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ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

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CANADA

2023 Annual Report to the Western and Central Pacific Fisheries Commission

Canada

PART I. INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS (For 2022)

Fisheries and Oceans Canada
Ecosystems and Science Branch, Pacific Biological Station

Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April 2022	**YES**
If no, please indicate the reason(s) and intended actions:	

1.0 SUMMARY

Canada has one main fishery for highly migratory species in the Pacific Ocean, a troll fishery targeting juvenile north Pacific albacore (*Thunnus alalunga*). Catch and effort data from this fishery for 2022 are summarized in this document. No Canadian vessels targeting albacore entered the north Pacific WCPFC convention area in 2022.

Since 2007, the Canadian troll fleet has largely operated in the eastern Pacific Ocean, east of 150°W and north of 30°N. The 2022 fishery also predominantly occurred in the coastal waters of North America, with only 1.3% of catch taken on high seas in the north Pacific Ocean (i.e. beyond the exclusive economic zones (EEZ) of Canada and the United States). Annual Canadian catch and effort in the north Pacific within the WCPFC convention area ranged from 11 to 1,007 metric tons (t) and 17 to 1,017 vessel-days, respectively, between 1995 and 2005. There was either no effort or negligible amount of catch and effort (< 1 t of catch and < 5 vessel-days effort annually) in years of 2006-2016. Five Canadian vessels caught a total of 55 t of albacore in the North Pacific waters of the WCPFC convention area in 2017 and in 2021 one Canadian vessel fished for three days in the north Pacific WCPFC convention area with no reported catch. No Canadian vessels fished in the north Pacific WCPFC convention area in 2022.

Catch and effort in the South Pacific Ocean by the Canadian albacore troll fleet has ranged between 0 and 313 t and 4 and 348 vessel-days, respectively, from 1995 to 2007. In 2021, one Canadian vessel participated in the South Pacific albacore fishery for 54 vessel-days and a total catch of 31 t. No Canadian vessels participated in a south Pacific fishery in 2022.

2.0 TABULAR ANNUAL FISHERIES INFORMATION

This report presents estimates of annual effort and catches of tunas and other highly migratory species (HMS) and vessel participation in Canadian fisheries operating in the Pacific Ocean from

1995 to 2022. The fishery data provided in this report were taken from Canadian Albacore Database version 23.01.26. The data up to 2022 are definitive while the 2022 data are provisional.

The Canadian HMS fishery is a troll fishery using jigs to target juvenile albacore in the Pacific Ocean. Catch and effort data for both the North and South Pacific components of this fishery are reported in Table 1. The preliminary catch and effort estimates for 2022 are 3,639 t of north Pacific albacore and 4,073 vessel-days of effort by 118 troll vessels, which was a 50.4% increase in catch and a 10.5% increase in effort relative to 2021 (Table 1). No catch or effort were reported from the south Pacific Ocean in (Table 1; Figs. 1-3).

3.0 BACKGROUND

Canadians have been fishing for albacore in the Pacific Ocean since 1939, but catches were well below 1,000 t annually until the mid-1990s. The Canadian fishery has operated in the north Pacific Ocean between 20 and 55°N and from the North American coast as far west as 170°E and in the south Pacific Ocean between 30 and 45°S and 130-160°W. Although the Canadian fleet will follow albacore into offshore waters, the majority of effort and catch has occurred in the coastal waters of Canada and the United States in the 2000s. Few Canadian vessels (< 3) operated in the WCPFC northern statistical area in 2005- 2016, but five Canadian vessels fished for albacore in the WCPFC northern statistical area in 2017 (Fig. 2). Canadian participation in the south Pacific albacore fishery ceased in 2007, until 2021, when one vessel returned to fish (Table 2; Fig. 2). No Canadian vessels participated in a south Pacific albacore fishery in 2022. Management regulations for Canadian vessels are documented in the Albacore Tuna Integrated Fisheries Management Plan (IFMP; Pacific region tuna IFMP (publications.gc.ca)), which covers one year period from 01 April 2023 to 31 March 2024.

