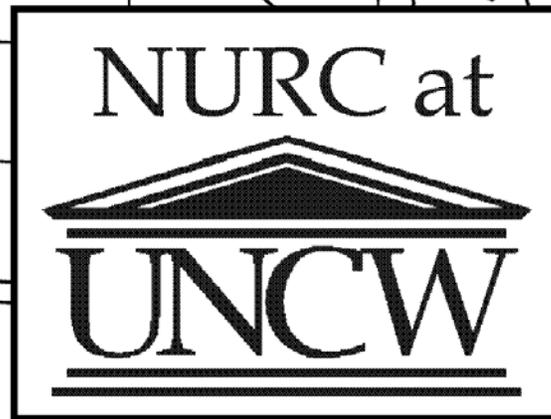


NOAA's Undersea Research Center





National Undersea Research Program



NURC at



UNCW

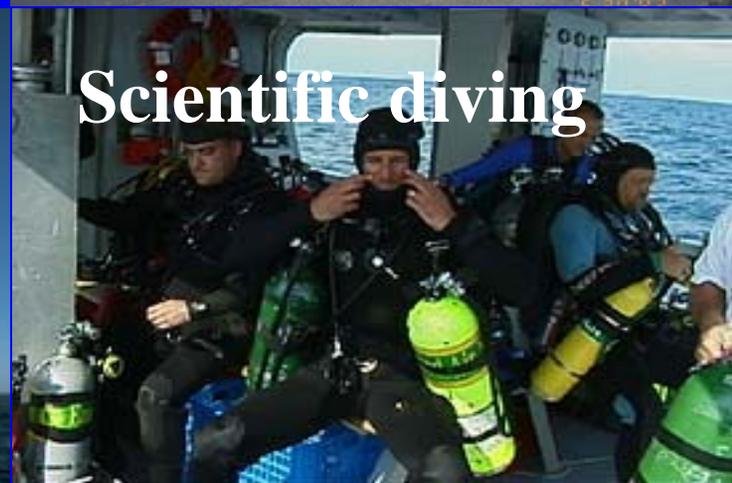
*South
Atlantic
Bight*

Gulf of Mexico

Florida Keys

UNCW's National Undersea Research Center

World-class environmental science program



Science Directive

- NOAA Strategic Plan for FY 2003-2008
- NURP Science Guidance Document
- Florida Keys National Marine Sanctuary



Funding process

- RFP in April
- Proposals due in August
- Independent peer review panel in November
- Select projects based on peer review and our funding levels
- We provide small subcontracts in addition to operational and facility support

Leveraging Center Resources

- **Cooperative Agreement with FKNMS**
 - ship grounding, keys-wide coral reef expedition, monitoring marine protected areas
 - boats
- **NOAA**
 - NMFS (fisheries work in Keys and Dry Tortugas)
- **EPA**
 - Logistical support to special studies program/NCORE
- **USGS**
 - Cooperative programs out of St. Petersburg

NASA Partnership

- NEEMO
- Canada- Center for Minimal Access Surgery

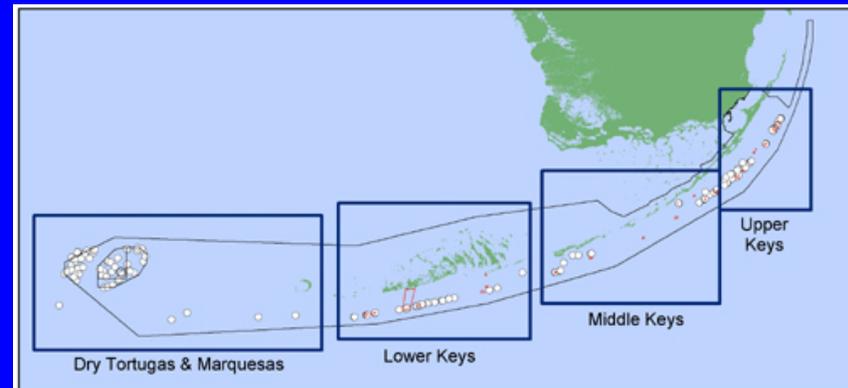


NURC Florida Program

- **Established 1991**
- **Research support unique in the Keys**
- **Useful research to support FKNMS**
- **Significant partnerships**
- **Substantial resource leveraging**
- **National educational and outreach opportunities**

Florida Dayboat Program

- Mission support for science groups up to eight divers
- Cover an area from Miami to Key West, oceanside and bayside
- Use Nitrox to increase bottom time
- Provide Nitrox training
- Provide technical assistance for equipment deployment and retrieval



Florida Dayboat Program

- Provides vessel (24 – 42 feet)
- Captain/ divemaster
- Dive gear(tanks, weights, BC's, regulators)
- Lab space
- Accommodations for twenty scientists



