



Washington  
Department of  
**FISH and  
WILDLIFE**

# **Summary Report of the 2007 Experimental Purse Seine Fishery for Pacific Sardine (*Sardinops sagax*)**

Washington Department of Fish and Wildlife  
Corey Niles, Intergovernmental Resource Management  
Carol Henry, Intergovernmental Resource Management  
48 Devonshire Road  
Montesano, Washington 98563

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**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)  
SUMMARY OF THE 2007 EXPERIMENTAL PURSE SEINE FISHERY  
FOR PACIFIC SARDINE (*Sardinops sagax*)**

**Management**

Pacific sardines (or pilchards) are managed under the Pacific Fishery Management Council's Coastal Pelagic Species (CPS) fishery management plan. The Pacific Council develops and adopts a coastwide annual harvest guideline that is allocated seasonally with releases on January 1<sup>st</sup>, July 1<sup>st</sup>, and September 15<sup>th</sup> (Table 1). In 2007, the overall coastwide harvest guideline was 151,654 mt.

Table 1. Harvest Guideline Release for 2007 Allocation.

Date	Amount	mt
January 1, 2007	35% of Harvest Guideline	53,429
July 1, 2007	40% of Harvest Guideline + Remaining	60,062
September 15, 2007	25% of Harvest Guideline + Remaining	38,163

In Washington, participation in the sardine fishery is managed under the Emerging Commercial Fishery provisions (WAC 220-88-010). From 2000 through 2002, the WDFW held a trial purse seine fishery for Pacific sardines, under which the number of participants was unlimited. Following an extensive public process, which included establishing and meeting with a formal Sardine Advisory Board, the Director decided to advance the sardine fishery to an experimental fishery and limit the number of permits available.

WDFW decided to convert from a trial to an experimental fishery largely because of the rapid expansion of the sardine fishery in the Pacific Northwest. Oregon began the Northwest fishery in 1999, yielding 771 mt in sardine landings. Landings in the Northwest then increased to 37,923 mt in 2002 and 36,862 mt in 2003. In 2007, Northwest landings reached 46,715 mt.

**Permits and Regulations**

In 2007, eighteen fishers were eligible to receive a Washington sardine experimental fishery permit, including replacement permits from 2006 being carried over into 2007. However, only fifteen of the eligible fishers applied for permits in 2007. The initial qualifying criteria for the experimental fishery permits included owning a 2006 sardine permit, a minimum of 50% ownership in the vessel designated on a Washington coastal pilchard permit, and renewal of their fishing license by April 1.

A full description of permit conditions and fishing regulations that applied in 2007 is contained in Appendix A.

## Fishery Description

A total of 4,662.6 mt of sardines were landed into Washington in 2007, distributed over 106 landings. Thirty-three percent of the landings occurred in August and sixty percent occurred in September (Figure 1). The average landing into Washington State was about 44 mt. All landings were made into Westport or Ilwaco with the majority of the catch (97%) occurring in waters adjacent to Washington. A total of 132 sets were made with 119 (90%) of them successful. The average catch per successful set was about 42.8 mt (Figure 2).

The fishery opened on April 1, 2007, however, the first landing into Washington did not occur until July 28. In past years, the first landing into Washington was made around late June or early July. Only 6 of the 15 permit holders participated in the 2007 fishery. Three of the permit holders—one from Ilwaco and two from Westport—accounted for 62% of the total landings.

Vessels fishing out of Ilwaco and Westport sometimes use spotter planes. In general, pilots receive about 10-15% of the landing revenue. Ex-vessel price per pound in the fishery averaged \$0.04 - \$0.06 across the season.

Figure 1. Washington sardine landings by month.

