

ANNUAL OREGON ALBACORE TUNA (*Thunnus alalunga*) REPORT, 2014

Prepared by:

Christian Heath
Albacore Tuna Sampling Coordinator

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

December 2014

**ANNUAL PROGRESS REPORT
ALBACORE PORT SAMPLING PROGRAM**

Pacific States Marine Fisheries Commission Contract No. 15-01

Subcontract of NOAA Award AB133F11CQ0032

July 1, 2014 through March 31, 2015

INTRODUCTION

Albacore is a highly migratory tuna 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-Pacific migrations, albacore are targeted at different times of the year by fisheries of several nations including the United States, Canada, Taiwan 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 1929 when the fishery expanded north from the traditional grounds off Southern California. For many years, both bait-boats and jig-boats fished for albacore off Oregon, but in recent years jig-caught (troll-caught) albacore have been predominantly landed. However, bait fishing with live anchovies is growing in popularity with an increasing number of vessels employing this technique with much success, especially late in the season for the past several years. The West Coast fleet consists primarily of 20 to 60 foot 'combination' boats with multiple permits to fish crab, salmon, or groundfish at other times of the year; also several large freezer boats (>60 ft.) that travel the North and South Pacific, fishing primarily albacore year-round.

Commercial albacore landings in Oregon were first recorded in 1929, and 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 9.5 million pounds per year.

Beginning in 2005 under the Highly Migratory Species Fisheries Management Plan, 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 Southwest Fisheries Science Center and the Pacific States Marine Fisheries Commission. This report documents the progress of the 2014 fishery off Oregon and associated sampling activities.

The Oregon Department of Fish and Wildlife's Ocean Recreational Boat Survey (ORBS) began to make adjustments to sampling protocol beginning in 2000 to better estimate effort and catch in the growing recreational albacore fishery off Oregon. Recreational fishing for albacore off Oregon has been growing in popularity since 2000, and especially in the past eight years. Catches have ranged from a low of 2,901 fish (approximately 57,000 pounds) in 2000 to a high of 63,167 fish (approximately 1,105,000 pounds) in 2012. Since 2005, catches have averaged 34,000 fish (approximately 660,000 pounds) per year.

2014 COMMERCIAL FISHERY

The 2014 Oregon albacore season began with one small landing on the 1st of July in Newport. The number of deliveries made per week increased steadily during the month of July with peak landings during a four-week period of mid-July to mid-August (Figure 1). The season ended with the last recorded landing made on November 26th in Astoria.

Favorable ocean conditions were present for the majority of the albacore season. Sea surface temperatures reached highs of 61-64°F by mid-July and early-August with some pockets of 70°F water off the coast and 62°F water well up the British Columbia coast. One hazardous storm rolled in during the later weeks of October, effectively ending the tuna season for many fishers. The main variable that limited the numbers of days fishing this year was a lack of a market, and days spent at the docks waiting to offload the catch. Difficulty finding a buyer was a common theme for albacore fishers in 2014.

Primary fishing locations for 2014 included the central to north Oregon coast in latitudes 43-46°N and longitudes 124-126°W. Albacore vessels reported fair to above average success with daily catch rates widely varying, and becoming spotty during the later months. In September, many vessels reported high concentrations of juvenile surface octopi (*O. rubescens*) and speculated that the tuna were feasting on these octopi and thus having a negative impact on their fishing efforts. Many smaller vessels opted to primarily participate in the Chinook salmon troll fishery with favorable prices and catch rates.

The "Fishing Regime" under the U.S./Canada Albacore treaty was suspended for the 2012 fishing season. This treaty suspension disallowed any Canadian vessels in the U.S. EEZ, and any U.S. vessels in the Canadian EEZ. The treaty was originally signed in 1981 and expired after 30 years with U.S. officials declining an agreement for a treaty renewal in 2012. For 2013, a temporary allowance of 45 pre-authorized Canadian vessels was permitted to extract tuna from the US EEZ from June 15 to September 15. 2014 began a new 3-year plan to phase out the "Fishing Regime" which is expected to be suspended in 2017. The agreement for 2014 again allowed 45 pre-authorized Canadian vessels to harvest tuna from the US EEZ from June 15 to September 15. Two Canadian vessels landed 127,760 total pounds of albacore in Oregon during their three month eligibility.

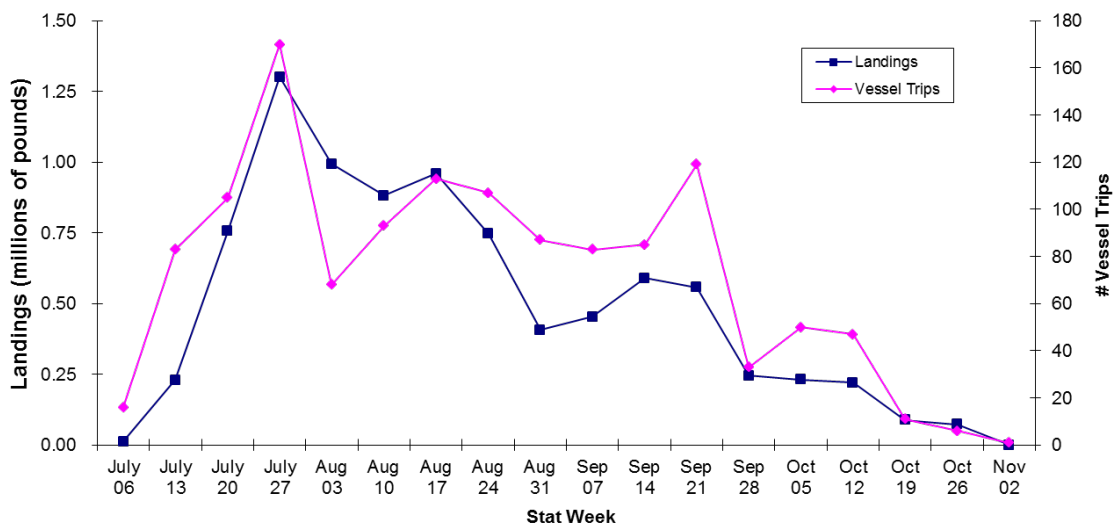


Figure 1: Total albacore landings and number of vessel trips per week in 2014.

2014 Albacore Landings

A total of 378 vessels made at least one landing of albacore in Oregon ports for 2014, down from 397 vessels in 2013 (Figure 2). These vessels made 1,277 total trip landings in 2014, down from 1,367 trips in 2013 (Figure 3).

The peak month of August yielded 38% of the total landings for 2014 with 3,285,187 pounds (Figure 4), down 28% from last year's outstanding August landing 4,588,731 total pounds. Total landings in the month of July were 3,000,207 pounds, the most productive since July 2005. For 2014, the months of July and August produced 72% of Oregon's albacore landings.

