



Washington
Department of
**FISH and
WILDLIFE**

**Summary Report of the
2010 Experimental Purse Seine Fishery
for
Pacific Sardine
(*Sardinops sagax*)**

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**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
SUMMARY OF THE 2010 COMMERCIAL PURSE SEINE FISHERY
FOR PACIFIC SARDINE
(*Sardinops sagax*)**

Management

Pacific sardines are managed by the Pacific Fishery Management Council (Council) under the Coastal Pelagic Species (CPS) fishery management plan. Through the Council process, scientists conduct an annual coastwide stock assessment that incorporates data from federally sponsored surveys and state-managed fisheries. The Council's Scientific and Statistical Committee reviews that assessment and recommends an annual coastwide harvest guideline to the Council. After considering all the information presented through its advisory bodies and public comment, the Council adopts a final harvest guideline. The harvest guideline is allocated seasonally with releases on January 1st, July 1st, and September 15th (Table 1).

Table 1. Harvest Guideline 2010 Allocation.

	Total	Seasonal Allocation Periods		
ABC/Total Harvest Guideline	72,039	Period 1 Jan. 1 – June 30	Period 2 July 1 – Sept. 14	Period 3 Sept. 15 – Dec. 31
Research Set Aside	5,000			
Adjusted Harvest Guideline	67,039	23,463	26,861	16,760
Incidental Fishery Set Aside	3,000	1,000	1,000	1,000
Management Uncertainty Buffer	4,000	0	0	4,000
Directed Fishery Harvest Guideline	60,000	22,463	25,861	11,760

In 2010, the overall coastwide harvest guideline was 72,039 metric tons (mt). Of this, 5,000 mt of sardines were set aside for research projects authorized through Experimental Fishery Permits. Forty-two hundred (4,200) metric tons were set aside for a joint Northwest Sardine Survey and the California Wetfish Producers Association project to conduct aerial surveys to photograph and measure sardine biomass between Cape Flattery, Washington and the Channel Islands in California. The remaining 800 mt was used in a pilot survey in the Southern California Bight to investigate alternative survey methods.

The 2010 harvest guideline represents a negligible increase over 2009, but continues the general downward trend of the past decade (Table 2): the 2010 harvest guideline represented a 61% decline from the first harvest guideline in 2000. From 2000 to 2007 the harvest guideline averaged 135,049 mt, it then dropped by 44% to 76,021 mt from 2008 to 2010. Given this decrease, concerns were raised that there would not be enough sardines to cover incidental catch of sardines in fisheries targeting other coastal pelagic species, such as squid and anchovy. To this end, the harvest guideline was reduced by a total of 3,000 mt. Unused portions of the incidental set aside roll over to the next period. To address the lag between when landings are made and when a complete accounting of catch can be made, a “management uncertainty” buffer of 4,000 pounds was also subtracted from the overall harvest guideline. The resulting final value of 60,000 mt was allocated to the three directed fishing periods.

Table 2. Annual coastwide harvest guideline, 2000-2010.

Year	Coastwide Harvest Guideline	Average Harvest Guideline
2000	186,791	135,049
2001	134,737	
2002	118,442	
2003	110,908	
2004	122,747	
2005	136,179	
2006	118,937	
2007	151,654	76,021
2008	89,093	
2009	66,932	
2010	72,039	

From 2000 through 2009, participation in the sardine fishery was managed under Washington’s Emerging Commercial Fishery Act (ECFA), which provides for the harvest of a newly classified species or harvest of a classified species in a new area or by new means. The ECFA offers two choices for fishery-permit

designations: trial, which does not limit the number of participants or experimental, which does limit participation and prohibits the transfer or sale of the permit. From 2000 through 2002, WDFW managed the purse seine fishery for sardine under the trial designation. Absent limited participation, the Washington fishery was managed to a state harvest guideline of 15,000 mt.

