

COOK ISLANDS TUNA LONGLINE FISHERY

ANNUAL REPORT

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Offshore Fisheries Division

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Ministry of Marine Resources

GOVERNMENT OF THE COOK ISLANDS

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1. Introduction

The Cook Islands commercial tuna fishery currently consists solely of longline fishing vessels targeting tuna and billfish, with some artisanal catches and a historical troll catch.

Since 2001, two distinct fisheries have developed within Cook Islands Exclusive Economic Zone (EEZ). The fishing activity has traditionally been delineated by the 15°S latitude line and splits into two fisheries. The northern fishery targets albacore tuna for the majority of vessels operating out of Pago Pago, American Samoa. These vessels deploy deep sets with trip length ranging between 3 to 14 weeks. This catch is mostly unloaded for the canneries. These vessels may also unload some by-catch species in Apia, Western Samoa and in Rarotonga, Cook Islands for the domestic market, or export via local Cook Islands agents.

The southern fishery is comprised of two small, locally based vessels that operate domestically out of Rarotonga and target a range of species that caters mainly for the local demand. These vessels are all below 20m LOA and 50mt GRT. Trips are short and vessels deploy shallow medium set lines keeping fish fresh on ice. Through locally based agents, this product is usually exported to North American, Japanese and New Zealand markets.

In late 2011 and right through 2012, a bigeye and swordfish exploratory fishing program was introduced. These chartered distant water fishing vessels fished in the northern most part of the Cook Islands EEZ and in the WCPO High Seas, making regular transshipments at sea. Through a charter arrangement by the Cook Islands government, all catch associated with these vessels is attributed to the Cook Islands.

2. Licensing and fleet structure

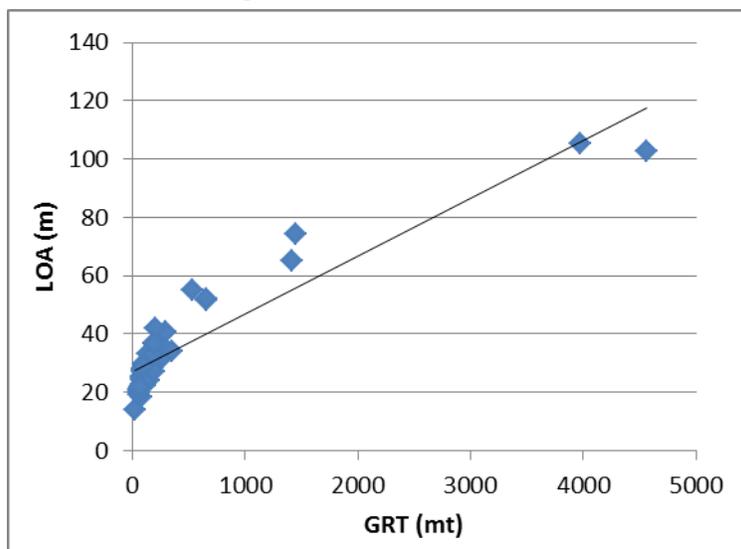


Figure 1. Fleet capacity for vessels licenced to fish in the Cook Islands EEZ only in 2012.

In late 2008 the reintroduction of licensing foreign fishing vessels was implemented. Since then several foreign fishing vessels have been licensed annually. There is no set license issuing period during the year, with license applications processed as they are received. Cook Islands registered vessels are provided licenses to fish within the Cook Islands EEZ and high seas fishing authorizations within the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area.

A total of seventy (70) longline fishing, carrier or bunker licenses were issued in 2012, authorizing fishing within national waters beyond territorial seas (12nm). Of this, twelve Cook Island flagged vessels were licenced to fish within the CK EEZ and the High Seas, two licenses were issued to vessels operating solely in the southern fishery, within the CK EEZ only. Although Cook Islands vessels are issued authorisations to fish on the high seas, and noting the majority of vessels operate solely in the EEZ, only three vessels were authorised to fish on the high seas without licenses for the EEZ. In addition, seventeen Chinese flagged Chartered vessels were licenced to fish within the Cook Islands EEZ and the WCPO High Seas. Figure 1 above demonstrates the fleet capacity according to size for all vessels licenced to fish within the CK EEZ. A total of thirty-six non-Cook Island flagged vessels were licenced and authorised to operate within the Cook Islands EEZ during 2012.