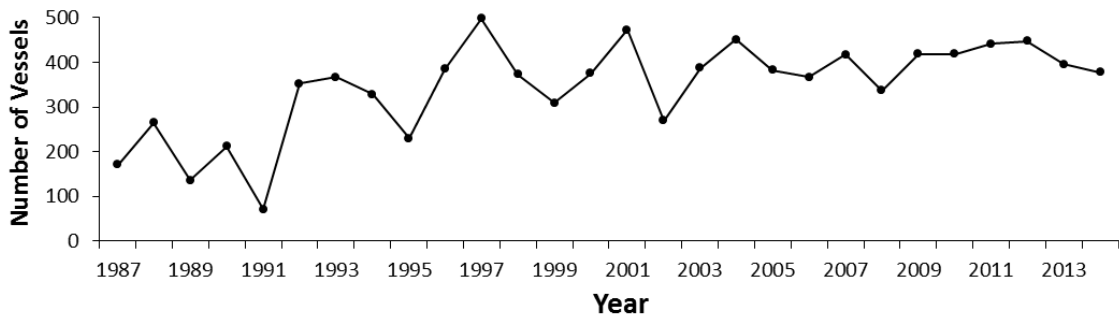


Figure 2: Total number of vessels landing albacore in Oregon by year.

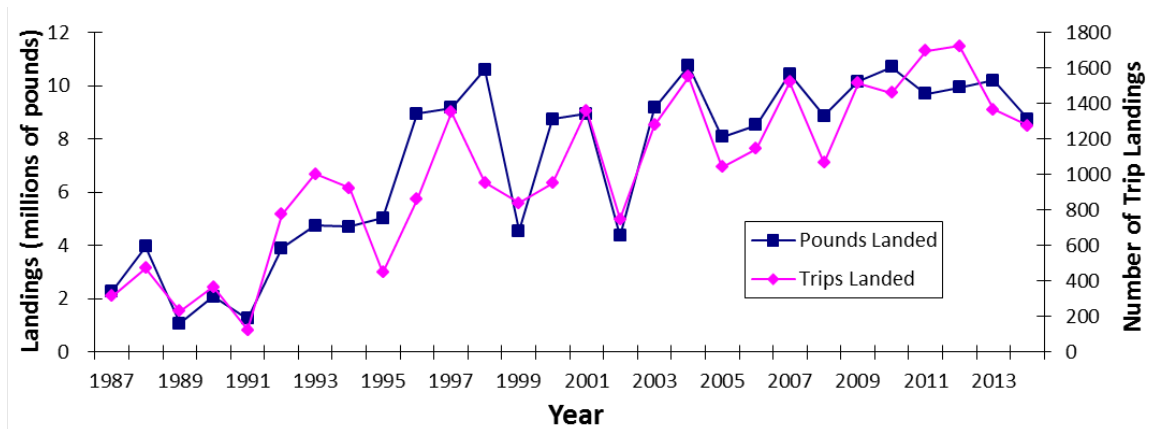


Figure 3: Total pounds of albacore landings and total number of albacore vessel trip landings in Oregon by year.

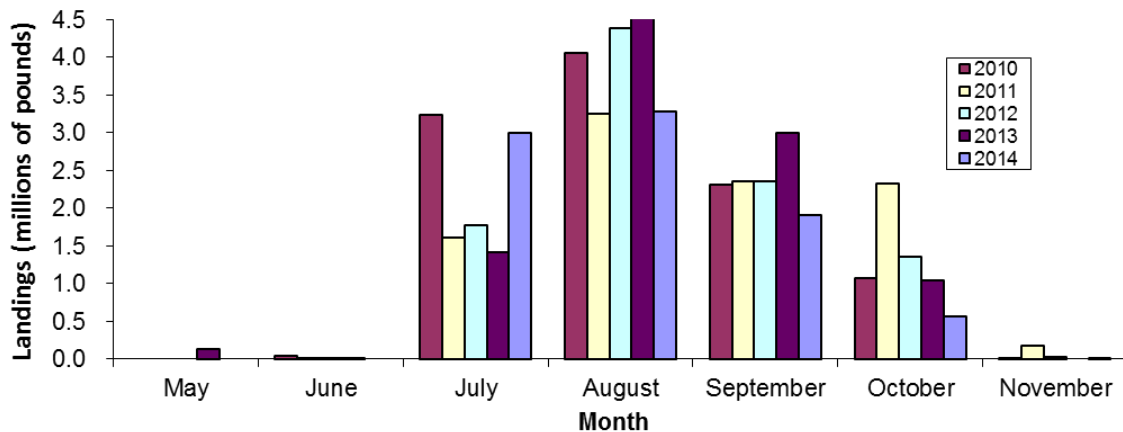


Figure 4: Total pounds of albacore landings by month; 2010 through 2014.

The preliminary total for 2014 commercial landings is 8,748,466 pounds. This is a 14.3% decrease from the 10,208,719 total pounds landed in 2013, and 8.3% lower than the ten-year average (2005-2014) of 9,538,639 pounds (Table 1). The standard deviation for ten years of total landings is $\pm 907,965$ pounds, or approximately $\pm 9.5\%$.

Newport received the majority of Oregon's albacore landings in 2014 with 34.9% of total weight landed; followed by Astoria with 30.9%, Charleston with 27.8%, Garibaldi with 2.3%, Brookings with 2.1%, and Winchester Bay with 1.1% (Table 2). The remaining seven smaller ports landed a combined 0.7% of the total weight. Landing percentages for Oregon's primary albacore landing ports in 2014 were consistent with ten-year averages (2005-2014), though Newport would not reach 40% and Charleston exceeded beyond 21% of the total pounds landed in Oregon. Of the remaining ports, Brookings remained well above their 10-year average of 81,529 pounds, landing 187,878 total pounds.

Table 1: Ten years of total landings with ten-year average, percent difference from average, and standard deviation.

Year	Total Landings (lbs)	% Difference from Average
2014	8,748,466	-8.3%
2013	10,208,719	+7.0%
2012	9,933,920	+4.1%
2011	9,699,236	+1.7%
2010	10,712,292	+12.3%
2009	10,156,183	+6.5%
2008	8,876,158	-7.0%
2007	10,447,567	+9.5%
2006	8,521,642	-10.7%
2005	8,087,413	-15.2%
Average	9,539,160	
Std Deviation	907,965	$\pm 9.5\%$

Table 2: Percentage of total landings for 2014 (preliminary) and 10-year (2005-2014) average.

