

THE 2008 OREGON FISHERY FOR ALBACORE (*THUNNUS ALALUNGA*)

Prepared by:

Aaron C. Chappell
Eric D. Schindler

Oregon Department of Fish and Wildlife
Marine Resources Program
2040 SE Marine Science Drive
Newport, OR 97365

December 2008

ANNUAL PROGRESS REPORT
ALBACORE PORT SAMPLING PROGRAM
Contract No. 08-104
April 2008 through March 2009

INTRODUCTION

Albacore is a highly migratory species found worldwide in temperate seas. Albacore caught off Oregon belong to the North Pacific stock and are generally juvenile and sub-adult fish that have not spawned. During their trans-oceanic migrations, albacore are targeted at different times of the year by fisheries of several nations including the United States, Canada, and Japan. The United States West Coast fishery harvests this stock during the summer and fall months.

Albacore has been fished commercially off Oregon since the mid-1930s when the fishery expanded north from the traditional grounds off southern California. For many years, both baitboats and jigboats fished for albacore off Oregon, but in recent years predominantly jig-caught, also termed troll-caught, albacore have been landed. The current fleet consists primarily of small to medium (20 ft. to 60 ft.) "combination" boats which may fish crab, salmon, or groundfish at other times of the year, and several large freezer boats (most longer than 60 ft.) that travel the north and south Pacific, fishing primarily albacore.

Commercial albacore landings in Oregon have been highly variable through the years, ranging from a low of 27,600 pounds in 1936 to a high of almost 38 million pounds in 1968. In the last decade, landings in Oregon have averaged 8.2 million pounds.

Beginning in 2005 under the Highly Migratory Species Fisheries Management Plan (HMSFMP), the National Marine Fisheries Service (NMFS) required vessels to submit logbook data while fishing for albacore inside the 200 mile economic exclusive zone (EEZ). Prior to this, the logbook program was voluntary and only vessels fishing outside the EEZ were required to submit logbooks under the High Seas Fishing Compliance Act.

Sampling of Oregon's commercial albacore fishery is a cooperative effort between the Oregon Department of Fish and Wildlife (ODFW), the NMFS's Southwest Fisheries Science Center (SWFSC), and the Pacific States Marine Fisheries Commission (PSMFC). This report documents the progress of the 2008 fishery off Oregon and associated sampling activities.

Recreational fishing for albacore off Oregon has been growing in popularity during the past nine years. Catches have ranged from a low of 2,901 fish (approximately 50,000 pounds) in 2000 to a high of 58,928 fish (approximately 1,173,726 pounds) in 2007. Since 2000, catches have averaged 15,900 fish (approximately 300,000 pounds) per year.

2008 COMMERCIAL FISHERY

Landings of albacore into Oregon ports began with a small landing on July 2nd in Charleston. The main fishery began in early July and continued through early October. The peak of landings occurred during the first week of August. Rough ocean conditions during mid-August and mid-September caused two brief declines in landings (Figure 1). Albacore jigboat fishermen were hoping for consistent troll fishing through October, but the fish began their schooling and 'jumping' behavior around the middle of September and became very difficult for jigboats to catch. Large schools of fish were present less than 50 miles offshore from Newport and less than 100 miles offshore from Charleston throughout October, and bait vessels had excellent success until the end of the month.

- **2008 Albacore Landings**

A total of 329 vessels made at least one landing of albacore in 2008, down 28% from 422 vessels in 2007. These vessels made 882 landings in 2008, which is a 56% decrease from 1,374 landings in 2007. Despite the decrease, August landings were the highest in the past ten years for the month.

Albacore landings (pounds) can be significant into October and often continue into November. However, the amount of albacore landed in the fall in 2008 was much lower on average, than the previous four years (Figure 2).

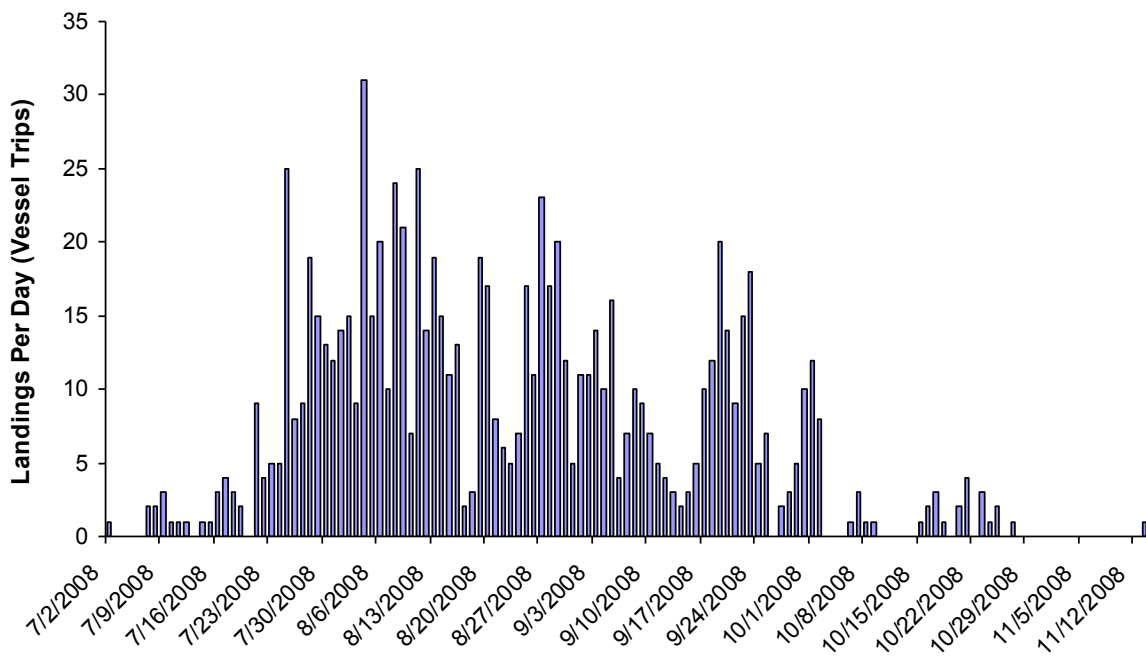


Figure 1. Distribution of daily Oregon commercial albacore landings (vessel trips), 2008.