3. Catch and Effort

For the purpose of this report, catch totals are estimated using data from longline fishing vessel logsheets. Reported catch estimates for 2012 are raised using Vessel Monitoring System (VMS) data and unloadings data; this is done when data coverage is incomplete. Due to data issues relating to mis-reporting, non-reporting and biases in reported catch estimates, and when processing of all 2012 fishery data types are completed, annual estimates will be verified and raised using unloading, port sampling, observer and port visit data.

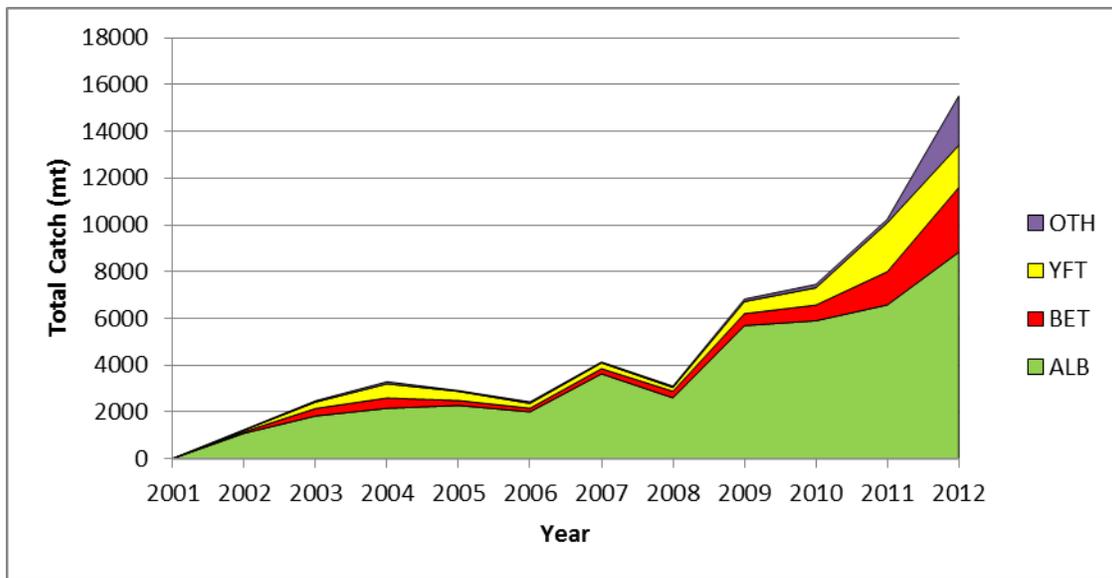


Figure 2. Accumulative total catches by target species, 2001-2012 in CK EEZ.

The highest recorded total catch and effort estimates within the CK EEZ were achieved in 2012. Raised catch estimates for 2012 totalled about 15,500 mt across all species. Albacore catches continue to dominate overall catches (Fig 2) totalling about 8,800 mt and accounting for 57% of

total species composition, followed by bigeye tuna(2,800mt) and yellowfin(1,800mt). Other species catches totalled 2,100mt.

