PART VII
National Programs and Policies
The National Undersea Research Program

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ABSTRACT

Background information on the National Undersea Research Program will be presented on those projects carried out by the University of Connecticut. Accumulation and availability of undersea research information and its video documentation as a function of the National Undersea Research Program will be discussed.

In 1986, the Undersea Research Study Panel recommended that NOAA aggressively accept its mandated ocean charter, established in 1979 by Presidential Order No. 4, and provide national leadership in ocean research and technology development. This panel also recommended that NOAA assume responsibility for implementing a focused National Undersea Science Program. In response to these recommendations, NOAA's Office of Undersea Research (OUR) developed the National Undersea Research Program (NURP). The Program at the University of Connecticut's Avery Point campus, begun in 1983, is the youngest of the four NURPs, as they are commonly referred to. Other NURP facilities are:

1. University of Hawaii
   Hawaii Undersea Research Laboratory
   Honolulu, Hawaii
   Area of research: The Hawaiian archipelago
   and the tropical Pacific.

2. University of North Carolina
   Southeastern Undersea Research Facility
   Wilmington, N.C.
   Area of research: The East Coast of the U.S.
   from southern New Jersey into the Gulf of Mexico.

3. Fairleigh Dickinson University
   Caribbean Regional Hydrolab Program
   West Indies Lab
   St. Croix, U.S. Virgin Islands
   Area of research: The Caribbean basin,
   using mobile habitat.

For an outline of the research of these institutions, see the appendix.

Each of these regions is responsible for its specific geographical areas and is unique in the extensive use of manned submersibles, remotely operated vehicles (ROVs), manned diving systems and underwater habitats. This state-of-the-art technology places diver scientists directly at the site of investigation instead of using the traditional methods of lowering nets and instruments blindly into the depths. They can collect samples in a very delicate and precise manner, place monitoring and sensing instruments at specific locations, video-document all processes and, most important, assess the study site and make informed decisions on present and future study procedures.
The University of Connecticut's program, NURP-UCAP, is responsible for three geographic regions:

Region I: The Gulf of Maine, Georges Bank, and the Georges Bank submarine canyons, as well as the East Coast of the U.S. to southern New Jersey.

Region II: Continental shelf of southern New England, including Long Island Sound and Rhode Island Sound.

Region III: The Laurentian Great Lakes (Superior, Michigan, Huron, Erie and Ontario).

Research supported by the NURP Program at Avery Point in these three regions falls into three general categories:

1. Environmental health

   Understanding the biological, chemical and geochemical processes of the aquatic environment as a means of dealing with problems stemming from such things as pollution, acid rain, impact of mobile fishing gear on sensitive aquatic habitats, and naturally occurring environmental stress such as hurricanes.

2. Fisheries assessment

   Direct assessment of fishery populations result in the collection of numerous samples, photographs, observations and video records that accurately define the ecology of a community of plants and animals in a given study area. This type of information is often used to predict the success or failure of a given fishery. It may also be used to familiarize researchers with an area where they are planning a research project.

3. Research and development of underwater robots

   NURP-UCAP has been designated as the "Test and Evaluation Center for Low-Cost ROVs." Capable of operating to the depth of several thousand feet and staying submerged for many hours, ROVs important adjunct to the manned submersible. They are particularly useful in their ability to video document, sample and maneuver over rugged bottom terrain and in relatively strong currents. Two ROVs, Mini-Rover and Super Phantom, are currently based at the Avery Point marine campus.

   In addition to its other areas of research, NURP-UCAP also takes part in the "Large Lakes of the World Initiative." These "Large Lakes," holding much of the world's liquid fresh water, range from ice-clad basins in the Canadian Arctic to warm, deep and ancient lakes of the East African rift. Exploration of these "Large Lakes" requires oceanographic technique, but many are inaccessible to surface research vessels. ROVs and small manned submersibles have proven to be the solution to this problem.

   In late 1987, NURP-UCAP organized a scientific expedition to Lakes Victoria and Malawi in southeast Africa and to Lake Kinneret (Sea of Galilee) in Israel. Workshops, seminars and diving operations were conducted by American divers scientists to train African and Israeli scientists in state-of-the-art scientific diving procedures. Species evaluation extinction, metal sulfides and the "Killer Lakes" phenomenon will be some of the research areas to be considered.

   Access to the videotapes, logbooks and research results of these and other NURP cruises can provide a wealth of information to other scientists. Videotapes can be used to familiarize a researcher with the terrain, flora and fauna of the area he wishes to study. These tapes are also very useful in the writing of proposals, as they document the work already done, and can vividly illustrate areas for further research.
They also provide the scientist with a first-hand observation of the research methods used in a particular study. Logbooks provide a detailed record of research carried out on a particular cruise, but the use of these records at the present time is do-able rather than feasible. Information gathered on NURP expeditions is available to interested parties after the individuals involved in the research have had a chance to publish their results--approximately one year in most cases. There is no written policy as to access, and after the appropriate time has passed, research information becomes available without copyright considerations.

Unfortunately, no provision for archiving was made in the NOAA proposal establishing the NURP. Of the four NURP facilities, the University of Hawaii, alone, archives its cruise videotapes, logbooks and research material and retains a professional archivist/librarian to provide access to their material. Other NURP facilities maintain files of their videotapes as well as logbooks. Inquiries for specific research data are referred to the individual researcher.

At this time, there is a proposal submitted to NURP-UCAP for the development of a database that is accessible by location, flora, fauna, transect, etc. There is also a growing recognition of the need for a centralized database to integrate and access all NURP information. Until these databases are in place, information on the videotapes, submersibles and other NURP research can be obtained by contacting the responsible NURP facility.

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