2014			10-Year Average		
Port	Landings (lbs)	Landing %	Port	Landings (lbs)	Landing %
Newport	3,057,532	34.9%	Newport	3,981,092	40.9%
Astoria	2,701,318	30.9%	Astoria	2,972,208	30.5%
Charleston	2,436,345	27.8%	Charleston	2,046,703	21.0%
Garibaldi	204,440	2.3%	Garibaldi	236,447	2.4%
Brookings	187,878	2.1%	Winchester Bay	145,726	1.5%
Winchester Bay	98,329	1.1%	Brookings	81,529	0.8%
Florence	19,063	0.2%	Florence	28,182	0.3%
Port Orford	18,353	0.2%	Port Orford	21,507	0.2%
Pacific City	8,481	0.1%	Pacific City	8,665	0.1%
Gearhart-Seaside*	7,312	0.1%	Depoe Bay	5,452	0.1%
Depoe Bay	3,593	0.0%			
Bandon*	3,577	0.0%			
Gold Beach*	2,245	0.0%			

* Gearhart-Seaside, Bandon, and Gold Beach do not have landings every year.

The average landing in Oregon for 2014 was 6,851 pounds, a 14% decrease from 7,978 pounds in 2013. Table 3 describes the quartile partition of landing size in the 2014 Oregon albacore fishery, which helps to explain the landing characteristics of the fishery. The average weight of a landing was 6,851 pounds, but for 50% of all vessel trips the landings consisted of less than or equal to 2,095 pounds.

Table 3: Quartile partition of 2014 Oregon albacore landings.

Quartile		Pounds
100%	Max	101,527
75%	Quartile	6,607
50%	Median	2,095
25%	Quartile	717
0%	Min	22

2014 Albacore Revenue

The West Coast's albacore market in 2014 was well below average, causing prices to drop early. For the season, fresh-iced tuna prices averaged \$1.41 ± \$0.39 per pound; blast-frozen tuna prices averaged \$1.29 ± \$0.27 per pound; brine-frozen tuna prices averaged \$1.15 ± \$0.16 per pound; public sales of tuna averaged \$2.50 - \$3.00 per pound. The most dramatic decrease in price belonged to the blast/bled frozen tuna market, a reduction of \$0.58 per pound from 2013. 2014 is the first year since 2005 that blast and brine frozen prices have been this similar.

These average prices remained fairly consistent throughout the season and did not decline much, apart from the initial drop in prices for blast/bled tuna (Figure 5). Blast-frozen tuna deliveries accounted for 40% of total sales in Oregon, primarily sold in Astoria (Table 4). Brine-frozen tuna deliveries accounted for 37% of total sales, primarily sold in Newport. The Fresh-iced tuna deliveries accounted for 23% of total sales to many of Oregon's coastal ports.

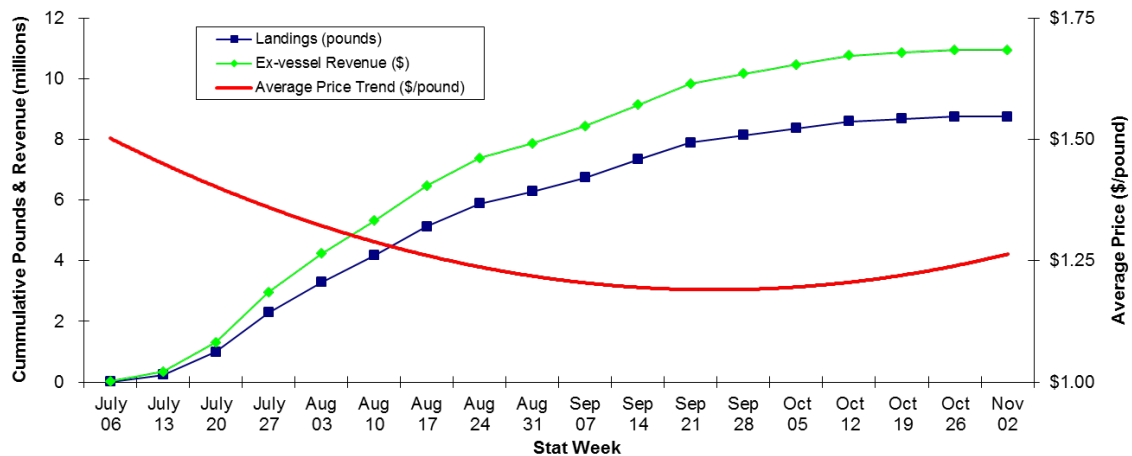


Figure 5: Cumulative landings, cumulative ex-vessel revenue, and average price by week in 2014.

Table 4: Treatment type by landings (pounds), port, and 2014 preliminary total percentage.

Port	Blast frozen (lbs)	Blast%	Brine frozen	Brine%	Iced	Iced%	TOTAL landings
Astoria	1,829,030	67.7%	506,853	18.8%	365,435	13.5%	2,701,318
Newport	730,005	23.9%	1,695,981	55.5%	631,546	20.7%	3,057,532
Charleston	738,015	30.3%	979,403	40.2%	718,927	29.5%	2,436,345
ALL Remaining Ports	171,368	31.0%	63,576	11.5%	318,327	57.5%	553,271
TOTAL by treatment	3,468,418	39.6%	3,245,813	37.1%	2,034,235	23.3%	8,748,466

Ex-vessel revenue generated from albacore in 2014 totaled \$10,967,032, a 32% decrease from the 2013 total of \$16,011,154 (Figure 6). The average price for 2014 was \$1.25 per pound, a large drop from the average price of \$1.57 per pound in 2013, though still well above the 10-year average: the 2001–2010 average was \$0.95 per pound. There was a sudden increase in albacore values beginning in 2011 after the tsunami in Japan destroyed their tuna fleet and the largest fish freezer in the world. Other world market factors may have also influenced the spike in prices as well as the more recent return to mean.

During the primary tuna sampling season July 1 through October 31 of 2014, albacore accounted for 16% of Oregon’s marine fish revenue (Table 5). Albacore typically ranks 4th or 5th for total annual revenues generated in Oregon marine fisheries, behind Dungeness crab, Pink shrimp, Pacific Whiting and occasionally Chinook Salmon (Table 6).

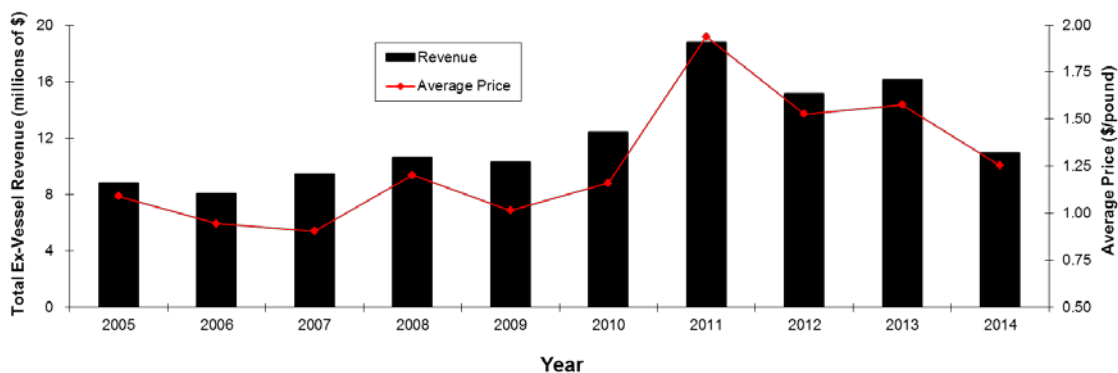


Figure 6: Total revenue (ex-vessel) and average price by year for Oregon commercial albacore.

