

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Salmon Fishing in Scotland



Offshore salmon pens in Scotland

Fishing isn't what it used to be. While generations of fishermen, in Monterey Bay and elsewhere around the world, had livelihoods that depended on going out in small boats, risking life and limb, hoping to bring back a boat load of fish or shellfish, this has changed over the past half century or so, for a bunch of reasons.

One of the greatest impacts has been overfishing, or simply catching fish or harvesting shellfish at a rate faster than they can reproduce and grow.

This is a greater problem for species like rockfish or some of the large pelagic fish such as tuna and swordfish, which may take decades to reach maturity and spawn, than for California's largest fishery, market squid, which have a depressingly short life, a year at best. But while I like calamari, most of our squid catch gets exported and I fear that most people have a far more diverse taste in seafood than having calamari several times a week.

As many fish populations declined globally, due primarily to overfishing, but also other factors, fish farming or aquaculture developed as an industry to fill the gap.

The yearly global wild fish catch peaked out at about 90 million tons in the mid-1990s and has stagnated or declined in subsequent years. There are just too many fishermen using too much sophisticated technology going after a diminishing number of fish. Aquaculture has increased dramatically, however, and now produces about 44% of the total seafood supply, around 70 million tons of fish, shellfish and seaweed yearly.

Nearly 90% of the world's aquaculture or fish farming takes place in Asia with China, Indonesia, India, Viet Nam, the Philippines responsible for 81% of the harvest, which includes fish, aquatic plants, mollusks and crustaceans.

And while some of these are raised in relatively sustainable conditions without major environmental impacts, there are others that have been shown to be problematic with negative side effects. The Monterey Bay Aquarium did a big public service some years ago and developed a Seafood Watch card (available as a free I-Phone app or on-line), which lists seafood in three traffic light colored categories that are easy to understand.

Green is for best choices, or those fish, shellfish or crustaceans that have been determined to be abundant, and caught or farmed in environmentally friendly ways. Yellow is for those products that are labeled as good alternatives, but that have some concerns with how they are caught or farmed, or with the health of their habitat due to other human impacts.

Those in the red category are recommended for avoidance, because they are being overfished or caught or farmed in ways that harm other marine life or have negative environmental impacts.

Salmon caught wild in Alaska and New Zealand are good choices; wild salmon from the west coast, whether the US or Canada are considered good alternatives. But Atlantic farmed salmon is considered a bad choice and to be avoided. It turns out that there are a whole series of negative impacts of salmon farming, one of the largest being the escape of farmed salmon from pens that produce competition for food and potential hybridization with native fish, as well as the spread of disease and parasites.

While traveling along the shores of a number of lochs along the deeply embayed coast of Scotland, we saw dozens and dozens of large circular salmon pens anchored offshore. Salmon was on menus for breakfast, lunch and dinner.

While salmon farming has been present for several decades in Scotland, there is still significant controversy about whether it has been an economic success or an ecological failure. And while the waters of Scotland are the sites of the industry, Norwegian companies own all of the major farms.

Before you order your next seafood dinner, get the Seafood Watch app or download it and then make careful choices. Our future seafood depends in large part on our eating habits of today.