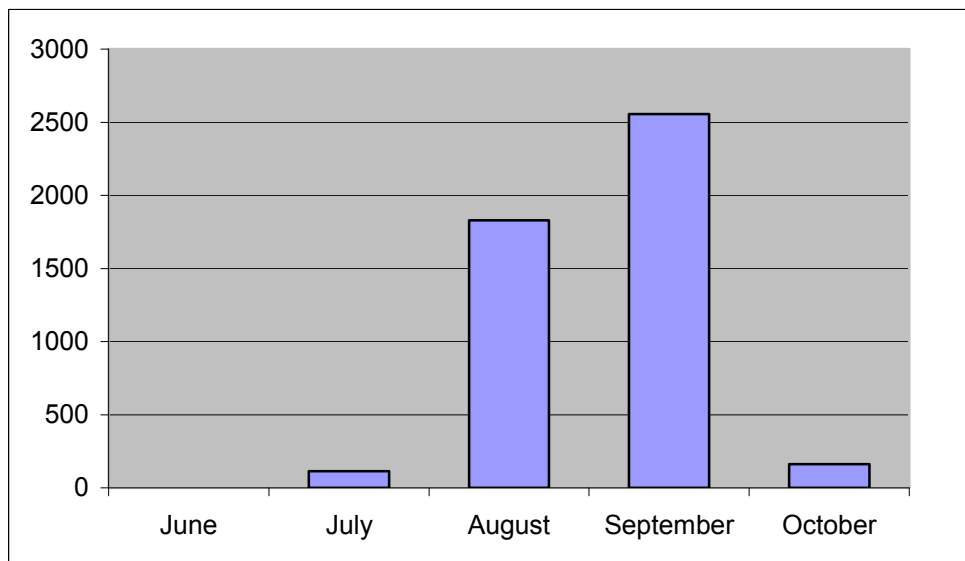
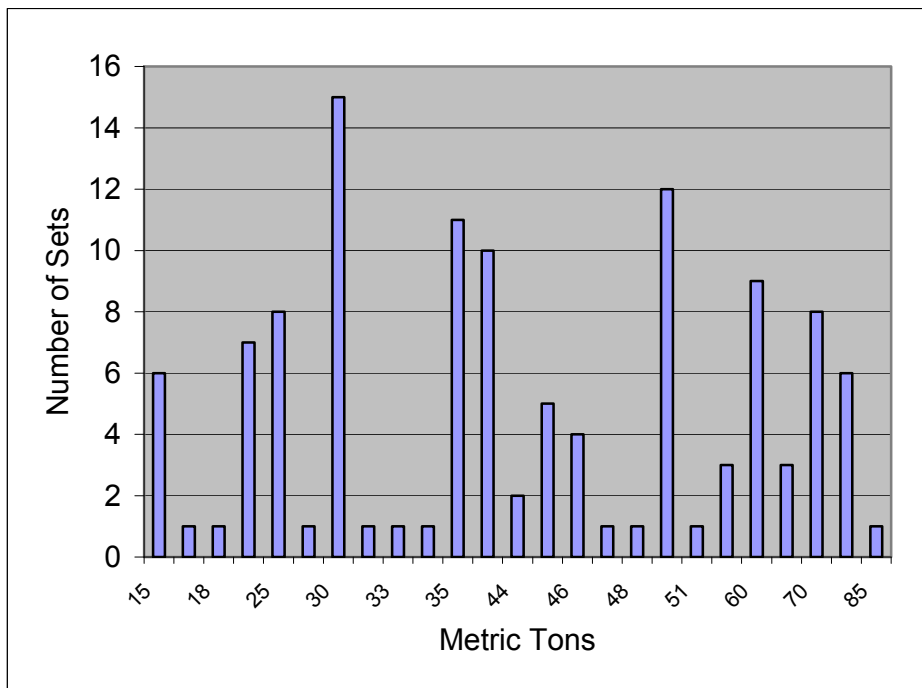


Figure 2. Amount of sardines produced per successful set.

