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Industrial longline fishing in the open ocean (called pelagic longlining) is killing wild animals in record numbers. It is a fishing method intended to catch migratory top predator fish, primarily tuna and swordfish. But, as a non-selective technique, it threatens to cause the extinction of the leatherback sea turtle, sea birds, several shark species as well as various fish species. Because longlining targets or incidentally captures the ocean's top predators, it has the ability to alter the entire food web of ocean ecosystems.

How does longlining work? Huge industrial fishing vessels deploy thousands of baited hooks on hundreds of lines that can total up to 60 miles long. Every year longliners set more than 1 billion baited hooks (recent estimates range up to 10 billion) or approximately 5 million hooks per day on 100,000 miles of monofilament line.

Longlines catch, snag or entangle many more marine creatures than intended. Sea turtles, sharks, seals and seabirds are all victims of these so-called "land mines of the sea." Increased demand for swordfish, tuna and shark as well as the international ban on high seas driftnets has increased the use of longlines and the harm that accompanies them, including the decline of bluefin tuna, swordfish and sharks in the Atlantic.

## Economics of Longlining

Recent economic studies show that longlining is often a marginal commercial enterprise at best. One study from the Joint Institute for Marine and Atmospheric Research at the University of Hawaii indicates that on average Atlantic longliners lose \$7,000/year, after all costs are added up, including depreciation on the vessel. Because longline fishers must pay off huge mortgages on their vessels, they continue to fish, hoping for a big catch. The net losses are on average; some efficiently operating longliners do make handsome profits.

## Annual Marine Life Toll from Longline Fishing

- ◆ 40,000 sea turtles
- ◆ 300,000 seabirds, including 22 endangered species such as albatrosses and petrels
- ◆ Millions of sharks — most discarded dead or finned. For example, annually, in the Atlantic/Gulf region, 48,200 sharks are unintended bycatch. 85,523 sharks were caught in 1997 by Hawaiian longline fleet. In southern Australia, Japanese longliners finned 34,000 black tipped sharks in 2001 in just two months.
- ◆ Declining Atlantic stocks of bluefin tuna and swordfish
- ◆ Unwanted fish — U.S. Atlantic longline fleet in 1993 caught 362,138 fish; nearly half, 174,819, were discarded because they were unmarketable. Most were already dead. This is typical of longline fishing worldwide.

## Longlining in Hawaii

Commercial longlining presents a significant threat to marine life surrounding Hawaii's waters. Here, the annual incidental take of sea turtles was over 800. The Hawaiian longline fleet grew four-fold between 1987 and 1990, increasing to over 150 vessels. Each year, 15.5 million hooks are set in Hawaiian waters. Much of this increase occurred after longline vessels decimated Atlantic populations of targeted fish and moved to Hawaiian waters. In 1999, a federal judge, in response to a lawsuit by STRP and others, banned Hawaiian longliners from one million square miles of ocean. That order was modified a year later to ban Hawaiian longliners from all swordfishing with some restrictions on tuna longlining. Swordfish longlining captures turtles at approximately 10 times the rate of tuna longlining.

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## Regulations are Ineffective

Existing U.S. longline regulations are not effective in protecting marine life, as demonstrated by the fact that many top predator species are being pushed toward extinction. In other nations with large longlining fleets, little or no regulations exist to control the take of targeted species of fish or incidental capture of marine species.

## Longlining Impedes Endangered Species Recovery Efforts

The massive incidental catch of the longline fishery is undermining other recovery efforts intended to protect and restore endangered species. Efforts include sea turtle nesting beach protection, the use of turtle excluder devices that limit turtle capture in shrimp nets, and various restrictions on commercial fishing to protect marine mammals and sea turtles from purse seines, gill nets and other threatening fishing methods.

Gear modification for individual species is not likely to lead to a practical solution to the ever-growing list of species harmed by pelagic longlining, mostly because of the enormous number of hooks (billions) placed each year. Some mitigation methods are being tried in an effort to reduce harm to seabirds, which are hooked when gear is both deployed and retrieved. However, even if successful, such gear modification is

not expected to reduce bycatch of swimming species. The long-term answer to the pelagic longline problem may be to start by establishing closures in critical habitat areas, beginning an annual program to reduce fishing — through restrictions on the number of hooks, length of line and soak time — and eventually establishing a moratorium on longlining.

## The Plight of the Pacific Leatherback

Pacific leatherback sea turtles are dying in striking numbers leading scientists to warn that they face extinction in the next decade absent new protective strategies. Alarming reports are emerging of leatherback sea turtles getting caught by longliners in the Pacific, from the coast of Latin America to Hawaii.

While the global nesting population of leatherbacks is estimated to be about 34,000, certain populations, especially in the Pacific, are crashing. On one of Mexico's most important nesting beaches, Mexiquillo, Michoacán, the number of leatherbacks has dropped from 2,000 to 10 in about a decade. Similar reductions have been reported from all major Pacific nesting beaches, with the estimated rates of annual mortality in the Mexican and Costa Rican nesting colonies at 22 percent and 34 percent respectively.