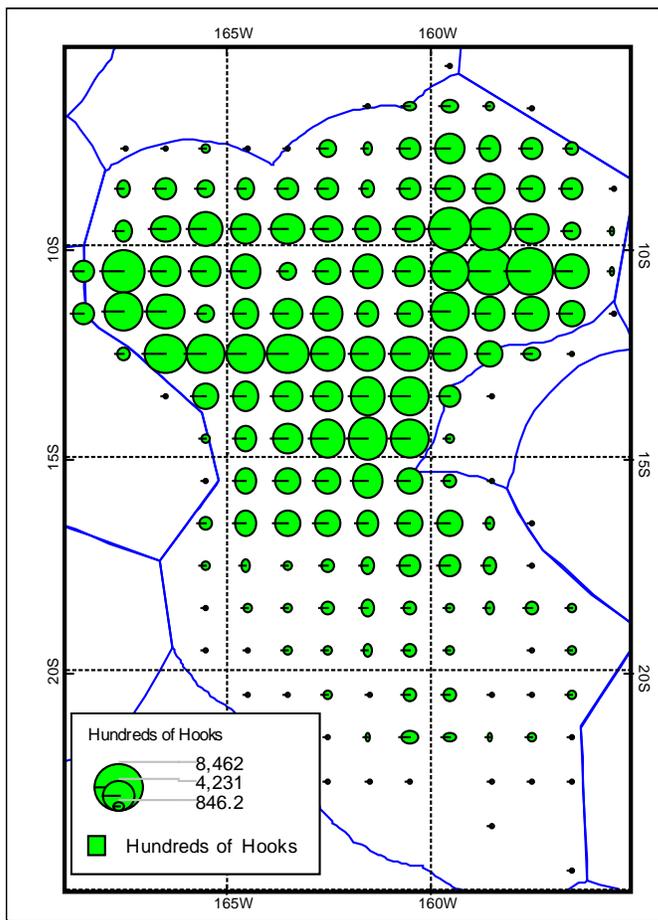


Figure 3. Longline effort distribution (hundreds of hooks) within the CK EEZ, 2012.

Effort continues to be concentrated in the northern fishery. Approximately 40 million hooks of effort was exerted across the whole of the CK EEZ in 2012(Fig3); the highest on record.

Fishing effort (number of hooks) has doubled from 2011 to 2012 (Fig 4). Decreases in the number of fishing vessels operating out of Rarotonga due to high operating and the high seasonal and climatic impacts on catches has contributed to a reduction in effort in the southern fishery. Only three domestic vessels were operating out of Rarotonga in 2012, including the FV Ana which ran aground later in the year. Effort by these vessels continues to be concentrated within 100nm of Rarotonga. Compared with previous years however, there was evidence of longline vessels in 2012 fishing further south than usual, blurring the delineation between the northern and southern fisheries. Figure 3 demonstrates 1 degree by 1 degree aggregated effort distribution (hundreds of hooks) for 2012.