Table 5: Oregon marine fish revenue (ex-vessel) for tuna sampling season: July 1 - October 31, 2014.

Fishery Species	Pounds Landed	Percentage of	
		Pounds Landed	Revenue
Pink Shrimp	30,653,931	14.4%	\$18,354,413
Pacific Whiting	147,794,677	69.2%	\$15,987,221
Albacore Tuna	8,748,086	4.1%	\$10,966,557
Salmon (all species)	361,688	0.2%	\$10,311,805
Sablefish	1,515,353	0.7%	\$4,258,695
Groundfish*	7,212,556	3.4%	\$4,180,687
Pacific Sardine	17,170,583	8.0%	\$3,522,051

* All Groundfish excluding Pacific Whiting and Sablefish

Table 6: Oregon marine fish revenue (ex-vessel) for Dec 1, 2013 – Nov 30, 2014 (one year):

Fishery Species	Pounds Landed	Percentage of	
		Pounds Landed	Revenue
Dungeness Crab ^o	14,426,919	4.8%	\$50,200,574
Pink Shrimp	51,960,045	17.2%	\$29,321,086
All Salmon Species	5,908,767	2.0%	\$19,970,308
Pacific Whiting	167,897,386	55.5%	\$18,238,032
Groundfish*	25,294,916	8.4%	\$13,795,366
Albacore Tuna	8,748,466	2.9%	\$10,967,032
Sablefish	3,136,620	1.0%	\$7,838,956
Pacific Sardine	17,170,662	5.7%	\$3,522,051
All Other Fish	7,730,109	2.6%	\$4,360,409

* All Groundfish excluding Pacific Whiting and Sablefish

^o Includes Bay and Ocean Dungeness fisheries

2014 COMMERCIAL SAMPLING RESULTS

In 2014, commercial albacore sampling began July 1st, the day of the first tuna landing in Oregon. Dedicated samplers in Astoria (3 months), Newport (4 months), and Charleston (4 months at half time) were prepared and on site, achieving a season sampling rate of 59.3% (sampled pounds per pounds landed). Additional sampling was conducted by ODFW commercial groundfish port samplers throughout the albacore season when available, as well as before and after the dedicated sampling season. Sampling activities included measuring albacore for length-frequencies, distribution of logbooks to vessels with valid Highly Migratory Species Permits, distribution of addressed envelopes for completed logbooks, and providing information to fishers. Table 7 presents a summary of commercial sampling rate information for the 2014 season. Additional summaries required by the contractual agreement with NMFS and PSMFC for albacore sampling funding are presented in Appendix A.

Table 7: 2014 preliminary Oregon commercial albacore sampling season summary.

Port	2014 Landings	Pounds [†] Sampled	Sample Rate (sampled pounds/ landed pounds)	Number of Length Frequency	Number of Fish	Average Fish per Length Frequency
Astoria	2,701,318	1,641,724	60.80%	63	3,378	53
Gearhart-Seaside	7,312	1,056	-	-	-	-
Garibaldi	204,440	708	-	-	-	-
Pacific City	8,481	-	-	-	-	-
Depoe Bay	3,593	-	-	-	-	-
Newport	3,057,532	2,269,746	74.20%	162	11,364	70
Florence	19,063	-	-	-	-	-
Winchester Bay	98,329	-	-	-	-	-
Charleston	2,436,345	1,214,305	49.80%	75	5,099	68
Bandon	3,577	-	-	-	-	-
Port Orford	18,353	-	-	-	-	-
Gold Beach	2245	-	-	-	-	-
Brookings	187,878	59,820	31.80%	3	151	50
TOTAL	8,748,466	5,187,359	59.29%	303	19,992	66

[†] Pounds Sampled are total pounds landed for every offload that is sub-sampled

2014 Sampling Rate Analysis

The three primary tuna sampling ports were Astoria, Newport, and Charleston; in smaller ports tuna landings were occasionally sampled by ODFW staff when available. Sampling Oregon's smaller ports is a lower priority due to smaller landings and limited sampling personnel, and the overall sampling rate is not typically influenced by less frequent sampling in smaller ports due to their insignificant landing weights. The tuna sampling rate is determined by the percentage of length-frequency sampled landing weights to total landing weights by port and state. Considerations for sampling bias have been evaluated in the past and found to be insignificant.

Sampling rates for landings were well above the 50% minimum for Astoria and Newport and significantly above the 25% minimum rate for Charleston. The average number of fish per length-frequency was above the 50 fish minimum for the 2014 Oregon commercial albacore season. In addition to calculating sampling rates for minimum sampling percentages, analyzing the difference between the sampled trip landing weights and all individual trip landing weights is important to understand what the sample data are describing (Table 8).

Table 8: Quartile partition for all Oregon albacore landings and sampled landings in 2014.

All Landings			Sampled Landings		
Quartile		Pounds	Quartile		Pounds
100%	Max	101,527	100%	Max	101,527
75%	Quartile	6,607	75%	Quartile	21,430
50%	Median	2,095	50%	Median	9,013
25%	Quartile	717	25%	Quartile	3,954
0%	Min	22	0%	Min	30

Large landings will be defined as total trip landing weights greater than 75% of all individual albacore trip landing weights, while small landings will be defined as total trip landing weights less than the top 25% of all individual albacore trip landing weights. For 2014 the 75% quartile landing weight cutoff is 6,607 pounds; therefore considering large landings as greater than 6,607 pounds, and small landings as less than 6,607 pounds. Sampled landings in 2014 consisted of 59% sampled trips greater than 6,607 pounds and 41% sampled trips less than 6,607 pounds.

2014 Length Frequency Analysis

A total of 19,992 albacore tuna were measured for length frequencies in the ports of Astoria, Newport, Charleston, and Brookings (Figure 7). All the length data from the sampled ports suggest a similar tri-modal distribution; where the primary mode represents an age-class of approximately 3.5 – 4 years-old, the secondary mode represents an older age-class of approximately 4.5 – 5 years-old, and the tertiary mode represents the youngest age-class of approximately 2.5 – 3 years-old (Suda 1966). Although the number of fish in each port widely varies, the distribution and trend appear to be very similar for each port with all sampled months combined (Figure 8).

