

AFS Policy Statement #31a:
Protection of Marine Fish Stocks at Risk of Extinction
(Abbreviated)

POLICY

The American Fisheries Society (AFS) recommends that regulatory agencies closely scrutinize both marine fish and invertebrate stocks that may be at risk of extinction and take remedial action before populations are threatened or endangered. Initial AFS analyses of marine stocks at risk in North America show at least four primary geographic "hot spots" with stocks at risk—the Florida Keys; the Indian River Lagoon area of Florida; Puget Sound, Washington and adjacent Canadian waters; and the Gulf of California. Further AFS analyses show that certain groups of fishes are particularly vulnerable because they have slow growth and late maturity. Severe population declines have been documented for several snappers and groupers (Lutjanidae, Serranidae) in the Atlantic and the Gulf of California, several rockfishes (Sebastinae) in the Pacific, and some sharks (Selachei), skates (Rajidae), and sawfishes (Pristidae). Regulatory agencies should be apprised that these groups are extraordinarily vulnerable, and priority management should be given to these species.

The greatest threat to many long-lived marine species may be bycatch (including regulatory discard) in fisheries targeting other, often more-productive species. Regulatory agencies must monitor bycatch of long-lived species and move to implement conservation actions if population declines are recorded. The most effective management strategy for some species taken as bycatch and for targeted species such as deeper-water groupers and Pacific rockfishes may be establishment of large, protected marine reserves to supplement traditional management practices outside of the protected areas. The AFS supports the development, use, and evaluation of large marine reserves or Marine Protected Areas to protect and rebuild vulnerable populations. These reserves must have clearly defined goals, include a wide variety of environmental conditions, be of sufficient number to protect marine ecosystems within each region, allow adaptive management, and be large enough to be self-sustaining. The AFS encourages its members to become involved by providing technical information needed for protection of at-risk marine stocks to international, federal, state, and provincial policy makers, so decisions are made on a scientific, rather than emotional or political, basis.

Issue definition

Extinction risk in freshwater and anadromous fishes has received close scrutiny for many years, but the risk for marine fishes has been largely ignored. Many freshwater and anadromous (migrating between fresh and saltwater) species have limited ranges or specialized habitats that render them vulnerable to environmental impacts from human activity. Conversely, most marine fishes occupy broad ranges and habitats that appear to be buffered from acute human perturbation. Few fisheries professionals have considered extinction risk in marine fishes until quite recently. The threat of extinction of marine fish populations is a growing problem, and some populations have already been documented to be extirpated. Species with small ranges or limited habitat are particularly at risk. Also, those species with low intrinsic increase rate and/or late-maturity and infrequent and

unpredictable recruitment tend to be at risk. The AFS convened workshops in 1990 and 1992 to consider the possibility of endangerment to marine fishes. Certain species were recognized on regional endangered species lists. The International Union for the Conservation of Nature (IUCN) convened a 1996 workshop in London to evaluate the risk of extinction for marine fish species using new quantitative criteria for extinction risk adopted in 1994. The consensus of AFS and IUCN scientists who studied the issue was that some species had declined sufficiently to be considered at risk. Recently, Casey and Myers (1998) noted that a large, once plentiful marine fish-the barndoor skate (*Raja laevis*) had been reduced by bycatch overfishing to the point of extirpation in a large part of its range. The National Marine Fisheries Service (NMFS) was recently petitioned to list barndoor skates and populations of Pacific cod (*Gadus macrocephalus*), Pacific hake (*Merluccius productus*), Pacific herring (*Clupea pallasii*), walleye pollock (*Theragra chalcogramma*), and several species of rockfishes (*Sebastes* spp.) in Puget Sound under the Endangered Species Act (ESA) of 1973. The NMFS determined that the information on declines of these stocks is substantial, that listing may be warranted for seven species, and that a full review of their status should be pursued. Therefore, NMFS has noted that protection of stocks or populations (not only species) from extinction is extremely important. Loss of populations can be an indicator of risk of extinction for the species, and can mean loss of genetic material essential for the species' survival.

Although extinction has not been widespread in marine species to date, there is no reason for lack of concern-threats (harvesting, human overpopulation, habitat damage) are growing and probably cumulative (Powles et al., in press). Consequently, the risk of extinction among marine fishes appears to be a real and immediate threat to be addressed.