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The 2006 Canadian North Pacific Albacore Troll Fishery¹

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INTRODUCTION

The Canadian fishery for albacore tuna (*Thunnus alalunga*) in the North Pacific is a troll fishery using tuna jigs. Canadian fishermen have been fishing albacore since the mid-1930s. The fishery targets albacore over an expanded range broadly classified into four fishing areas: (1) British Columbia coastal, (2) British Columbia/United States coastal, (3) highseas north Pacific ocean, and (4) highseas south Pacific ocean. The coastal fleets contain the majority of the vessels, but in recent years, some of the fleet, like U.S.-based troll vessels, follow albacore concentrations into offshore waters.

Canada is committed to providing detailed catch and effort statistics, logbook data, and fishing vessel information, as is required under the Highly Migratory Species Convention. This report presents summaries of catch, effort and catch per unit of effort (CPUE) data for the Canadian north Pacific albacore troll fishery in 2006. Shaw (1997, 1999), Shaw and Argue (1999 and 2000), Shaw and Stocker (2002), Stocker and Shaw (2004a, 2004b and 2005) and Stocker (2006) present similar information for previous years.

DATA SOURCES

FISHERY STATISTICS

All Canadian vessels must carry logbooks while fishing for highly migratory species in any waters. Daily catch and effort data are obtained from completed copies of the *Canadian Albacore Logbook* submitted by fishermen. A full description of the type of information recorded in the logbooks is presented in Stocker et al. (2007). Logbooks, sales slips and at-sea trans-shipment slips, completed at the time fish are landed and sold, must be returned to Fisheries and Oceans Canada (DFO) for entry into the albacore catch database.

Sales slip records are the source of historical northern albacore catches dating back to 1945 (Ware and Yamanaka, 1991). In March 1999, DFO embarked on a program to reconcile past estimates of total Canadian catches of albacore from logbook, sales slip, phone-in and transshipment data. During the process updates, based on new logbook and sales slip information, were made to catches and number of vessels as reported in earlier reports (Shaw and Argue 1999, Argue and Shaw 2000 and Argue et al. 1999). The catch data up to 2005 are considered our best estimates. The data for 2006 are considered to be preliminary.

Catch

The total north Pacific albacore tuna catch from 1995 to 2006 by the Canadian north Pacific albacore troll fishery ranged from 1,763 t in 1995 to 7,856 t in 2004 (Table 1, Figure 1). The preliminary catch estimate for 2006 is 5,819 t an increase of 20.5% over the 2005 catch. The average catch for the period 1995 to 2006 was 4,557 t.

Table 2 shows the distribution of catches by FAO statistical areas from 2002 to 2006. The majority of the catches were from FAO statistical area 67. These catches include catches made by the Canadian fleet in the US and Canadian EEZ under the bilateral albacore tuna treaty. In 2006 no catches have been reported from the highseas (FAO Areas 61 and 77; Figure 2).

Effort

In 2006, 171 Canadian vessels were operating in the north Pacific ocean (Table 1). This represents a 19% reduction of Canadian troll vessels operating in the north Pacific ocean. The fleet size ranged from a low of 171 vessels in 2006 to a high of 292 vessels in 1996. From 1995 to 2006 the average number of Canadian vessels fishing for albacore in the north Pacific ocean was 227. Fishing effort in the tuna fishery is measured in number of vessel fishing days (v-d). Fishing vessel days ranged from 4,324 in 1997 to 10,021 in 2001. The 2006 estimate of 6,239 v-d is 27% lower than the effort expended in 2005. The average for the period 1995 to 2006 was 7,640 v-d. The distribution of the fishing effort by the Canadian troll fleet in 2006 is shown in Figure 2.

CPUE

The CPUE ranged from a low of 297 kg/v-d in 1995 to a high of 933 kg/v-d in 2006 (Table 1, Figure 1). The average CPUE for the period 1995-2006 was 590 kg/v-d. Both catch and CPUE follow an increasing trend over the period 1995-2004 and then drop in 2005, the CPUE is trending up again in 2006 (Figure 1).