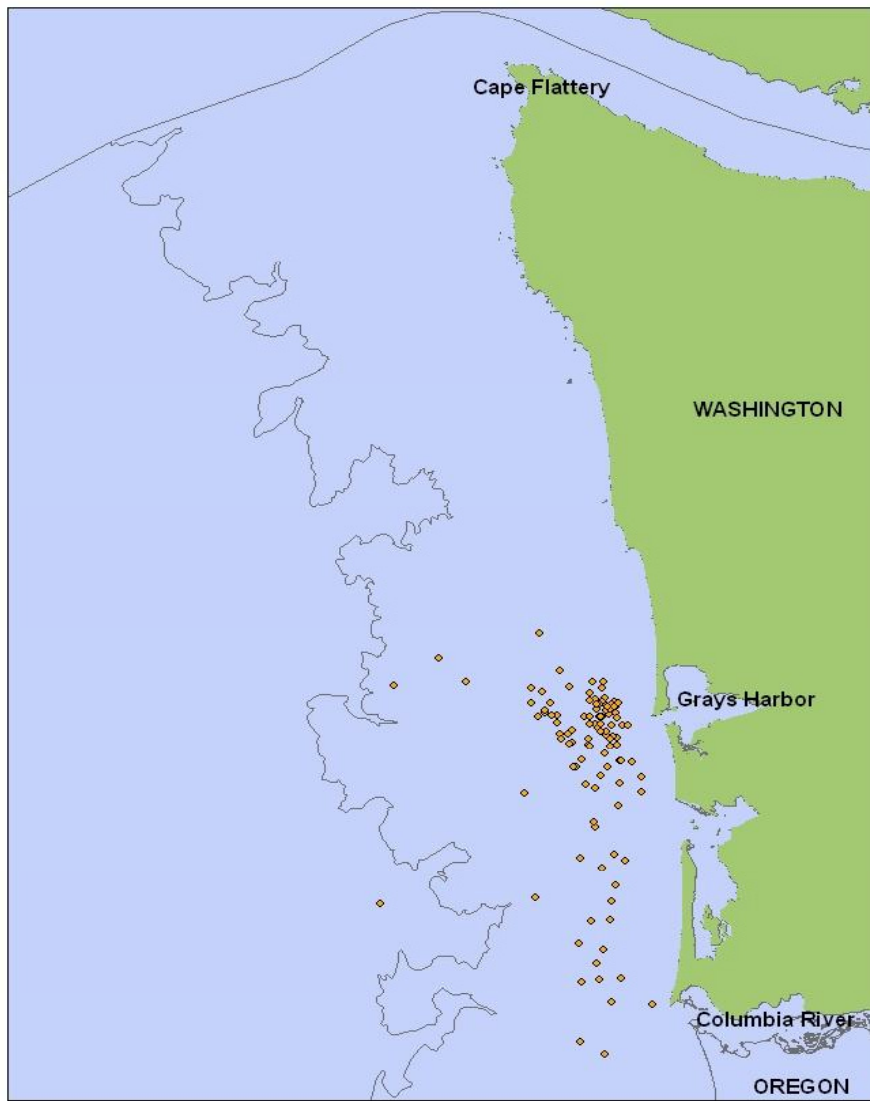


### Observer Coverage/Logbooks

From 2000 to 2004 there was a mandatory observer program in place to document total catch and bycatch in the sardine fishery. Bycatch was recorded in terms of species, amount, and condition; observers noted whether the fish were released or landed, and whether the fish were alive, dead, or in poor condition. From 2000 to 2004, WDFW observed approximately 25% of all sardine trips out of Washington. In 2005, the Department decided to discontinue the observer program because five years of observer data showed the fishery to be a relatively clean fishery with minimal impact on species of concern.

Logbooks continue to be required (Appendix B). By continuing the logbook program, WDFW will be able to collect data on the location of the sardine sets (Figure 3).

Figure 3. 2006 Washington sardine fishery 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).

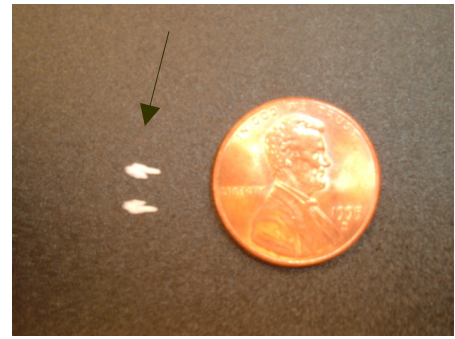
Both WDFW and ODFW staff extracted sardine otoliths, which measured about 1.5-3.0 mm in length. These otoliths were sent to the WDFW laboratory in Olympia, Washington, for age reading (Figure 4). Catch date, vessel name, sardine length, weight, sex, and maturity were recorded for each of the otoliths.