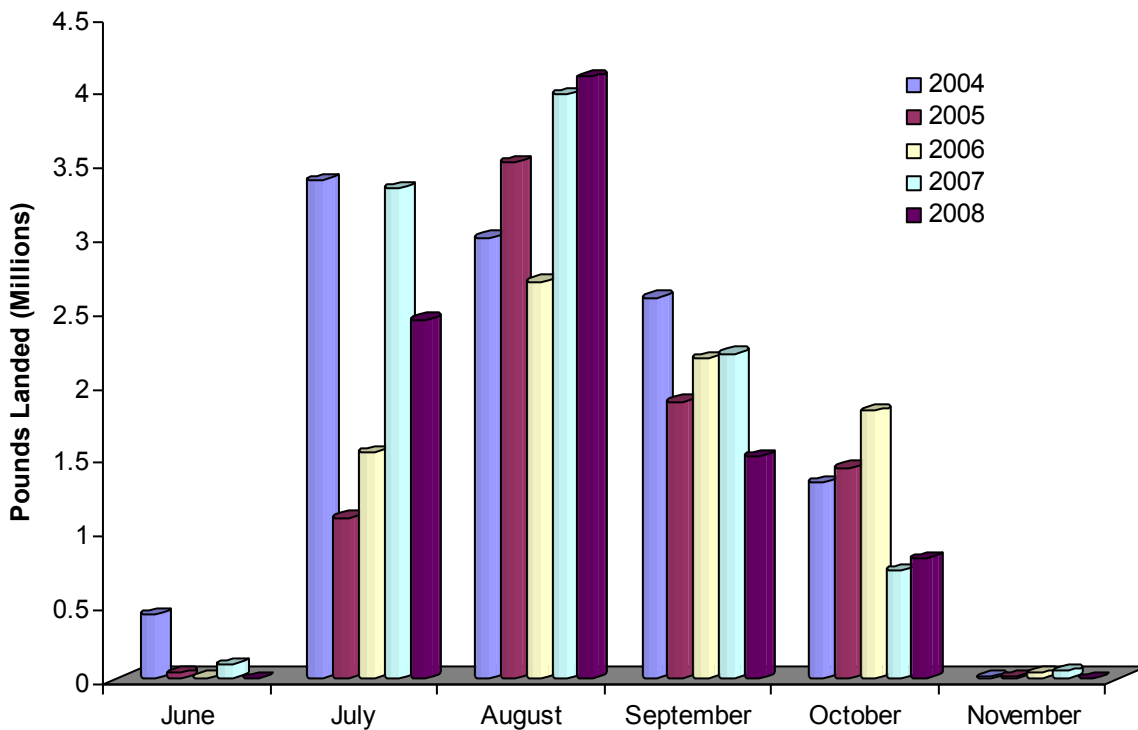


Figure 2. Five-year Oregon albacore landing (by weight) distribution by month.

*June 2004 includes a landing of 526 pounds that was landed in May.

The preliminary total for 2008 commercial landings is 8,858,912 pounds. This is an 18% decrease from the 10,467,794 pounds landed in 2007, (Table 1 and Figure 3) but is 7% higher than the ten-year average (1999-2008) of 8,225,492 pounds. One possible reason for this was the closure of the ocean commercial salmon fishery south of Cape Falcon, Oregon, which likely caused many vessels to fish for albacore to supplement their income. Additionally, ex-vessel prices were the highest since 2005, providing incentive for vessels to fish for albacore rather than other species.

Landings (both vessel trips and total pounds landed) in 2008 were lower than in 2007 primarily because the main fishery did not start until late July. For most of July, large schools of albacore were present about 350 to 400 miles west-southwest of Newport, drastically limiting the number of vessels able to reach them. Additionally, fuel prices were above \$4.00 per gallon for all of July and most of August, making searching for fish cost prohibitive without first hand reports of good fishing for most smaller vessels.

Newport received the majority of Oregon deliveries in 2008 with 37% of the albacore poundage landed; followed by Astoria with 30%, and Charleston with 28%. Nine other ports also received deliveries in 2008, accounting for just over 5% of the total albacore landed (Figure 4 and Table 2). Landings in Charleston, Winchester Bay, Brookings, and Port Orford increased in 2008 from last year's totals.

Table 1. Total Oregon commercial albacore landings 1985 – 2008.

Year	Pounds Landed	Year	Pounds Landed
1985	1,524,601	1997	9,167,738
1986	2,461,004	1998	10,600,614
1987	2,288,045	1999	4,550,635
1988	3,967,120	2000	8,755,659
1989	1,079,657	2001	8,957,549
1990	2,079,312	2002	4,117,472
1991	1,258,818	2003	9,169,244
1992	3,888,515	2004	10,754,016
1993	4,754,450	2005	8,087,250
1994	4,698,223	2006	8,536,389
1995	5,033,810	2007	10,467,794
1996	8,948,355	2008	8,858,912
10-Year Average (1999-2008): 8,225,492			

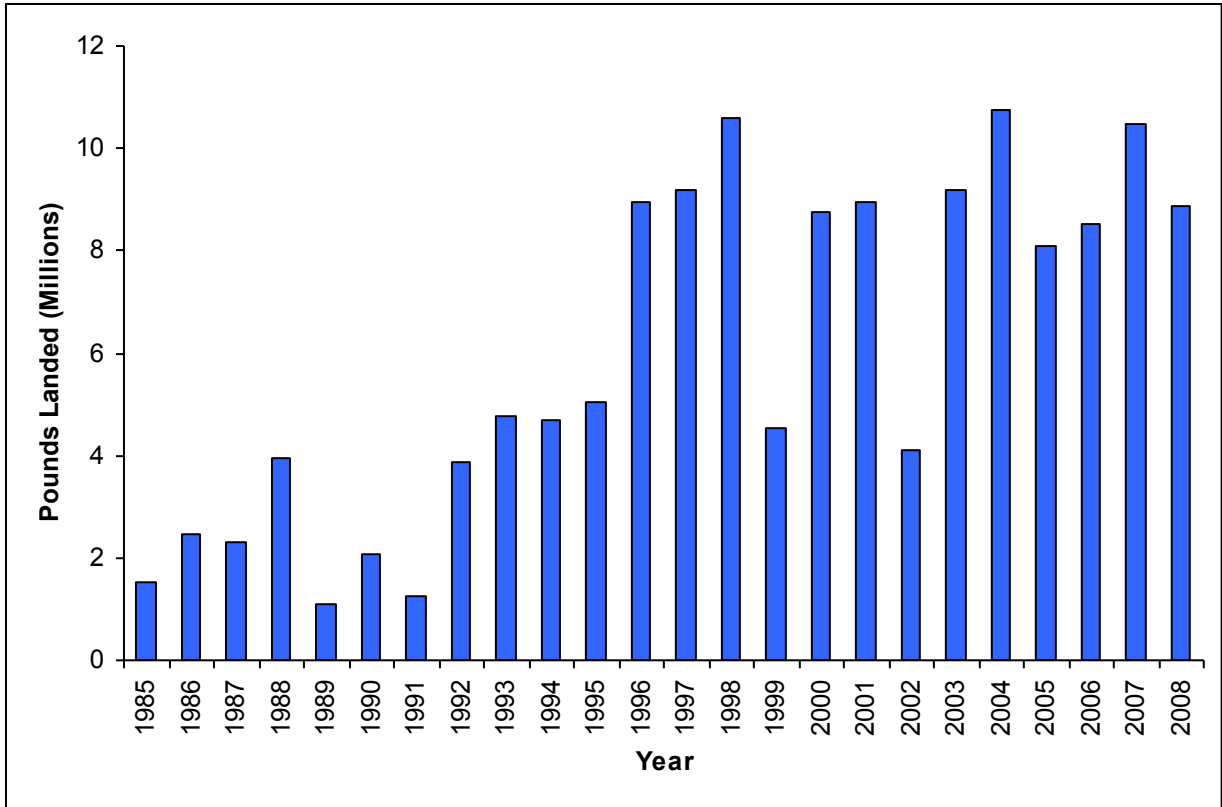


Figure 3. Oregon commercial albacore landings (total weight), 1985 – 2008.

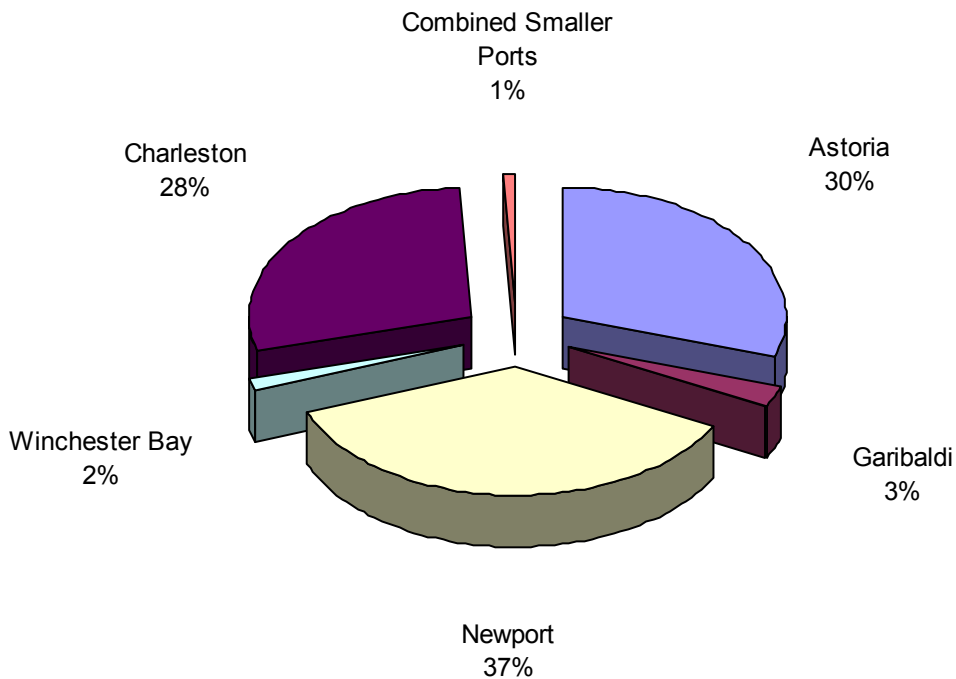


Figure 4. Percentage of 2008 Oregon commercial albacore landings (by weight) by port.

