

The use of manatees for weed control has been suggested as a possible solution for plant-infested waters. The domestication of manatees for meat also has been suggested, but reduced populations and a low reproductive rate make this prospect unlikely.

California Pelicans Staging Comeback

California's only colony of brown pelicans (*Pelecanus occidentalis*), which appeared to be in serious trouble as recently as 1970, is apparently responding to efforts in its behalf. The Wildlife Management Institute reports that 305 brown pelicans were hatched at the colony in 1973, compared to 1 in 1970. The colony's nesting sites are located on West Anacapa Island, Santa Cruz Island, and other nearby islands generally south and southeast of Santa Barbara.

The nesting success is attributed to recent action by the National Park Service, closing West Anacapa to public access during mating season; diminished ocean pollution by DDT may also be a factor. The insecticide affects nesting success by reducing eggshell thickness.

200,000 Porpoises Killed Annually by Tuna Fishermen

Regulations that will determine the fate of more than 200,000 porpoises killed each year by tuna fishermen are currently being considered by the National Marine Fisheries Service (NMFS).

Since the 1960s, fishermen operating in the eastern Pacific have caught yellowfin tuna by fishing "on porpoise." This technique was developed because the tuna swim with schools of porpoises, mainly the spotted porpoise (*Stenella graffmani*) and the spinner porpoise (*S. longirostris*). Fishermen in motorboats herd hundreds of porpoises into a tight, circling school, then set a purse-seine net on the school, trapping porpoises and tuna alike. As the net is drawn together, the porpoises panic, tangle in the net, and drown. It is estimated that between 200,000 and 400,000 porpoises died this way annually from 1970 to 1972.

Despite the use of nets with "safety panels" for the porpoise and a method for allowing them to escape over the nets, approximately 200,000 of the animals were killed in 1973.

Bad weather conditions, poorly set nets, poorly trained operators, and old equipment have been blamed for the high casualty rate.

The Marine Mammal Protection Act of 1972, which imposed a moratorium on the killing, capture, and harassment of marine mammals, granted a two-year exemption to commercial fishermen who catch porpoises "accidentally" during their fishing operations.

Lake Erie Fish Catch on the Increase

The commercial fish catch from Lake Erie was a rather impressive one in 1973, considering the lake has been variously described as "dead" or "dying." The total commercial fish catch from the lake in that year was 48 million pounds; 40 million pounds were netted by Canadian fishermen, about 8.3 million pounds by Americans. The total catch compared to a 1972 harvest of about 39 million pounds—an increase of more than 20 percent.

Yellow perch and smelt are the predominant species caught by Erie's north shore fishermen—35 million pounds, collectively, in 1973. The commercial catch of white bass, largely by U.S. commercial fishermen, was 2.4 million pounds. That amount was double the catch of any previous year for this species. The western section of Lake Erie, including Sandusky Bay, supplied 6.1 million pounds (74 percent) of the total U.S. landings in 1973, reflecting the relatively high productivity of this small area of the lake.

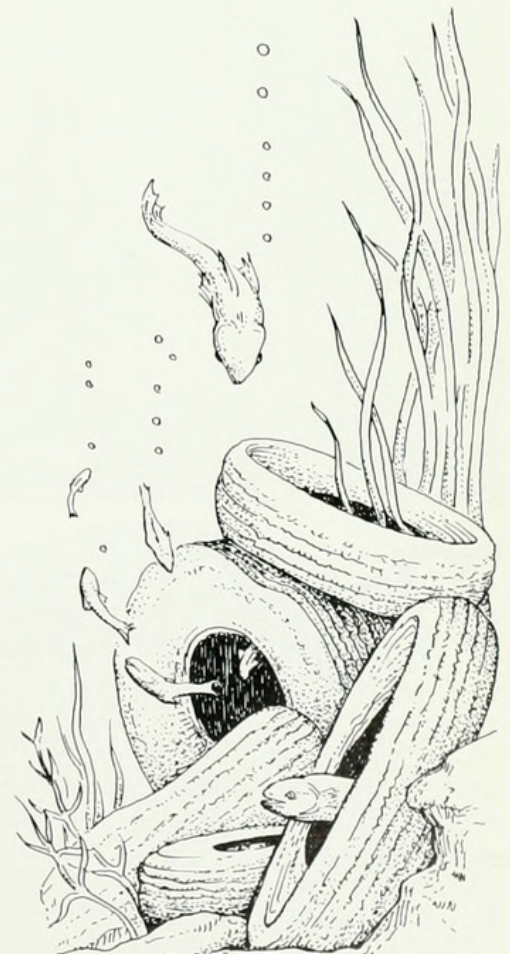
Be Kind to a Fish Today: Give Him an Old Tire

Old tires make good fish reefs, especially in a salt water environment, report T.B. Stone, C.C. Buchanan, and F.W. Steinle, Jr., of the National Marine Fisheries Service. Scrap tires are cheap, abundant, easily-handled, non-toxic, last more or less indefinitely in seawater, and provide excellent substrate for rapid development of lush growths of attachment organisms. Auto tire reefs have also been shown experimentally to cause, by the latter means, net increases in biological production (carbon fixation) in sea water. Because of their relatively inert chemical nature, and of their properties as suitable substrate for attachment organisms that lead to rapid encrustment and early camouflage by nature, scrap tires have a high degree of

ecological compatibility with the ocean environment.

Stone, Buchanan, and Steinle estimate that nearly a billion old tires could be used to build artificial reefs in waters off the east coast of the United States to attract fish. This is predicated partly on the fact that more than 200 million tires are discarded each year in this country, posing a waste disposal problem for most communities. Use of large numbers of scrap tires to build reefs appears to offer at least a partial or temporary solution to the problem while benefiting fisheries resources.

While the economics of reef construction will vary among localities, the costs of reef construction appear to compare favorably with disposal fees being charged at landfills for tires (0.25-\$1.00 per tire). Until more efficient methods are proven for the recovery of energy or materials for tires, artificial reef construction now appears to be a viable method of tire disposal. It seems likely, however, that scrap tires will in a few years become too valuable for chemical reclamation or as fuel to be used in reef construction.





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