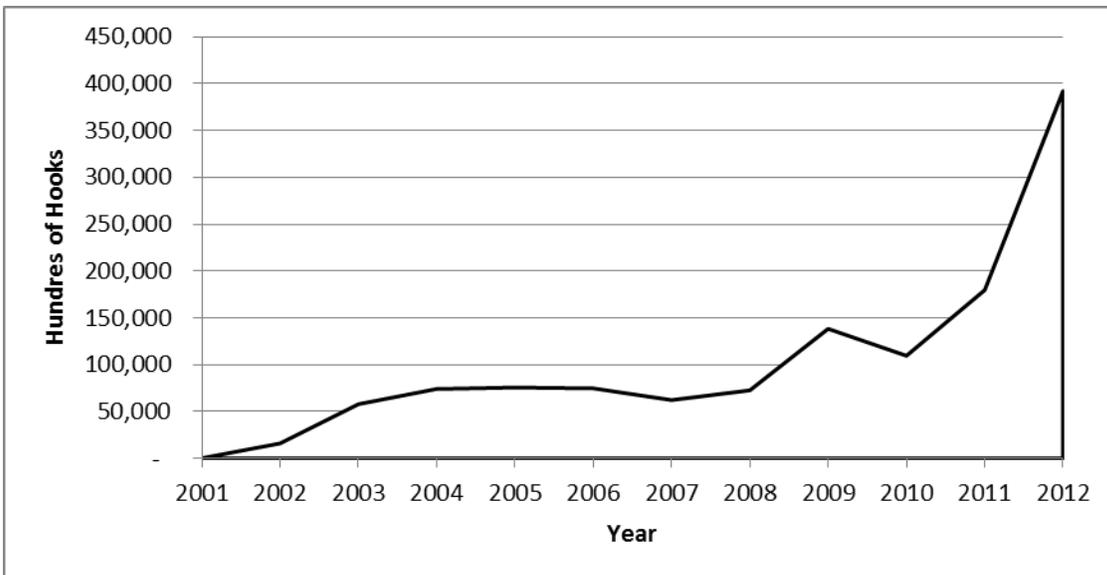


Figure 4. Total fishing effort in hundreds of hooks per year from 2001 – 2012 within the CK EEZ.