Table 2. Oregon commercial albacore landings by port, 2008 season and 10-year average.

Port	2008		10-Year Average (1999-2008)	
	Pounds Landed	Percent of Landings	Pounds Landed	Percent of Landings
Newport	3,237,391	37%	3,629,220	44%
Astoria	2,666,581	30%	2,515,881	30%
Charleston	2,509,249	28%	1,621,952	20%
Garibaldi	227,958	3%	214,604	3%
Winchester Bay	134,549	2%	128,144	2%
Brookings	36,208	<1%	52,133	1%
Florence	25,344	<1%	54,424	1%
Port Orford	7,602	<1%	13,535	<1%
Pacific City	6,614	<1%	5,827	<1%
Bandon	3,065	<1%	4,908	<1%
Depoe Bay	2,694	<1%	5,941	<1%
Gold Beach	1,657	<1%	2,783	<1%

The average landing in 2008 was 10,044 pounds, up 25% from 7,659 pounds in 2007. Table 3 describes the quartile partition of landing size in the 2008 Oregon albacore fishery, which better explains the landing size characteristics of the 2008 albacore fishery. For example, although the average weight of a landing was 10,044, 50% of the vessel trips landed 3,402 or fewer pounds. Seventy-five percent of the vessel trips landed 11,730 pounds or more, and 25% of the vessel trips landed 11,730 pounds or more.

Vessel participation in the Oregon albacore fishery has been sporadic over the last two decades, following availability and proximity of albacore, as well as ex-vessel prices and fuel costs. It has appeared to have peaked in the late 1990's or early 2000's after the Eastern Pacific albacore population had recovered from overfishing, most likely due to an increase in the high seas drift net fishery (Figure 5) (Kohin et al 2005).

Table 3. Quartile partition of 2008 Oregon albacore landings.

Quartile		Pounds
100%	Maximum	115,334
75%	Quartile	11,730
50%	Median	3,402
25%	Quartile	1,112
0%	Minimum	11

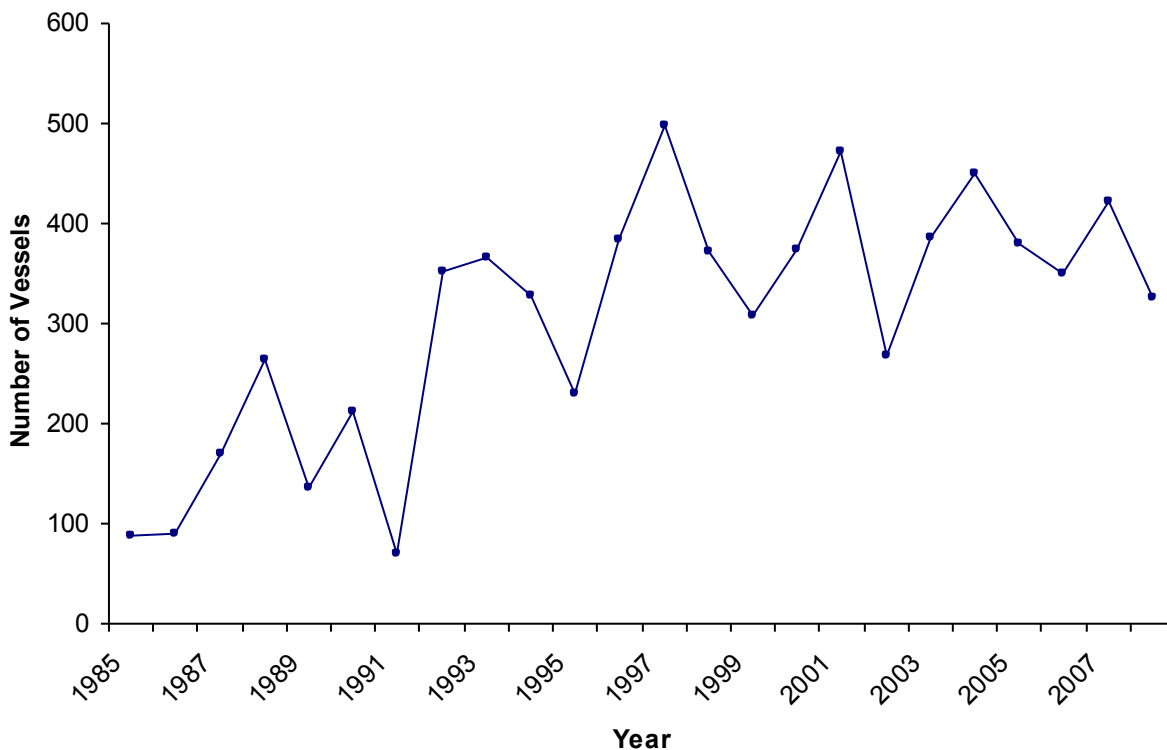


Figure 5. Number of vessels participating in the Oregon albacore fishery, 1985 - 2008.

• **2008 Albacore Revenue**

Most fishermen selling directly from their vessels to the public received between \$1.75 and \$2.25 per pound. Demand remained strong in this market throughout the albacore season, with many vessels and other small dealers hoping for extended fishing opportunities late into the fall. Markets for blast frozen albacore started off extremely strong, with an ex-vessel price range of \$1.20 and 1.30 per pound, with some dealers paying up to \$1.45 per pound for top quality fish. However, the market became saturated in September, causing dealers to lower their blast prices or stop buying blast frozen albacore altogether. Brine/bled markets also started off strong in 2008. Several dealers worked on a new, brine/bled loin market targeted at the United States, Canada, Japan, and parts of Europe. Brine/bled markets started at \$0.95 to \$1.13 per pound, increasing throughout the entire fishing season to \$1.10 to \$1.20 per pound. Spanish demand for brine/unbled albacore was mostly stable through the season, with slight increases in September and October. Fresh, iced fish started around \$0.90 per pound, and increased through the entire season to \$1.25 per pound at larger dealers, and \$1.35 to \$1.50 per pound at smaller, local dealers.

Ex-vessel revenue generated from albacore in 2008 totaled a record-setting \$10,638,785 a 12% increase from 2007's ex-vessel value of \$9,392,387 (Figure 6). The average, weighted, price per pound for albacore in Oregon for 2008 was \$1.20 per pound (also a record value). This was \$.30 per pound higher than 2007, and \$.42 per pound higher than the 24-year average (1985-2008).

Albacore accounted for 11% of Oregon's marine fish revenue in 2008 (Figure 7), a 1% increase from 2007. The 2008 albacore landings revenue ranked 5th among fishery landings behind Dungeness crab at 22%, pink shrimp at 16%, sablefish at 16%, and other groundfish at 15%.

