South African National Report to the Scientific Committee of the Indian Ocean Tuna Commission

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##### INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

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##### Executive Summary

South Africa has two commercial fishing sectors which either target, or catch as bycatch, tuna and tuna-like species in the Indian Ocean - the Large Pelagic Longline and the Tuna Pole-line. The Tuna Pole-line sector, which operates mainly in the Atlantic Ocean from September - May each year, only occasionally crosses over into the Indian Ocean in search of yellowfin tuna. In 2015, only three tuna pole-line vessels fished in the Indian Ocean and the majority targeted albacore (Thunnus alalunga) and yellowfin tuna (Thunnus albacares) available inshore in the Atlantic Ocean, or opted to target tunas on the high seas at Vema and Valdivia seamounts and in Namibia. The South African-flagged large pelagic longline vessels have traditionally used swordfish (Xiphias gladius) targeting methods in the Indian and Atlantic Oceans, whilst the Japanese foreign-flagged vessels target tropical tunas (yellowfin and bigeye tuna, Thunnus obesus) with effort focused in the Indian Ocean. Despite an increase in catches for 2015, swordfish catches remained comparatively low in the South West Indian Ocean. Although the local South African fleet targets swordfish, their catch comprises of only 50-60% swordfish, the remainder being tropical tunas and sharks. The 11.7% reduction in longline effort from 2014 to 2015 resulted in decreased catches of bigeye tuna (-24.5%), southern bluefin tuna (-30.1%), albacore (-34.4%) and skipjack (-62.5%). Both albacore and skipjack are considered bycatch in the longline sector. In contrast, yellowfin tuna and swordfish catches increased by 10.2% and 19.4%, respectively. Blue shark (Prionace glauca) and shortfin mako (Isurus oxyrinchus) shark catches increased in 2015 by 25.3% and 16.6% respectively. Research into the stock origin and intermixing of tuna, swordfish and large pelagic shark populations at the boundary between the Atlantic and Indian Oceans is a priority in South Africa.

# Background/General Fisheries Information

### Large pelagic longline fishery

The South African large pelagic longline fishery was commercialized in 2005, with the issuing of 18 swordfish-directed and 26 tuna-directed fishing rights valid for 10 years. The fishery has been restricted to 50 permits (one permit per vessel) through a Total Applied Effort (TAE) control. The large pelagic longline fishery was initially split into swordfish and tuna-directed sub-sectors due to the drastic declines in swordfish catch and CPUE experienced during the period of the experimental fishery from 1997 to 2005. South Africa amended its fishery policy in 2008 after only 9 swordfish-directed longline vessels operated in 2006, resulting in the lowest annual catch since 2001. The fishery is allowing an interim period for foreign vessels to charter in this sub-sector as a means of skills development and a means of acquiring suitable vessels. Foreign vessel owners in the tuna-directed sub-sector are encouraged to reflag their vessels and to transfer skills to South Africans.

The current local longline vessels have gear configured to catch swordfish, but catch composition is split between swordfish and tropical tunas (bigeye and yellowfin tunas). The general method and gear used to target swordfish involves setting lines at night (to reduce seabird mortality) with squid bait using buoy - and branch lines of 20 m length. Depending on the vessel size, 700 - 1500 hooks are set per line. Stainless steel hooks are prohibited and wire traces are allowed on local vessels until 60% of the precautionary upper catch limit (PUCL) of 2000 t for sharks (blue and mako sharks mainly) has been reached. It should however be noted that as of 1 January 2017, wire traces will be prohibited in the longline fishery. The larger vessels that target tropical tuna are able to fish further offshore and differ slightly in their methodology. These vessels set up to 3000 hooks per set with a combination of fish and squid bait, using deeper branch lines and varying hook numbers per basket to influence the setting depth. The smaller longline vessels carry ice whereas the larger vessels have freezers. Fish are dressed at sea and no further at-sea processing is conducted. Swordfish are targeted in the north east of the South African EEZ and beyond in the Mozambique Channel, whereas tropical tunas are caught along the entire continental shelf edge.