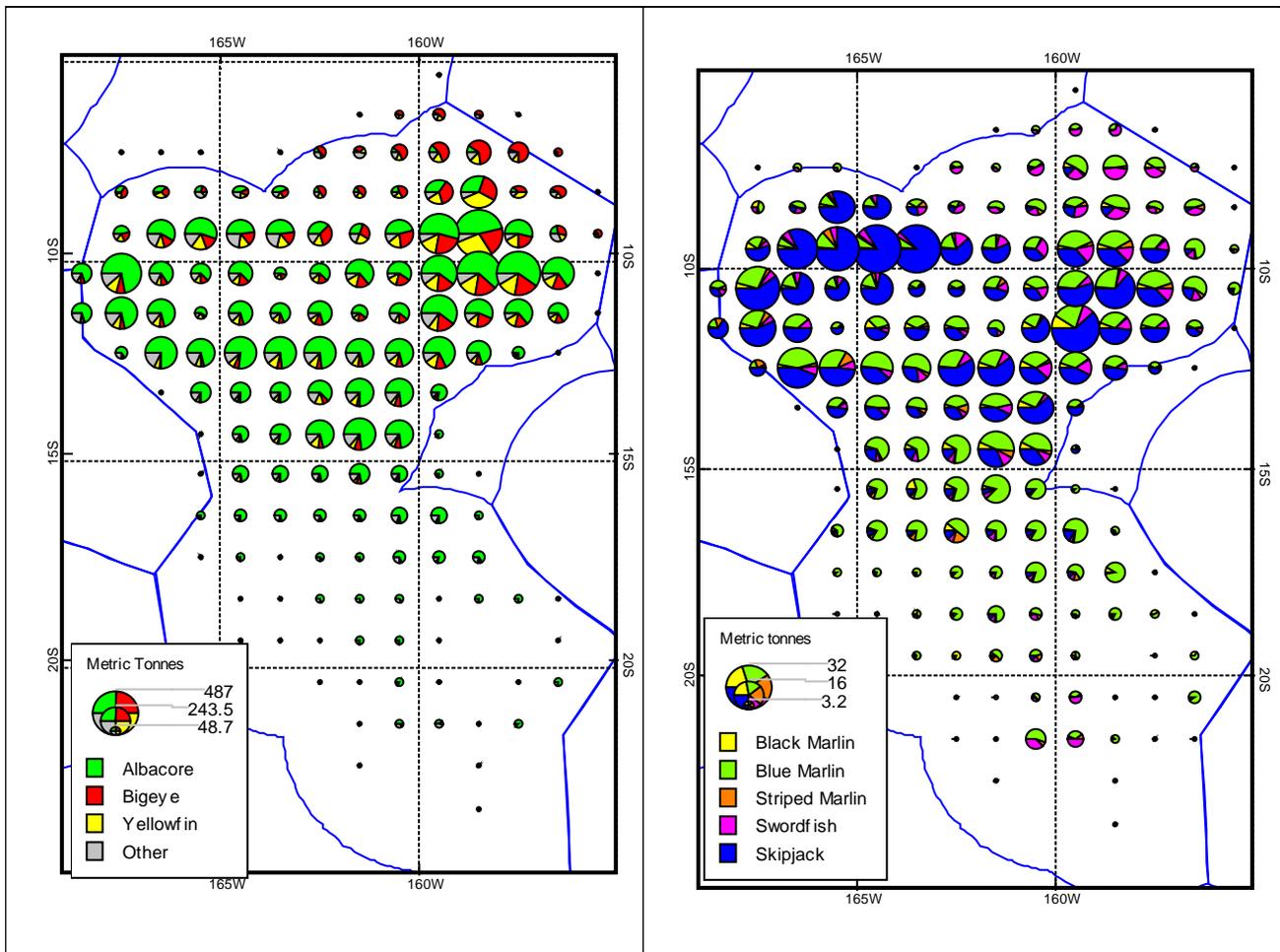


Figure 5. Longline catch distribution for target tuna species (left) and billfish (right) in 2012.

Catch distribution (by weight in metric tonnes) for 2012 by the longline fishery is shown in figure 5, displayed in 1 degree by 1 degree plots, for both target tuna species and billfish. The dominance of albacore catches in the northern fishery is evident in contrast to the southern fishery that shows billfish including swordfish and blue marlin are more abundant in catches. Yellowfin and bigeye catches were dominant in areas around Penrhyn. However, skipjack catches largely from the US Treaty purse Seine fishery were prominent in the north western area of the EEZ north of Pukapuka and also around Penrhyn. Blue marlin and swordfish catches were widespread throughout the entire EEZ.

4. Catch rates

Catch rates are represented as either NPUE (no/hhk = number of fish per 100 hooks of effort) or CPUE (kg/hhk = kilograms per 100 hooks of effort). There is typically a strong seasonality trend evident throughout the calendar fishing year. In general, first quarter catch rates and total catches remain the lowest during the year, with this period referred to as the off-season. Third quarter catches are the peak of the fishing season.

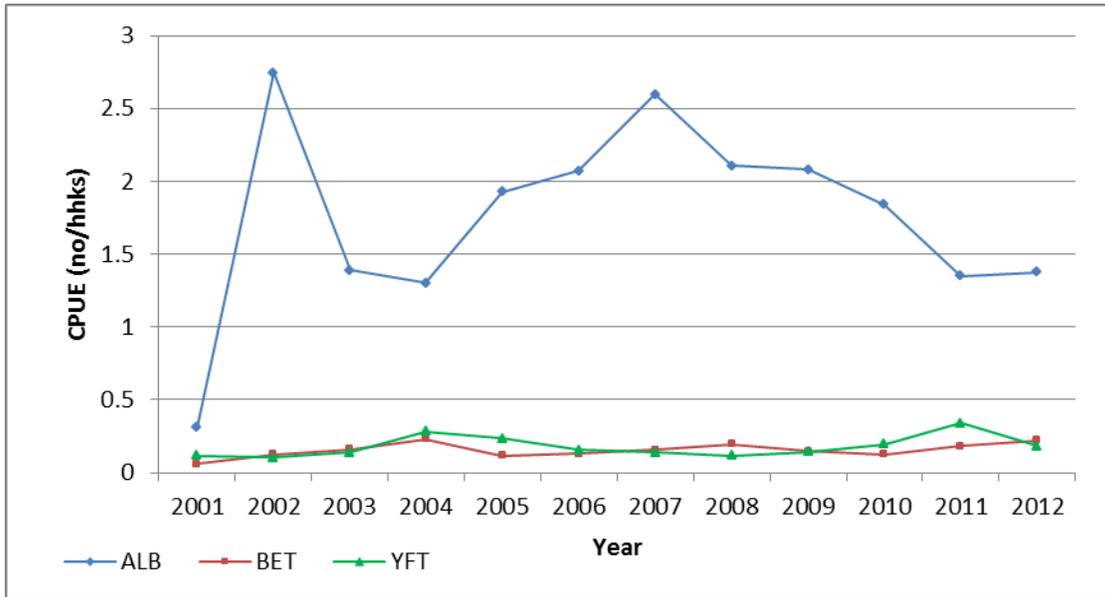


Figure 6. Average annual nominal catch rates (no/hhk) for target tuna species, 2001 – 2012.