4.0 FLAG STATE REPORTING OF NATIONAL FISHERIES

4.1 Canadian Albacore Troll Fishery

The Canadian troll fishery operating in the WCPFC northern statistical areas experienced a significant decline in participation in the 2000s (Table 2), declining from 15 fishing vessels in 2003 to 1 vessel in 2005 (Fig. 2). Few Canadian vessels participated in albacore fishing in the WCPFC statistical areas between 2006 and 2016. In 2017, five vessels did fish there and one in 2021, however no Canadian vessels fished for albacore in the WCPFC statistical areas in 2022 (Fig. 1). Participation in the south Pacific albacore fishery never exceeded five vessels, with one vessel returning to fish in 2021 for the first time since the 2007 fishing season (Table 2; Fig. 2). No Canadian vessels participated in a south Pacific fishery in 2022.

Canada started to implement a catch sampling program in 2009 to obtain size composition data from the Canadian troll fishery. These data are collected by harvesters who record the lengths of the first 10 fish landed on a daily basis. The target sampling rate is 1% of the total reported catch and has been achieved every year (Table 3). Sixty (60) vessels participated in the sampling program in 2022 and turned in 16,791 fork length (FL) measurements of juvenile north Pacific albacore, for a sampling rate of 2.8% (Table 3). Fork lengths ranged from 52 to 93 cm, having a dominant mode around 68 cm, corresponding to 2-year old fish. Mean length was 68.4 cm, which is similar to the mean length observed in 2021.

4.2 Interactions with other Species in the WCPFC Convention Area

There were no reported interactions or bycatch of pelagic sharks, seabirds, or sea turtles by the Canadian fishery in the WCPFC convention area in 2022.

4.3 Swordfish

Canadian-flagged vessels or Canadian vessels under charter, lease or similar arrangements operating as part of the domestic Canadian fishery, did not fish for or catch swordfish (*Xiphias gladius*) south of 20°S during the 2000-2022 period.

5.0 COASTAL STATE REPORTING

Canada is not a coastal state within the WCPFC Convention Area.

6.0 SOCIO-ECONOMIC FACTORS

Vessels participating in the Canadian fishery are primarily salmon troll vessels and most are between 11 and 18 m in length. Fishing effort by these vessels occurs primarily within the Canadian and United States EEZs from the southern Oregon to the northern tip of Vancouver Island. Several vessels greater than 18 m in length are able to access offshore waters and remain at sea for several months.

Fishing activity is dependent on price, ocean and weather conditions, availability of albacore, strength of other fisheries (particularly the salmon fishery) and fuel costs. Effort in the coastal fishery normally peaks in August and September, after the salmon troll season has wound down. High fuel prices coupled with an apparent increase in the availability albacore closer to North America and uncertainty concerning conditions in the mid-Pacific were probably factors in the contraction of the operational area that began in the 2000s.

The main factor affecting the operation of the Canadian albacore troll fishery are the terms of the fishing regime in the bilateral Canada-United States Albacore Treaty. This fishing regime limited the number of Canadian vessels in US waters to 45 between June 15 and September 15 annually. The limited vessel entry and the impacts of the Covid-19 safety protocols have led to an increased emphasis on fishery operations in Canadian waters. Catch and effort primarily occurred in the Canadian EEZ (approximately 68% of the catch and 70% of the effort) in 2022.

7.0 DISPOSAL OF CATCH

Canadian troll vessels are equipped with freezers to blast freeze albacore for both foreign and domestic sashimi and loin markets. The vast majority of catch is off-loaded at domestic ports, in general, with Victoria and Ucluelet handling most of the total annual landings. Ports in the United States designated by the bilateral treaty, handle the remaining landings. Small amounts of frozen fish (<<1 t) are occasionally sold directly to the public through dock-side sales or are kept for personal use. These sales are recorded in logbooks and included in catch estimates for this fishery.

8.0 ONSHORE DEVELOPMENTS

There were no notable developments in 2022.

9.0 FUTURE PROSPECTS OF THE FISHERY

The Canadian albacore fishery catch and catch rate were at a historic low in 2017. The catch increased in 2018 and remained relatively stable until increasing again in 2022. Fishing effort in this fishery decreased steadily since 2017, hitting a historic low in 2020, which was likely due to impacts of the Covid-19 pandemic safety measures. Since 2020, fishing effort has slowly increased to levels seen in 2019.