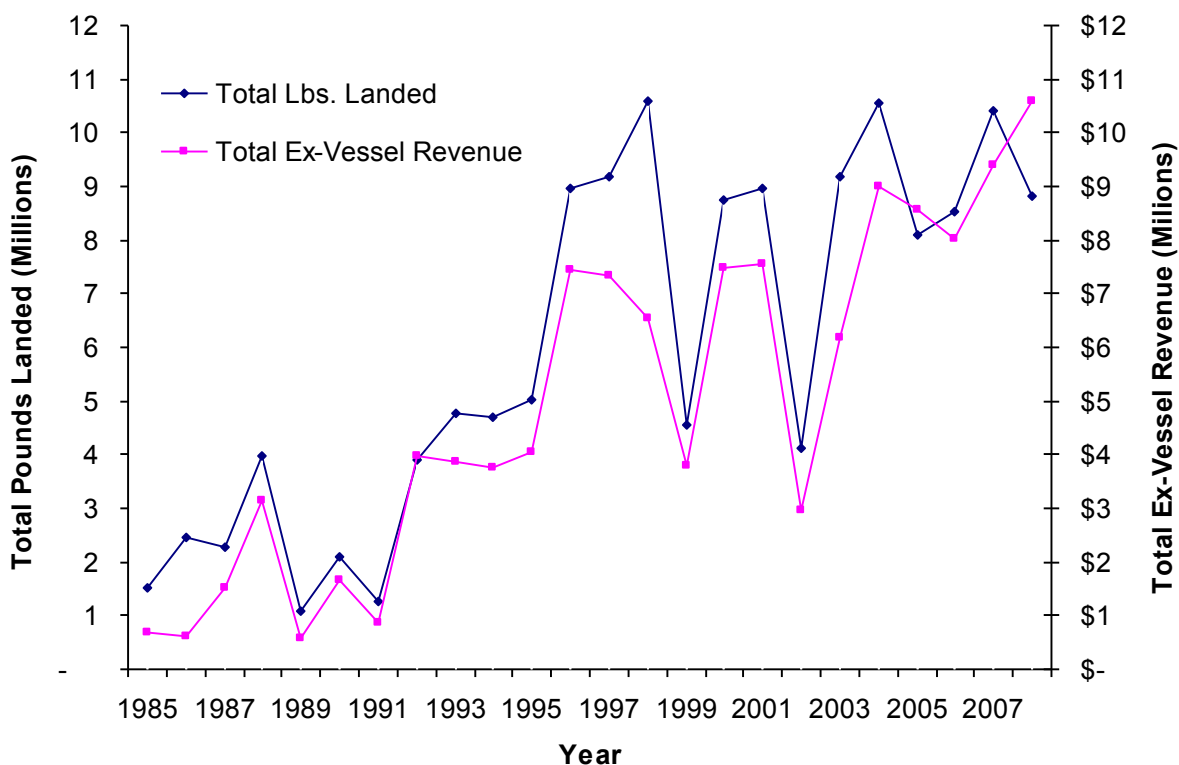


Figure 6. Total albacore ex-vessel revenue in relation to total albacore landings, 1985 – 2008.

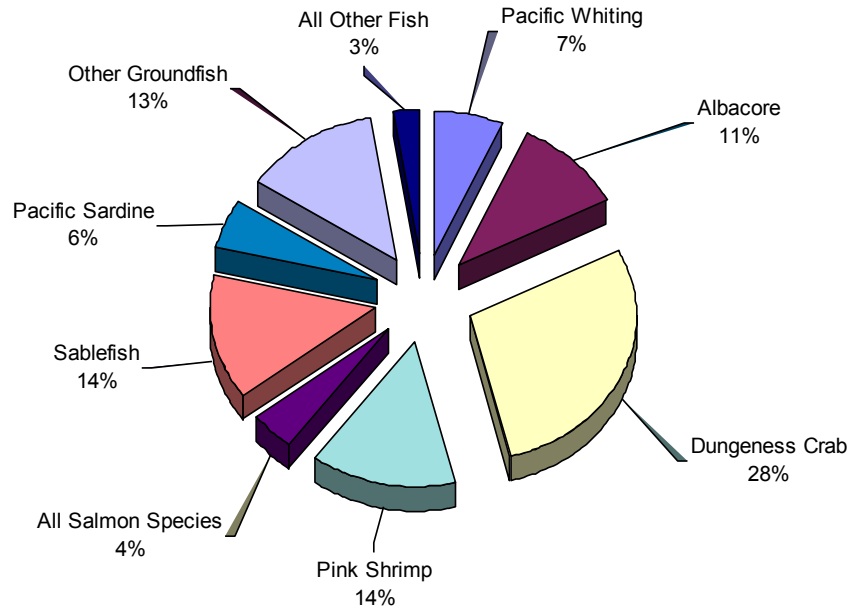


Figure 7. Oregon Marine Fish Revenue (ex-vessel), 2008.

2008 COMMERCIAL SAMPLING RESULTS

Albacore sampling was conducted by albacore tuna sampling staff on a full-time basis in Newport starting July 7, and for four months in Astoria beginning July 1. Additional sampling was conducted by ODFW commercial groundfish port samplers prior to and after the start of the dedicated albacore sampling period. There were also some length-frequency samples taken from Charleston and Garibaldi throughout the season. Sampling activities included distribution of new logbooks and NMFS addressed envelopes for completed logbooks, and measuring fish to obtain length-frequencies. Additionally, staff from the Charleston field office collected tissue samples from 100 albacore for genetic analysis by SWFSC. The 2008 Oregon Albacore Season Summary (attached as Appendix A) presents the data requested in Oregon’s contractual agreement for albacore sampling funding. These are:

- a. Estimated landings (lbs) of sampled commercial vessels.
- b. Number of commercially landed fish measured and length/frequencies taken by port.
- c. Estimated number of commercial trips by port.
- d. Estimated number of commercial vessels by port.
- e. Estimated commercial landings (lbs) of albacore by gear type and port.
- f. Estimated sport landings (lbs) by port.

In 2008, 25 logbooks were distributed to albacore fishermen. Logbooks were distributed at local ODFW offices and by staff in the field.

- **2008 Length-Frequency Analysis**

During 2008, albacore from 148 vessels were sampled from a total of 240 separate deliveries for length-frequency measurements. A total of 19,320 fish were measured for an average of 80.5 fish per length-frequency sample. Sampled albacore delivered to Oregon buyers ranged in fork length from 49 cm to 103 cm. This length range of albacore converts to weights of 5.7 and 49.2 pounds. Figures 8 and 9 show length-frequency histograms of non-sorted, randomly sampled albacore during the 2008 and 2007 seasons. Both histograms portray a bimodal population representing two distinct age classes. These two age-classes represent approximately 3.5 and 4.5 year-old fish, measuring 64.9 cm and 75.6 cm, respectively. However, the 2008 histogram shows a significantly higher percent of three year-old albacore. Additionally, 2008 appears to have a better representation of the entire Eastern Pacific population, as shown by the higher catches of smaller, three year-old albacore, and larger, six-plus year-old albacore (58 cm and 90 cm, respectively). The bimodal populations represented by 2008 and 2007 catches are much different than 2005, which consisted of a single, prominent mode. The 2008 and 2007 length-frequency distributions suggest the Eastern Pacific albacore population experienced higher reproduction, better recruitment, better survivorship of younger albacore, or a combination of the three. The average length for the entire 2008 commercially exploited population delivered to Oregon was 70.3 cm. Fish of this size are approximately four years old and weigh 15.7 pounds (Suda 1966; Clemons 1961).