RESEARCH ACTIVITIES

The *Canadian Albacore Tuna Catch and Effort Relational Database Management System* was developed by Fisheries and Oceans Canada to address the issues of tracking albacore catch and effort data from fishing logbooks and sales slips landings from the Canadian troll fleet operating in the Pacific Ocean. A project to document the existing relational database for the Canadian Pacific albacore catch and effort data has been completed. A technical report describing the design of the entire database (including triplog, saleslip and hail components) based on a venn diagram concept has been published (Stocker et al. 2007). The report includes the relationship diagram that documents the structure of the relationships between data components. The description includes a *conceptual data model*, which outlines the logical relationship of fields and tables, and a *physical data model*, which describes the hardware/software implementation of the conceptual model, and includes an outline of the data compilation, formulation, and summary procedures used to convert raw fishery data into an expanded catch and effort estimate at geospatial coordinates. The documentation will allow new users to efficiently familiarize themselves with the database contents and extract data for reporting under various domestic and international obligations.

REFERENCES

- Argue, A.W., W. Shaw, and N. Williscroft. 1999 MS. An update for Canadian albacore fisheries in the north and south Pacific ocean. 8pp. Document submitted by DFO to the twelve Meeting of the Standing Committee on Tuna and Billfish in Tahiti, French Polynesia, June 16-23, 1999.
- Argue, A.W. and W. Shaw. 2000 MS. An update for Canadian tuna fisheries in the north and south Pacific ocean. 17pp. Document submitted by DFO to the thirteenth Meeting of the Standing Committee on Tuna and Billfish in Noumea, New Caledonia, July 5-12, 2000.
- Shaw, W. 1997 MS. The Canadian albacore fishery off the west coast of British Columbia, 1996-97. 15 pp. Document submitted by DFO to the Fifteenth Meeting of the North Pacific Albacore Workshop, Nanaimo, B.C., December 1997.
- Shaw, W. 1999 MS. An update of the Canadian north Pacific albacore fishery. 6 pp. Document submitted by DFO to the Second Meeting of the Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, Honolulu, Hawaii, January 1999.
- Shaw, W. and A.W. Argue. 1999 MS. The Canadian albacore fisheries in the north Pacific ocean, 1995-1998. Document submitted by DFO to the Sixteenth Meeting of the North Pacific Albacore Workshop, Kesennuma, Japan, November 4-6, 1999.
- Shaw, W. and A.W. Argue. 2000 MS. The 1999 Canadian north Pacific albacore troll fishery. Document submitted by DFO to the Seventeenth Meeting of the North Pacific Albacore Workshop, Taipei, Taiwan, December 6-13, 2000.
- Shaw, W. and M. Stocker. 2002 MS. The 2000 and 2001 Canadian North Pacific albacore troll fishery. Document submitted by DFO to the Eighteenth Meeting of the North Pacific Albacore Workshop, La Jolla, CA, December 4-11, 2002. NPALB/02/16: 22p.
- Stocker, M. 2006 MS. The 2005 Canadian North Pacific albacore troll fishery. Document submitted by DFO to the ISC Albacore Working Group Meeting, 2006 National Research Institute of Far Seas Fisheries (NRIFSF), 5-7-1 Orido Shimizu-ku, Shizuoka-shi, 424-8633 Japan. ISC-ALBWG/06/05: 10p.
- Stocker, M. and W. Shaw. 2004a MS. The 2002 Canadian north Pacific albacore troll fishery. Document submitted by DFO to the Fourth Meeting of the Interim Scientific Committee on Tuna and Tuna-like Species in the North Pacific Ocean (ISC), Honolulu, Hawaii, 26 January-4 February, 2004. ISC/04/Plenary/1: 11p.

