



*Washington
Department of*
**FISH and
WILDLIFE**

Summary Report of the 2005 Experimental Purse Seine Fishery for Pacific Sardine (*Sardinops sagax*)

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**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)
SUMMARY OF THE 2005 EXPERIMENTAL PURSE SEINE FISHERY
FOR PACIFIC SARDINE (*Sardinops sagax*)**

Management

In Washington, sardines are managed under the Emerging Commercial Fishery provisions, which provide for the harvest of a newly classified species, or harvest of a previously classified species in a new area or by new means (WAC 220-88-010). From 2000 through 2002, the Washington Department of Fish and Wildlife had trial purse seine fisheries for Pacific sardines, under which the number of participants cannot be limited. 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 in 2003, under the Emerging Commercial Fisheries legislation, which mandates that permits be limited.

Pacific sardines 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, which (through 2005) is then allocated between the two areas which take into account the biological and ecological impacts of harvesting forage fish. Beginning in 2006, the coastwide harvest guideline will be allocated seasonally, with scheduled releases on January 1st, July 1st, and September 15th (Table 1). The northern allocation of sardines, which is shared by Washington, Oregon, and California (north of Pt. Arena), is primarily harvested by Oregon and Washington fishers (Table 2).

Table 1. Harvest Guideline Release for 2006 Northern Allocation.

Date	Amount	% (mt)
January 1, 2006	35% of Harvest Guideline	41,628
July 1, 2006	40% of Harvest Guideline + Remaining	47,575
September 15, 2006	25% of Harvest Guideline + Remaining	29,734

Table 2. Northern Allocation compared to Washington and Oregon's Harvest in 2005.

	Washington	Oregon	Total (mt)
Coastwide Harvest Guideline			136,179
1 st N. Allocation			45,393
Catch thru August	3,558	28,011	31,569
2 nd N. Allocation			17,026
Catch Sept. – Oct.	3,370	16,997	20,367
Total Catch	6,928	45,008	51,936

The Northwest sardine fishery has rapidly expanded over the past few years, which was the primary reason the Department decided to convert from a trial to an experimental fishery. Oregon began its limited developmental fishery in 1999, which yielded 771 mt in sardine

landings. Since then, the Northwest landings have increased for a total of 37,923 mt in 2002, 36,862 mt in 2003, and 40,493 mt in 2004. In 2005, the overall coastwide harvest guideline was 136,179 mt, producing an initial northern allocation of 45,393 mt.

Permits and Regulations

There were 16 fishers who met all of the criteria necessary to obtain a Washington sardine experimental fishery permit in 2005. The initial qualifying criteria included a cumulative total of 40 mt landed into Washington in the years 2003 and 2004. In addition to the minimum landing requirement, qualifying participants must have held a limited entry permit in 2004, paid any outstanding fees owed to the Department for observer coverage in the 2003-04 sardine fisheries, and renewed their fishing license by April 1.

A full description of permit conditions and fishing regulations that applied in 2005 are contained in Appendix A.

Fishery Description

The fishery opened on May 1, 2005, however, the first landing into Washington occurred on June 20. The Department issued a total of 16 permits and 11 of the permit holders participated in the fishery. There were three primary vessels who accounted for 76% of the total landings—one vessel fished out of Ilwaco and two fished out of Westport.

A total of 6,714.2 mt of sardines were landed into Washington. A total of 207 landings were made, of which, 129 occurred within the months of August and September (Figure 1).

A total of 394 sets were made with 63% (247) of them successful. The average catch per successful set was about 29 mt (Figure 2).

Figure 1. Washington sardine landings by month.