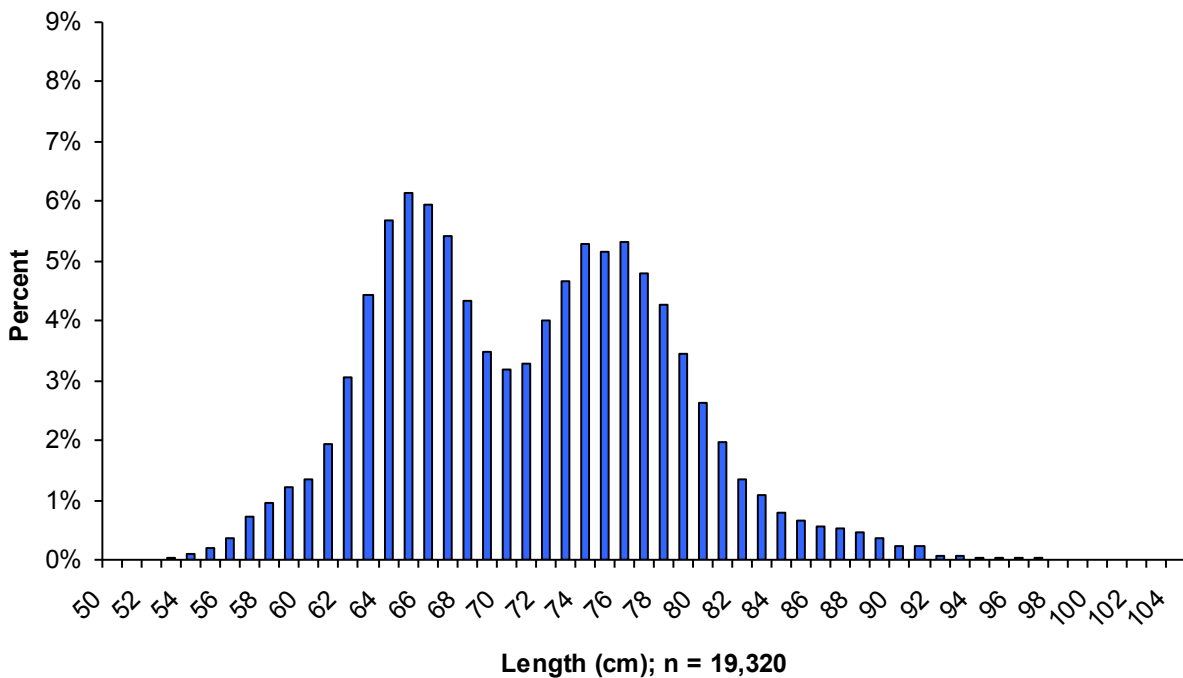


Figure 8. Length-frequencies of commercially landed albacore sampled in Oregon, 2008.

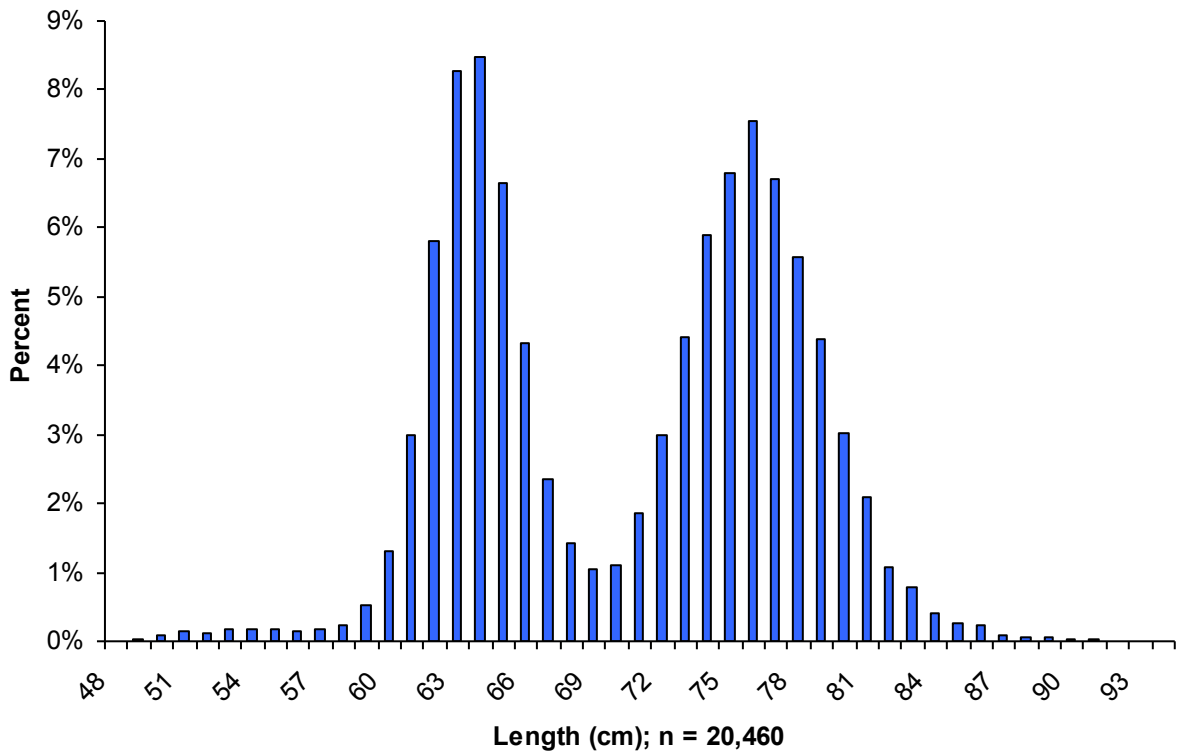


Figure 9. Length-frequencies of commercially landed albacore sampled in Oregon, 2007.

• **2008 Length-Frequency Analysis by Port**

In addition to the differences in length-frequency analysis between 2007 and 2008, there also appears to be some significant differences between the three major ports where length-frequencies were taken in 2008. While all of the port length-frequency graphs show bimodal population distribution, Astoria/Garibaldi and Charleston show a heavier proportion to a younger year-class (approximately 3.5 year-old fish), while Newport shows a nearly even bimodal distribution of two year-classes (approximately 3.5 and 4.5 year-old fish) and a heavier weighted and drawn out upper-end tail (Figures 10, 11 and 12) (Suda 1966). Average length and weight statistics based on Clemons (1961) also vary between the three areas:

- Astoria/Garibaldi average length: 67.6 cm; average weight: 13.96 pounds
- Newport average length: 71.2 cm; average weight: 16.34 pounds
- Charleston average length: 70.8 cm; average weight: 16.06 pounds

The number of sampled fish does dramatically vary between the three areas. However, comparing monthly length-frequency graphs between ports also reveal substantial differences in modes and average lengths and weights while differences in the number of sampled fish are not as substantial.

