

My second point is that these same estuarine areas are the part of the sea that is most vulnerable to pollution, and most frequently damaged by it. They are our most heavily used waters, and pollutants there cannot be dispersed and diluted as they can in open waters.

The most obvious value of unpolluted coastal waters is recreation. Swimmers, water-skiers and yachtsmen want clean water; duck hunters, fishermen, clambers and crabbers want productive waters. These are certainly important values for human enjoyment, and they support considerable economic values, like high-priced waterfront real estate development, marinas, bait & tackle shops and all the rest.

More important, we believe, is the value of the estuarine areas in producing food for mankind. Acre for acre, estuarine areas generally support far more life than the richest farmland. It has been estimated that *two-thirds* of the food that man takes from the sea depends, directly or indirectly, on these areas. Either the fish (or shellfish or crustacean) lives entirely in these shallow and protected waters—or it spends some part of its life cycle there—or it lives outside but feeds on marine life that comes from there.

On suburban Long Island, New York, an area I happen to be personally familiar with, the economic value of these marine-related recreational and commercial activities has been estimated at \$430-million a year. But conservationists believe there is more to be alarmed about than economic costs. We believe it is nothing less than a matter of human survival.

Hunger is already a way of life for a large part of the world's population, and by even the most conservative projections of population trends, the next decade will bring hundreds of millions more mouths to feed. Some say that only by scientific harvesting of food from the sea can we hope to stave off famine of the most frightful proportions. Certainly it is foolhardy, in terms of human existence, to let pollution erode away the richest food-producing areas of the sea.

The estuarine area is threatened all along the coast. In the big harbor cities, with large numbers of ships and boats on the water and with dense industrial and housing development along the waterfront, we have become accustomed to pollution. But with the phenomenal growth of pleasure craft in the past decade (there are some 8,000,000 of them now) and with our growing and affluent society searching out more and more waterside resorts, the flow of sewage and other pollutants is contaminating the little harbors and bays too.

Oil pollution is a particular menace to the estuarine areas. Oil spills at sea generally wash ashore with the wind and tide, and collect in the shallows and on beaches. A coating of oil left by the retreating tide can blanket plant life and shellfish on the bottom, and, floating on top, foul the feathers of the sea birds. Furthermore, detergents which have been used in many cases to clean up the oil have inflicted more damage to shellfish and other marine life than did the oil.

Estuarine areas, too, are often the victims of oil spills from waterside installations, where tankers and barges unload and tank-trucks load, and carelessness can cause pollution.

We are concerned about any discharge into the estuarine area that inhibits life there. This includes so-called "thermal pollution" that can occur when hot water from the cooling system of a power plant is poured into the bay, raising the temperature and affecting marine life. It includes the oxygen-reducing effects of undue amounts of fertilizer washing off fields into the water ways, or poisoning by the long-lasting types of chemical pesticides that wash off fields and orchards, or anything else that upsets the productive balance in these areas as well as the obviously destructive discharges of some industrial processes and health-menacing discharges of sewage. And of course, we are also concerned about pollution in rivers, lakes and other waters.

In this brief statement there is no room or detailed discussion of the pollution-control bills under your consideration. In general terms, the National Audubon Society supports legislation to force more responsibility upon oil carriers and shore installations; to support research—particularly on how to cope with oil spills on the high seas, a problem which we believe will continue to be more difficult than finding out how to contain and remove oil spilled on calm waters in harbors—and to aid and encourage state and local action to control pollution.

As the representative of a national conservation organization, I came here to stress those two points I made at the outset: that estuarine areas are a highly valuable resource and that they are particularly vulnerable to destruction from pollution. Particularly, I have emphasized the importance of this area in sup-