Average lengths for sampled fish showed an increase of 5.5 cm for large grade fish through the season, a 2 cm increase for medium grade fish, and a 2.9 cm increase for smallest grade fish (Figure 9). Grades are not standardized. Grades are determined by individual dealers based on factors including their markets and size distribution within the landings they receive. The proportion of small to large grade fish varied each month with an increasing trend of large grade fish through the season, while medium grade fish showed a decreasing trend (Figure 10). Modal analysis using a mixed distribution model calculated the average length for the large grade fish at 81.0 ± 3.7 cm for 37.3% of all sampled fish, the medium grade fish at 67.9 ± 3.0 cm for 61.4% of all sampled fish, and the small grade fish at 56.1 ± 1.8 cm for <2% of all sampled fish. Based on length to weight approximations the average weight for small grade fish is 8.2 pounds, medium grade fish is 14.5 pounds, and 24.5 pounds for large grade fish (Clemens 1961).

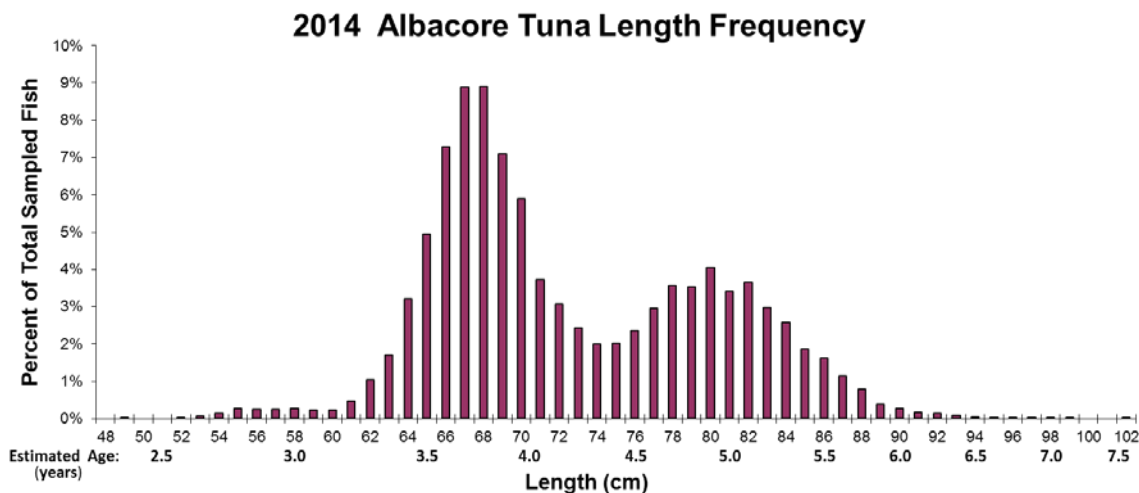


Figure 7: Length frequency data for all sampled ports, all months combined in 2014. Average length = 72.7cm, n = 19,992.

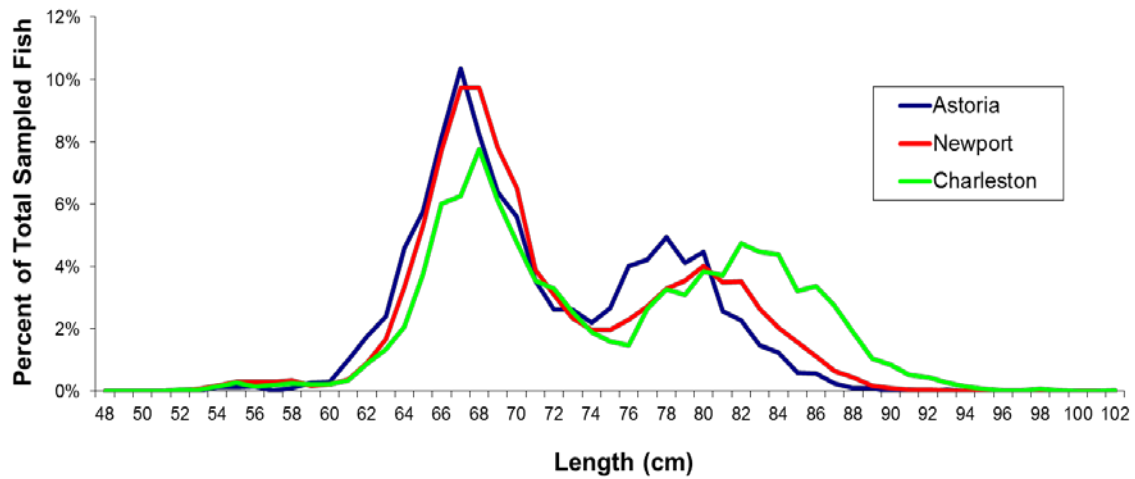


Figure 8: Length frequency data for all sampled months by port in 2014. Astoria n = 3,378. Newport n = 11,364. Charleston n = 5,099.

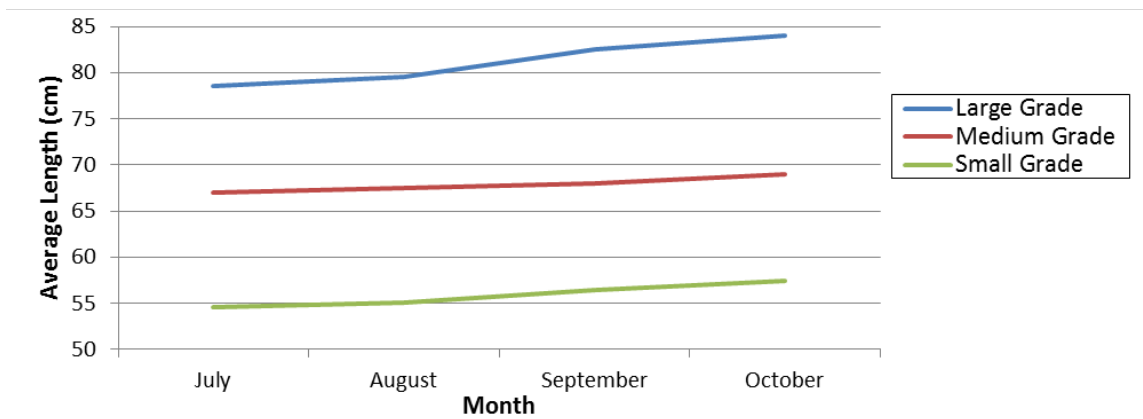


Figure 9: Average length for small, medium and large grade fish sampled each month in 2014. July n = 8,286. August n = 6,312. September n = 4,110. October n = 1,284.