In 2003, the sardine fishery designation was advanced from trial to experimental as provided for under the ECFA. The number of experimental fishery permits was capped at 25. The experimental fishery program continued through June 2009. During the 2009 Washington State legislative session, WDFW proposed legislation to establish a commercial license limitation program specifically for the harvest and delivery of Pacific sardines into the state. The legislation was passed into rule in July 2009. The new rules established 16 licenses to be issued to holders of a 2008 sardine experimental fishery permit only, with an exception for past participants of the experimental fishery that became ineligible because of loss of their vessel at sea. Unlike emerging commercial fishery licenses, the newly created sardine licenses can be sold. In addition, the new rule provides criteria for the issuance of temporary annual permits at the discretion of the WDFW Director. In combination, the number of permanent and temporary annual licenses cannot exceed 25. Coastal sardine harvest, landing, and reporting requirements can be found in Appendix A.

Fishery Description

By state regulation, Washington license holders can commence landing sardines beginning April 1. In recent years, the first period's harvest guideline has been caught by California fishermen before April 1 and Washington fishermen had to wait until the second period opened on July 1 to begin their summer sardine fishery. However, in 2010 the harvest guideline in the first period lasted into mid June and a few Washington fishermen began participating in this opening on June 5. The remainder of the harvest guideline was caught by June 12 and the first period fishery closed. The second period opened July 1 and all eight of this year's participants were fully engaged in the sardine fishery.

Vessels fishing out of Ilwaco and Westport sometimes use spotter planes to locate sardines. In general, pilots receive about 10-15% of the landing revenue. Ex-vessel price per pound in the fishery averaged \$0.10 per pound for sardines processed as bait or for human consumption markets. Rendered sardines averaged \$0.04 per pound. Total ex-vessel value for 2010 was \$2.6 million.

A total of 12,379.3 mt of sardines were landed in the directed fishery in Washington in 2010. Of the 232 landings, 4, 75 and 21 percent were made in June, July and September, respectively (Figure 1). The average landing was about 53 mt. All landings were made into Westport or Ilwaco with the majority of the catch (93%) occurring in waters adjacent to Washington. A total of 311 sets

were made with 287 (92%) of them successful. The average catch per successful set was about 46 mt (Figure 2).

Pacific sardines are the targeted catch in the Washington fishery, but anchovy, mackerel, and squid can also be retained and landed. In 2010 landings for these other coastal pelagic species were as follows 0 mt of anchovies, 0.07 mt of jack mackerel, and 2.0 mt of mackerel.

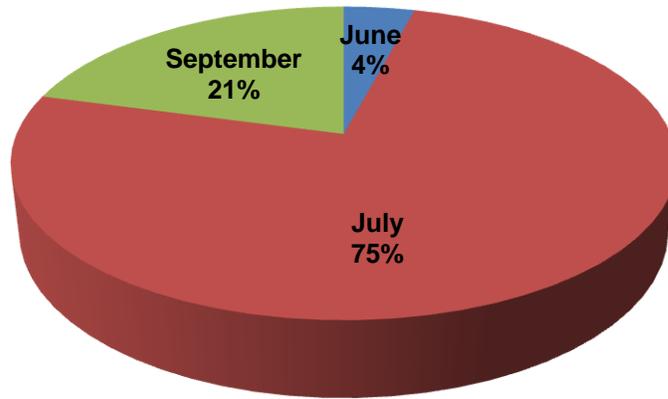


Figure 1. Washington sardine landings by month.

