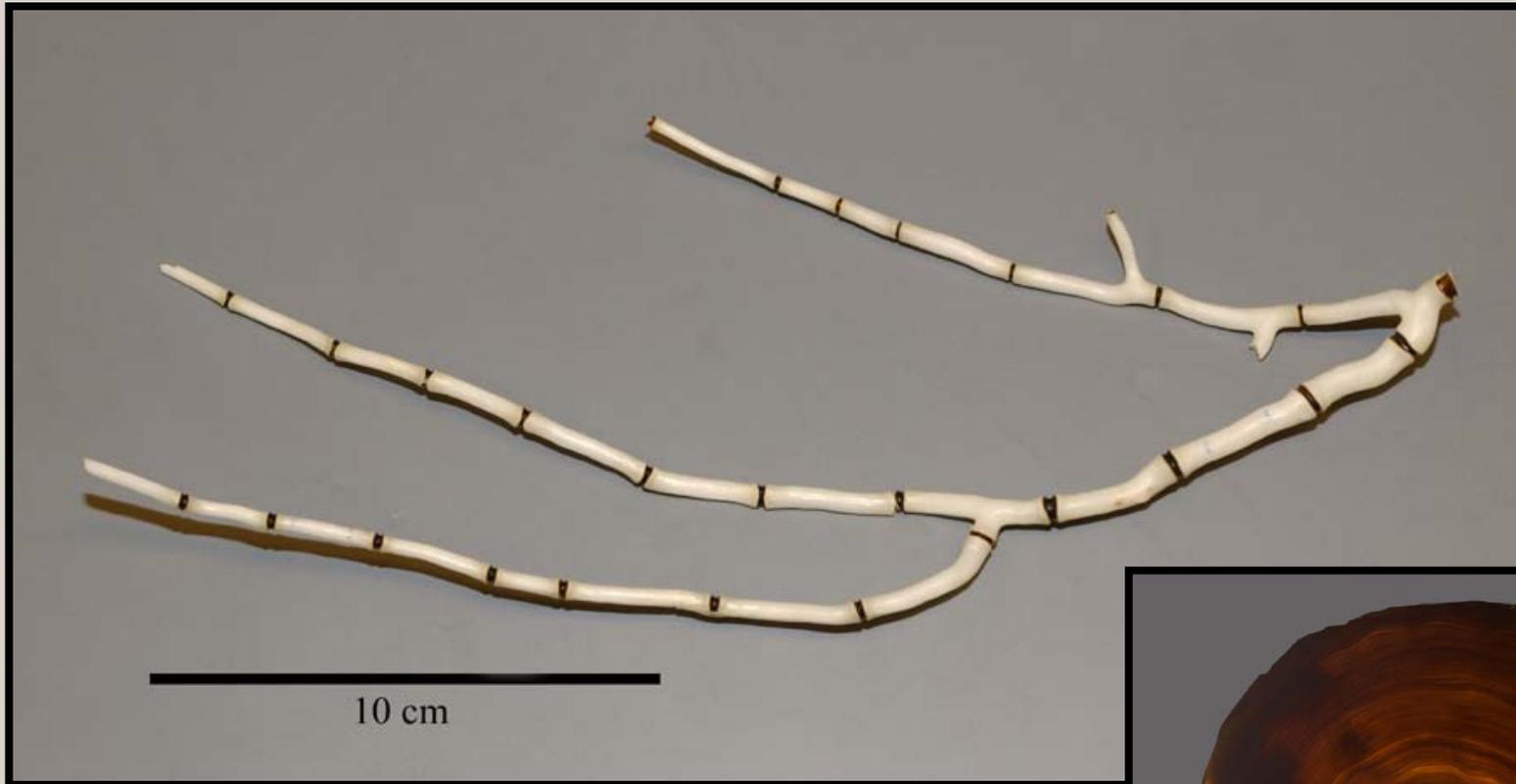
U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of Ocean and Coastal Resource Management  
Office of National Marine Sanctuaries