Aquarius Underwater Laboratory



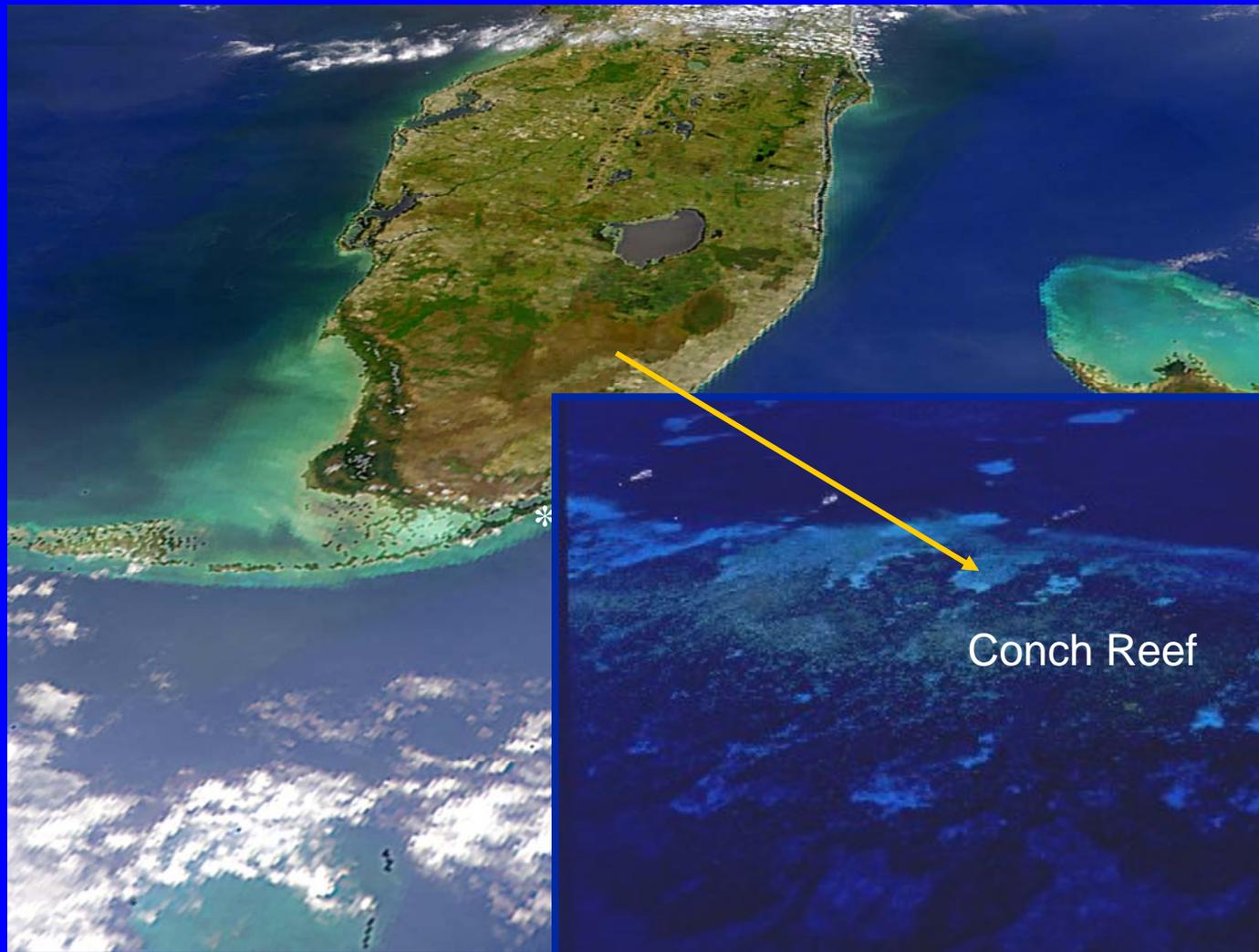
Copyright 2000 D. J. Roller / Liquid Pictures

Aquarius

- 43 feet long by 9 feet in diameter
- Houses 4 scientists and 2 NURC staff
- 4 miles from shore in 62 feet of water
- “Hatch depth” is 47 feet



Aquarius Undersea Laboratory: Located in the Florida Keys National Marine Sanctuary



Saturation Diving

- **Nearly unlimited bottom time compared to surface-based operations**
- **24 hour access to environment**
- **Capability to power equipment from Aquarius to outside**
- **Electronic and computer capability to control equipment, record data, and access internet**
- **Decompress for 16 ½ hours**

Risk Management

- Training – 4 to 5 days of equipment familiarization and safety briefings
- Equipment inspection and maintenance
- Protocols
- Supervision – 24hr oversight of all operations



Life Support Needs: Living and working underwater

- **Atmospheric Control**
 - Carbon Dioxide Removal
 - Air Supply
- **Communication**
 - Voice
 - Video
 - Computer/Telemetry
- **Food and Water**
- **Waste Disposal**
- **Power**
 - A/C
 - D/C Emergency
- **Comfort**
 - Air Conditioning
 - Dehumidification