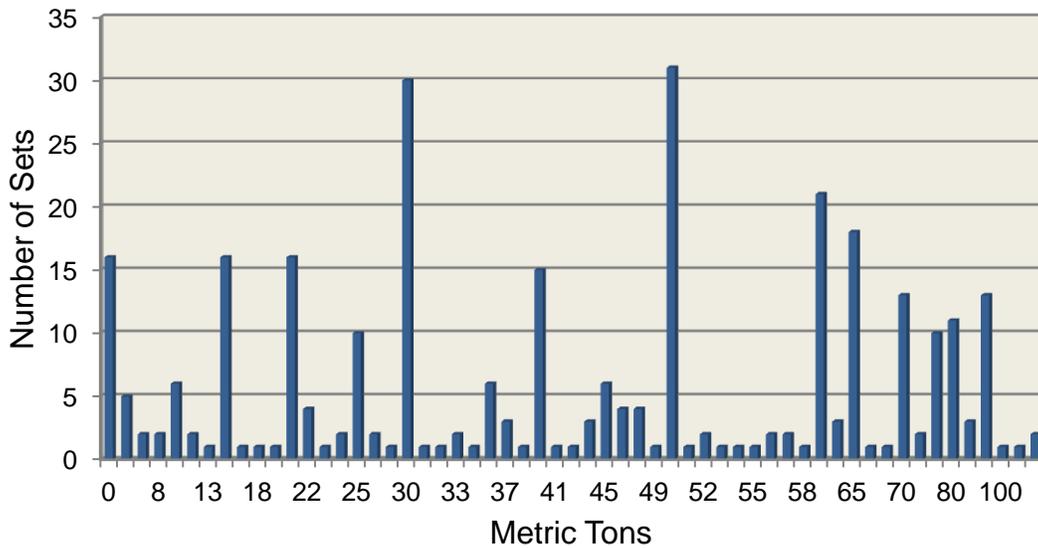


Figure 2. Amount of sardines (mt) produced per successful set.

Logbooks

Logbooks continue to be required (Appendix B), which allows WDFW to collect data on the location of the sardine sets (Figure 3).