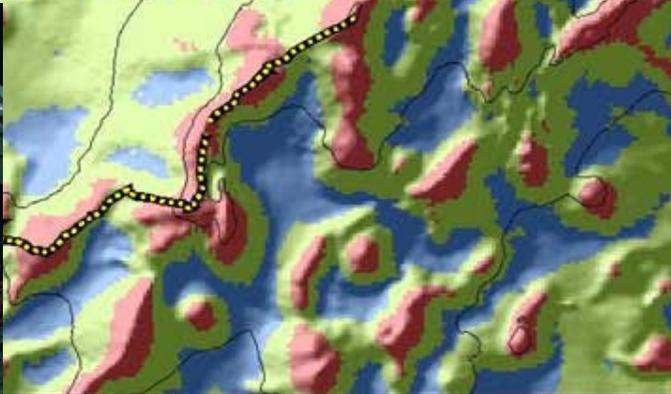
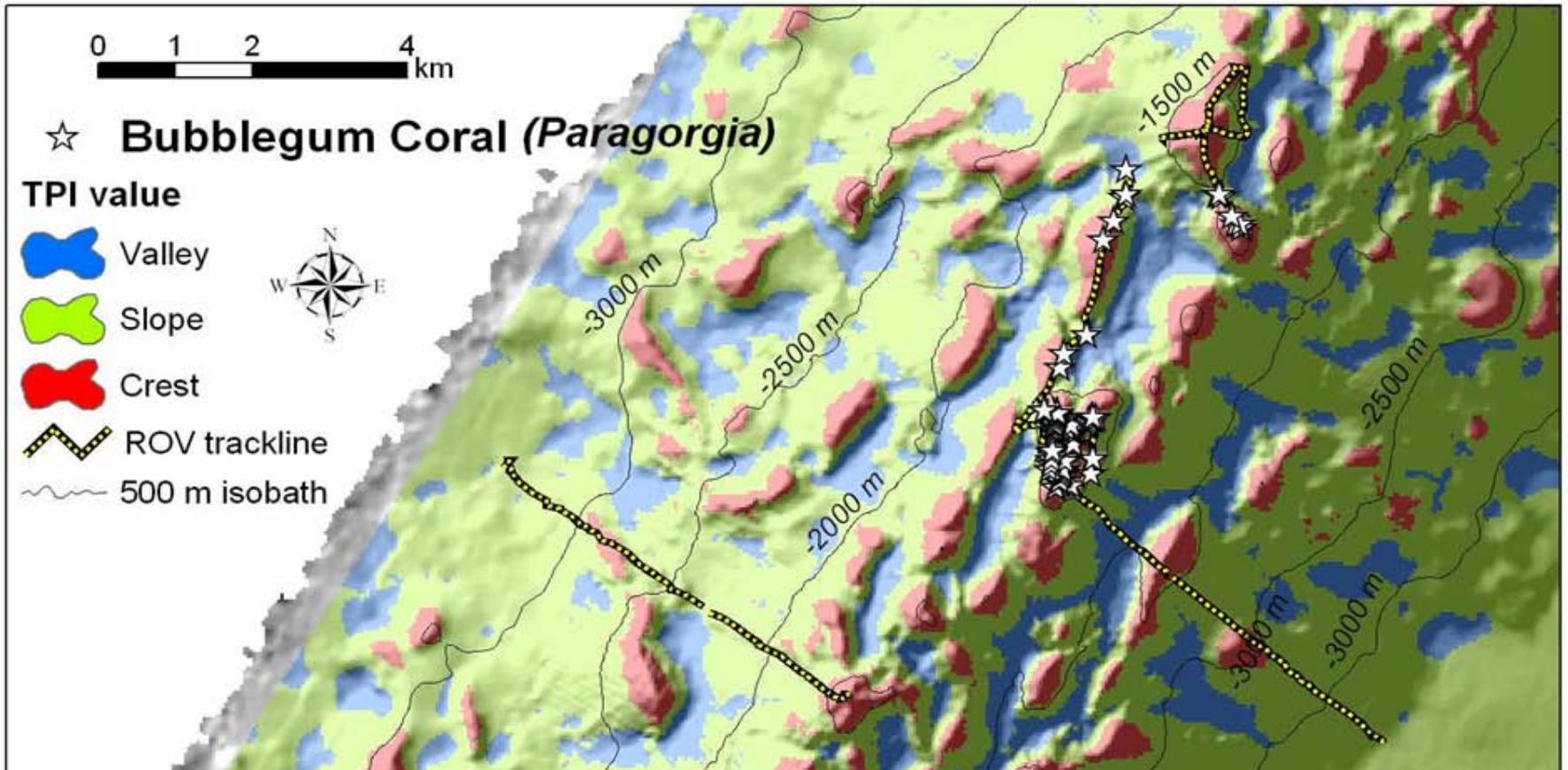
December 2008



# Coral age and growth



- Bamboo Coral (*Keratoisis* sp.)
- Radiometric dating indicates slow growing & long-lived (> 200 years)





