*Numbers of dogfish, long one of the world's most abundant species of shark, are at low levels, researchers say.*

# Dogfish down: Once plentiful fish now dwindling; June conference to address the issue

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A couple decades ago most fishery experts would have thought it as likely to manage the ever-plentiful dogfish as to manage worms, according to Vincent Gallucci, UW professor of aquatic and fishery sciences.

Today, however, this small shark is at critically low levels in the U.S. Atlantic and numbers are dwindling in the U.S. Pacific. In Puget Sound, catches are close to historic lows and the state Department of Fish and Wildlife has lowered catch quotas.

Such signs of overexploitation of one of the world's most abundant shark species have generated interest in the ecology, conservation and recovery of dogfish species and their fisheries. This has prompted the convening of the first international symposium on the management and biology of dogfish sharks to be conducted at the UW's School of Aquatic and Fishery Sciences, June 13–15. See http://www.wdfw.wa.gov/fish/dogfish_conference/.

As with other sharks, dogfish have a natural life history that makes them vulnerable to overexploitation, Gallucci says. For instance, West Coast dogfish mature late and aren't able to reproduce until between the ages of 30 and 35 on average, and dogfish females are pregnant 22 months before giving birth. This is comparable to elephants, which also carry their young about 22 months, and have the longest gestation period of any land animal.

Dogfish fisheries have become major income producers on both the Atlantic and Pacific coasts. In the recent past on the West Coast, for example, U.S. fishermen received $1.25 million and British Columbia fishermen received $1.39 million (Canadian currency). Markets for dogfish were developed in recent decades in the United Kingdom so that today, in London, the fish in fish-and-chips is usually dogfish — although it is called such things as rock salmon or cape shark rather than dogfish. In Germany, dogfish belly flaps are pickled and sold as schillerlocken. There is no market for dogfish in the United States or Canada

Aside from the fishery, another reason for declining numbers is the dogfish that are lost as bycatch when fishermen are targeting other kinds of fish.

In decades past, millions of dogfish have been killed for no reason except ignorance, Gallucci says. Managers and fishermen once called dogfish the Gray Wall of Death, blaming them for declining numbers of salmon and other desirable fish.

In British Columbia, for example, there was a program from 1959 to 1962 to reduce dogfish populations that included "killer boats" paid to fish for and kill dogfish. Additional funds subsidized processors to utilize dogfish. In 1974 the government paid fishermen $50 to $70 per ton of dogfish to encourage the use of dogfish as a source of fishmeal.

An ironic twist today is that — because of the abundance of salmon from Alaska — the price for some salmon is actually lower than for dogfish, Gallucci says.

Changes in dogfish abundance will have consequences for ecosystems, Gallucci says. Dogfish have an active role in shaping the structure and function of the seafloor where they are found. As keystone predators, a decline in their abundance could mean increases in other species, such as skates. On the other hand, when species such as flounder and cod are depleted in an area, dogfish may become more abundant, rushing in to take advantage of the prey normally consumed by the other fishes.

Researchers are challenged by a number of puzzles. While the numbers of dogfish are dwindling in Washington's northern Puget Sound, British Columbia's Georgia Basin has a healthy dogfish population, even though the fish share contiguous bodies of water. Research based on marking studies suggests that dogfish in those inner bodies of water tend to stay put, they don't migrate to areas of lower density. This "site fidelity" may explain why a depleted population in Puget Sound would not be replenished quickly by immigration from Canada or coastal waters.

June's symposium will have participants from about seven countries where dogfish were, or are, fished. Gallucci is organizing the conference with Greg Bargmann of the Washington Department of Fish and Wildlife and Gordon (Sandy) McFarlane of the Canadian Department of Fish and Oceans.

Sessions will focus on such things as the fossil record of dogfish, their rates of food consumption and reproduction, six-gill sharks in Puget Sound becoming a major predator of dogfish and what fishermen and scientists know about dogfish, something which may serve as a first step toward making policy. The symposium concludes with a panel session devoted to sustainable fishing what will include

representatives of conservation organizations, communities, management and the fishing industry.

**Dogfish basics:**
Dogfish thrive over a huge range on the Pacific Coast, from Mexico to the Arctic.
**Size:** Up to a yard and a half long.
**Weight:** Up to 20 pounds.
Can live to be more than 70 years old on the West Coast and 40 on the East Coast of the U.S.
Reproduce between ages 30 and 35 on the West Coast and around age 20 on the East Coast of the U.S.
**Number of pups:** From 4 to 12 young; the larger the mother the more pups she has.
**Gestation:** 22 months.
Pups are born live and immediately become predators.

–SANDRA HINES