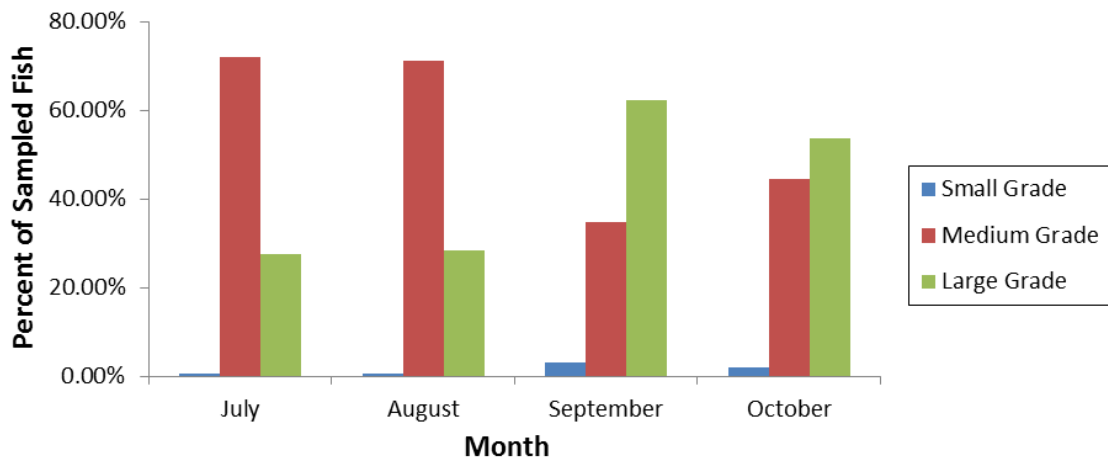


Figure 10: Proportion of small (young) and large (older) grade fish sampled each month in 2014.

2014 RECREATIONAL FISHERY

The 2014 recreational tuna season proved to be above average for effort and landings in comparison to recent years (Figures 11 & 12). Access to albacore for recreational vessels off Oregon can be highly variable, depending on weather conditions and distance to the fish. This year, the tuna arrived off of the Oregon coast in early July, and a calm ocean allowed for some quick effort and landings for both charter and private fishing vessels. After two and a half months of good tuna fishing, the recreational effort dropped significantly after the third week in September. The cooler water temperatures pushed the tuna farther off shore, effectively ending the season for all recreational fishers by the second week of October. Peak effort and landings occurred during the last three full weeks of August.



Figure 11: Oregon recreational albacore fishing effort (angler trips) separated by vessel type, 2005-2014. ◊ 2014 totals are preliminary.

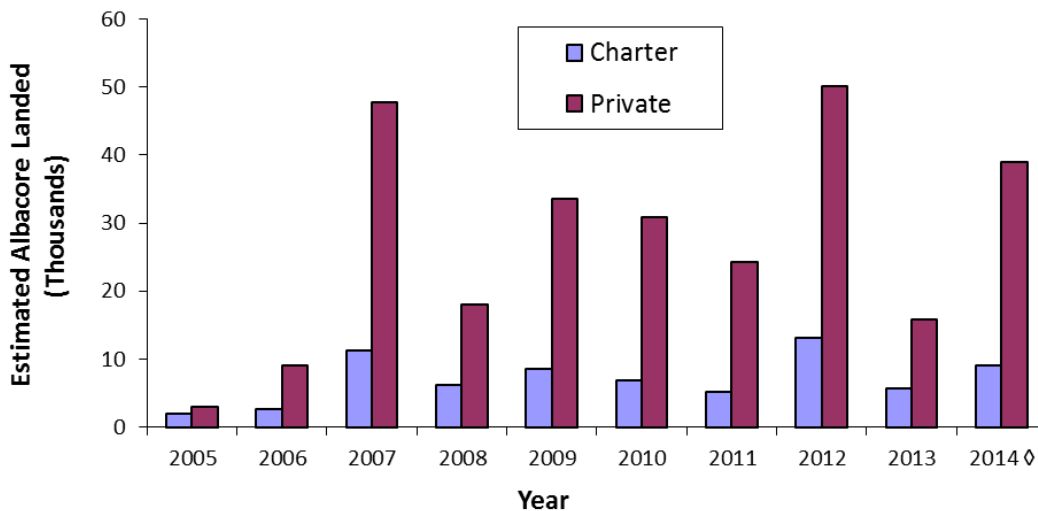


Figure 12: Oregon recreational albacore catch (estimated number of fish) by vessel type, 2005-2014. ◊ 2014 totals are preliminary.

Directed charter fishing effort for albacore totaled 2,721 angler trips in 2014, 4% fewer than the five-year average of 2,829 angler trips (Table 9). Directed private albacore trips totaled 9,327 angler trips, 2% more than the five-year average of 9,103 angler trips (Table 10).

Directed charter catch for albacore totaled 9,143 fish in 2014, 14% more than the five-year average of 8,004 fish (Table 11). Directed private albacore catch totaled 38,991 fish, 22% more than the five-year average of 31,996 fish (Table 12).

Combined charter and private albacore directed landings for 2014 indicate that Charleston, Newport, Garibaldi, and Depoe Bay were the top ports with 87% of the total recreational catch (Table 13). These four recreational ports landed a combined 21% more fish than their five-year average. The effort and success in Charleston is the main reason for this, with a significantly higher recreational catch at 77% more than the five-year average for this port.

Charter vessel catch-per-unit of effort (CPUE) in 2014 was 3.4 albacore per angler trip, while the private vessel CPUE was 4.2 albacore per angler trip (Table 14). The combined CPUE for Oregon's recreational albacore season for charter and private was 4.0 albacore per angler trip, well above the ten-year average of 3.4 albacore per angler trip.

Table 9: Oregon charter* vessel albacore fishing effort (angler trips) by port, 2005-2014.

Port	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 \diamond	5-Year Average \yen
Astoria	72	108	311	390	330	399	193	407	300	366	333
Garibaldi	80	38	111	164	117	212	150	310	315	322	262
P. City	5	0	9	5	1	8	0	7	5	4	5
D. Bay	151	94	683	245	432	595	503	1,169	986	764	803
Newport	611	646	1,463	1,089	1,260	970	1,217	1,393	1,064	940	1,117
W. Bay	77	0	12	0	12	0	0	0	0	0	0
Charleston	0	10	69	109	240	142	206	240	52	199	168
Bandon	14	83	231	107	222	149	166	247	7	126	139
G. Beach	0	0	30	0	48	0	0	0	0	0	0
Brookings	12	0	57	14	20	0	14	0	0	0	3
Total	1,022	979	2,976	2,123	2,682	2,475	2,449	3,773	2,729	2,721	2,829

* Charter effort reflects only charters with a fixed station
 \diamond 2014 Preliminary Totals
 \yen 5-year average includes 2010-2014

Table 10: Oregon private* vessel albacore fishing effort (angler trips) by port, 2005-2014.