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:

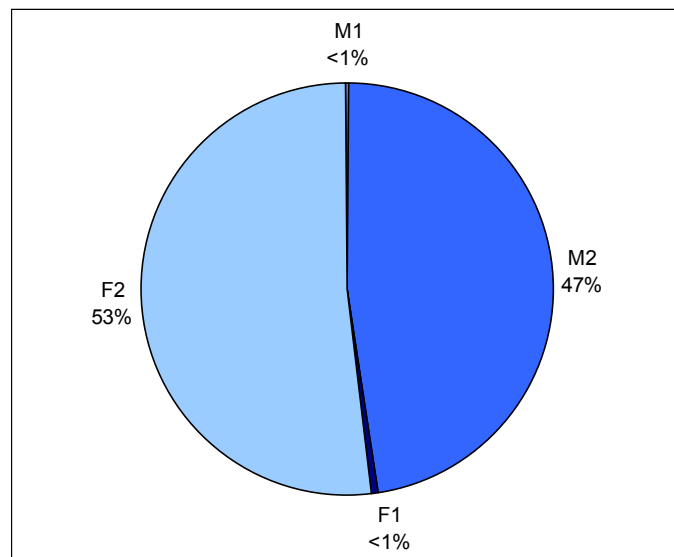
<u>Code</u>	<u>Description</u>
(1)	Virgin individuals.
(2)	Maturing virgins or recovering spent. Males intermediate; no milt present.
(3)	Yoked oocytes visible. Milt is present and oozing in males.
(4)	Hydrated oocytes present.

Figure 4. Sardine otoliths.



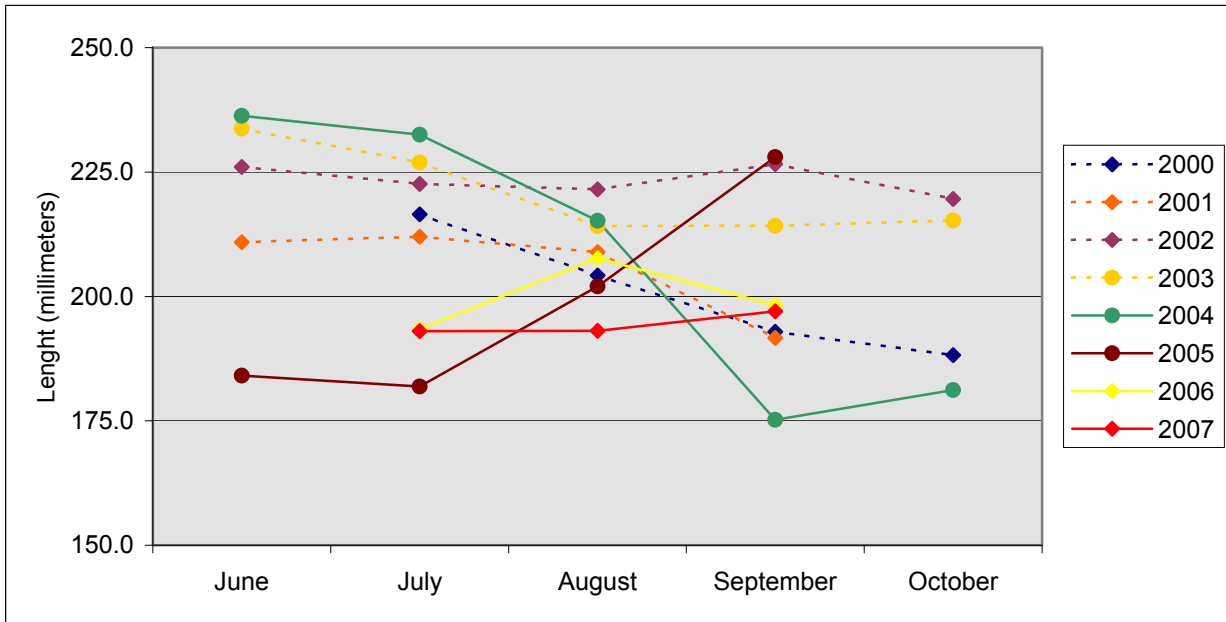
Most of the samples analyzed in 2007 were females (52%), with the highest subcategory overall being females with a sexual maturity of 2 (Figure 5). There was one female with a sexual maturity of 1 and none with code 3 or 4. The majority of males sampled were maturity code 2 and three males were code 1.

Figure 5. Sex and maturity of sardine samples.



The standard length of the sardine samples ranged from 174 mm to 245 mm and weighed between 75.0 and 190.5 grams (Figure 6). In 2007, the average weight of the samples remained fairly constant over the season. In general, sardine size was down compared to previous years with the average weight overall being 109.1 grams.