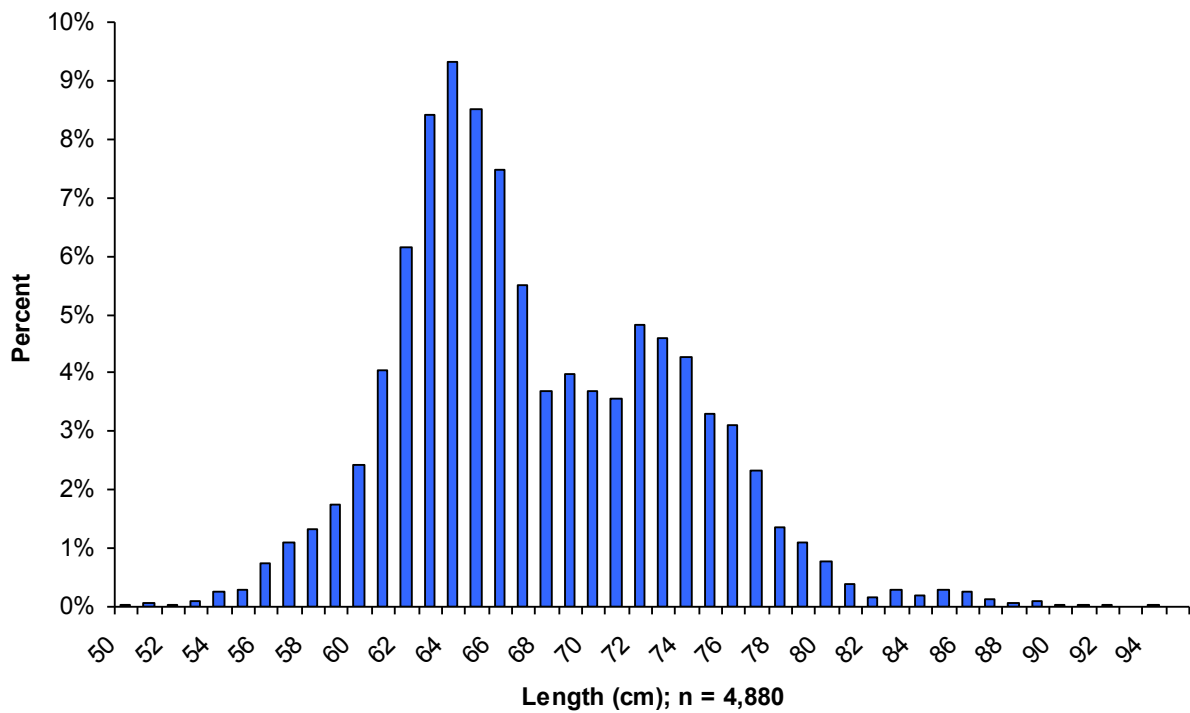


Figure 10. Length-frequencies of commercially landed albacore sampled in Astoria/Garibaldi, 2008.

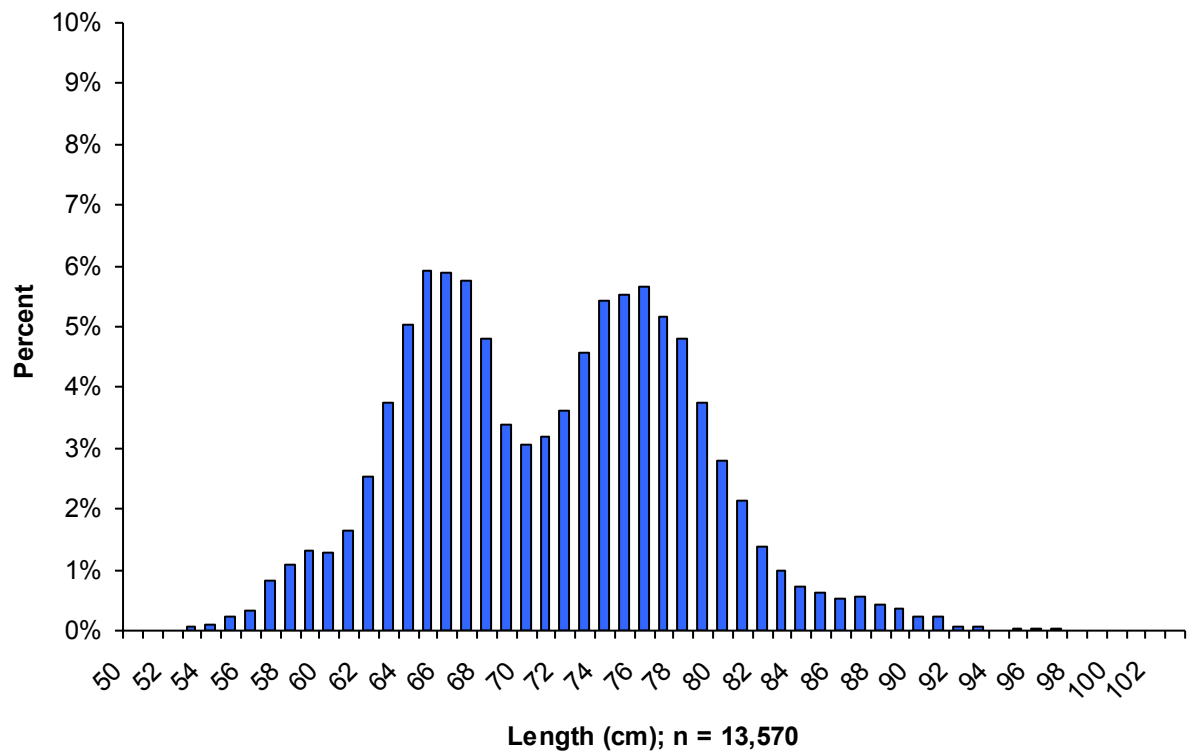


Figure 11. Length-frequencies of commercially landed albacore sampled in Newport, 2008.

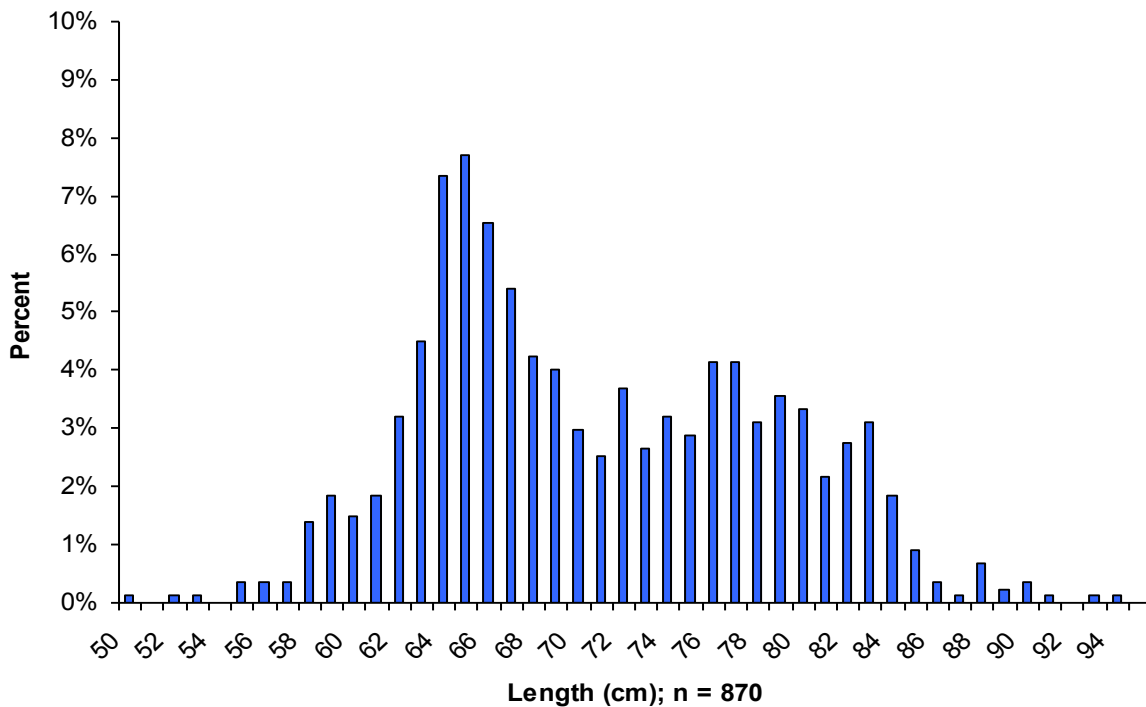


Figure 12. Length-frequencies of commercially landed albacore sampled in Charleston, 2008.

- **2008 Sampling Rate Analysis**

Sampling rates in 2008 were above the 50% minimum for the entire state, but varied dramatically by port. A major dealer in Charleston, coupled with a popular albacore marketing group brought many large vessels to Charleston throughout the fishery. Unfortunately, sampling was limited due to the absence of a dedicated albacore sampler there. Sampling rates by port and year are presented in Table 4.

Table 4. Albacore sampling rates by port and year. Sampling rates are defined as the percentage of total weight landed in a port of which a length-frequency was taken from offloading vessels.