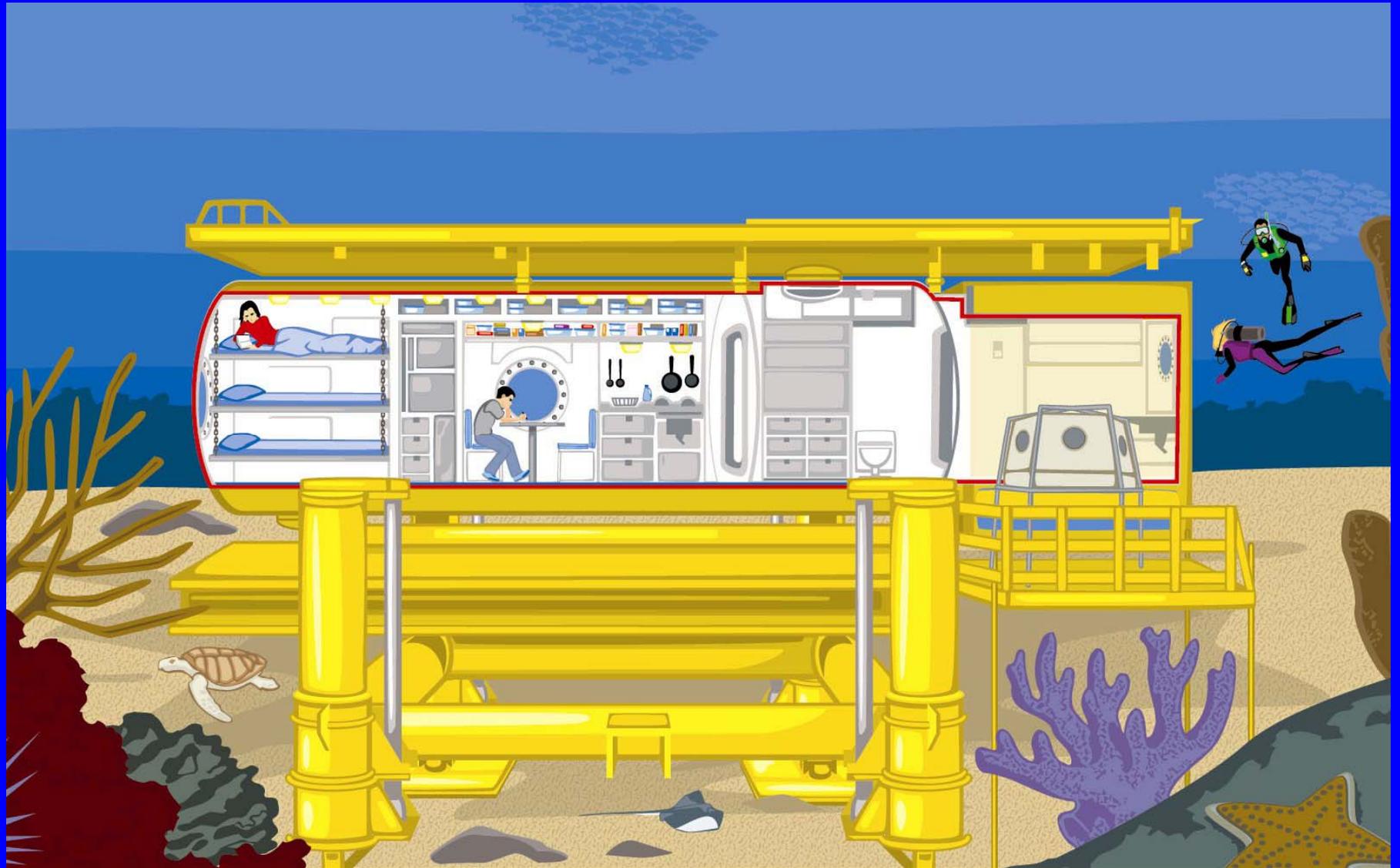
Life Support Buoy



Inside the LSB: Generators and Compressors



Aquarius interior



Wet Porch with Supply Delivery

