

## Case Study: Marine Fisheries

Fisheries are classic common-pool resources. The details of the legal institutions that govern access to fisheries vary around the globe. However, the physical nature of marine fisheries makes them prone to overexploitation. Anyone with a boat and some gear can enter the ocean. One boat's catch reduces the fish available to all the other boats and reduces the stock available to reproduce and sustain the stock available in the following year. Economic theory predicts that the market failure associated with open access to a fishery will yield socially excessive levels of entry into the fishery (too many boats) and annual catch (too many fish caught) and inefficiently low stocks of fish.

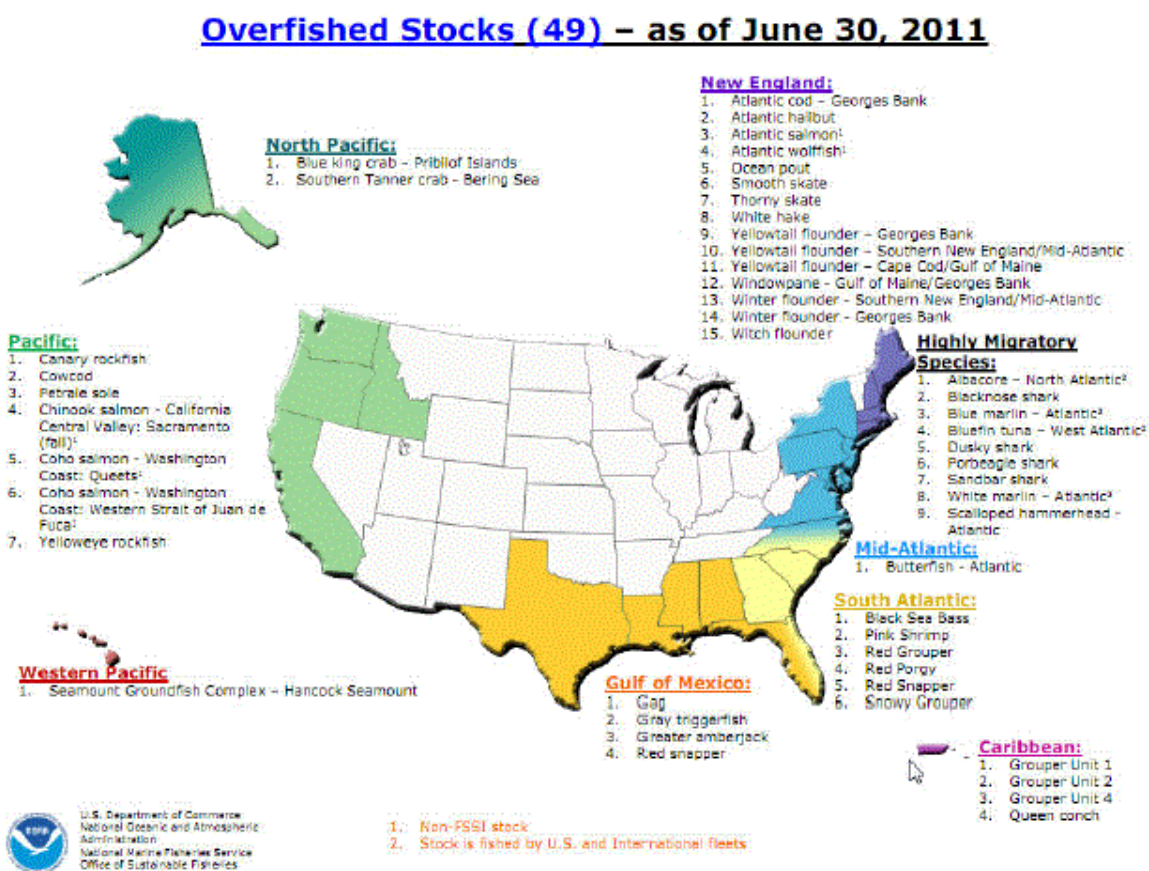


Figure 6.6:

Unfortunately, the state of fisheries around the globe seems to indicate that the predictions of that theory are being borne out. Blue n tuna are in danger of extinction. Stocks of fish in once-abundant fisheries such as North Atlantic cod and Mediterranean swordfish have been depleted to commercial (and sometimes biological) exhaustion. Scientists have documented widespread collapse of fish stocks and associated loss of marine biodiversity from overfishing; this devastates the ability of coastal and open-ocean ecosystems to provide a wide range of ecosystem services such as food provisioning, water filtration, and detoxification. Scholars have documented isolated cases such as the “lobster gangs” of

coastal Maine where communal informal management prevented overexploitation of the resource, but such cases are the exception rather than the rule.

Early efforts to control overfishing used several kinds of regulations on quotas, fishing effort, and gear. For example, fishing boats are forbidden in some places from using conventional longlines because that gear yields high levels of bycatch and kills endangered leatherback turtles. Some forms of fishery management limit the number of fish that can be caught in an entire fishery. Under a total allowable catch (TAC) system, fishers can fish when and how they want, but once the quota for the fishery has been met, fishing must stop until the next season. Unfortunately, TAC policies do not solve the underlying problem that fishermen compete for the fish, and often yield perverse incentives and undesirable outcomes such as overcapitalization of the industry and races between fishing boat crews to catch fish before the quota is reached. In the well-known case of the Alaskan halibut fishery, the race became so extreme that the fishing season was reduced to a single 24-hour mad dash; given that fish are perishable, this temporal clumping of the catch is not a desirable outcome.



*Figure 6.7: Marine Fisheries: Fishing Boats*

Resource economists developed the idea of a tradable permit scheme to help manage fisheries. Individual tradable quota (ITQ) schemes are cap-and-trade policies for fish, where total catch is limited but fishers in the fishery are given permits that guarantee them a right to a share of that catch. Players in the fishery can sell their quota shares to each other (helping the catch to flow voluntarily to the most efficient boats in the industry) and there is no incentive for captains to buy excessively large boats or fish too rapidly to beat the other boats to the catch. ITQ policies have rationalized the Alaskan halibut fishery completely: the fish stock is thriving, overcapitalization is gone, and the fish catch is spread out over time. ITQs have also been implemented in the fisheries of New Zealand, yielding large improvements in the biological status of the stocks. There is some general evidence that ITQ systems have been relatively successful in improving fishery outcomes, though other research implies that evidence of the superiority of the ITQ approach is more mixed. Scholars and fishery managers continue to work to identify the details of ITQ management that make such systems work most effectively, and to identify what needs to be done to promote more widespread adoption of good fishery management policy worldwide.