Port	2005 % Weight Sampled	2006 % Weight Sampled	2007 % Weight Sampled	2008 % Weight Sampled
Astoria	26%	41%	58%	54%
Garibaldi	6%	3%	3%	18%
Pacific City	0%	0%	12%	0%
Newport	62%	73%	78%	75%
Winchester Bay	0%	0%	0%	5%
Charleston	33%	34%	4%	26%
Port Orford	0%	17%	0%	0%
Gold Beach	0%	90%	0%	0%
Brookings	18%	17%	2%	0%
Oregon	40%	49%	53%	51%

2008 RECREATIONAL FISHERY

The 2008 recreational Oregon albacore fishery yielded the second highest catch in history. The first recreational albacore were landed in the first week of July in Newport with the last recorded albacore being landed in the second week of October into Garibaldi. An estimated 24,300 albacore weighing approximately 481,000 pounds were landed for the year. Although these values are down more than 50% from last year, they are above the five-year average (2004-2008) of an estimated 18000 albacore weighing approximately 350,000 pounds. Access to albacore for recreational vessels off Oregon is highly variable due to both distance to the fish and weather conditions. The 2007 season saw albacore available very often within 20 miles of shore along much of the Oregon Coast, and weather conditions that allowed sport boats to travel offshore for a large part of the season. While the 2008 season was more typical of NE Pacific conditions, with albacore largely limited to areas outside of 30-50 miles, and sporadic weather windows that limited access. Additionally, because of strong northerly winds keeping a large mass of cool water off Oregon, albacore did not move into the range of most sport boats until the end of July in 2008, while in recent years significant sport boat catches began in early July. These oceanic changes coupled with record high fuel prices significantly reduced sport fishing effort during the 2008 season (Tables 5 & 6).

Directed charter fishing effort for albacore totaled 2,100 angler trips in 2008, a 40% decrease from the 3,000 angler trips in 2007. Astoria, Garibaldi, and Charleston set records for the number of charter angler trips for albacore in 2008. Directed private sport albacore trips totaled 5,000 angler trips, an 82% decrease from 9,100 angler trips in 2007 (Figure 13). Although total catches of albacore for both private boats and charters were down more than 50% in 2008 from 2007, they were still higher than in 2004, which was the second-highest catch year on record (Figure 14).

Most of the recreational effort, charter and private vessels combined, and catch of albacore came from the ports of Newport, Garibaldi, and Depoe Bay. The Central Oregon coastal ports continued to be the center of the recreational fishery with 9,400 albacore landed at Newport and 3,300 landed at Depoe Bay, combining for approximately 53% of the recreational fishery landings (Figure 15).

Table 5. Oregon charter boat albacore fishing effort (angler trips) by port, 2000 - 2008.

Port	2000	2001	2002	2003	2004	2005	2006	2007	2008 \diamond	5-Year Average \yen
Astoria	0	0	0	28	46	72	108	312	390	186
Garibaldi	0	64	50	31	64	80	38	111	164	91
P. City	0	3	0	0	12	5	0	9	5	6
D. Bay	366	325	221	110	256	151	94	683	245	286
Newport	313	426	587	583	722	611	646	1,463	1,089	906
W. Bay	0	31	25	109	160	77	0	12	0	50
Charleston	0	101	0	55	68	0	10	69	109	51
Bandon	0	22	0	36	48	14	83	231	107	97
G. Beach	0	0	NS	14	NS	0	0	30	0	6
Brookings	0	18	0	51	46	12	0	57	14	26
Total	679	990	883	1,017	1,422	1,022	979	2,977	2,123	1,705

\diamond 2008 Preliminary Totals

\yen 5-year average includes 2004-2008

NS Indicates no port samplers present that year

Table 6. Oregon private boat albacore fishing effort (angler trips) by port, 2000 - 2008.

Port	2000	2001	2002	2003	2004	2005	2006	2007	2008 \diamond	5-Year Average \yen
Astoria	0	0	19	77	95	186	188	339	420	246
Garibaldi	33	63	59	94	88	120	642	1,264	963	615
P. City	22	197	12	133	132	57	80	209	34	102
D. Bay	34	33	100	227	420	407	385	1,645	735	718
Newport	164	240	133	224	698	587	646	2,414	1,476	1,164
Florence	0	0	0	NS	0	0	NS	30	67	24
W. Bay	0	14	0	44	98	20	12	367	228	145
Charleston	21	582	104	528	561	19	145	1,711	973	682
Bandon	0	30	0	4	54	0	76	133	0	53
P. Orford	0	0	0	10	NS	NS	NS	NS	NS	0
G. Beach	4	0	NS	56	NS	0	6	12	0	4
Brookings	0	101	51	610	505	39	179	933	85	348
Total	278	1,260	478	2,007	2,651	1,435	2,359	9,057	4,981	4,097

\diamond 2008 Preliminary Totals

\yen 5-year average includes 2004-2008

NS Indicates no port samplers present that year

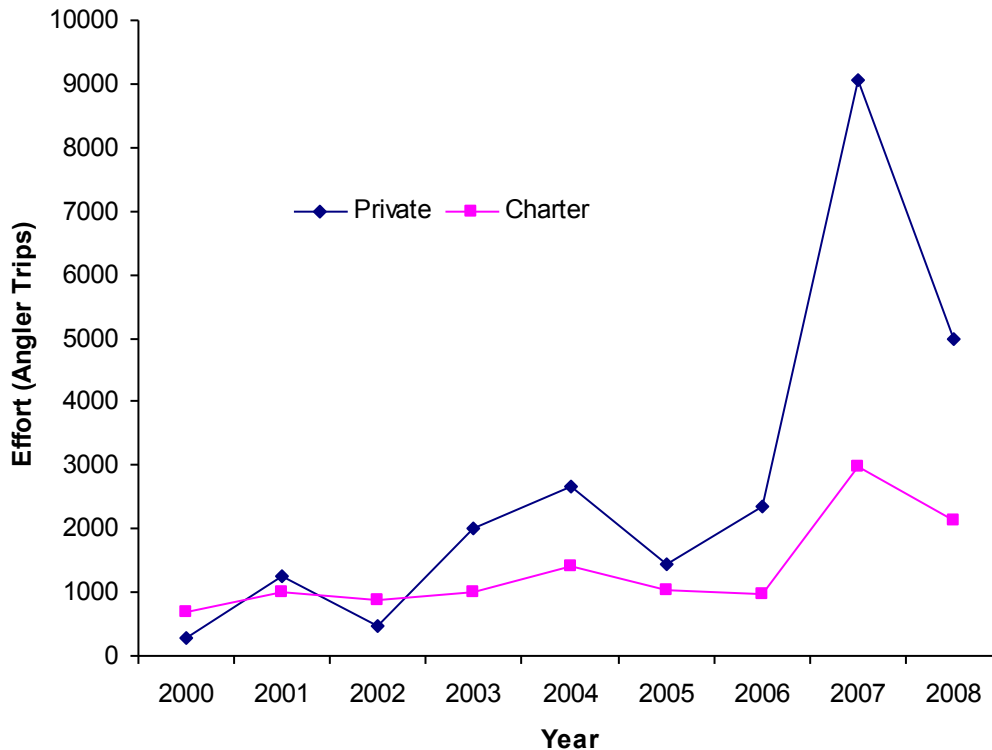


Figure 13. Oregon recreational directed albacore effort (angler trips), 2000-2008.