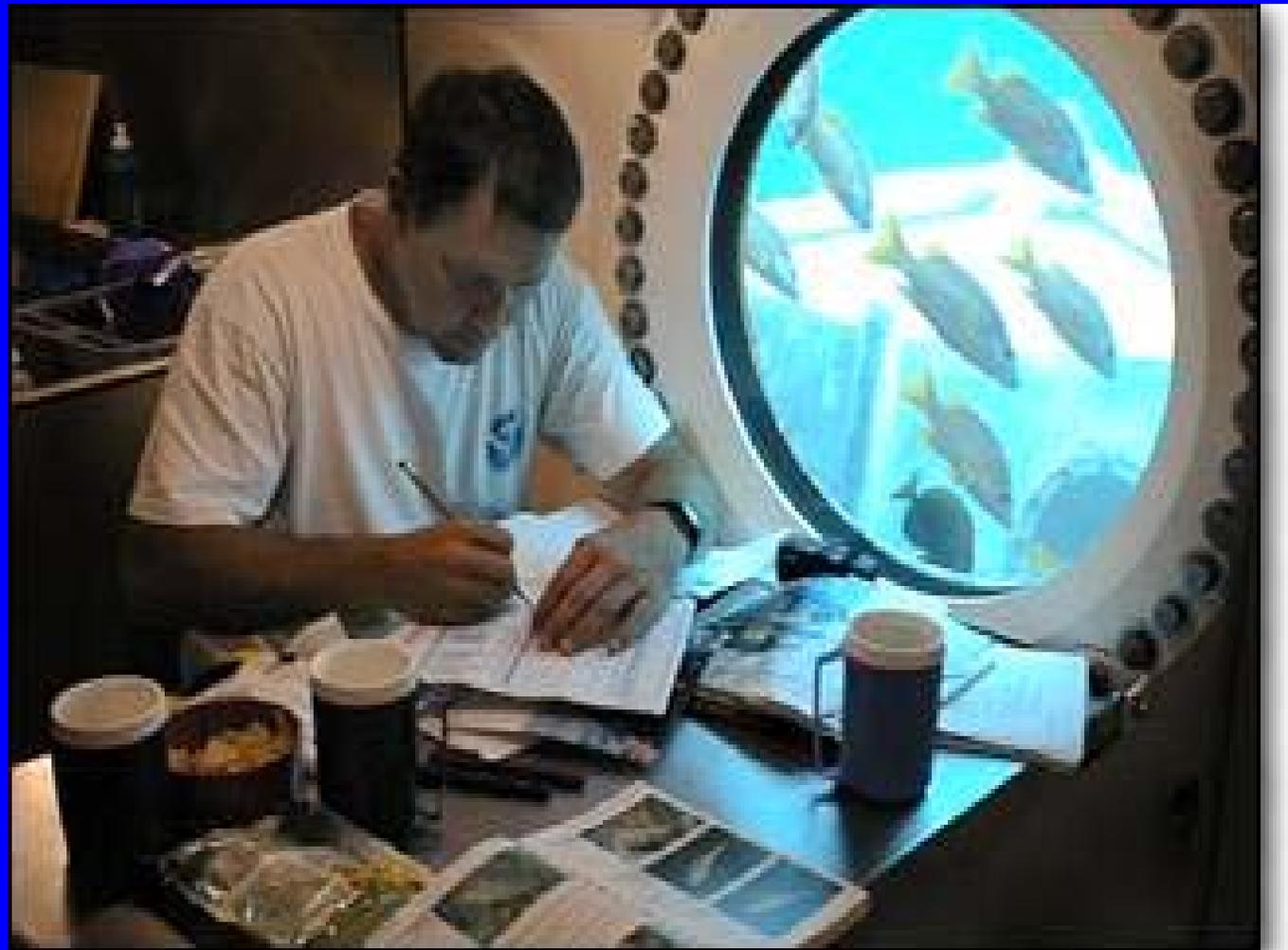




Main Lock



Galley Table and Large Viewport

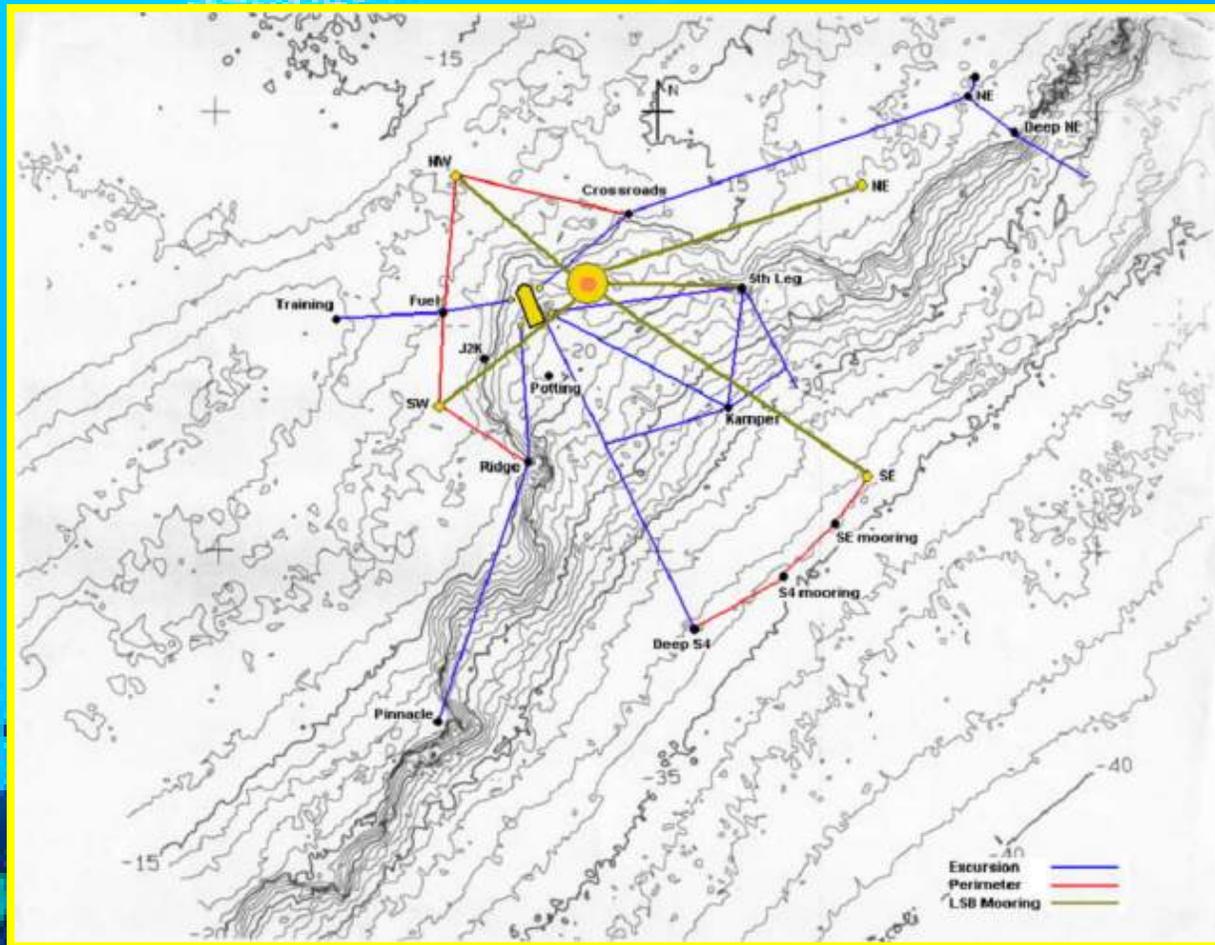