Figure 6. Average lengths taken from sardine samples.



### Comparison of Past Data

During the eight years in which the sardine fishery has been active, the number of vessels participating has fluctuated. The fishery started with 3 vessels in 2000, peaked at 19 in 2002, and has consistently declined since 2004 (Table 2).

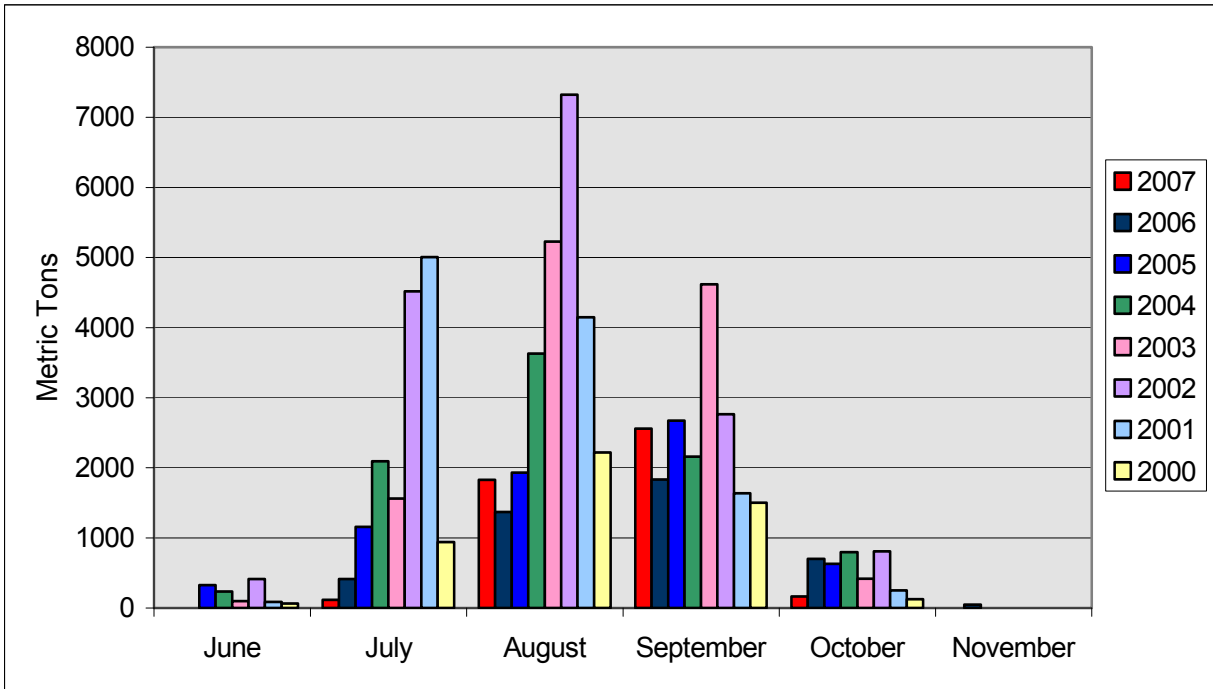
Table 2. Comparison summary of Washington sardine fisheries, 2000-2007.

	2007	2006	2005	2004	2003	2002	2001	2000
Landings (mt)	4662.6	4,362.3	6,714	8,911	11,920	15,820	11,121	4,842
# Landings	106	108	207	236	288	424	299	153
# Vessels	6	7	11	14	10	19	13	3

Sardine landings into Washington started out at 4,791 mt in 2000 and peaked in 2002 at 15,212 mt. The majority of sardines are typically landed during the months of July, August, and September (Figure 7).



Figure 7. Washington sardine landings by month.



### Summary of WDFW Activities

WDFW staff administered port sampling, data recording, and biological analyses. Staff also produced weekly landing estimates which were posted on the agency website (<http://wdfw.wa.gov/fish/commercial/sardine>) and distributed to National Marine Fisheries, 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, CPUE, 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.