The dominant demographic in the Canadian troll fishery is comprised of participants who participate in other Canadian fisheries and are near to retirement age. The next generation of Canadian albacore fishery participants is not well developed at present.

10.0 STATUS OF FISHERY DATA COLLECTION SYSTEM

10.1 Logbook Data Collection and Verification

Canadian albacore catch and effort data are compiled from hail records, logbooks, and sales slips from buyers and processing plants and stored in a relational database (Stocker et al. 2007). This database contains all fishery-related data from 1995 to the present and provides the best estimate of total annual catch and effort by temporal and geographic strata.

All vessels are required to hail (call) a third party service provider when they start and stop fishing and when they change zones, consisting of the Canadian EEZ, US EEZ, and the high-seas outside the EEZs. Hail data are used to estimate the number of vessels participating in the fishery and the approximate area of these activities in-season (Stocker et al. 2007).

Canadian vessels must carry logbooks and record daily catch (number of fish and estimated weight of both retained and released albacore), albacore length measurements, fishing location (latitude and longitude), and effort (number of jigs, hours fished). Catches and the disposition (retained or released) of non-target species are also recorded in logbooks. Completed copies of the logbooks must be returned for data entry after fishing is terminated or by mid-November, whichever is first (see Stocker et al. 2007).

The annual catch and effort data shown in Table 1 represent expanded (or raised) rather than reported values (see Stocker 2007) and were obtained from Version 23.01.26 of the Canadian database. The amount of expansion needed to arrive at these figures can be determined from the annual logbook coverage shown in Table 1. The vessel participation data (Table 2) represent the number of unique vessels as determined from the hail and logbook data streams.

10.2 Observer Programme

Canada does not have an observer program for its albacore troll fleet.

10.3 Port Sampling

Canada does not have a port sampling program to measure albacore fork lengths or other biological information during domestic off-loads. Prior to 2009, some vessels unloading in US ports had portions of their catch sampled by US port samplers and these data were made available to Canada. The record of port sampled length frequency data is available from 1984 to 2008.

10.4 Unloading/Transhipment

At-sea transshipment or in-port transshipment activities were not reported by the Canadian albacore troll fleet in 2022.

11.0 RESEARCH ACTIVITIES

There are, primarily, three age classes (2-4 years) of the Albacore harvested by the Canadian fleet. Harvesters collected fork length data in years of 2009-2022. Age compositions of harvested Albacore tuna were estimated, using a Bayesian mixture model on the measured length data. The study showed that Canadian catch was mostly composed of Ages 3 and 4 albacore in 2009-2013, and the proportion of Age 2 albacore started to increase since about 2012. The proportion of Age 2 albacore in the Canadian catch appears to be higher than 90% in recent years.

12.0 LITERATURE CITED

Stocker, M., H. Stiff, W. Shaw, and A.W. Argue. 2007. The Canadian albacore tuna catch and effort relational database. Canadian Technical Report of Fisheries and Aquatic Sciences 2701: vi+76 p.

Table 1. Catch and effort statistics for the Canadian troll fishery targeting albacore in the WCPFC convention area, 1995 to 2022. A 0 means no reported data.

		North Pacific[A]		WCPFC CA[B]		South Pacific	
Year	Logbook Coverage (%)[D]	Catch (t)	Effort (v-d)	Catch (t)	Effort (v-d)	Catch (t)	Effort (v-d)
1995	18	1,761	5,923	23	17		
1996	24	3,321	8,164	811	523	82	168
1997	30	2,166	4,320	1,007	1,017	149	171
1998	50	4,177	6,018	752	455	167	111
1999	71	2,734	6,970	151	327	254	197
2000	68	4,531	8,769	586	608	313	348
2001	81	5,248	10,021	569	383	208	168
2002	74	5,379	8,323	259	250	144	158
2003	96	6,861	8,429	453	389	0	4
2004	92	7,857	9,942	123	159	63	67
2005	94	4,829	8,564	11	57	72	111
2006	95	5,833	6,243	0	0	135	105
2007	92	6,040	6,902	0	0	30	59
2008	93	5,464	5,774	0	0	0	0
2009	97	5,693	6,540	0	0	0	0
2010	96	6,527	7,294	0	0	0	0
2011	98	5,415	8,605	1	0	0	0
2012	99	2,498	6,005	<1	2	0	0
2013	99	5,090	6,469	<1	4	0	0
2014	100	4,780	4,745	0	0	0	0
2015	99	4,391	5,244	0	0	0	0
2016	100	2,842	5,359	0	0	0	0
2017	100	1,830	4,978	55	100	0	0
2018	100	2,717	4,196	0	0	0	0
2019	100	2,402	3,882	0	0	0	0
2020	100	2,375	3,301	0	0	0	5
2021	100	2,419	3,687	0	3	31	54
2022[C]	100	3,639	4,073	0	0	0	0

