

headstarting. And the U.S. will aid Mexico in saving and expanding the population at Rancho Nuevo.

On the other side of Mexico, however, prospects for the Atlantic ridley's cousin, the Pacific or olive ridley (*Lepidochelys olivacea*), are not so bright. Its major nesting area is at Escobilla in the province of Oaxaca on Mexico's western coast. While their populations are much higher, Pacific ridleys are also in demand for their eggs and their meat. A private company has opened a new slaughterhouse and laboratory in a nearby town to buy turtles from local fishermen. A court lifted a ban on taking olive ridleys, and last year a quota of 1,500 turtles a month for each of five fishing cooperatives was allowed. The turtles are taken before they have laid the eggs, and the company says it plans to remove the eggs, hatch them, and release the turtles. Experts are doubtful of the success of such an operation. Last October the third, large nesting of the olive ridleys failed, Pritchard and others think, because too many have already been killed.—*Rose Houk, National Wildlife Federation.*

Fishery Progress in Great Lakes

Signs of progress mark current attempts to restore and maintain fishery resources of the Great Lakes, says the U.S. Fish and Wildlife Service (FWS). In many parts of the Great Lakes, fish populations are larger and more stable than populations were ten years ago, according to J. H. Kutkuhn, director of the Great Lakes Fishery Laboratory in Ann Arbor, Mich.

Although Kutkuhn admitted that it is not yet technologically feasible to assess the total role played by pollution abatement in rehabilitating fishery resources, he said efforts to improve the lakes' water quality contribute significantly to the well-being of humans and fish life as well.

"In pointing to these indicators of new vitality in the lakes," he said, "we do so without implying that healthier fish communities are necessarily the sole, direct, and unequivocal result of improved water quality and a generally cleaner, less polluted environment."

Fishery management tactics, including separate and joint efforts by U.S. and Canadian agencies, are believed to be significant contributions that weigh heavily in the improved condition. Kutkuhn is uncertain about which combination of tactics

seems to be getting the job done, but he noted that the signs of progress reflect increasingly effective management throughout the ecosystem of the Great Lakes.

Chief among management's efforts are tighter regulation of fisheries; control of the sea lamprey; fish stocking; reduction of fish losses associated with large-scale withdrawal of water; and mitigation of lowered carrying capacity due to physical alteration of habitat.

Kutkuhn's current analysis of the Great Lakes, principally in terms of the kind, number, size, and quality of fish they yield, is described in the following breakdown:

- **Whitefish** stocks in northern Lake Michigan, Green Bay, and the boundary waters of Lakes Superior and Huron continue to prosper. Annual (commercial) landings of this important native species now average more than twice the volume they yielded in the late 1960s.
- **Walleye** in the western basin of Lake Erie have rebounded dramatically from their decimated state of less than 10 years ago. The walleye population for which western Lake Erie has long been famous is believed to be at or near the basin's carrying capacity for this species.
- **Lake trout** across the upper Great Lakes, with some exceptions locally, are now growing, surviving, and sustaining fisheries to a degree unforeseen a dozen or so years ago. The numbers of mature lake trout in Lakes Michigan, Superior, and Huron, the result of restoration efforts, are as great (or nearly so) as they were during the 20 years of intensive commercial fishing for this species preceding World War II. Natural reproduction is increasing in Lake Superior and has been noted in Lake Michigan.
- **Pacific salmon**, especially chinook and coho, continue to support an excellent recreational fishery in Lake Michigan, and lesser though equivalently valuable ones in all other Great Lakes.
- **Brown and rainbow (steelhead) trout** also seem to be on the increase in nearshore areas throughout the Upper Great Lakes and in Lake Ontario. They, too, are making significant contributions to rapidly growing sport fisheries on both sides of the international boundary.
- **Prey (or forage) fishes**—mainly alewives, gizzard shad, and smelt—represent healthy populations now being kept in satisfactory balance wherever they predominate in the Great Lakes by (1) large and growing stocks of predator species including many of those mentioned

above, (2) commercial fishing such as that for smelt in Lake Erie and alewife in Lake Michigan, and (3) natural causes induced, for example, by the severe and protracted winters of recent years.

In spite of the significant gains, Kutkuhn said fishery rehabilitation (and fish stock) in the Great Lakes is far from having fulfilled the expectations many hold for it. He cautioned that some major fishery-related problems resist solution; others await attention; and all are very complex technically, politically, or both. Kutkuhn said there are "troublesome impediments" that need to be overcome before the full potential of the Great Lakes will be realized. For example:

- Reduced stocks of yellow perch in southern Lake Michigan, western Lake Erie, and Lake Ontario—long the objective of vigorous commercial and sport fisheries—have been slow in responding to various management schemes designed to restore their former productive capacity.
- Conflict among groups competing for the use of certain species—sport and commercial fishermen for lake trout, walleye, and yellow perch generally, and Indians for lake trout in the upper Great Lakes additionally—hampers application across the lakes of a more objective and unified philosophy of fishery management than now exists.
- Depleted stocks of chubs in Lake Michigan and lake herring in Lake Superior continue to offer only faint promise of recovery despite efforts of fishery managers.
- Impairment of Great Lakes fish habitat, carrying capacity, and productivity is persistently threatened by the potentially adverse effects of accumulative alterations in the environment from a great variety and large number of proposed water-use developments.
- Insufficiently checked contamination of Great Lakes waters, biota, and fishery products poses yet another very serious problem, which, if allowed to continue unresolved, promises to undermine much if not all of the fishery-management progress made to date.

Kutkuhn goes on to say that DDT and mercury residues in Great Lakes fishes have, with some minor exceptions, generally dropped below tolerance levels set by public health authorities. Although PCBs and Mirex are now tightly restricted as to production and use, their residues in fish have yet to decline significantly. Dieldrin, too, still poses a problem in some areas.



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