**2007 WASHINGTON EXPERIMENTAL SARDINE FISHERY  
PERMIT CONDITIONS**

Permits

1. Participants are required to renew their Emerging Commercial Fisheries License (\$185 for residents; \$295 for non-residents) and Experimental Sardine Fishery Permit by April 1, 2007.
2. Permits are non-transferable and must be carried on the fishing vessel during harvest and sale of catch.
3. Permit holder must designate a vessel on the permit a minimum of 48 hours prior to the first sardine fishing trip of each year; vessel designation can be changed provided the vessel has not participated in the current season.
4. A vessel cannot be designated on more than one permit.
5. The permit is subject to revocation by the Director for failure to abide by the conditions of the permit, violation of other fishing regulations, or other valid reason.

Season

6. Permits would be valid during the time period of April 1, 2007 through December 31, 2007

Observer Coverage

7. WDFW retains the right to require certified observers to be onboard for the duration of any trip on which sardines are harvested, and the Director has the discretion to recover costs for observer coverage.

Data Collection

8. Agency employees will be granted full access to the catch and be allowed to gather biological data as needed. Up to 500 sardine per day may be retained by WDFW for biological information.
9. Logbooks are required and will be provided by WDFW. Completed logs must be submitted to the Department by the 15<sup>th</sup> day following the end of each month in which fishing activity occurred. Logs must be submitted to:

Washington Department of Fish and Wildlife  
Attn: Carol Henry  
48 Devonshire Road  
Montesano, WA 98563

Gear

10. The fishery is open to purse seine gear only, and gear specifications will be detailed to ensure that the net meets a purse seine definition.
11. Legal purse seine gear must be onboard the vessel making the landing.

### Species

12. Participants may retain and sell sardine and incidental catches of mackerel, market squid, and anchovy. All other species must be released immediately and care taken to minimize damage to prohibited species.
13. No salmon may be landed on the boat's deck but must be released or dip netted directly from the net before the completion of each set.
14. Consistent with standards in the offshore whiting fishery, a mortality greater than 1 chinook per 20 mt of Pacific sardine would be sufficient to rescind a permit or close the experimental fishery.

### Fishing Area

15. The fishery would be restricted from the area inside 3 miles to minimize bycatch, conserve forage fish, and reduce conflicts with the existing baitfish fishery.

### Landings

16. All sardine landings made under the authority of this permit into Washington must comply with existing state and federal regulations and requirements.
17. The transfer of catch from one vessel to another vessel is prohibited.
18. All landings must be made to a shoreside processing facility.
19. Not more than 15% of cumulative sardine landings (across the season) can be delivered or processed for the purposes of conversion into fish flour, fish meal, fish scrap, fertilizer, fish oil, other fishery products, or byproducts for purposes other than human consumption or fishing bait.
20. Once a delivery has commenced at a processing plant, all fish onboard the vessel must be offloaded at that plant.



**EXPERIMENTAL SARDINE FISHERY LOGBOOK**

**PERMIT #** \_\_\_\_\_

(Complete a log sheet for each calendar day fished; if necessary, more than 1 sheet per day may be used)

**FISHING VESSEL:** \_\_\_\_\_

**SKIPPER NAME:** \_\_\_\_\_

Departure Date \_\_\_\_\_ Return Date \_\_\_\_\_

Gear Length \_\_\_\_\_ Gear Depth \_\_\_\_\_

Mesh Size \_\_\_\_\_

Grate used? Yes \_\_\_\_\_ No \_\_\_\_\_ Mesh size \_\_\_\_\_

Was there an observer on board this trip? Yes \_\_\_\_\_ No \_\_\_\_\_

Observer's Signature: \_\_\_\_\_

**Fish Ticket #** \_\_\_\_\_

Time Set	Latitude	Longitude	Retained Catch (weight)					Chinook	Coho
			Sardines	Mackerel	Anchovy	Squid			
							Live		
							Dead		
							Live		
							Dead		
							Live		
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							Live		
							Dead		

Questions? Call Michele Robinson, WDFW, at (360) 249-1211  
**Sardine Hotline: (360-) 249-4628 ext. 263**

Skipper's Signature: \_\_\_\_\_

Send Logbooks To: WDFW  
 Attn: Carol Henry  
 48 Devonshire Road  
 Montesano, WA 98563

Send Observer Payments To:

WDFW  
 Attn: Accounts Receivable - Sardine Payment  
 600 Capitol Way North  
 Olympia, WA 98501-1091