- Stocker, M. and W. Shaw. 2004b MS. The 2002 and 2003 Canadian north Pacific albacore troll fishery. Document submitted by DFO to the Nineteenth Meeting of the North Pacific Albacore Workshop, Nanaimo, BC, November 25-December 2, 2004. NPALB/04/03: 11p.
- Stocker, M. and W. Shaw. 2005 MS. The 2004 Canadian north Pacific albacore troll fishery. Document submitted by DFO to the ISC Albacore Working Group Meeting, NOAA Fisheries, Southwest Fisheries Science Center, La Jolla, CA, USA, November 28- December 2, 2005. ISC-ALBWG/05/12: 10p.
- Stocker, M., Stiff, H., Shaw, W., and Argue, A.W. 2007. The Canadian albacore tuna catch and effort relational database. Can. Tech. Rep. Fish. Aquat. Sci. 2701: vi+76 p.
- Ware, D.M. and K.L.Yamanaka. 1991 MS. Catch statistics for the Canadian albacore tuna fishery: 1945-1990. 4 pp. Document submitted by DFO to the Annual Meeting of the International North Pacific Fisheries Commission, Tokyo, Japan, November 1991.

Table 1. Fishery statistics for the Canadian north Pacific albacore troll fishery.

| Year | Catch(t) | Effort(v-d) | Vessels | CPUE(kg/v-d) |
|-------------------|-----------------|--------------------|----------------|---------------------|
| 1995 | 1,763 | 5,930 | 284 | 297 |
| 1996 | 3,316 | 8,151 | 292 | 407 |
| 1997 | 2,168 | 4,324 | 197 | 501 |
| 1998 | 4,177 | 6,018 | 214 | 694 |
| 1999 | 2,734 | 6,969 | 233 | 392 |
| 2000 | 4,531 | 8,769 | 238 | 517 |
| 2001 | 5,248 | 10,021 | 244 | 524 |
| 2002 | 5,379 | 8,323 | 228 | 646 |
| 2003 | 6,861 | 8,429 | 192 | 814 |
| 2004 | 7,856 | 9,943 | 220 | 790 |
| 2005 | 4,829 | 8,564 | 211 | 564 |
| 2006 ¹ | 5,819 | 6,239 | 171 | 933 |
| Average | 4,557 | 7,640 | 227 | 590 |
| Max | 7,856 | 10,021 | 292 | 933 |
| Min | 1,763 | 4,324 | 171 | 297 |

¹Preliminary data

Table 2. Canadian total catch (t) of north Pacific albacore troll fishery by FAO statistical area.

| FAO Area | 2002 | 2003 | 2004 | 2005 | 2006 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|
| NE Pacific (67) | 5,089 | 6,429 | 7,710 | 4,817 | 5,819 |
| NW Pacific (61) | 152 | 341 | 44 | 12 | 0 |
| EC Pacific (77) ² | 138 | 91 | 102 | 0 | 0 |
| Total | 5,379 | 6,861 | 7,856 | 4,829 | 5,819 |

