



CARIBBEAN-ADJACENT REGIONS BIBLIOGRAPHY AVAILABLE

As part of its contribution to Cooperative Investigation of the Caribbean and Adjacent Regions (CICAR) the National Oceanographic Data Center sponsored preparation of Volume I of CICAR Bibliography on Meteorology, Climatology, and Physical Chemical Oceanography. This volume contains more than 3,000 references (2,000 with abstracts) on these subjects in Caribbean Sea, Gulf of Mexico, Greater and Lesser Antilles Regions, and adjacent coastal areas of North Central and South America. Subject, geographical, and author indexes are included.

How Much & Where

Volume I was prepared by American Meteorological Society from their files in Meteorological and Geoastraphysical Abstracts Office, and from Government library files in Washington, D.C., area.

The Bibliography costs \$7; the indexes to Bibliography are \$6 a copy; the complete set is \$13. Write to: National Oceanographic Data Center, Department of Commerce, NOAA, EDS, Rockville, Md. 20852.

OCEANOGRAPHY

"Marine Atlas of the Pacific Coastal Waters of South America," by Merritt R. Stevenson, Oscar Gullén G., and José Santoro de Ycaza, 20 p. and 99 charts, \$40. University of California Press, 2223 Fulton St., Berkeley, Calif. 94720.

The atlas resulted from a 2½-year international cooperative study "to determine seasonal variations of selected properties and

of surface circulation in the Pacific coastal waters of South America." The data were gathered quarterly by scientists from Colombia, Ecuador, Peru, Chile, and the Inter-American Tropical Tuna Commission (IATTC).

During field operations, IATTC was data-clearing center for participants and helped process data by computer.

The investigation was begun "to learn more about the occurrence of the El Niño (The Child) condition. . . . El Niño occurs irregularly; it may appear 2 years in succession and then may not appear for a number of years."

INTERNATIONAL LAW

"International Law and the Resources of the Sea," by Juraj Andrassy, 191 p., maps, \$7.50. Columbia University Press, 440 West 110th St., New York, N. Y. 10025.

The legal status of the ocean bed transcends legal interest. It could affect world's economic balance and structure of international relations. The basic issue is between preserving at least the most important aspects of freedom of the seas--and the taking of the ocean bed by nations and its exploitation by competing economic interests. This would diminish freedom of navigation and fisheries, and multiply dangers of polluting the oceans.

The book has 3 parts: The first deals with the natural and technological factors that caused the current problems. The second is concerned principally with "the evolution of the continental shelf as a legal concept." The last discusses legal solutions.

MARINE EXPLORATIONS

"Man and the Sea: Classic Accounts of Marine Explorations," edited by Bernard L. Gordon, 498 pp., \$9.95, 1970. Doubleday & Company, Inc., 277 Park Avenue, New York, N.Y. 10017.

"This book has been prepared to give students of marine science historical and contemporary insights into the growth and development of oceanography," Prof. Gordon writes.

He has selected the writings of marine explorers through history: from the past, such men as Franklin, Halley, and Agassiz; from the present, accounts of such explorers as Cousteau, Piccard, and Carpenter.

The book contains 71 selections, starting with "The Flood" in the Book of Genesis and reaching to "The Promise of Seaweed," written in 1969.

SMALL-CRAFT NAUTICAL CHARTS COMPLETE COVERAGE OF TEXAS COAST

Commerce Department's National Oceanic and Atmospheric Administration (NOAA) has announced completion of small-craft nautical-chart coverage of the entire 334-mile Texas coast from Galveston to Brownsville with publication of two new charts--892-SC and 893-SC. The charts are being issued by NOAA's National Ocean Survey (formerly Coast and Geodetic Survey and U.S. Lake Survey).

What They Cover

Small-craft Chart 892-SC covers the Texas Intracoastal Waterway from Carlos Bay to Redfish Bay. It includes for first time coverage of Copano Bay. Chart 893-SC covers the Waterway from Redfish Bay to Middle Ground. It includes for first time coverage of entire Baffin Bay area.

Where to Get Them

The new charts cancel Conventional Charts 892 and 893. They can be purchased for \$1.50 each from National Ocean Survey chart agents, or from National Ocean Survey, Distribution Division (C-44), Washington, D.C. 20235.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE FROM PUBLICATIONS SERVICES UNIT, NMFS, 1801 N. MOORE ST., ARLINGTON, VIRGINIA 22209:

LAKE MICHIGAN

"Physical and Ecological Effects of Waste Heat on Lake Michigan," 101 p. Prepared by Great Lakes Fishery Laboratory, NMFS, Ann Arbor, Michigan, in cooperation with Bureau of Sport Fisheries and Wildlife and Federal Water Quality Administration. Fish and Wildlife Service, Sept. 1970.

"There is reason for concern about potential serious ecological damage to Lake Michigan as a result of the discharge of industrial and municipal waste heat," the report states. By year 2000, the waste heat load at predicted rate of increase would be 10 times today's load. The power industry would be responsible for most of it. There is no sign that the rate of increase in required power capacity, which has been doubling each decade, will diminish.

Not enough is known about ecological effects of "massive heated effluents." The information needed now is not available, so interim standards must be set for Lake Michigan based on present knowledge.

"The purpose of the present report is to present the available evidence that substantiates this concern. The evidence reasonably demonstrates that heat addition, as presently proposed, is an essentially cumulative problem that would contribute to inshore eutrophication and be intolerable from the fish and wildlife standpoint by year 2000."

It is in public interest to stop this process now. The Department of the Interior supports stringent standards for Lake Michigan. It believes no "significant amounts" of waste heat should be discharged into the lake.

NEW YORK BIGHT

"Evaluation of Influence of Dumping in the New York Bight with A Brief Review of General Ocean Pollution Problems," 65 p., plus 3 appendices, June 1970.

