



Te Matataua

The Scouting Party of Air Power

RNZAF Air Power Development Centre Bulletin

Issue 16, January 2018

Illegal Fishing in the Ross Dependency

Air surveillance ensures New Zealand's prosperity and territorial integrity

New Zealand has a direct interest in the stability of Antarctica and the Southern Ocean, including the preservation of its environment. The Antarctic Treaty System prohibits military activity in Antarctica, however military aircraft and personnel are permitted to work in support of scientific programmes, search and rescue, and monitoring illegal activity. Each summer, the RNZAF carries out regular maritime aerial surveillance patrols over the Ross Sea to detect and deter Illegal, Unregulated and Unreported (IUU) fishing. One of the major species being targeted is Toothfish. So, why are Toothfish being targeted, and how is the NZDF protecting the Ross Dependency?

There are two main species of Toothfish in the Ross Sea; the Patagonian Toothfish (*Dissostichus eleginoides*) and the Antarctic Toothfish (*Dissostichus mawsoni*). They are named for the sharp teeth on their upper jaw, and an example of a Toothfish is shown above.

Toothfish typically have a long life of about 50 years, reach sexual maturity after 10 years and have low fertility. Antarctic Toothfish are largely similar to the Patagonian Toothfish, but are evolutionarily distinct and inhabit separate geographical areas. They have a special protein, glycoprotein, which acts like antifreeze to keep their blood from freezing. Adult Toothfish are heavy at 100kg to 150kg for an adult fish, requiring only six to ten make a tonne of catch.

The flesh of Toothfish is white, oily and rich in Omega-3 fatty acids when cooked. Toothfish are highly regarded and can fetch up to \$US50 per



kilogram; they were referred to as 'white gold' in the 1990's.

Fishermen began trawling around the sub-Antarctic islands in the late 1960's for Marbled

Rock Cod. Catches rose steadily, and by 1990, the cod population reduced to 5% of its pre-fishing level. Thereafter, fishermen began targeting the Patagonian Toothfish. Illegal fishing became more prominent due to the desirability and high sales price of Toothfish marketed under names such as: Chilean Sea Bass, Mero, Robalo and Butterfish. Within a decade, populations of Patagonian Toothfish declined and fishing areas were closed. Consequently, fishing boats pushed further southwards into Antarctic waters to catch Antarctic Toothfish.

IUU fishing was first detected in the mid-1990's with about 50 pirate vessels catching up to 54,000 tonnes as they moved through the Southern Ocean. Illegal fish are mislabelled as other species by pirates when brought to port for sale as fillets, which are difficult to identify. The top four importers of Toothfish: Japan, USA, China and Spain collectively imported 29,393 tonnes of Toothfish in 2000. However, the total allowable catch was 14,440 tonnes. Therefore, approximately half the Toothfish consumed was illegally caught¹.

New Zealand's interest lies mainly in the Ross Dependency of Antarctica, which is a large portion of the Ross Sea, and adjacent territory governed by New Zealand². The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) sets

the rules for fishing in the convention area, and the Coalition of Legal Toothfish Operators (COLTO) is an industry-led coalition that compiles legal Toothfish catch data and monitors illegal fishing. Commercial fishers must be licensed to operate and a number of NZ Government departments administer fishing in the Ross Dependency including the Ministry of Primary Industries and the Ministry of Foreign Affairs.

New Zealand was the first country to fish for Antarctic Toothfish in the Ross Sea in 1997. The catch averages around 3000 tonnes per year and is adjusted according to data received from the fishing industry and science expeditions. The Toothfish fishery in the Ross Dependency could potentially earn \$50 million with the current quota.

The National Institute of Water and Atmospheric Research (NIWA), who carry out significant scientific research on Toothfish biology, ecology and stock numbers, has assessed Antarctic Toothfish stocks to be sustainable due to high densities of fish in the Ross Sea³.

The RNZAF uses the P-3K-2 long-range surveillance aircraft to patrol the Ross Sea. With its highly trained crew and suite of state-of-the-art radar and electro-optic sensor systems, it is the ideal platform to undertake maritime surveillance over Antarctic waters.

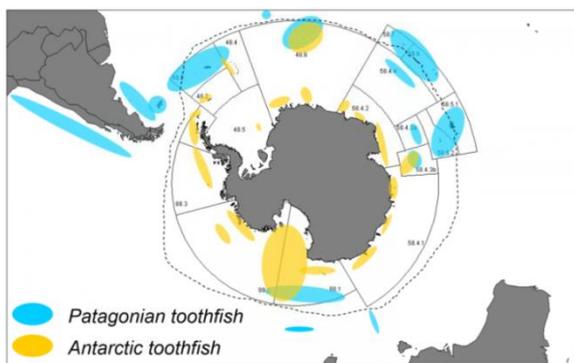
The RNZAF has been actively patrolling the Ross Dependency for many years and it is no small task due to its remote location. It takes a P-3K2 Orion about 11 hours to patrol the Ross Dependency when launched from Dunedin. Much of the duration is taken up transiting to the Southern Ocean and back. A typical surveillance patrol will see the P-3K2 sensors covering about 320,000 square kilometres of ocean⁴.

The task is onerous as the weather is changeable and degrades quickly, and surveillance requires flying at relatively low heights to confirm and photograph vessels. Rough seas, cold water, icebergs and long-duration for rescue in the event of ditching the aircraft into the sea adds to the risks. In 2006 the RNZAF started

operating P-3K-2 aircraft from the McMurdo Sound ice runway. This location reduces the transit time thereby allowing longer duration surveillance missions.

The Government of New Zealand is making considerable effort to ensure Toothfish stocks are sustainable and remain a viable fishing resource for future generations and as part of this effort the RNZAF works in conjunction with the Royal New Zealand Navy (RNZN) to carry out surveillance, deterrence and enforcement requirements under CCAMLR. In 2009, an RNZAF P-3K2 Orion located, identified and interrogated the Triton-1 pirate fishing vessel, which had a track record of illegally catching Toothfish⁵. The RNZN located and identified two vessels illegally fishing for Toothfish in January 2015, which were reported to international agencies.

The RNZAF, along with the RNZN, continues to carry out surveillance patrols of the Ross Sea to monitor fishing activity and to deter illegal, unregulated and unreported fishing.



Air surveillance, in conjunction with naval patrols are successfully reducing the incidence of Illegal, Unregulated and Unreported fishing in Antarctic waters, ensuring New Zealand's prosperity and territorial integrity.

Key Points

- The Ross Dependency is governed by New Zealand.
- There is significant international regulation and monitoring of Toothfish in the Southern Ocean.
- The RNZAF carries out surveillance patrols of the Ross Sea to monitor and deter illegal fishing.

References

1. CCAMLR, illegal Toothfish trade, 2004.
2. Ross Dependency Boundaries and Government Order in Council 1923.
3. www.niwa.co.nz.
4. www.nzherald.co.nz NZ Orions probe among icebergs for fish pirates 7/02/2001.
5. www.stuff.co.nz Jan 17 2008.

APDC Update

APDC staff are working on a range of air power periodicals to be released during 2018.

Disclaimer: The views in Te Matataua are not necessarily those of the RNZAF

E-mail: ohapdc@nzdf.mil.nz