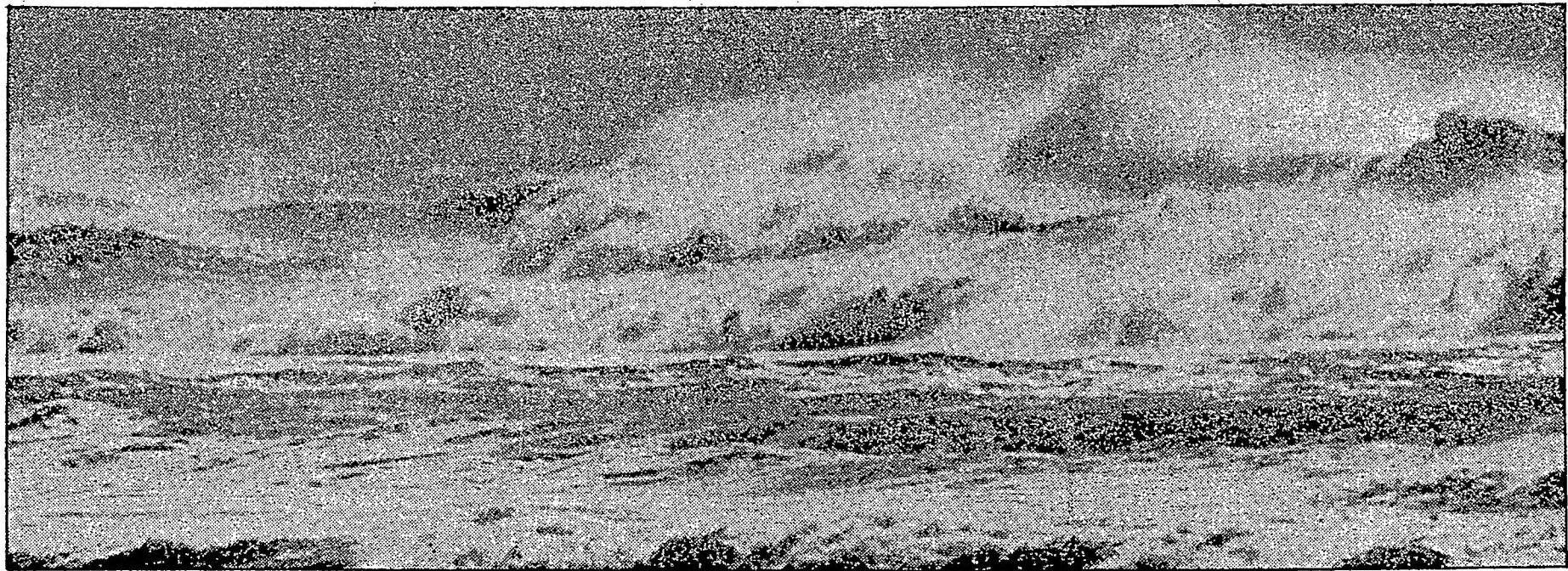


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# The Cleansing of the Oceans

BY BAYARD WEBSTER

**T**he world's oceans, believed by many to be in danger of becoming sinks for man's pollutants, are able to assimilate the toxic substances in most areas and remain in relatively stable condition, an extensive international scientific study has determined.

Although many shore areas are heavily polluted and are still a health problem, the study found that the levels of most toxic substances in such coastal waters, as well as in the less polluted open sea, have decreased in the last decade.

The decrease, the study indicated, is a result of environmental laws of industrialized countries that now restrict the production and distribution of many toxic substances, such as DDT and polychlorinated biphenyls (known as PCBs), as well as other chlorinated hydrocarbons and harmful metals.

The four-year survey, released early in November, was mandated by the United Nations Conference on the Human Environment in Stockholm in 1972, which found a need for research on how man-made pollutants were affecting the oceans. The study, entitled "The Health of the Oceans," was conducted by the Regional Seas Program of the United Nations Environmental Program with the help of seven other international bodies and nearly 100 scientists from three dozen countries.

"We all feel that the ocean is healthier in 1982 than it was in 1972," said Dr. George Harvey, a chemical oceanographer with the National Oceanic and Atmospheric Administration in Miami, who conducted many marine research experiments for the study.

"In the '70s we could easily measure concentrations of PCBs in the open ocean, but now they're barely measurable," he said in an interview. "It seems the ocean is more resilient and able to protect itself than we had thought."

Harvey noted that the amount of lead in the

oceans was decreasing. "That's because of the restrictions on the amount of leaded gas that's used now," he said, pointing out that many of the toxic metals such as mercury, lead, copper, cadmium and zinc, along with chemical pollutants, were transferred from the air to the oceans. Acid rain also plays a part by dropping sulfur and nitrogen oxides into the seas, he added.

"But since the Northern Hemisphere has begun an effort to clean up the air and water somewhat," he said, "the results are beginning to show in the oceans. And, oddly enough, the concern is now in the Southern Hemisphere."

The reason, he said, is that the poisonous chemicals many industrial nations have stopped using are now being used in the underdeveloped countries.

In a statement from Geneva accompanying the 108-page U.N. report, Dr. Stjepan Keckes, head of the United Nations' Regional Seas Program, said

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### ***There was no evidence that oil alone could threaten the survival of bird species***

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the study showed that the growing amount of waste dumped into the oceans had still not had any significant effect on the health of the high seas, the large ocean areas that are several hundred miles from the nearest shore.

In their studies of scores of Atlantic and Pacific Ocean coastal areas, the researchers found that the effects of such effluents as sewage, food and beverage processing wastes, pulp and paper mill effluents, mine tailings and dredge spoils were mostly local.

The impact varied from one part of the coastal zone to another, depending on the type and volume of wastes and the movement pattern of the water along the shoreline. The report pointed out that sewage discharges presented a direct risk of infection to humans on some beaches, and that discharges on or near shellfish beds presented a

greater risk to human health through the consumption of contaminated seafood.

But even in semi-enclosed bodies of water, such as the Mediterranean, Baltic and North Seas and the Gulf of Mexico, all of which receive substantial amounts of pollutants, the studies found that in the open areas the toxic substances had been assimilated or degraded enough to be rendered harmless.

Keckes noted that while much pollution was directly pumped or dumped into the coastal seas, a surprising amount entered in unexpected ways. He said these must be studied further so they could be controlled. He said that about half the oil entering the Mediterranean came from the land, and that "most of it is motor oil that was dumped somewhere and entered the sewage system."

Although the problem of oil pollution on the seas is a major one, the survey said that its impact depended on the type of oil and on a variety of physical, chemical and biological processes operating at the time of release. The survey found that oil spill effects on animal and plant communities in the open seas were "rarely drastic, and recovery is usually a question of weeks or months."

But in intertidal and subtidal areas, the impact of oil could be severe. Recovery could take years or decades, the report found, "particularly in the shoreline communities where oil penetrates the sediments." But the report said that although birds were particularly at risk, there was no evidence "that oil alone could threaten the survival of a species."

While the study assessed that the world's estimated 328 million cubic miles of ocean was not in jeopardy, it cited several general trends of increasing contamination that should serve as warning signals. The study named carbon dioxide, heavy metals, sewage micro-organisms, radioactive wastes and new chemicals. It also warned of the environmental dangers of extensive deep-sea mining.

The report urged the careful monitoring of such trends and the maintenance of programs regulating the entry of new contaminants into the oceans. ■ ■

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*Bayard Webster is a science reporter for The New York Times.*