A – Total catch and effort in the north Pacific, including catch and effort within the WCPFC convention area

B – North Pacific albacore catch and effort west of 150 °W longitude (inside the WCPFC convention area).

C – Provisional estimates from Canadian database version 23.01.26.

D - Logbook coverage is calculated as the number of vessels returning logbooks divided by the total number of vessels known to be fishing based on hail, sales slip and logbook records.

Table 2. Number of Canadian troll vessels active in the WCPFC Convention Area for 1995-2022.

Year	North Pacific[A]	North Pacific – WCPFC Statistical Area[B]	South Pacific
1995	287	3	3
1996	295	25	3
1997	200	32	3
1998	214	27	3
1999	238	14	5
2000	243	12	5
2001	248	7	4
2002	232	7	4
2003	193	15	1
2004	221	5	1
2005	213	1	2
2006	174	0	2
2007	207	0	1
2008	134	0	0
2009	138	0	0
2010	159	0	0
2011	177	2	0
2012	175	2	0
2013	183	1	0
2014	160	0	0
2015	164	0	0
2016	152	0	0
2017	121	5	0
2018	121	0	0
2019	122	0	0
2020	104	0	0
2021	113	1	1
2022[C]	118	0	0

A - Total number of Canadian vessels in the north Pacific Ocean, including vessels accessing the WCPFC Convention Area.

B – Canadian vessels that reported entering the WCPFC Convention Area.

C – Provisional estimates from Canadian database version 23.01.26.

Table 3. Summary of size (fork length, FL) sampling program results for the Canadian albacore troll fishery, 2009-2022. All the fish measured were captured outside of the WCPFC Convention Area.

Year	Sample Size, N	Min FL (cm)	Mean FL (cm)	Max FL (cm)	Standard Deviation (cm)	Reported Catch (pieces)	Sampling Rate
2009	14,723	46.0	68.2	98.0	5.7	955,553	1.54%
2010	9,882	51.0	71.5	90.0	6.7	927,051	1.07%
2011	14,263	50.0	69.9	90.0	6.4	830,336	1.72%
2012	11,139	43.0	70.2	100.0	5.6	371,279	3.00%
2013	17,150	45.0	71.2	105.0	5.7	765,929	2.24%
2014	11,208	43.0	72.5	102.0	6.4	699,395	1.60%
2015	13,258	45.0	67.6	107.0	6.4	750,395	1.77%
2016	14,189	47.0	70.6	94.0	5.8	446,091	3.18%
2017	10,517	50.0	68.9	96.0	5.5	296,305	3.55%
2018	9,401	48.0	67.4	94.0	5.8	458,648	2.05%
2019	11,067	40.0	66.1	91.0	4.0	419,536	2.64%
2020	8,982	51.0	69.1	88.0	4.1	370,606	2.42%
2021	10,392	50.0	68.1	95.0	7.7	398,814	2.61%
2022	16,791	52.0	68.4	93.0	3.6	598,557	2.81%

