Antarctic toothfish

In this issue of *The Bite* we look at Antarctic toothfish *(Dissostichus mawsoni)*, a highly sought-after species caught in Antarctica's Ross Sea.

DEEP DWELLERS

The Ross Sea's toothfish fishery is one of the deepest longline fisheries in the world, with the average line set to 1200 m by bottom longliners. Toothfish have also been caught at depths of more than 2200 m.

In the Ross Sea, smaller Antarctic toothfish are mainly found on the southern shelf and around the Balleny Islands at depths of 200-800 m. Larger adult fish are commonly found on the continental slope in depths of 800-1500 m. Research suggests that Antarctic toothfish migrate from shallow to deeper water as they get older.

TOOTHFISH MOVEMENTS

Information about the movement and migration of Antarctic toothfish was sourced from two tagging programmes carried out in the Ross Sea. The first, by American researchers, was carried out from the 1970s-2000.

In 2001 a larger-scale New Zealand programme was set up, and later extended into a multi-national, multi-area programme managed by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in 2006.

Almost 11,000 Antarctic toothfish have been tagged and released through the New Zealand-initiated programme, with 225 toothfish recaptured. Results show that the majority of fish were recaptured less than 50 km from their release point, but 20 percent had moved more than 50 km. One fish, caught after 17 years, had moved approximately 1800 km.

LIFE CYCLE

Toothfish are reasonably slow to mature and spawning is believed to occur over several months, but full details on their maturity and spawning cycle are not well known.

Scientists have managed to develop a hypothetical life history of toothfish, which is divided into three main stages: larvae and small juveniles living on the surface; older juveniles and young adults living on, or near, the seabed in coastal waters; and sexually mature adults which migrate to the continental slope as they mature, then north to the Antarctic Polar Front to spawn. Antarctic toothfish can grow to more than two metres long, weigh up to 150 kg, and live for up to 45-years.

SHARKS OF THE SOUTH

Antarctic toothfish are the Ross Sea's key fish predator. Because sharks rarely live below 60° south (except the sleeper shark which is relatively rare), Antarctic toothfish take on the ecological role of top predator.

Their diet has been reasonably well studied, and in 2003 the first comprehensive feeding study was carried out to examine the stomachs of more than 9000 Antarctic toothfish. Icefish and Whitson's rattail were the most common species