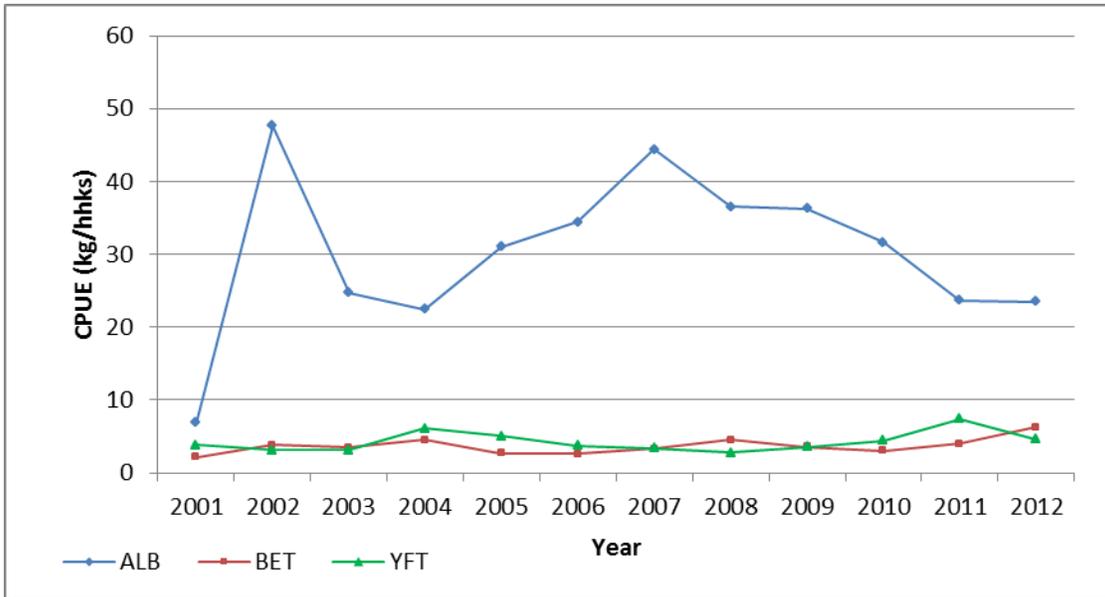


Figure 7. Average annual catch rates (kg/hhk) for target tuna species, 2001-2012.

Nominal catch rates from the albacore fishery are relatively high. Figure 6 shows the annual average nominal catch rate trends between 2001 and 2012 in number of fish per 100 hooks. Earlier in the time series albacore catch rates declined quickly as would be expected in an unfished or lightly fished fishery. During this time most vessels in zone were completing shallow sets targeting billfish and tuna like species. It should also be noted that no fishing activities were carried out in the northern fishery in the years 2000 and 2001 due to the foreign fishing license

moratorium imposed by Government to encourage the development of the domestic fishing industry. Since then average annual nominal albacore catch rates have remained between 2 and 3 no/hhk (Fig 6). The delineation between a previously distinct northern and southern fishery was less apparent during 2012 due to limited activity from domestic fishing vessels and a strong La Nina weather pattern that drove fishing effort further south.

5. Catch and effort beyond national jurisdiction

All Cook Islands flagged longline fishing vessels issued with EEZ licenses are issued authorizations to fish on the high seas areas within the WCPFC convention area. Three vessels sought authorization to fish solely in areas beyond the EEZ and within areas of other national jurisdictions in 2010. Sixteen of the chartered bigeye and swordfish exploratory boats also fished some sets on the high seas. In 2012, a total of 23 longline vessels fished in areas beyond the CK EEZ with a total catch of 1376.7mt. These majority of these vessels targeted bigeye tuna (Fig 8).