U.N.C. at Wilmington

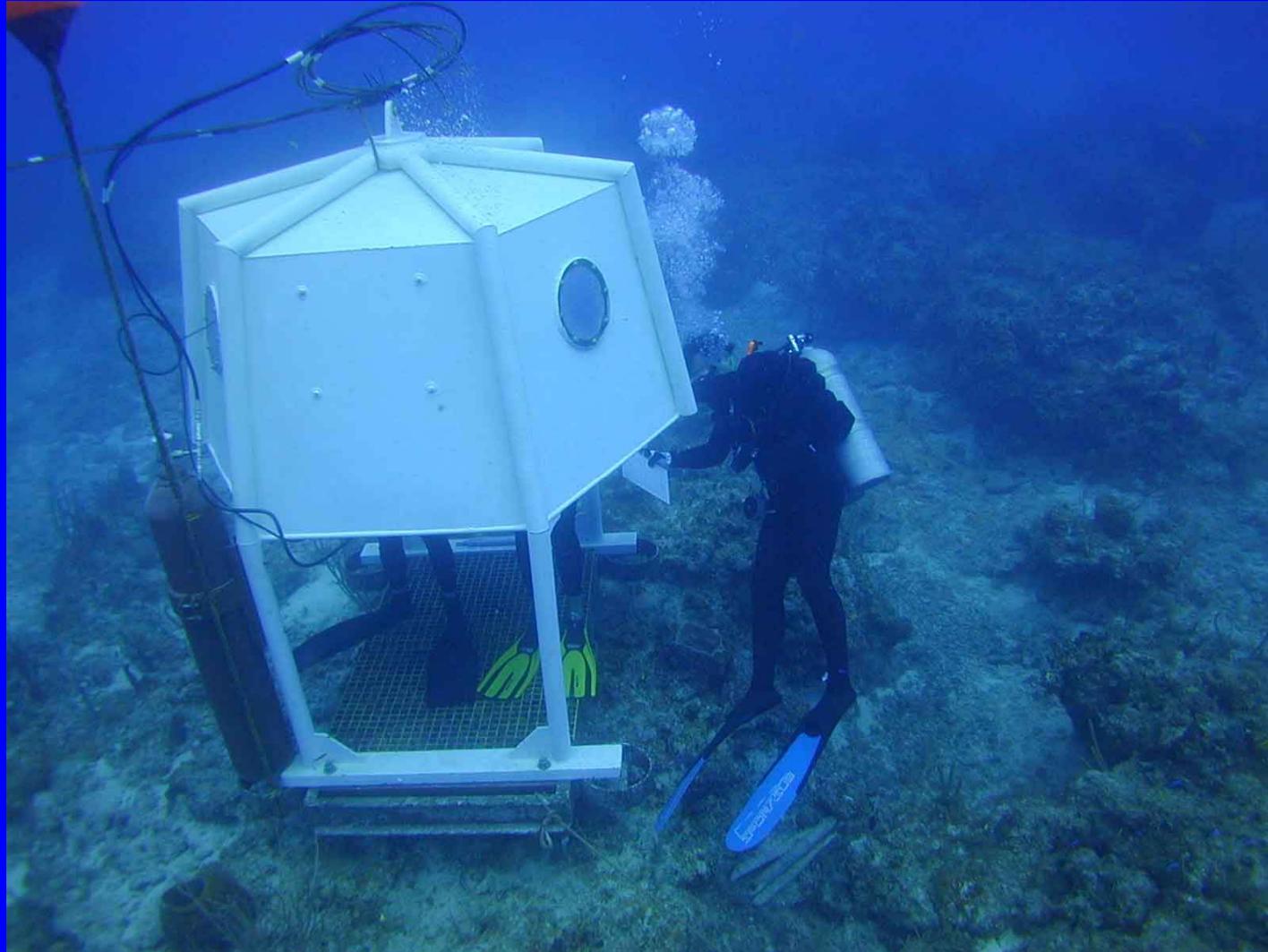
Galley and Berthing Area



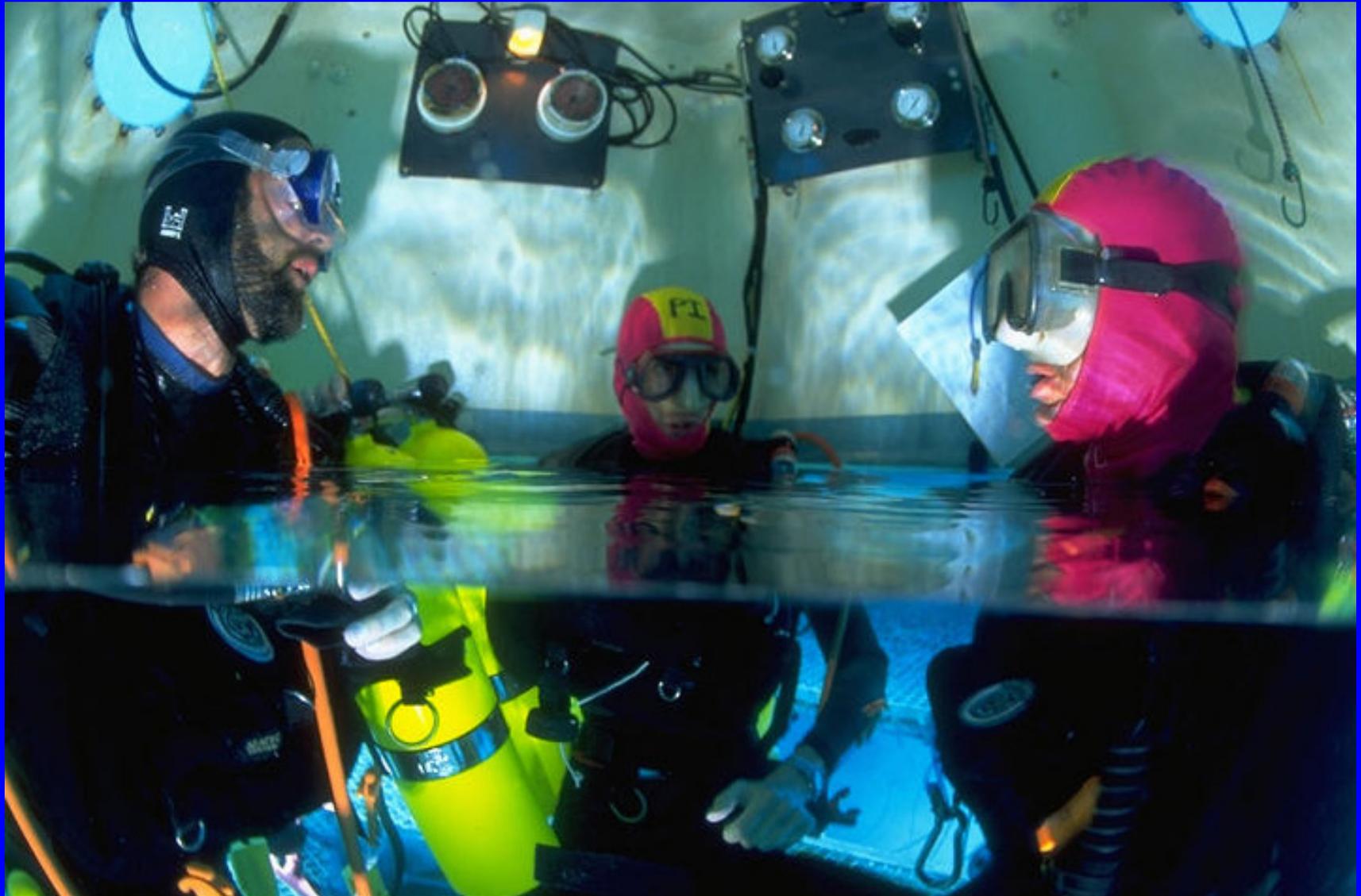