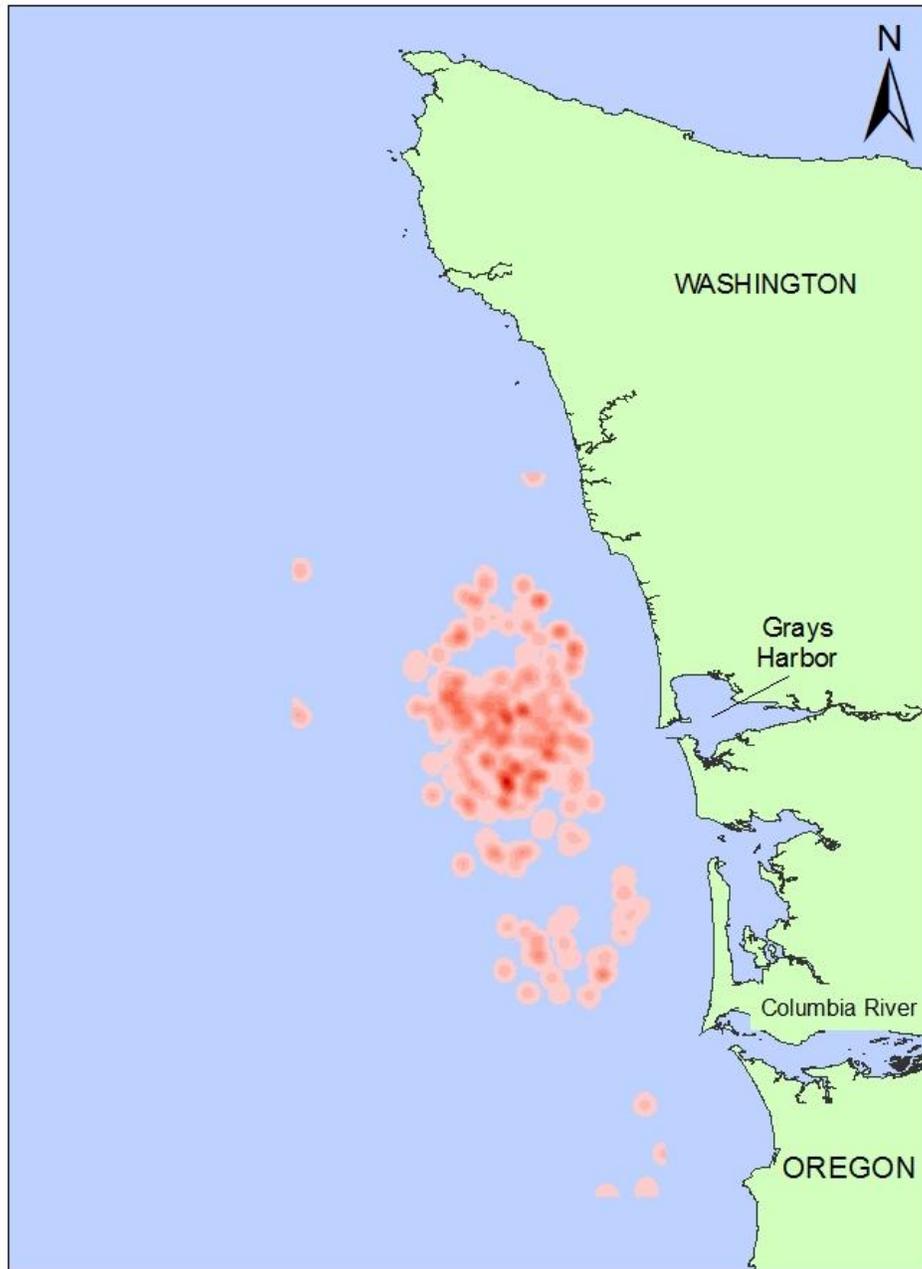


Figure 3. 2010 Washington sardine set locations.

Biological Samples

WDFW staff coordinated the collection of biological samples with Oregon Department of Fish and Wildlife (ODFW) staff to ensure sample coverage was evenly distributed throughout the Northwest fishery. Each state (Washington, Oregon, and California) is asked to collect a minimum of one sample of twenty-five sardines per 1,000 mt landed. WDFW collected ten biological samples of twenty-five sardines each (250 sardines total).

Both WDFW and ODFW staff extracted sardine otoliths, which measured about 1.5-3.0 mm in length. These otoliths were sent to the WDFW laboratory in Olympia, Washington, for age reading (Figure 4). Catch date, vessel name, sardine length, weight, sex, and maturity were recorded for each pair of otoliths.



Figure 4. A pair of sardine otoliths next to a penny.

Sex and maturity were determined by using the California Department of Fish and Game (CDFG) Standard Maturity Guide for Wetfish, which is based on Hjort, J. (1914) State of Sexual Organs.

Sexual maturity codes 1-4 were used for the sardine samples:

<u>Code</u>	<u>Description</u>
(1)	Virgin individuals.
(2)	Maturing virgins or recovering spent. Males intermediate; no milt present.
(3)	Yoked oocytes visible. Milt is present and oozing in males.
(4)	Hydrated oocytes present.

Most of the samples analyzed in 2010 were females (54%), with the highest subcategory overall being females with a sexual maturity of 2 (Figure 5). The majority of all sardines sampled were at sexual maturity 2 (94%) while only 2% were a sexual maturity 1 and 4% were at sexual maturity 3. A sexual maturity level 4 has never been found in Washington's sardine fishery.