South Africa submitted a bigeye tuna fishing plan (CoC 07/13) to the Commission meeting of the IOTC, thereby notifying the Commission of South Africa's intention to exceed 1000 t of bigeye tuna in future as the fishery develops. Prior to 2002 most of longline fishing effort was concentrated in the Atlantic Ocean. Fishing effort started increasing in the Indian Ocean from 2001 with the development of ice and processing facilities at Richards Bay, which is situated on the east coast of South Africa. The targeting and catching of tropical bigeye and yellowfin tunas has proven more successful in the Indian Ocean, resulting in a sizeable amount of the longline fishing effort being concentrated in the Indian Ocean. This fishery is now the most important South African tuna fishery operating in the Indian Ocean in terms of tonnage landed.

In 2005 the shark longline sector was split into a demersal shark longline component, which predominantly targets soupfin and hound sharks, and a pelagic shark longline component (seven vessels), which predominantly targets shortfin mako and blue sharks. The latter catches tunas and swordfish as bycatch. This fishery was split as a precursor to phase out the targeting of pelagic sharks due to the concern over the local stock status of some species. The pelagic shark fishery operated under exemptions from 2005 until March 2011, when South Africa incorporated the pelagic shark fishery into the tuna/swordfish longline fishery. Six of the seven shark exemption holders were issued with tuna/swordfish rights in March 2011. These vessels are undergoing a phase-out period to reduce shark targeting and focus on tuna and/or swordfish catches. Pelagic sharks are currently managed as bycatch in the tuna and swordfish longline fishery.

In 2014 the decision was taken to no longer refer to the fleet as two different fishing strategies, tuna-directed and swordfish-directed, since the fishing behaviour of the local fleet has been shifting from exclusive swordfish targeting to include tunas and sharks. The fishery is now referred to as the Large Pelagic Longline fishery and includes vessels that target tunas, swordfish and sharks as by-catch. The 10-year long-term rights granted in 2005 expired in February 2015, and 15-year rights have been provisionally allocated in November 2016 by South Africa's Department of Agriculture, Forestry and Fisheries. The fleet is currently fishing under exemption permits until the end of the 2016/17 fishing season (i.e., 31 January 2017). Although preliminary, the South African longline fleet will have an overall capacity in the order of 60 vessels.

Foreign vessels, mainly from Japan and Chinese-Taipei, fished in South African waters through the issuing of bi-lateral agreements in the 1970s, and re-negotiated these agreements in the 1990s until 2002 (Sauer et al., 2003). Joint-venture agreements with Japan have been underway since 1995, whereby these foreign-flagged vessels are permitted to fish under a South African Rights Holder. The vessel is required to adhere to South African legislation, including but not limited to, the Marine Living Resources Act (Act No. 18 of 1998) and Regulations promulgated thereunder, including Large Pelagic Longline sector specific policy. Importantly, each foreign vessel is required to carry an observer onboard every trip. The catch from these vessels accrues to South Africa.

In 2015 the fishing effort was distributed along the continental shelf edge and within meso-scale oceanographic features along the entire South African Indian Ocean coastline.

### Pole and Line fishery, commercial linefishery

Fishing for tunas using rod and reel and/or pole and line dates back to the 1970s in South Africa when they were caught in minimal quantities as bycatch in other fisheries, making this the oldest commercial fishery for tuna in South Africa. Interest sparked in 1979 when yellowfin tuna (Thunnus albacares) became available close inshore off Cape Point (Shannon, 1968). Operators from other sectors converted their vessels to ice vessels to fish for yellowfin using pole and line or purse-seine nets, resulting in catches of over 4 500 t (Penney and Punt, 1993). By 1980 the yellowfin tuna was no longer available close inshore, resulting in these vessels targeting albacore (Thunnus alalunga) instead on the Southwest and West coasts of South Africa. Albacore catches peaked at 6000 t in 1989, although these catches were under-reported and were probably closer to 10 000 t (Penney and Punt, 1993). The sector has continued to exploit juveniles and sub-adult albacore of between 2 and 3 years old (average of 86 cm FL) and larger yellowfin tuna (average of 133 cm FL). Catches of albacore have remained relatively stable over the last decade, averaging approximately 3 500 t per year. Yellowfin tuna are periodically available inshore with a frequency of 5 to 7 years and the fleet harvests this species opportunistically. In 2014 and 2015 yellowtail were available to the fishery around the Cape of Good Hope region which might have resulted in lower catches in the IOTC region. In addition to the tuniform target species, vessels will augment catches opportunistically with snoek (Thyrsites atun) and yellowtail (Seriola lalandi).