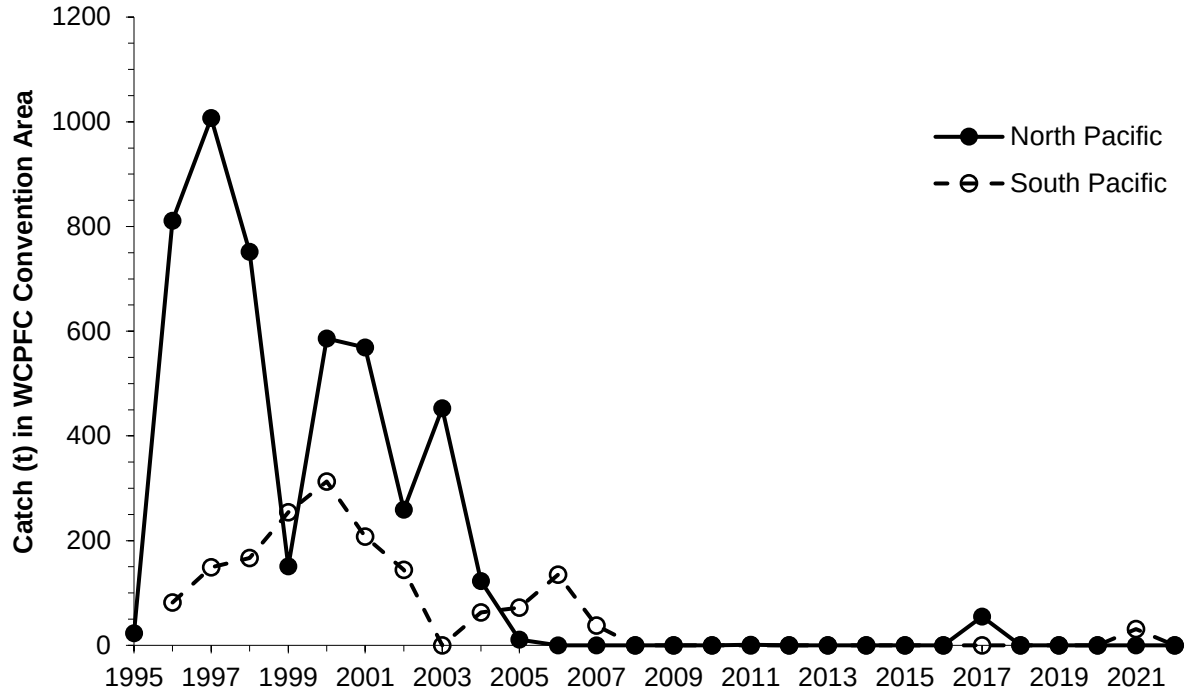

Figure 1. Historical annual catch of albacore by the Canadian troll fleet in the WCPFC Convention Area in the north Pacific Ocean west of 150°W and the south Pacific Ocean for 1995 to 2022.