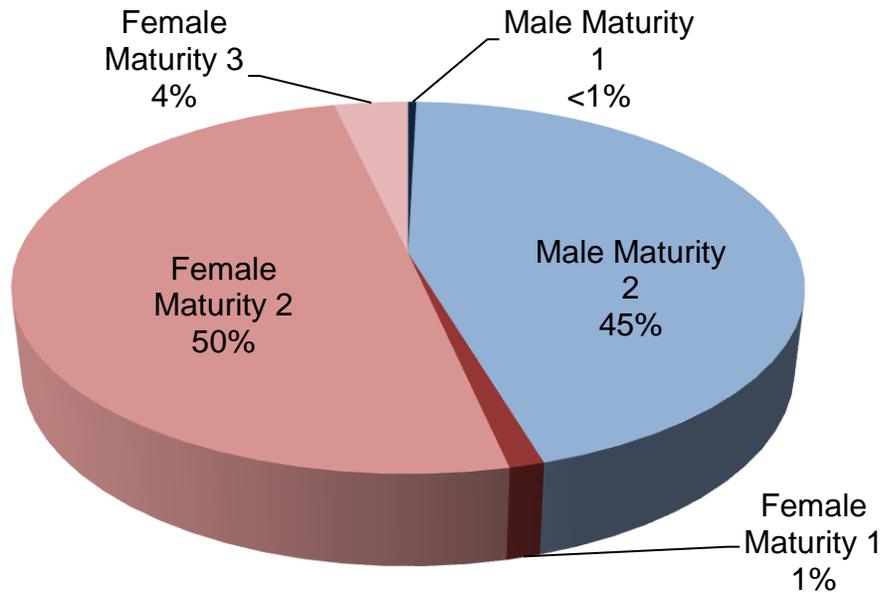


Figure 5. The sex and maturity of 2010 sardine samples.

A total of 250 sardines were sampled for length (standard), weight (grams), sex, maturity, and age. The standard length of sardines landed into Washington ranges from 162 mm to 230 mm and weighs between 70 and 185 grams (Figure 6). In 2010, the average length of the samples remained constant over the season (203 mm) but the average weight continually increased. Sardines averaged 124 g, 134 g, and 150 g in June, July, and September respectively. This suggests that sardines gained fat throughout the course of the summer.

