



National Research Council, 2002. Effects of trawling and dredging on seafloor habitat.

## Box 6.1

### Case Study: Gear Modifications in the Alaskan Pollock Fishery

The walleye pollock (*Theragra chalcogramma*) fishery of the eastern Bering Sea is one of the largest in the world. In 2000, 1.1 million metric tons of pollock was captured. Pollock occur on the sea bottom and midwater up to the surface, and most catches are taken at 50–300 m. The fishery is managed with total allowable catch (TAC) for the target species, constrained by bycatch limits for several pelagic and demersal species.

In 1990, concerns about bycatch and seafloor habitats affected by this large fishery led the North Pacific Fishery Management Council to apportion 88 percent of TAC to the pelagic trawl fishery and 12 percent to the nonpelagic trawl fishery (North Pacific Fishery Management Council, 1999). For practical purposes, nonpelagic trawl gear is defined as trawl gear that results in the vessel having 20 or more crabs (*Chionecetes bairdi*, *C. opilio*, and *Paralithodes camtschaticus*) larger than 1.5 inches carapace width on board at any time. Crabs were chosen as the standard because they live only on the seabed and they provide proof that the trawl has been in contact with the bottom.

By the mid-1990s, most vessels participating in the pollock fishery had voluntarily switched to pelagic trawls. Prohibited species bycatch limits provided the incentives: If the limits were exceeded as recorded by onboard observers, premature fishery closures would take effect before the pollock TAC was taken. Even though nonpelagic trawls accounted for only 2 percent of the pollock catch in 1996, they were nearly one-third of the halibut bycatch and about one-half of the crab bycatch. One year later, out of continuing concerns about bycatch and the effects of trawl gear on the seafloor, the Alaska Marine Conservation Council proposed that the North Pacific Fishery Management Council ban all bottom trawling for pollock. In response, the North Pacific Fishery Management Council prepared an amendment to the Bering Sea and Aleutians Islands groundfish fishery management plan (North Pacific Fishery Management Council, 1999). In November 1999, with broad industry and public support, the North Pacific Fishery Management Council banned bottom trawl gear use in the Bering Sea pollock fishery. The fishery now attains TAC specifications with modest bycatch rates.

Although this gear was modified to reduce bycatch, it is postulated to have had the secondary effect of diminishing the impact on seafloor habitat. However, these trawls may be frequently fished in contact with the seafloor, especially in shallow water (<50 fathoms). To confirm that this gear has reduced seafloor impacts, the extent of bottom contact and disturbance should be quantified. If the trawls never touch the bottom, the pelagic trawl definition could be set at zero crab tolerance. **Because typical pelagic trawls have large mesh webbing in the lower section of the net and are affixed to chain footropes, bycatch enumerated by onboard observers might substantially underestimate the number of demersal fish and invertebrates that are affected because they fall through the large mesh panels instead of being captured by this gear.**