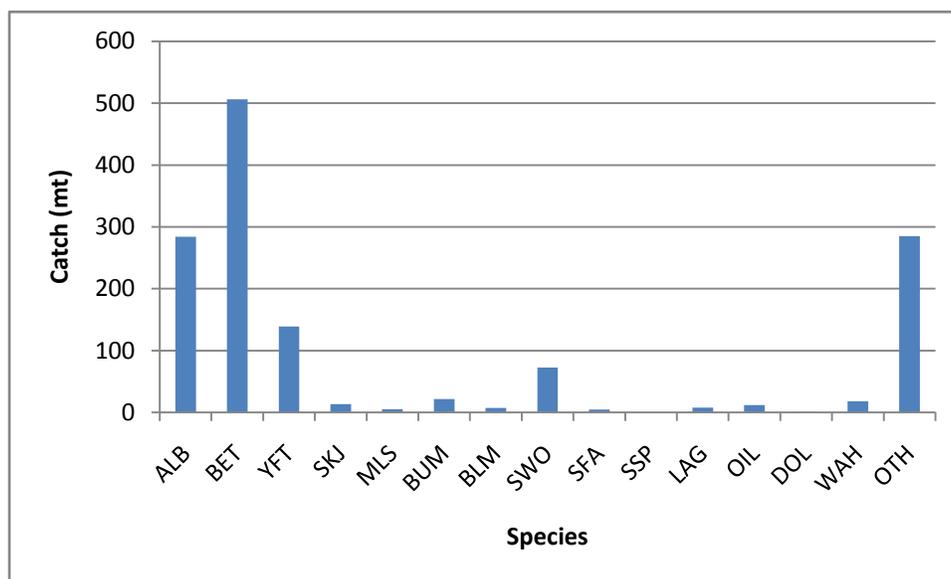


Figure 8. Catch and effort from vessels fishing beyond the CK EEZ, 2012.

6. Monitoring and Research Programs

i. Swordfish Tagging and Training Project – Phase 2

The second phase of the Cook Islands swordfish tagging and training project began in July 2010. Funding for this project was provided by a US Federal Grant through the National Marine Fisheries Service (NMFS) of NOAA. Five additional Satellite, Archival Tags were purchased and are expected to be deployed within Cook Islands waters by the end of the project.

This tagging program and the information that will be gained from it will help the Cook Islands and regional scientists attempting to determine the stock status of this species within the South

Pacific. Tagging with archival tags provides invaluable information about species behaviour, movement through the water column and migration routes. Satellite archival tags also allow for greater collection of data without having to recapture the fish, unlike conventional tags. The tags will also be used to determine stock structure of swordfish within the south central Pacific region.

During the first half of 2012, three local observers were trained to undertake tagging activities however no tags were able to be deployed due to low catch rates of swordfish and limited availability of observers during optimal tagging times. The latter half of 2012 saw seven observer trips carried out on domestic longliners with two successful tag deployments. Data from this project contributed to the paper *Spatial Dynamics of Swordfish in the South Pacific Ocean Inferred from Tagging Data*, and in August 2012 the paper was submitted to the Eighth Regular Session of the Scientific Committee of the Western and Central Pacific Fisheries Commission's (WCPFC). Tagging data from the CISTTP has been provided to the Oceanic Fisheries Programme of the Secretariat of the South Pacific (OFP-SPC) to contribute to regional efforts to enhance understanding of swordfish stock structure in the South Pacific.

ii. Cook Islands National Observer Program

Fisheries observers monitor and record activities and operations onboard fishing vessels, vital information that helps to describe and understand what is happening in the fishery.

During 2012, thirty observer placements were undertaken, ten of which were debriefed by qualified debriefers. Nine trips were on board Cook Island flagged vessel and twenty one on foreign flagged vessels, ten of which were on transshipment/carrier vessels. Eight of these trips departed locally from Avatiu harbour, either on board carrier vessels or the local domestic boat *Gold Country*. The nine placements from Rarotonga involved standard monitoring of fishing operations, swordfish tagging and biological sampling of albacore.

Observer coverage on Cook Islands licensed vessels in 2012 was approximately 8-10% of fishing days, a total of 30 placements over 851 sea days.