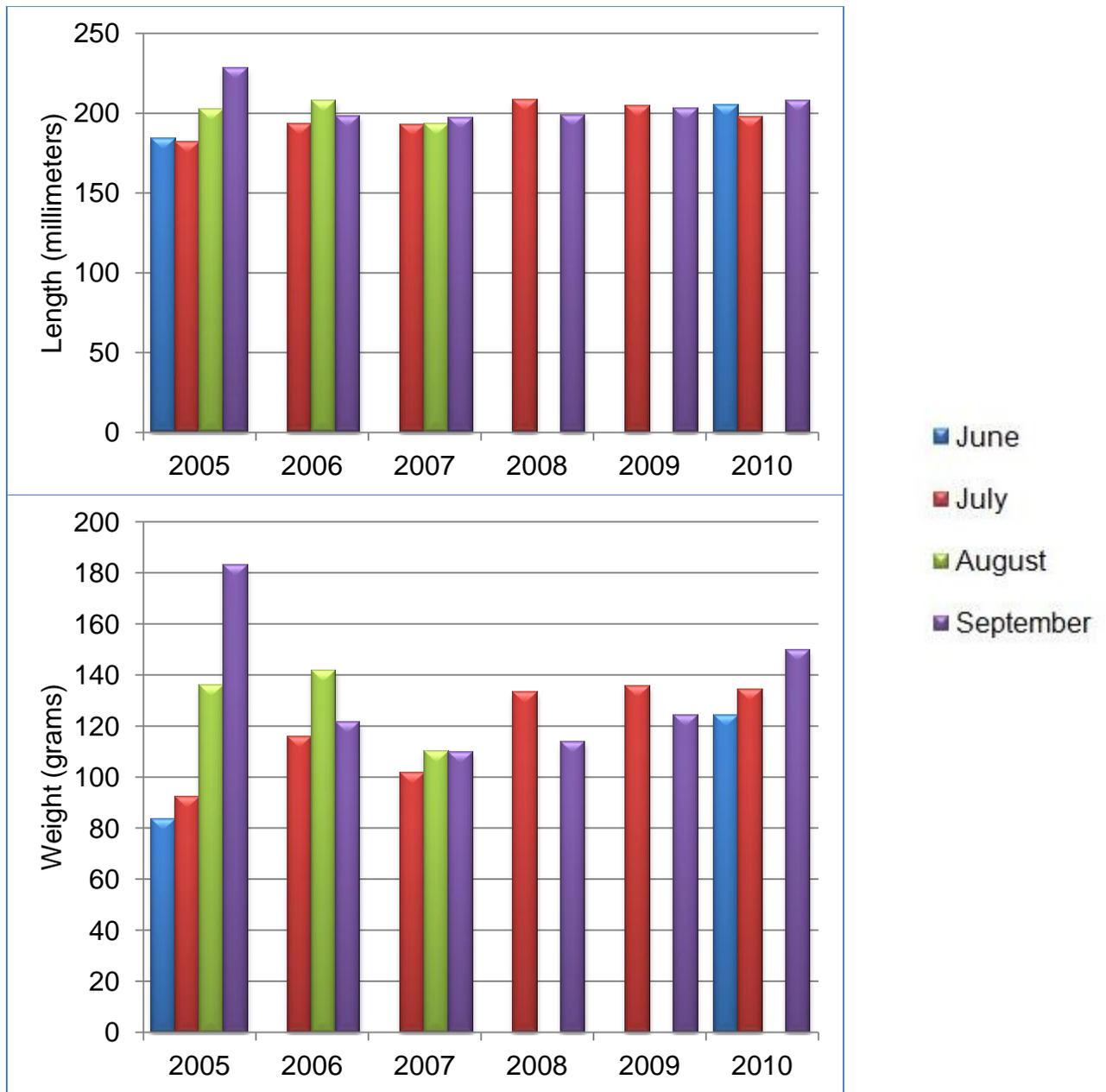


Figure 6. Average lengths and weights from sardine samples, 2005-2010.

Comparison to Past Data

During the last seven years, the number of vessels participating in Washington's sardine fishery has fluctuated. In 2004, 14 vessels participated in the fishery harvesting almost 9,000 mt. In 2010, eight vessels participated in the fishery and harvested 12,379 mt (Table 3).

Table 3. Comparison summary of Washington sardine fisheries, 2004-2010.

	2010	2009	2008	2007	2006	2005	2004
Landings (mt)	12,379	8,009	6,432	4,663	4,362	6,714	8,911
No. of Landings	232	173	150	106	108	207	236
No. of Vessels	8	8	5	6	7	11	14

In past years, sardine landings were distributed throughout June, July, August, September, and occasionally October and November. However, since the harvest guideline became considerably smaller in 2008 and 2009, sardine landings are typically limited to June, July, and September. In 2006 and 2007, the majority of sardines were landed in September whereas in 2008, 2009, and 2010 the majority of sardines were landed in July (Figure 7).

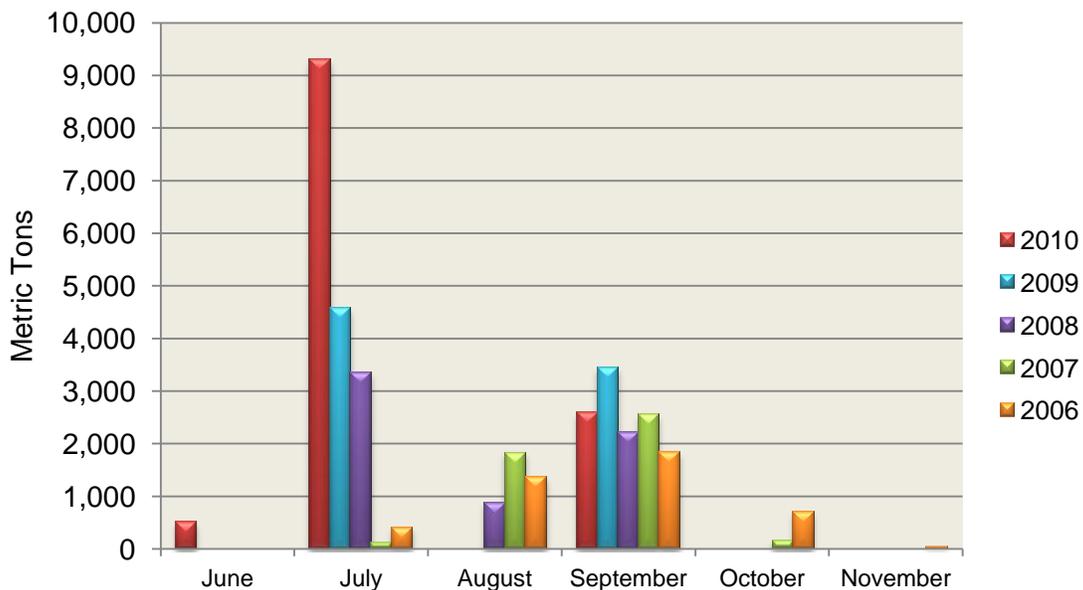


Figure 7. Washington sardine landings by month, 2006-2010.

