



# NOAA's Undersea Research Program

*Leader in Underwater Research*



Kraken II Remotely Operated Vehicle (ROV)



PISCES V deep-diving submersible



NURP research helps manage Hawaiian snapper resource



Aquarius, the world's only underwater laboratory

## What does NOAA's Undersea Research Program do for the nation?

NOAA's Undersea Research Program (NURP) performs research and service for the nation by providing undersea scientists with the tools and expertise they need to work in the undersea environment. NURP works with scientists to use submersibles, remotely operated or autonomous underwater vehicles, mixed gas diving gear, underwater laboratories and observatories, and other cutting edge technologies. NURP's research programs cover a range of undersea environments from the shoreline to the deep sea and include nearly all scientific disciplines.

NURP is headquartered in NOAA's Office of Oceanic and Atmospheric Research (OAR) in Silver Spring, MD, with regional centers around the nation. NURP provides extramural grants through its regional centers to both the federal and non-federal research community. Highest priority is given to studies in waters under the jurisdiction of the United States and adjacent waters, including the Great Lakes. The regional centers annually support over one hundred undersea research projects that focus on NOAA's mission as steward of ocean resources and environments.

NURP's research is mission related. The program provides:

1. Tools for undersea research, including submersibles, ROVs, diving technologies;
2. Research funding and leadership (operations management and expertise); and,
3. Service to NOAA programs, including safety protocols & standards, support for non-research tasks, and a process for peer review and selection of projects.

## Recent Accomplishments

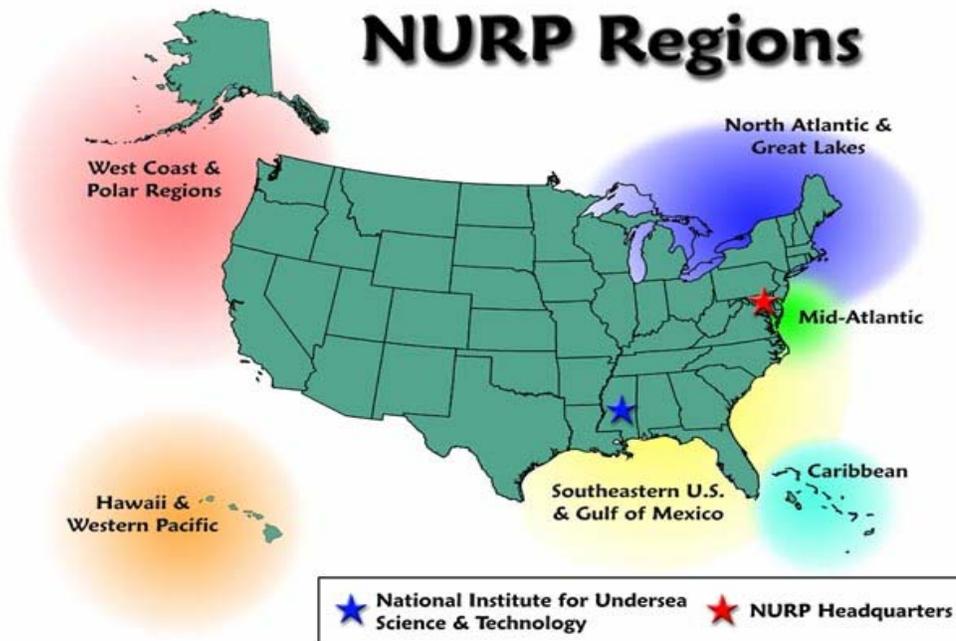
- **Research on the effects of trawling on seafloor habitats.** *Payoffs: Areas currently closed to fishing provide an opportunity to assess recovery rates in a range of habitats and oceanographic conditions; providing information on appropriate timing of reopening the closure areas.*
- **Research on factors affecting coral health.** *Payoffs: Maintaining the health of corals and preventing damage to coral reefs are national goals. Healthy coral ecosystems support commercial and recreational activities that are worth over one billion dollars annually.*
- **Research on frozen methane hydrates.** *Payoffs: Hydrates may hold more than 1,000 times more energy than all estimated oil and gas sources combined. NURP has supported numerous submersible cruises in the Gulf of Mexico to study hydrates, their unique environments and the ecosystems associated with them.*
- **Research on fish stocks: Effects of coral harvesting, protected refugia, and in-situ methods of stock assessment.** *Payoffs: NURP research helps protect habitats, provide sustainable fisheries, and understand ecosystem relationships.*
- **Operation of Aquarius, the world's only underwater laboratory.** *Payoffs: NURP provides the ability to study shallow (50-100 ft.) environments for extended periods in real time. Coral ecosystems are a principal research subject.*

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## What's Next for NURP?

Challenges in the next five to 10 years:

- Improve understanding of undersea ecosystems:
  - Investigate new bio-networks; deep sea coral, vent systems
  - Support NMFS in advancing the science basis to maintain healthy fish stocks and rebuild protected species.
  - Support NOS to improve knowledge within the National Marine Sanctuary system.
- Explore and discover new resources, including biomedical substances.
- Investigate and describe the contributions of seafloor methane hydrates to climate.
- Develop advanced technologies to support exploration and research in the undersea environment.



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### Hawaii & the Western Pacific Center

University of Hawaii - Manoa  
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### Caribbean Center

Caribbean Marine Research Center  
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University of Connecticut--Avery Point  
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### Mid-Atlantic Center

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