Early Morning Commute to the Reef



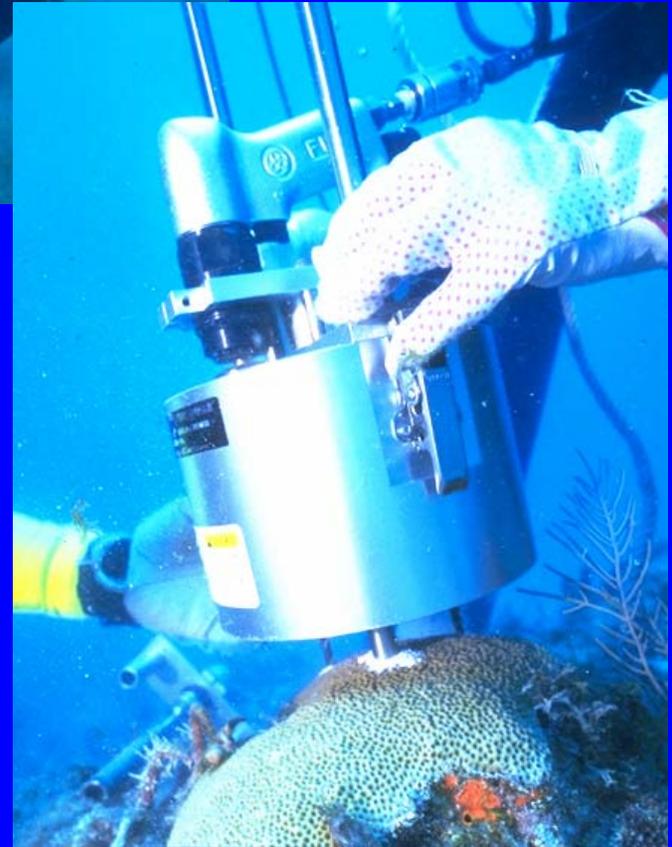
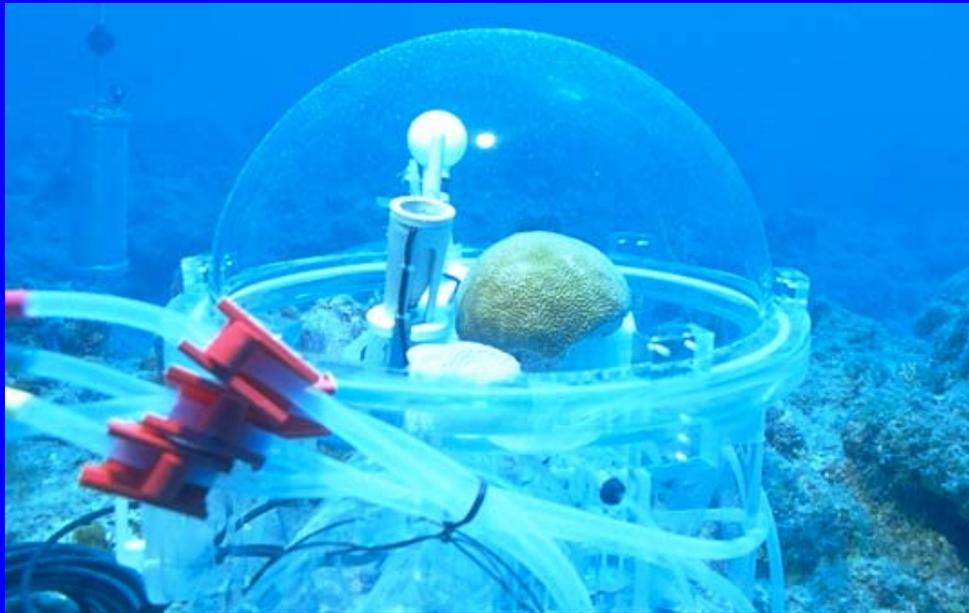
Underwater fill stations and communications



