

Meetings

The Sea and Its Resources

The oceans are increasingly significant to the affairs of man. It is now essential that the expertise of the marine scientist be augmented by that of the lawyer, the resource economist, the astute international negotiator, and the well-informed administrator and politician. The symposium held in Mexico City on 25 through 28 June as part of the AAAS/CONACYT Conference was devoted to discussions of today's major problems in the study of marine environments and international affairs. Entitled *The Sea and Its Resources*, the sessions brought together a group of experts on many phases of this rather broad topic.

Coastal zone resources were the subject of the first session. Of greatest interest to the audience, as evidenced by their questions, was the problem of the extent and type of control of the coastal state (nation) on its offshore waters. Opinions ranged from that of Eduardo Ferrero (substituting for Herman Ugarte of Peru) who made an impassioned defense of Peru's 200-mile (1 mile = 1.6 km) limit to Warren Wooster's expressed wish to retain as much as possible of the high seas for what he called "the common heritage of mankind." In a lively discussion, Ferrero disclaimed the common heritage concept, stating that all nations do not now have the capability to explore and exploit the resources of the deep sea. Thus, he said, the so-called common heritage in reality belongs only to the more developed nations. Fred Phleger (United States) called for concerted efforts to develop a better understanding of coastal zone processes through the education and training of more people to work on coastal zone problems.

Less controversial was the session on ocean effects on weather and climate. The importance of the coupling of the

ocean and atmosphere has only recently been fully appreciated, and oceanographic and meteorological research must go hand in hand in the future. Close cooperation between scientists of the two disciplines, the formation of air-sea interaction research laboratories, and cooperative international interdisciplinary projects such as the GARP Atlantic Tropical Experiment (GATE), which is a multinational experiment scheduled for 1974, will all assist in resolving this problem.

The problem of nonrenewable ocean resources was stressed in a group of talks whose topics ranged from general overviews, scientific research, sea-bed minerals, oil and gas, and exploration of the deep sea to engineering and the technology of recovery. The deep sea is becoming increasingly attractive not only for its potential solid mineral content, but also because of the possibility that the deep continental margin and continental rise areas contain hydrocarbons. There were repeated references to the need for the formation of educated cadres of marine scientists and administrators for the management of marine resources.

The group as a whole expressed considerable interest in the administrative aspects of nonrenewable resources and their recovery. This interest centered around the problems of legal ownership or jurisdictional control of nonrenewable resources and their recovery, management structures or regulatory agencies on both national and international scales, and whether or not a nation could or should develop exploitation capability.

Problems relating to legal jurisdiction and international cooperation in the development of marine resources and the facilitation of marine research were further discussed in sessions devoted to ocean affairs. Opinions at these sessions were anything but in agreement. Speakers from the United States

unanimously pressed for no restrictions—or at most minimum restrictions—on oceanographic research outside the narrowly defined territorial sea; whereas Jorge Vargas (Mexico) drew sustained applause following his defense of Mexico's right to impose restrictions on any research activities in what may become a Mexican patrimonial sea. He suggested some sort of regional order for a legal framework within which research at sea could be regulated and felt that the United States should see that the results of marine research get back to the developing countries. John Knauss (United States) reiterated his earlier stand as well as the earlier statements of Warren Wooster (United States) and Harris Stewart (United States) that coastal state restrictions on marine research outside territorial seas should be minimal and that no "permit" should be required.

Also discussed during the session on ocean affairs was the need for international programs. Participants stressed that international education and training at sea—as during the Cooperative Investigation of the Caribbean and Adjacent Regions (CICAR)—National Oceanic and Atmospheric Administration (NOAA)—Carib cruise last fall—is to be encouraged. There appears to be more effective international cooperation in marine science in the Caribbean than many are aware of. For example, the CICAR project under Unesco and various Food and Agriculture Organization and bilateral projects should be recognized.

The meetings were well attended, and an encouragingly large percentage of the audience was made up of Mexican students. Papers in general were not the more usual presentation of recent scientific results, but rather addressed themselves to today's major problem areas in the marine environment.

Today's concerned oceanographer must be more than just a prober of the secrets of the global sea. He must add to his professional mission the need to convey his knowledge to those "land people" on whom has devolved the responsibility of making the decisions on which will depend the ability of future generations to utilize effectively the sea and its resources.

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