Summary of WDFW Activities

WDFW staff conducted port sampling, data recording, biological analyses, and weekly landing estimates. WDFW posted weekly estimates on the agency website (<http://wdfw.wa.gov/fish/commercial/sardine>). These were distributed to National Marine Fisheries Service, state agencies, and industry members to track attainment of the harvest guideline in-season. Staff monitored sardine offloads at processing plants for incidental catch data, weighed sub-samples of the sardine catch, and collected logbooks to determine harvest distribution, catch per unit of effort, and unobserved bycatch information. Additional staff time was spent extracting otoliths, measuring, weighing, and determining sex and maturity of samples, age-reading and summarizing observer and logbook information.

2010 COASTAL SARDINE PURSE SEINE FISHERY REQUIREMENTS

WAC 220-44-095

(1)(a) It is unlawful to possess, transport through the waters of the state, or deliver into any Washington port, Pacific sardine (*Sardinops sagax*) or other coastal pelagic species taken in violation of gear requirements and other rules published in Title 50, Part 660, Subpart I of the Code of Federal Regulations (CFR). These federal regulations govern commercial fishing for coastal pelagic species in the Exclusive Economic Zone off the coasts of Washington, Oregon, and California. Where the federal regulations refer to the fishery management area, that area is interpreted to include Washington state waters coterminous with the Exclusive Economic Zone. Updates to the federal regulations are published in the Federal Register. Discrepancies or errors between the CFR and Federal Register will be resolved in favor of the Federal Register. This chapter incorporates the CFR by reference and is based, in part, on the CFR. A copy of the federal rules may be obtained by contacting Lori Preuss at 360-902-2930, or going to the U.S. Government Printing Office's GPO Access web site (www.gpoaccess.gov). State regulations that are more restrictive than the federal regulations will prevail.

(b) The coastal sardine fishery season is open to purse seine fishing each year only from April 1st through December 31st. It is unlawful to take Pacific sardine in state waters except for the incidental take authorized by the coastal baitfish regulations.

(c) It is unlawful to retain any species that is taken incidental to sardine, except for anchovy, mackerel, and market squid (*Logligo opalescens*). Any salmon encircled in the purse seine must be released prior to completion of the set, and no salmon may be landed on the fishing vessel.

(d) It is unlawful to transfer sardine catch from one fishing vessel to another.

(e) It is unlawful to fail to have legal purse seine gear aboard the vessel making a sardine landing.

(f) It is unlawful to fail to deliver sardine landings to a shore-side processing facility.

(g) Once a delivery has commenced at a processing plant, all fish on board the vessel must be offloaded at that plant.

(h) It is unlawful to deliver more than fifteen percent cumulative weight of

sardines for the purposes of conversion into fish flour, fish meal, fish scrap, fertilizer, fish oil, other fishery products, or by-products, for purposes other than human consumption or fishing bait used during the sardine fishery season.

(2) License owners must designate a vessel upon issuance or renewal of the license and must be identified as either the vessel owner or primary license operator.

(3) Persons fishing under a Washington sardine purse seine fishery license or temporary annual fishery permit must:

(a) Carry an observer on board for any sardine fishing trip if requested by the department;

(b) Surrender up to five hundred sardines per vessel per trip if requested by department samplers for biological information; and

(c) Complete a department-issued logbook each month in which fishing activity occurs, and submit it to the department by the 15th day of the following month.

(4) Violation of reporting requirements under this section is punishable pursuant to RCW [77.15.280](#).

(5) Violation of gear, harvest, or landing requirements under this section is punishable pursuant to RCW [77.15.520](#).