Underwater fill station



Scientists at work

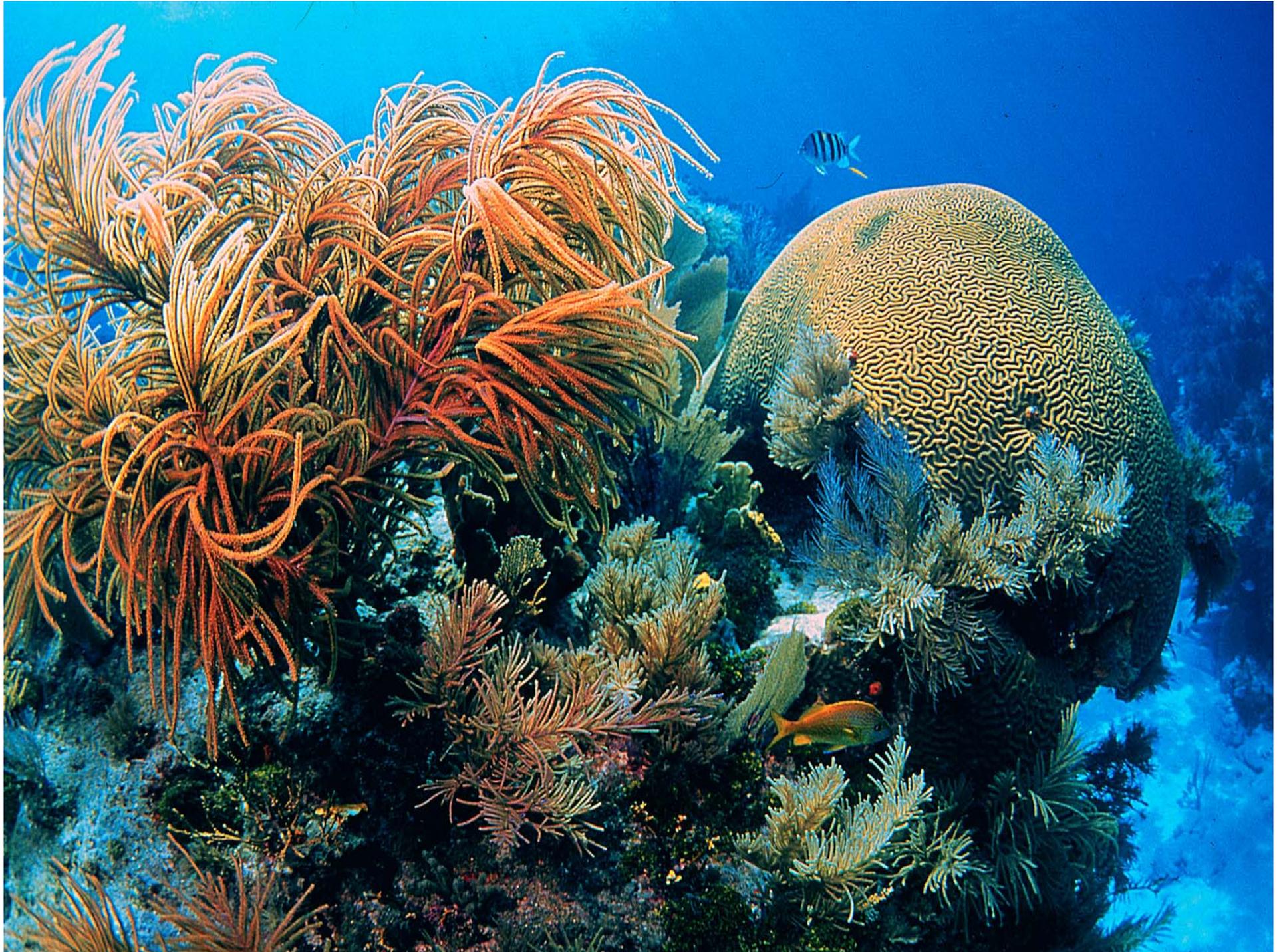


Science Achievements: Value of Research to FKNMS

- **Determined patterns of nutrient input throughout Keys using instruments and indicator organisms**
- **Detected pollution from septic systems and injection wells**
- **Distribution, abundance, and potential causes of coral diseases**
- **Long-term underwater uv monitoring program**
- **Discovery of benthic foram bleaching**
- **Coral and sponge biology: feeding, growth, and reproductive studies**
