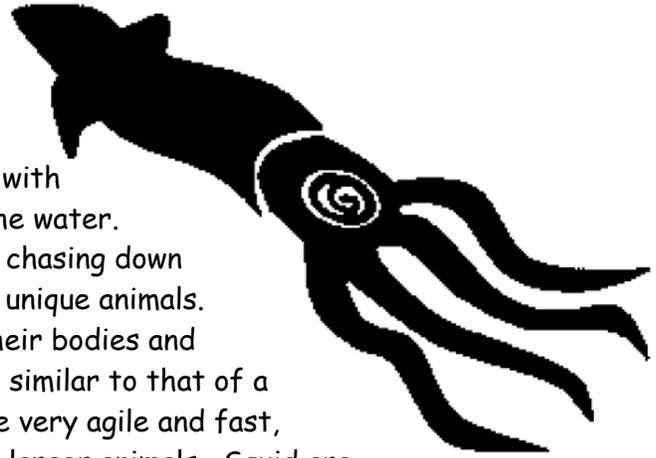


SQUID



At night in the deep ocean, a boat turning on bright lights will usually soon be surrounded with small, torpedo-shaped animals darting through the water. These are squid, members of the mollusk family, chasing down zooplankton and small fish for a meal. Squid are unique animals. They propel themselves by drawing water into their bodies and then forcing it out through small holes, a system similar to that of a jet airplane. By using these water jets, squid are very agile and fast, able to hunt prey easily and avoid being eaten by larger animals. Squid are also chameleons, able to change color from dark reds and browns to iridescent pinks and purples. When disturbed, squid can also discharge a cloud of dark ink into the water to mask their location as they escape.

SQUID PLAY A VITAL ROLE IN THE OCEAN. Squid rely on these unique traits because, while they are fierce predators in their own right, they are a middle link in a complex oceanic food chain and comprise a large portion of the diets of many larger fish and marine mammals. In fact, squid usually hover near the ocean bottom during the day to elude predators and only rise to the surface under the cover of darkness to feed. Larger fish such as swordfish, marlin and tuna and mammals like bottlenose dolphins depend heavily on squid as a food source and are constantly on the hunt for them. Healthy squid populations are essential to maintaining a balanced marine ecosystem.

Fish and marine mammals aren't the only animals that feed on squid, as humans have developed hefty appetites for *calamari* and fishermen also commonly use squid as bait to catch other fish. Fishermen catch squid either by towing large trawls that scoop up schools off the ocean bottom, or by "jigging" for squid with hook and line at night using bright lights to attract large numbers of them. U.S. fishermen have produced some of their highest catches in recent years off both the Atlantic and Pacific coasts.

RISING CATCHES OF SQUID ARE CAUSE FOR CONCERN. Squid are an annual species, meaning they are born and die in one year. This means that the size of the squid population in any given year is directly dependent upon the number of individuals that survive from the preceding year to reproduce. Historically, when catches go too high, squid abundance, and catch, drops off the following season. This condition makes squid susceptible to being overfished on an annual basis and demands precautionary management strategies.

In the Atlantic, squid have been subject to management for over a decade, and stocks of both of the two species (*Loligo pealei* and *Illex illecebrosus*) primarily found off the U.S. east coast are not considered overfished. In the Pacific off California, catches of squid skyrocketed throughout the 1990s until the state finally took action in 2001 to place some limits on harvest. Even though management measures are in place, however, there is still cause for concern about recent trends in the fishery and changing future conditions that could jeopardize their vital role in the ecosystem.

PREVENT "ECOSYSTEM OVERFISHING." The major problem with management action taken thus far is that squid are viewed in a single-species context. That is, the amount of squid to be caught each year is determined without considering how many squid should be reserved as forage for the many predator species that depend on them. Fishery managers have long recognized that squid have a high natural mortality rate, but no attempt has been made to quantify this rate or to identify "significant predators" and how much squid should be left uncaught to provide for them. Neglecting to fully consider the important role squid play, in the face of rising catches in both the Atlantic and Pacific, could compromise the health of prey and predator alike.

Robust squid populations are necessary because of the large number of marine species that prey upon them. But during the last decade or more, populations of fish that eat squid - swordfish, bluefin tuna, billfish, cod and bluefish among them - have been low, depleted by overfishing. Efforts are now underway to stop overfishing these populations and each is the object of a Rebuilding Program. Squid management does not consider predictable changes in forage demands and natural predation as a result of rebuilding predator populations. It's likely that reduced numbers of key predators has generated an overly optimistic picture of the health of squid populations, justifying recent rising catches. We must ensure that increased natural and fishing mortality of squid will not jeopardize predator-prey relationships and thwart efforts to rebuild predator species because of a lack of available food.

NCMC SUPPORTS THE FOLLOWING ACTIONS TO IMPROVE SQUID CONSERVATION:

- Use an ecosystem approach to managing squid that considers the important role squid fill in the marine ecosystem when setting catch limits. This can be accomplished by examining interactions between squid and all major predators, and then determining how much squid should be left in the water as forage. Once the role of squid in the ecosystem has been addressed, squid catch limits can then be considered.
- Examine how the populations of major squid predators are likely to change in future years, especially in light of efforts to stop overfishing and implement rebuilding plans, and what implications an increase in the number of predators has for future management decisions.
- Encourage other countries to proactively manage squid and other common prey species. Ensuring an adequate forage base exists is essential if international and domestic rebuilding programs for larger fish are to be successful.



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