# Coral transplant experiment





# Observations



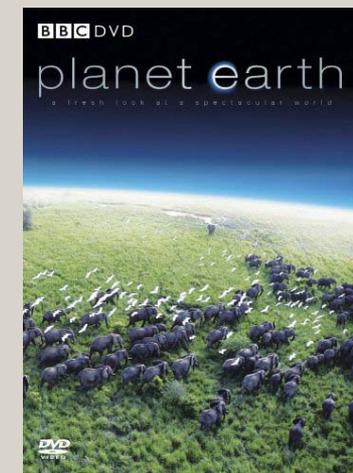
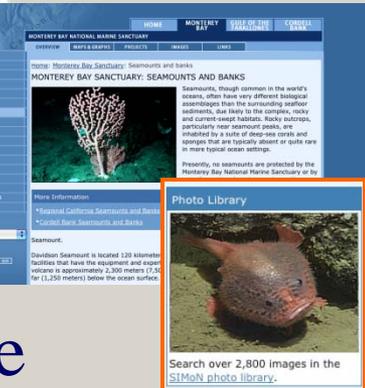
- Diverse sea life at seamount crests
- Vast sponge & coral fields
- Undescribed sponge & coral species
- Nearly pristine habitat
- Undisturbed sea floor
- Corals long-lived & slow growing
- Previously unrecognized type volcanism
- May be important source of larvae (e.g. deep-sea oases)
- 9 scientific publications to date



# Outreach Efforts



- Web sites
- Press events and related media
- Interactive CD
- Video for Visitor Center at San Simeon
- “Natural Wonders” DVD
- Images available on SIMoN Photo Database
- Office of Ocean Exploration poster
- BBC’s *Planet Earth* series
- Public presentations





# Stakeholder Participation



- Outreach products informed public
- Public influenced SAC & Management Plan review process
- Working Group consisted of educators, scientists, fishermen, NGOs
- Science and stakeholder use patterns identified needs for Action Plan
- NOAA and other agencies developed framework for addressing identified needs

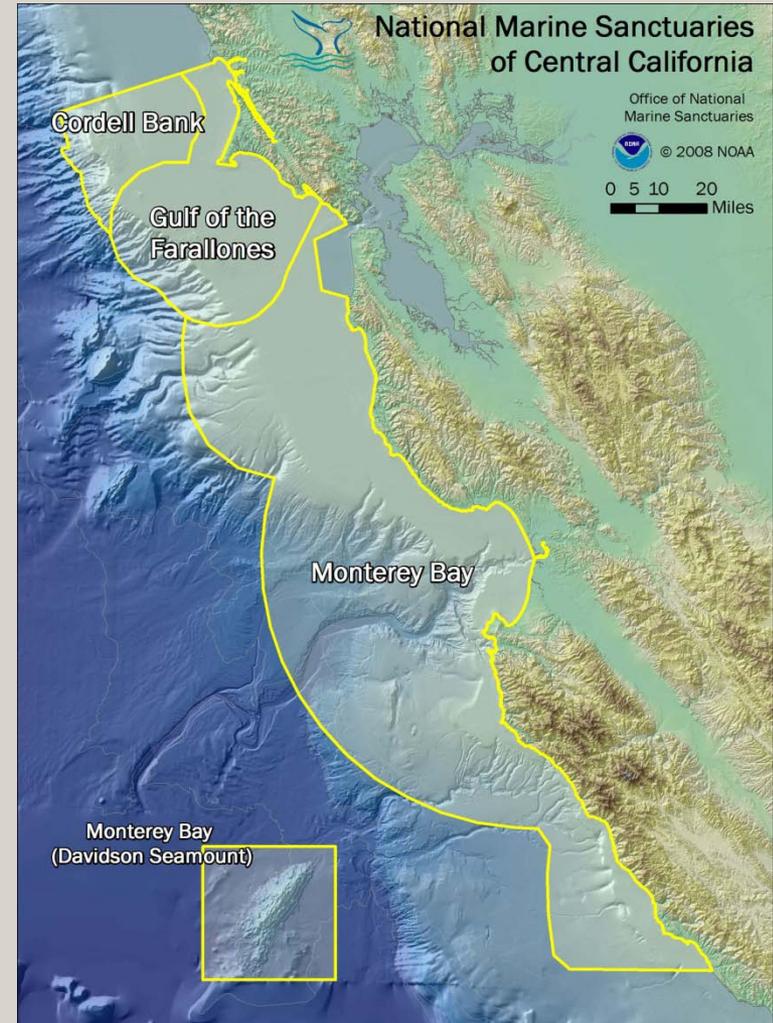




# Outcomes



- Better informed public and science community on seamounts and deep-sea corals
- MBNMS expanded to include Davidson Seamount
- Davidson Seamount Action Plan: Research, Education, Resource Protection
- Regulations
  - National Marine Sanctuaries Act
  - Magnuson-Stevens Act
- Fishing allowed <3000 ft
  - albacore, swordfish





# Partners



## Research

- Monterey Bay National Marine Sanctuary
- Moss Landing Marine Labs
- Monterey Bay Aquarium
- Monterey Bay Aquarium Research Institute
- National Marine Fisheries Service
- NOAA's Office of Exploration

## Other

- Sanctuary Advisory Council
- Working Group of experts and stakeholders
- Commercial Fishermen
- NGOs
- British Broadcasting Corp.
- Monterey Bay Aquarium
- NOAA's Office of Exploration
- General Public





NATIONAL MARINE  
SANCTUARIES <sup>TM</sup>

