

## **Non-indigenous Fishes.**

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The transfer of fish species outside their native range, with the intent to establish self-sustaining populations, is a time-honored tradition dating back a few thousand years. Similar to crop plants, horticultural plants, and domesticated mammals, fishes are an important component of our food, culture, and recreation. In recent decades, the cultural imperative to reconfigure natural systems to serve humans has been slowly replaced with understanding the value of native species and the importance of ecological stability. Significant progress has been made in reducing vectors of exotic fish introductions. State and federal agencies, on the whole, no longer view stocking of new exotic species as a desirable management activity; ballast water regulations are in place in the Great Lakes and elsewhere; bait fish regulations are being implemented in many states; the aquaculture industry is under scrutiny, and attention is being focused on the aquarium industry as a source of new exotic species. But fish introductions, usually accompanied by other exotic taxa, have radically altered many aquatic communities. Are the changes we have wrought on fish communities irrevocable, repairable, or perhaps even desirable? Human population growth has led to progressive habitat alterations which, in many areas, are unlikely to be reversed. Food scarcity places increasing demands on aquatic habitats to produce a harvestable biomass of a limited number of fish species. Water scarcity is reducing fish habitats, while also promoting the construction of canals that allow exotic species to invade new watersheds. Recreational fishers often prefer exotic species to local native fishes. Educating the public, and governments, about the cost of maintaining ecosystem services damaged by exotic species is a priority. The harsh admission that some aquatic systems are, like farmland, irreversibly transformed by exotic aquatic species may also be needed.