- **Long-term monitoring of coral reef condition and fisheries in MPAs**

Education and Outreach

- **Aquarius presentations to schools, museums, and aquariums: Education Coordinator, NASA**
- **TV - National Geographic, Discovery Channel, ABC News 20/20, NBC Today Show, CNN, Learning Channel**
- **Print - Scientific American, National Geographic Magazine, Weekly Reader, LA Times, and much more**





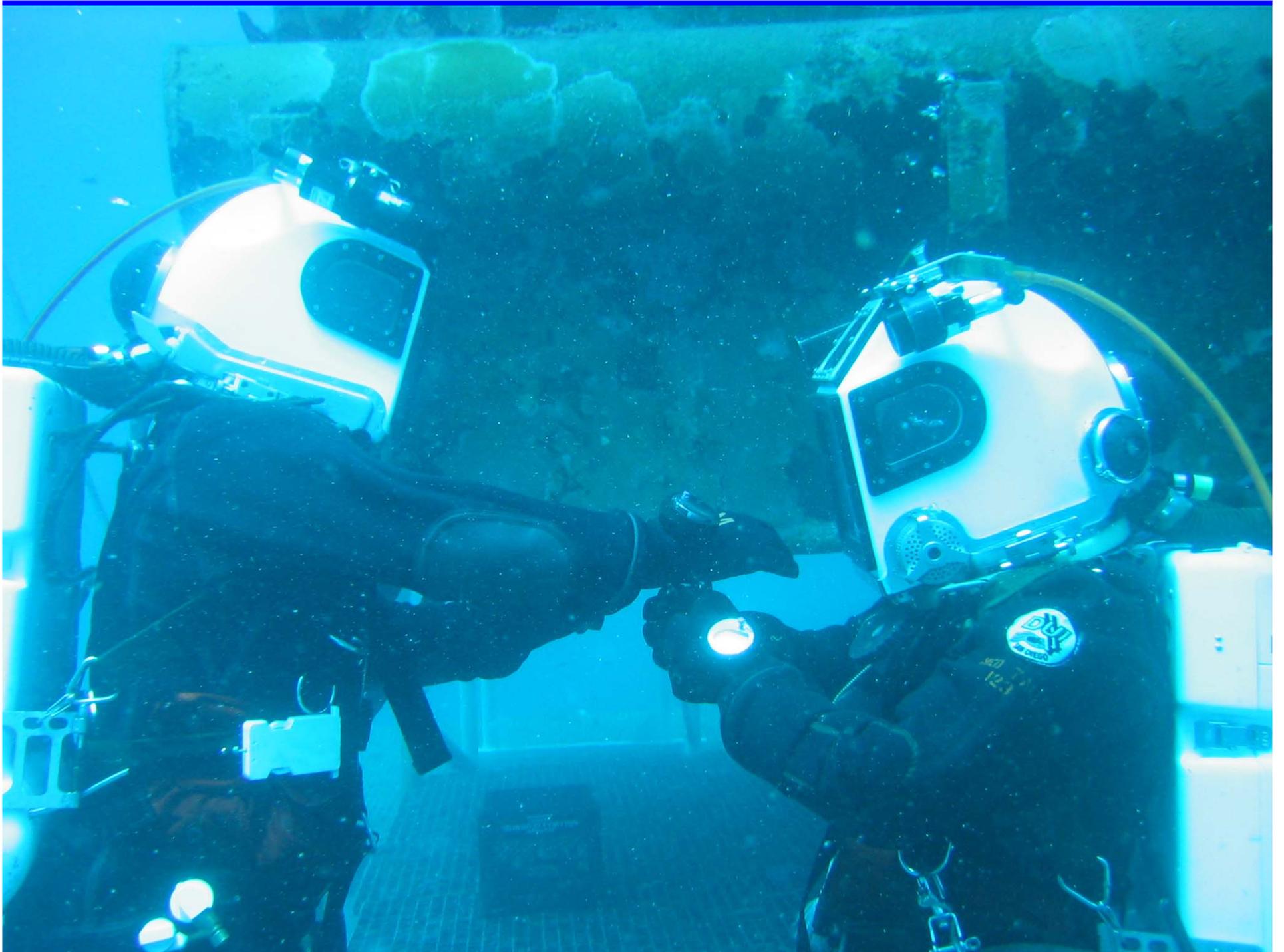














September 11, 2001