²Excludes catch data from below the equator

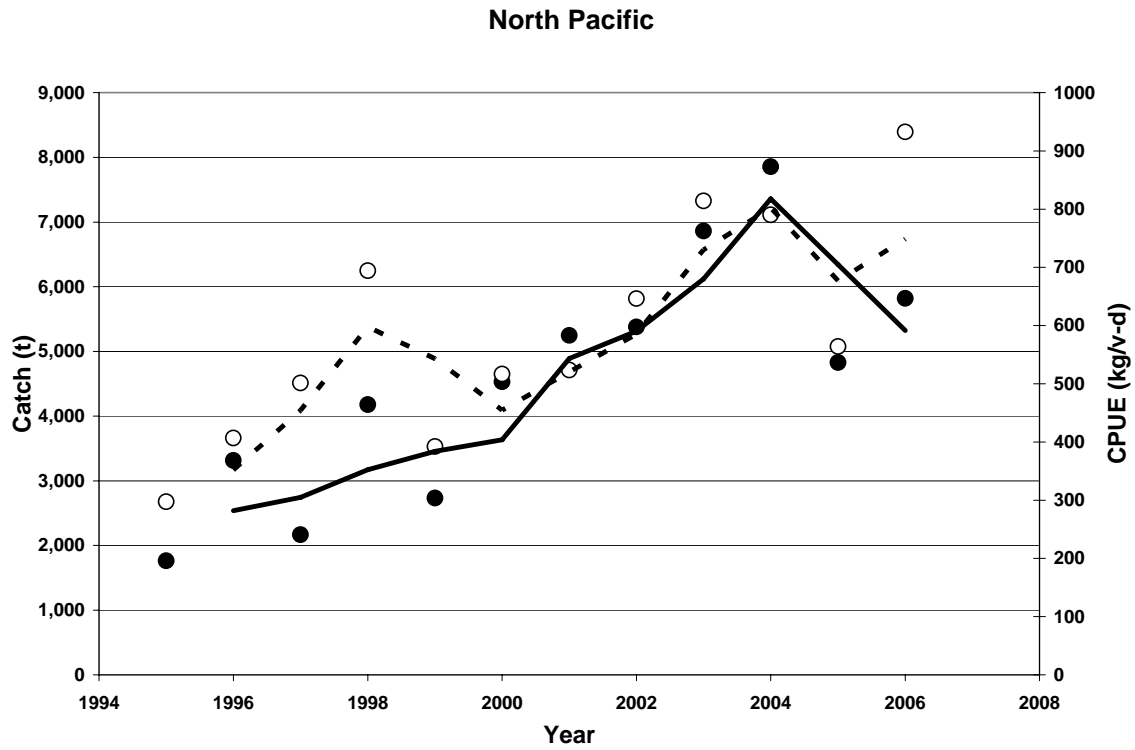


Figure 1. Canadian north Pacific albacore troll catch (•) and CPUE (o) from 1995-06.

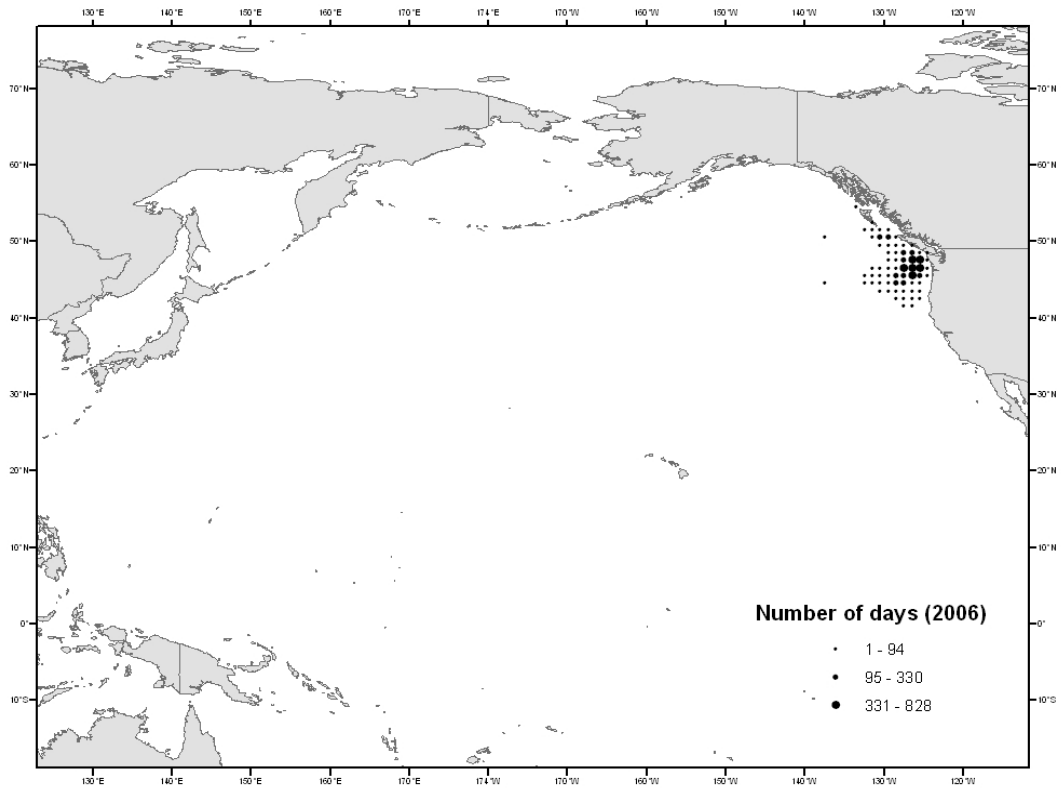


Figure 2. Distribution of Canadian borth Pacific albacore troll effort (vessel-days) in 2006.