In Feb. 1970, Interior Department appointed an Ad Hoc Committee "to review the practice of ocean disposal in the New York Bight and to make appropriate recommendations." Committee chairman was Dr. Roland F. Smith, Assistant Director for Marine Resources, National Marine Fisheries Service.

The Committee's findings, verbatim, were:

1. The New York Harbor Complex must rank as one of the largest grossly polluted areas in the United States.
2. The major sources of pollution in the New York Bight . . . are (1) sewer and industrial outfalls, (2) ocean disposal of sewage sludge and dredge spoil, (3) river discharge and land runoff, (4) wastes from vessels, (5) accidental spills, and (6) harbor debris.
3. No significant improvement in the water quality in the New York Bight can be expected until the mid-70's. Complete secondary treatment is not scheduled for New York City and Passaic Valley Sanitation Commission until 1976. Additional pollution treatment facilities in up-river and shoreline communities will not be completed until the mid-70's. Vessel pollution should be significantly reduced under the provisions of the Water Quality Improvement Act of 1970.
4. Even with completion of all currently proposed pollution abatement programs, conditions in the New York Bight will fall short of what must be the ultimate goal of protecting coastal ocean environments from serious degradation.
5. There will be increased pressure for more ocean disposal of sewage sludge and dredge materials in the New York Bight. This will raise to a potentially critical level the threat of pollution to land and surrounding ocean.
6. The projected increase in pollution from ocean disposal practices calls for stricter control of future ocean disposal practices in the New York Bight.

7. The major threat to full enjoyment of the proposed Gateway National Recreation Area and other beaches in the New York Bight is pollution. To date, however, there has not been demonstrated any connection between present ocean dumping practices and water pollution at any of the proposed Gateway sites.

8. The present ocean disposal of sewage sludge and dredge fill may be a serious threat to the sanitary quality of local populations of ocean quahogs and surf clams (4-10 mile radius).

9. Accumulation by fish and shellfish of heavy metals and other persistent toxic compounds is another potential health hazard in the New York Bight. This threat appears to be most serious from the sludge disposal areas.

10. Ocean disposal of sludge and dredge spoil materials, along with pollution from other sources, offer a potential threat to local fish populations.

11. There is a need for one agency to accumulate all pertinent water pollution data in the New York Bight.

12. The fundamental problems associated with pollution abatement and control are institutional--economic, legal, social, etc. The fact of the matter is that technology is available for cleaning up the New York Bight.

13. Known alternatives to present ocean disposal practices will cost substantially more. Further studies are needed to detail more clearly the relative advantages, operational costs, and potential environmental problems of each alternative. Substantial alterations in consumer habits and existing institutions also will be required.

Ocean Pollution

1. Ocean pollution is the unfavorable alteration of the marine environment, wholly or largely as a by-product of man's actions, through direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitution, and distribution, abundance, and quality of organisms. These changes may affect man directly or indirectly through his supplies of food and other products, his physical objects or possessions, and his opportunities for recreation and appreciation of nature.

2. The problem of ocean pollution is part of the total problem of waste disposal with all its social, political, economic, and legal constraints. Any workable solution to controlling ocean pollution must consider the total problem.

3. Controlled ocean disposal of wastes is a legitimate use of the sea. However, the effects of various types of ocean disposal must be carefully considered.

4. The high seas have a limited capacity to assimilate certain biologically active waste products; coastal areas have a limited capacity to receive any waste material.

5. The ultimate goal of disposal programs must be to allow into the ocean only that which can contribute to improving the ocean environment, that which is essentially inert, or that which can be assimilated without adverse effects.

6. The disposal of all types of wastes into the ocean is projected to increase substantially in this decade unless adequate controls are initiated.

7. Unless reversed, this trend portends serious health hazards and threatens fishery resources and the marine environment in a number of localities. Unfortunately, the extent and magnitude of these dangers are not well understood nor adequately documented.

8. The extent of specific Federal authority to enforce waste disposal regulations and ocean pollution beyond the territorial sea (generally 3 miles) needs to be clarified.

9. At present, no Federal agency has authority to develop water quality standards beyond the territorial sea.

10. Action by regional, State, and local governmental bodies to control ocean disposal of wastes is not generally adequate, stressing the need for more appropriate support and guidelines at the Federal level.

11. Present and projected demands upon our natural resources call for substantial emphasis on ways of reusing, recycling, and reclaiming materials which are now considered waste. Legislation to encourage this is needed.

12. Without proper consideration of legal, economic, and other institutional constraints, pollution and deterioration of coastal waters and even the high seas can be expected to increase.

14. Aside from physical and aesthetic aspects of pollution, most other major deleterious effects are toxicological. These present an array of complex environmental problems affecting man and marine organisms and operating essentially at the cellular level.

14. Opportunities for interagency cooperative programs are not being exploited adequately. Substantial data and expertise existing in any given agency are, for a variety of reasons, not always used by another agency.

15. Research by Federal agencies on problems of ocean disposal and ocean pollution is not generally duplicative; on the contrary, there are many areas which are not receiving enough attention, or are receiving no attention at all. They include:

a. Detailed knowledge of coastal circulation and ecology

b. Understanding of economic and social aspects of ocean pollution

c. Ecological and oceanographic data bases

d. Inventory of what is being, and what has been, dumped and their effects

e. A knowledge of extractable materials in the wastes that can benefit fish and shellfish production

f. The fate of pathogenic organisms in marine waters

16. The Committee developed interim guidelines for the Corps of Engineers.

Recommendations

The Committee states that "recommendations do not solve problems" -- but recommendations "can serve as a starting point for planning and organization" by government agencies concerned. The Committee recommended policies and activities that would make significant contributions toward abating the problems.