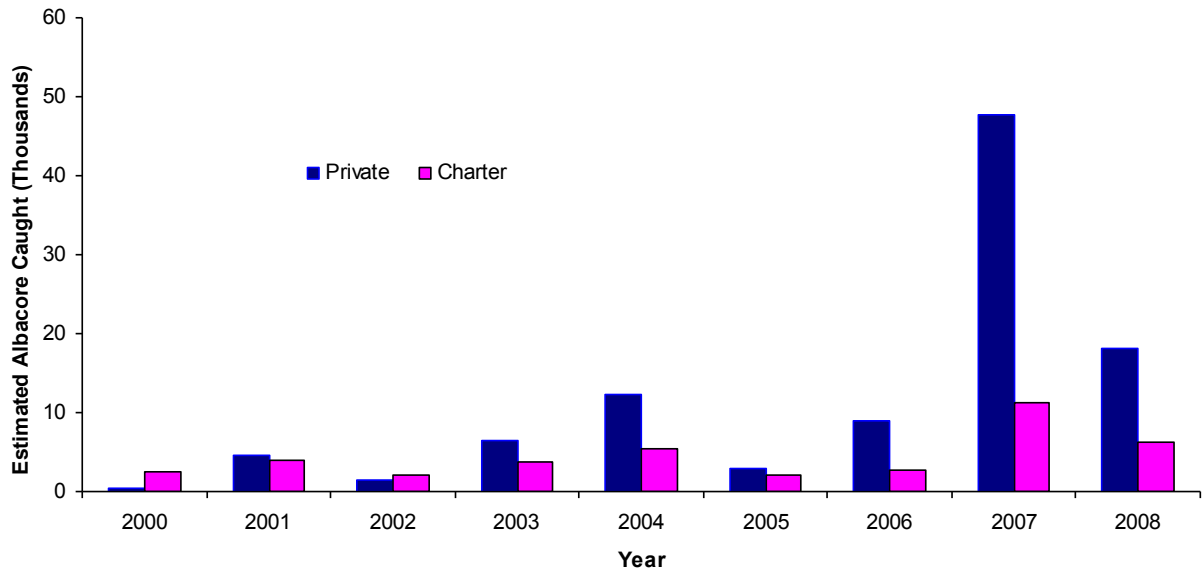


Figure 14. Oregon recreational albacore estimated catch (number of fish), 2000-2008.

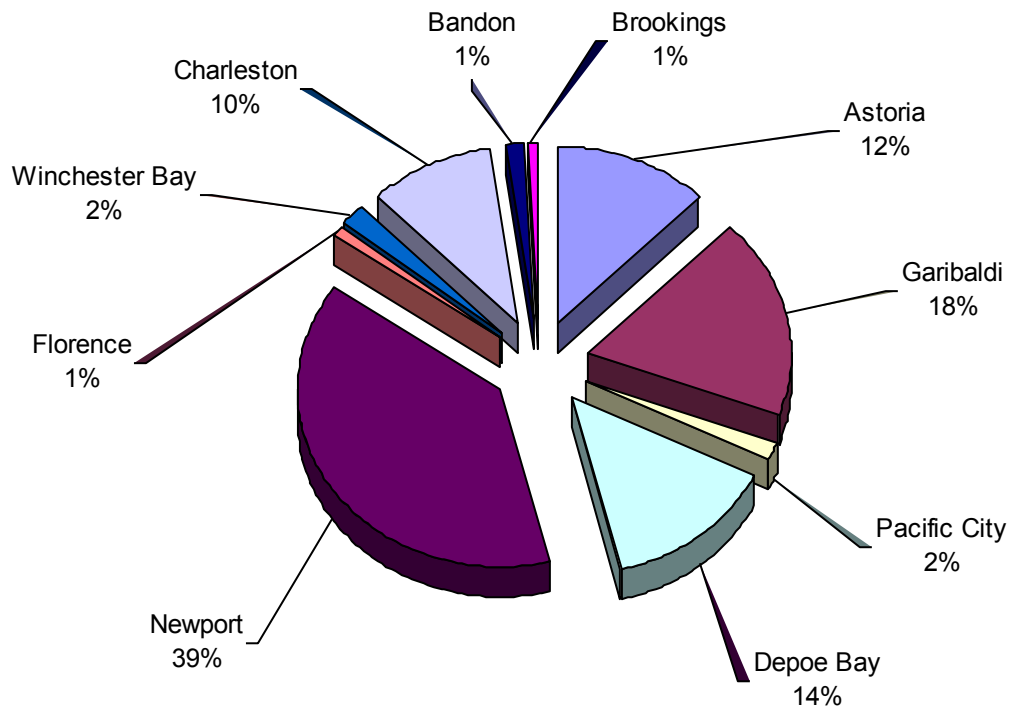


Figure 15. Distribution of Oregon recreational albacore catch estimates by number and percentage of fish by port (values include both private and charter catches), 2008.

Private boat catch-per-unit of effort (CPUE) was highest in the ports from Florence North with an overall private boat CPUE of 3.6 albacore per angler trip. Charter boat CPUE was more consistent along the coast with an average of 2.9 albacore per angler trip (Table 7). The CPUE values range significantly, and are indicative of less favorable ocean conditions and longer distances to albacore observed on the Southern Oregon Coast in 2008. Additionally, many recreational vessels (private and charter) were anxious to catch albacore at the beginning of the season, and fished in areas and conditions not suitable for albacore, experiencing extremely low success.

Table 7. Oregon directed albacore recreational catch and Catch-Per-Unit of Effort (CPUE defined as number of albacore caught divided by number of albacore angler trips), 2008.

Port	Private	Charter	Total	Private CPUE	Charter CPUE
Astoria	1,809	1167	2,976	4.31	2.99
Garibaldi	3,993	440	4,433	4.15	2.68
Pacific City	314	98	412	9.24	19.60
Depoe Bay	2,666	670	3,336	3.63	2.73
Newport	6,267	3,126	9,393	4.25	8.63
Florence	287	0	287	4.28	-
Winchester Bay	460	0	460	2.02	-
Charleston	2,153	269	2,422	2.21	2.47
Bandon	0	333	333	-	3.11
Gold Beach	0	0	0	-	-
Brookings	136	81	217	1.60	5.79
Total	18,085	6,184	24,269	3.63	2.91

SUMMARY

Oregon's commercial albacore landings in 2008 totaled 8,858,912 pounds; an 18% decrease from 2007 and 7% increase from the 10 year average (1999-2008) of 8,225,492 pounds. Recreational fishers landed approximately 24,300 albacore weighing approximately 481,000 pounds, ranking 2008 as the second-highest year for recreational landings on record. Additionally, albacore ex-vessel revenue set a new record in 2008 by over \$1,000,000 with a total gross ex-vessel value of \$10,638,785

ACKNOWLEDGMENTS

Thanks to the many albacore fishing vessel operators who provided fishing information during our sampling project and to the managers and staff of the fish plants that allow us opportunities to measure fish on their premises. Also, many thanks to port samplers: Joey Warwick, Sheryl Flores, Craig Good, Dean Headlee, Nick Wilsman and Christine Burdett for their hard work in collecting data and distributing logbooks and logbook envelopes. Thanks to Scott Malvitch for his assistance with sampling and providing his knowledge of Oregon's albacore fishery. Mark Karnowski, Mark Freeman, Ted Calavan, Kevin Kemper and Bonnie Friesen helped with fish ticket data and overall data support. Carrie White and Jessica Moll provided assistance with the recreational data component of the sampling program. Thanks also go to Carla Sowell, for her guidance, and to John Childers and Amy Betcher of the Southwest Fisheries Science Center for their assistance.

REFERENCES

- Clemens, H.B. 1961. The migration, age, and growth of Pacific albacore (*Thunnus germon*), 1951–1958. Fish Bull. Calif. Dep. Fish Game, (115):128 p.
- Kohin, S., Childers, J., and Sakagawa, G. Archival Tagging of North Pacific Albacore: The Latest Success in Over 30 Years of Cooperation with the U.S. Albacore Fishery. Poster Presented At: 135th Annual Meeting American Fisheries Society Meeting. 2005 September 11-15; Anchorage, AK.
- Suda, Akira. 1966. Catch variations in the North Pacific albacore-VI. The speculations about the influences of fisheries on the catch and abundance of the albacore in the North Pacific by use of some simplified mathematical models. Nankai Reg. Fish. Res. Lab., Rep. 24: 1-14.