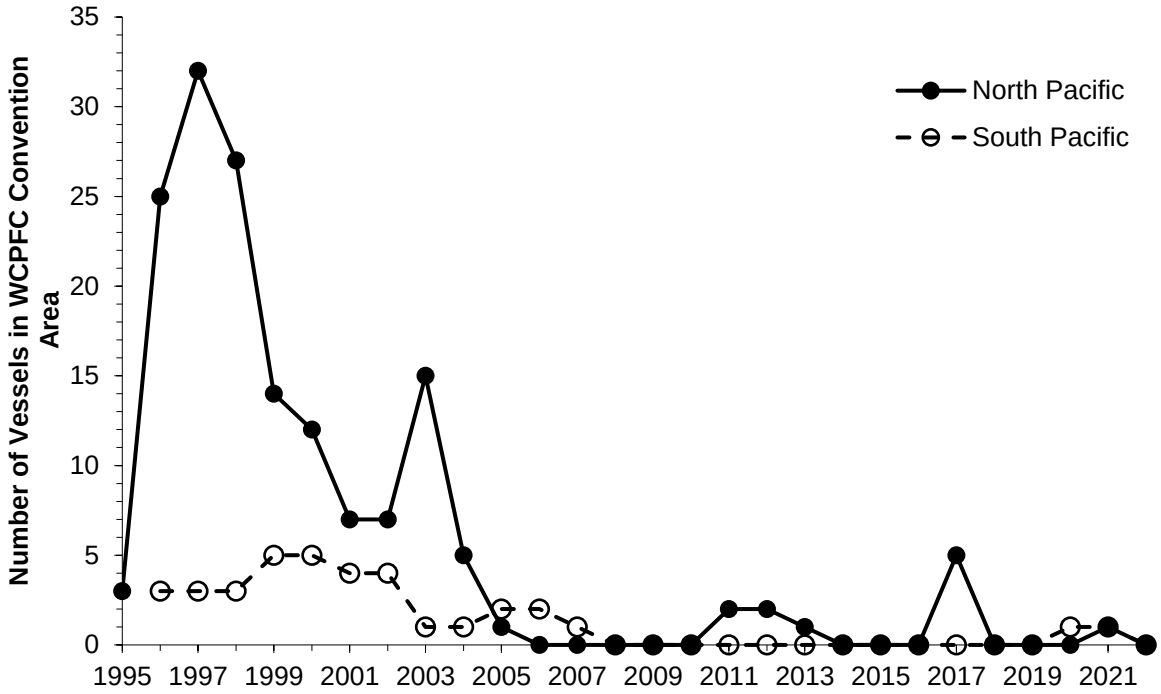

Figure 2. Historical annual vessel numbers for the Canadian troll fleet targeting albacore in the WCPFC Convention Area in the north Pacific Ocean west of 150°W and the south Pacific Ocean for 1995 to 2022.

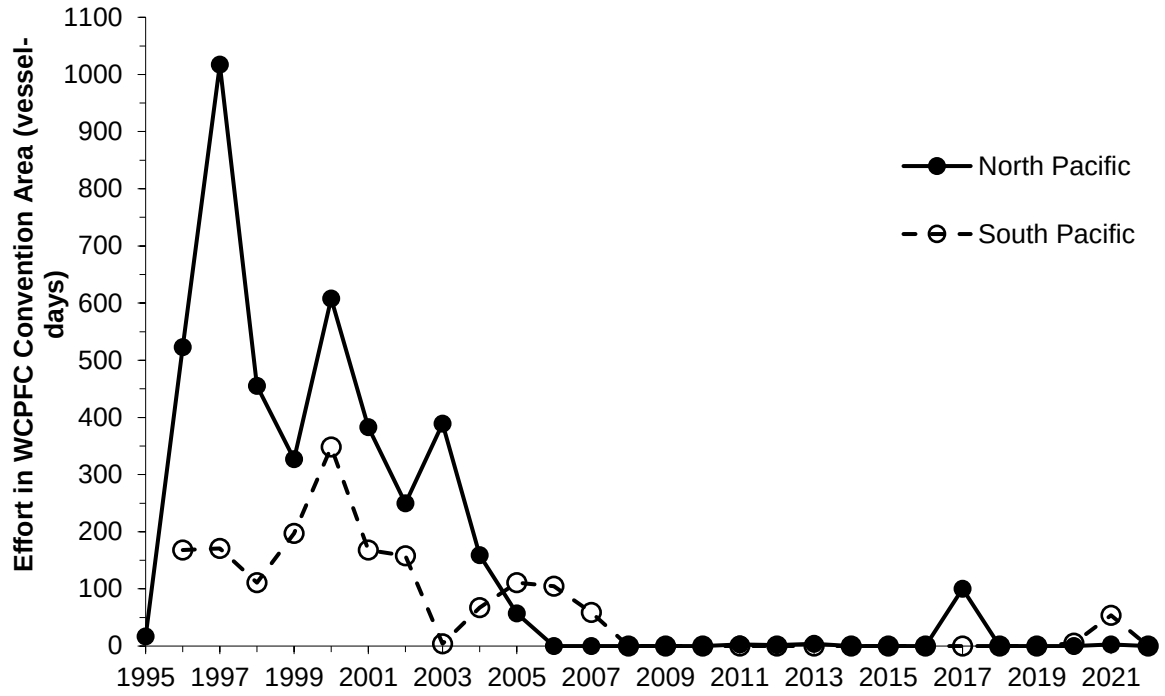

Figure 3. Historical annual fishing effort for the Canadian troll fleet targeting albacore in the WCPFC Convention Area in the north Pacific Ocean west of 150°W and the south Pacific Ocean for 1995 to 2022.