Port	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 \diamond	5-Year Average \yen
Astoria	186	187	338	422	59	242	97	161	104	195	160
Garibaldi	120	641	1,263	960	1,059	2,535	579	2,075	1,898	1,523	1,722
P. City	58	80	209	35	92	246	80	330	127	262	209
D. Bay	406	385	1,644	743	694	1,067	930	1,760	1,503	996	1,251
Newport	586	644	2,415	1,475	1,991	2,959	2,519	3,807	2,304	1,886	2,695
Florence	0	NS	30	67	15	16	24	28	NS	20	22
W. Bay	20	12	367	231	370	177	475	403	302	547	381
Charleston	19	144	1,712	960	2,962	1,526	2,871	3,503	375	3,851	2,425
Bandon	0	76	132	0	239	19	41	152	0	47	52
P. Orford	NS	NS	NS	NS	NS	NS	53	0	NS	NS	27
G. Beach	0	6	12	0	28	0	108	0	6	0	23
Brookings	39	179	932	85	166	115	564	21	85	0	157
Total	1,434	2,354	9,054	4,978	7,675	8,902	8,341	12,240	6704	9,327	9,103

* 3% of private effort reflects "guides", or charters without a fixed station
 \diamond 2014 Preliminary Totals
 \yen 5-year average includes 2010-2014
 NS Indicates no port samplers present that year

Table 11: Oregon charter* vessel albacore catch (number of fish) by port, 2005-2014.

Port	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 ◊	5-Year Average ¥
Astoria	275	231	907	1,167	1,016	1,294	366	1,386	822	1,160	1,006
Garibaldi	170	204	628	440	322	651	149	1,061	878	958	739
P. City	3	0	70	98	4	20	0	52	13	1	17
D. Bay	186	113	2,139	670	942	1,552	858	3,387	1,874	2,335	2,001
Newport	1,043	1,653	4,920	3,126	3,419	2,364	2,231	4,880	2,062	3,672	3,042
W. Bay	327	0	36	0	31	0	0	0	0	0	0
Charleston	0	50	301	269	850	410	537	836	68	377	446
Bandon	46	398	1,607	333	1,727	510	1,034	1,527	30	640	748
G. Beach	0	0	256	0	161	0	0	0	0	0	0
Brookings	3	0	319	81	41	0	25	0	0	0	5
Total	2,053	2,649	11,183	6,184	8,513	6,801	5,200	13,129	5747	9143	8,004

* Charter catch reflects only charters with a fixed station

◊ 2014 Preliminary Totals

¥ 5-year average includes 2010-2014

Table 12: Oregon private* vessel albacore catch (number of fish) by port, 2005-2014.

Port	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 ◊	5-Year Average ¥
Astoria	317	804	1,832	1,809	247	344	208	920	276	939	537
Garibaldi	155	3,160	4,943	3,993	4,119	10,309	539	6,405	5,628	5,867	5,750
P. City	53	92	1,910	314	767	1,468	387	1,697	150	924	925
D. Bay	943	1,413	9,100	2,666	3,458	3,477	2,277	6,995	3,397	4,265	4,082
Newport	1,472	1,875	14,825	6,267	10,887	9,911	5,843	17,187	5,242	6,935	9,024
Florence	0	NS	65	287	41	32	13	36	NS	56	34
W. Bay	8	0	1,571	460	969	547	1,281	1,229	190	2,136	1,077
Charleston	12	816	8,370	2,153	12,036	4,617	10,629	14,875	749	17,621	9,698
Bandon	0	517	624	0	813	28	115	685	0	248	215
P. Orford	NS	NS	NS	NS	NS	NS	424	0	NS	NS	212
G. Beach	0	0	210	0	21	0	967	0	0	0	193
Brookings	2	303	4,289	136	184	187	1,539	9	176	0	382
Total	2,962	8,980	47,739	18,085	33,542	30,920	24,222	50,038	15808	38,991	31,996

* 3% of private catch reflects "guides", or charters without a fixed station

◊ 2014 Preliminary Totals

¥ 5-year average includes 2010-2014

NS Indicates no port samplers present that year

Table 13: Preliminary percentage of Oregon's combined (charter and private) recreational albacore catch by port in 2014.

Port	Landing %
Charleston	37.4%
Newport	22.0%
Garibaldi	14.2%
Depoe Bay	13.7%
W. Bay	4.4%
Astoria	4.4%
Pacific City	1.9%
Bandon	1.8%
Florence	0.1%
Brookings	0.0%

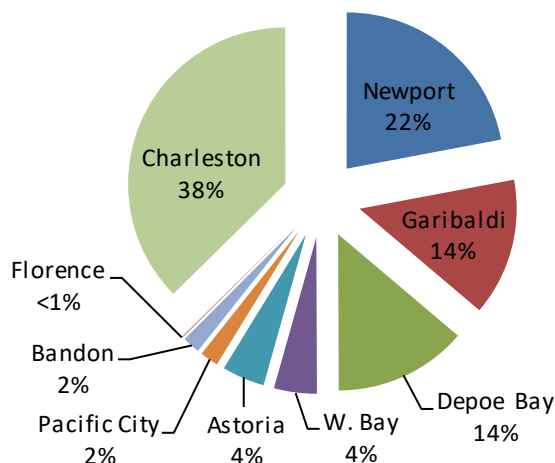


Table 14: Oregon's preliminary 2014 recreational catch, effort, and CPUE (catch/effort) by vessel type, port total, and statewide total.

Port	Catch (No. of Albacore)			Effort (Angler Trips)			Catch per Unit of Effort**		
	Private	Charter	Total	Private	Charter	Total	Private	Charter	Total
Astoria	939	1,160	2,099	195	366	561	4.8	3.2	3.7
Garibaldi	5,867	958	6,825	1,523	322	1,845	3.9	3.0	3.7
Pacific City	924	1	925	262	4	266	3.5	0.3	3.5
Depoe Bay	4,265	2,335	6,600	996	764	1,760	4.3	3.1	3.8
Newport	6,935	3,672	10,607	1,886	940	2,826	3.7	3.9	3.8
Florence	56	0	56	20	0	20	2.8	0.0	2.8
W. Bay	2,136	0	2,136	547	0	547	3.9	0.0	3.9
Charleston	17,621	377	17,998	3,851	199	4,050	4.6	1.9	4.4
Bandon	248	640	888	47	126	173	5.3	5.1	5.1
G. Beach	0	0	0	0	0	0	0.0	0.0	0.0
Brookings	0	0	0	0	0	0	0.0	0.0	0.0
Total	38,991	9,143	48,134	9,327	2,721	12,048	4.2	3.4	4.0

** CPUE is artificially high due to albacore catch recorded from all trip types but only tuna specific trips recorded in effort. In 2014, 2.5% of all sampled albacore were from non-tuna specific trips.

Recreational Length Frequency Analysis

Length frequency information was collected on 1,452 recreationally caught albacore by Ocean Recreational Boat Survey (ORBS) port samplers in 2014. Figure 13 shows the length frequency histogram of non-sorted, randomly sampled albacore during the 2014 recreational season. The length data suggests a tri-modal distribution; where the primary mode represents the older age-class of approximately 4.5 – 5 years-old (Suda 1966). There appears to be a strong trend towards larger albacore landed by sport vessels as compared to commercial vessels.