The sector operates along the south west and west coasts of South Africa in the Atlantic Ocean where albacore is available close inshore from October to May, but vessels make forays into the Indian Ocean depending on target species distribution. Traditionally the South African fleet has been characterized into three different categories (1) Skiboats, (2) Pole and Line and (3) Freezer vessels (Leslie et al. 2004). Skiboats are less than 25 GRT and are mostly confined to day trips within a range of 50 nm. Pole and Line boats, which represent the bulk of the fleet, are mainly older displacement-type vessels converted from other fisheries. These vessels can undertake multiday trips of limited duration and range, as the catch is kept on ice. Freezer vessels are mainly vessels up to 30 m and 230 GRT. Due to their large size and freezing facilities, these vessels can stay out at sea for long periods and reach the farthest fishing grounds (West et al., 2013). In more recent years, improvements in navigational gear, the use of live bait and sonar equipment has improved the performance of these vessels (West et al., 2013).

This sector is effort controlled, limiting the number of vessels and crew. Prior to 2006, the pole and line fishery was managed under the bracket of commercial linefishing. During the long-term rights allocation process in 2006, the commercial linefishery was divided into three separate sectors consisting of the traditional linefishery (452 vessels and 3 450 crew), the hake-handline sector (130 vessels and 785 crew) and the pole and line fishery (200 vessels and 3 600 crew) (Mann, 2013). Of the 200 vessels and 3 600 crew allocation available for 8 years, only 198 vessels and 2961 crew were allocated in 2006 (TAC/TAE, 2015). The reallocation of long-term rights in 2013 saw 130 rights (136 vessels) granted and 15% of the available effort reserved for possible allocation for appeals. Subsequent to the finalisation of the 2015 Appeals process, 34 new rights (41 vessels, 25 repeat and 15 unique) were added, resulting in a total vessel number of 151 (164 rights). This reduction was in response to the 2013 ICCAT albacore stock assessment outcome of large uncertainty around the estimates of albacore stock status in the south Atlantic. ICCAT has issued South Africa with a 4 400 t per annum albacore allocation for the period 2014 to 2016 (ICCAT, 2013), 90% of which is caught by the Tuna Pole-Line sector.

Since vessels are small and the nature of the operation requires the vessel to maximise on crew (who work in pairs to catch and haul albacore), scientific observers cannot be accommodated on the vessel and instead monitor catches in port during offloading.

In 2014, after 6 years of experimental fishing, live-bait purse-seining was incorporated in the sector, allowing a limited number of vessels to cast a net and all vessels to hold live bait (mostly anchovy Engraulis encrasicolus with sardine Sardinops sagax considered as accidental catch) in tanks that can be kept alive for up to 3 months. The vessels are authorised to use purse-seine nets that do not exceed 210 m in length and 35 m in depth.

In 2015 only three Pole and Line vessels fished in the Indian Ocean. This fishery is largely based in Cape Town and the fleet operates in the Atlantic Ocean along the west coast as far north as Namibia and as far west as Valdivia and Vema seamounts. The fleet has access to near shore albacore and yellowfin tuna in these areas.

South Africa also has a boat-based commercial Linefishery which opportunistically catches yellowfin tuna and eastern little tuna (Euthynnus affinis) (Everett, 2014), in addition to king mackerel and shark species in the Indian Ocean using rod and reel when other linefish species such as yellowtail, snoek, kob, geelbek and slinger are not available. These catches usually only contribute a negligible percentage of the total catch of the Linefishery due to the multispecies nature of this fishery.

## FLEET STRUCTURE

South Africa submitted a Fleet Development Plan (FDP) in 2007 and is yet to provide information on the implementation of the initial FDP and to consult with stakeholders to provide an updated FDP.