Modal analysis using a mixed distribution model calculated the average length for small fish at 55.8 ±2.9 cm for 3% of all sampled fish, medium fish at 68.8 ±2.9 cm for 30% of all sampled fish and large fish at 80.2 ±3.4 cm for 67% of all sampled fish. Using length to weight approximations from Clemens (1961), the average weight in 2014 for small fish is 8.1 pounds, 15.1 pounds for medium fish, and 23.8 pounds for large fish.

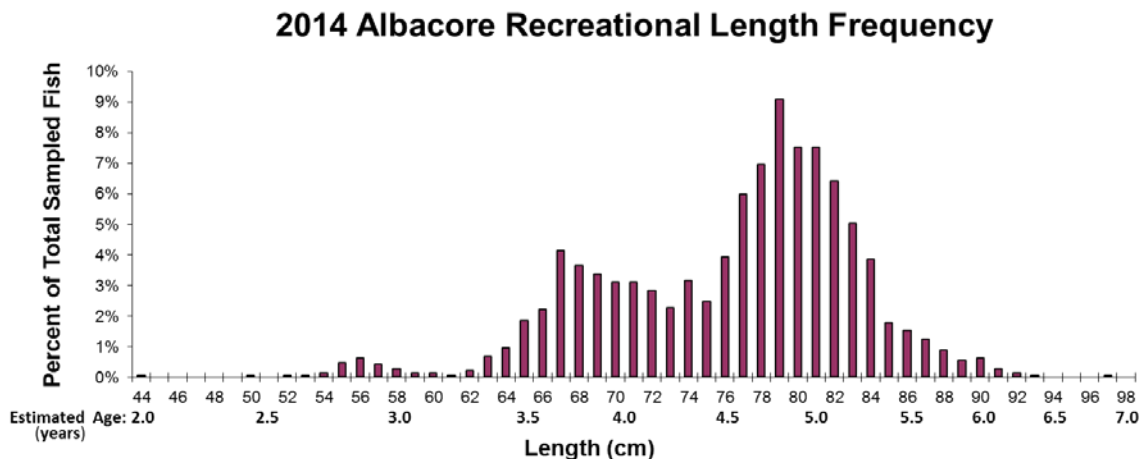


Figure 13: Length frequency data for all ports sampled for tuna by ORBS in 2014
Average Length = 76.3cm, n = 1,452

SUMMARY

Oregon's preliminary commercial albacore landings in 2014 totaled 8,748,466 pounds, a 14% decrease from the 2013 landings, and 8% lower than the ten-year average (2005-2014). Ex-vessel revenues from albacore totaled \$10,967,032, a significant decrease of 32% from the 2013 season, but only 9% lower than the ten-year average (2005-2014). Sampling goals were met and exceeded for the three primary ports, and Oregon overall.

Two Canadian vessels landed 127,760 total pounds of albacore in Oregon from three total landings in Astoria during the 2014 tuna season, a decrease of 88% from the 2013 season of 1,052,415 pounds landed. Canadian albacore landed in Oregon consisted of high quality blast frozen fish which totaled to \$184,241 in ex-vessel revenues, a decrease of 91% from the 2013 season of \$1,965,261.

Recreational tuna fishers enjoyed a successful season, landing an estimated 48,134 fish weighing approximately 986,747 pounds, 20% more fish than the five-year average (2010-2014).

ACKNOWLEDGEMENTS

Thank you to all the albacore fishing vessel operators and crew who cooperatively provided fishing information during the 2014 sampling project, as well as fish plant staff and buyers who supported an efficient sampling platform on their property. Many thanks go to Dean Headlee, Evan Leonetti and Thomas VanHevelingen as primary albacore samplers. Thanks also to ODFW port biologists, assistant port biologist and port samplers for collecting many length frequencies and distributing logbooks and envelopes: Sheryl Flores, Scott Malvitch, Nick Wilsman, Craig Good, Jennifer Watson, Laura Green, Jamie Fuller, Jonathan LaTour, Brian Liebert, Erica Gorey, Lorne Curran, Shari Jackson and Haley Blake. Thank you to Mark Freeman, Ted Calavan, Nadine Hurtado and Pam Costello for their support with ticket data and databases. Thanks to Ellen Veile-Smuts and Kelley Bales for their shipping expertise. Thank you to Eric Schindler, Jason Edwards and Jessica Moll for providing the recreational data component for monthly and annual reports. Also, thank you to John Childers, Tina Nguyen and Abbie Sloan of the NMFS Southwest Fisheries Science Center. A special thanks to Caren Braby, Maggie Sommer, Carla Sowell and Cyreis Schmitt of ODFW for their professional assistance and support.

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.
- 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.

APPENDIX A

2014 Summary Statistics for Oregon's Albacore Port Sampling Program

PORT NAME	Astoria	Garibaldi	Newport	W. Bay	Charleston	Brookings	All Other Oregon Ports	TOTAL
NO. OF LOGBOOKS ISSUED	2	0	6	0	1	0	0	9
LBS LANDED BY COMMERCIAL SAMPLED VESSELS	1,641,724	708	2,269,746	0	1,214,305	59,820	1,056	5,187,359
NO. FISH MEASURED	3,378	0	11,364	0	5,099	151	0	19,992
NO. COMMERCIAL TRIPS SAMPLED FOR LENGTH-FREQUENCY	63	0	162	0	75	3	0	303
TOTAL NO. OF COMMERCIAL TRIPS/LANDINGS	195	164	457	16	354	24	65	1,275
TOTAL NO. OF COMMERCIAL VESSELS Ω	85	50	144	10	139	12	26	378
LBS LANDED BY COMMERCIAL JIG/TROLL VESSELS	2,648,652	204,440	3,004,563	92,155	1,893,988	187,878	62,624	8,094,300
LBS LANDED BY COMMERCIAL BAIT VESSELS	0	0	1,739	0	0	0	0	1,739
LBS LANDED BY COMMERCIAL JIG&BAIT VESSELS	52,666	0	51,230	6,174	542,357	0	0	652,427
LBS LANDED BY COMMERCIAL GILLNET VESSELS	0	0	0	0	0	0	0	0
TOTAL LBS LANDED BY COMMERCIAL VESSELS	2,701,318	204,440	3,057,532	98,329	2,436,345	187,878	62,624	8,748,466
LBS LANDED BY SPORT VESSELS**	43,030	13,9913	217,444	43,788	368,959	0	173,615	986,747
LBS LANDED BY OTHER VESSELS	0	0	0	0	0	0	0	0
PERCENT COMMERCIAL SAMPLING COVERAGE (weight)	60.8%	0.4%	74.2%	0.0%	49.8%	31.8%	1.7%	59.3%
PERCENT COMMERCIAL SAMPLING COVERAGE (trips)	33.3%	0.0%	35.5%	0.0%	21.2%	12.5%	0.0%	23.8%

Ω Several vessels made trips into multiple ports, so total numbers of vessels at each port will add up to more than Oregon's total.

** Sport-caught albacore weight estimated using Clemens, 1961.