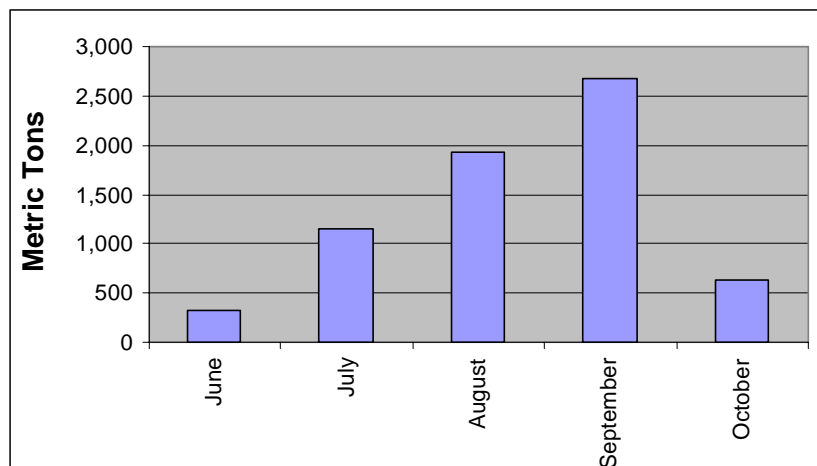
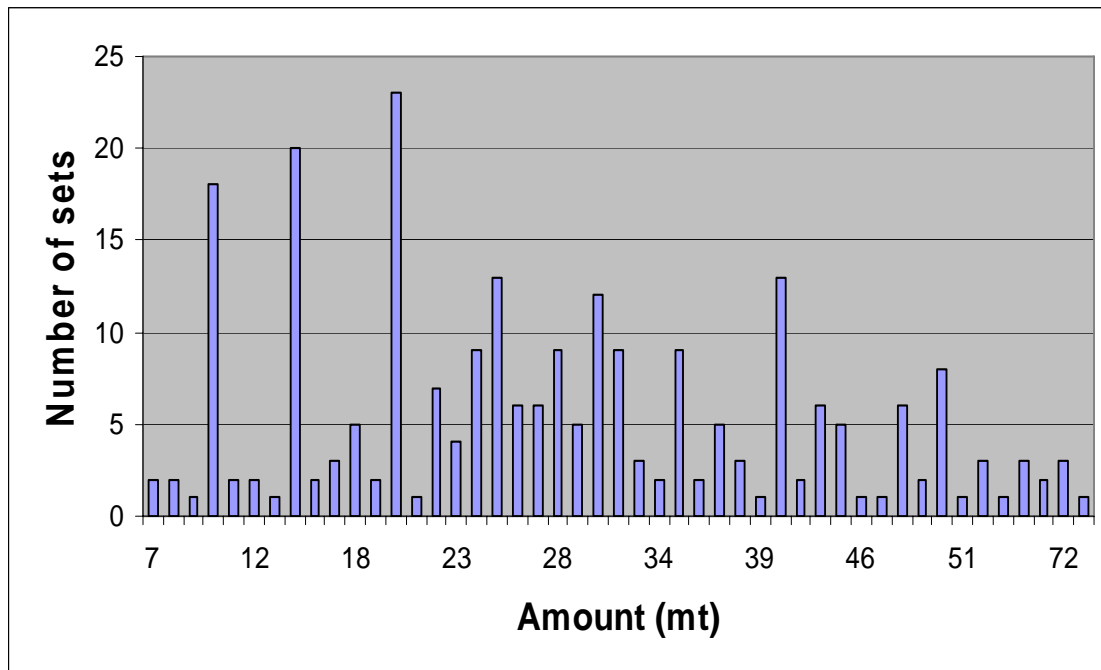


Figure 2. Amount of sardines produced per successful set.



Landings averaged about 32.4 mt overall. The majority of the landings (58%) were made into Westport, and the majority of the catch (about 90%) occurred in waters adjacent to Washington.

Spotter planes were used regularly by vessels fishing out of Ilwaco and Westport. In general, pilots were receiving up to about 10-15% of the landing revenue. Ex-vessel price per pound in the fishery averaged \$0.05 - \$0.06 across the season.

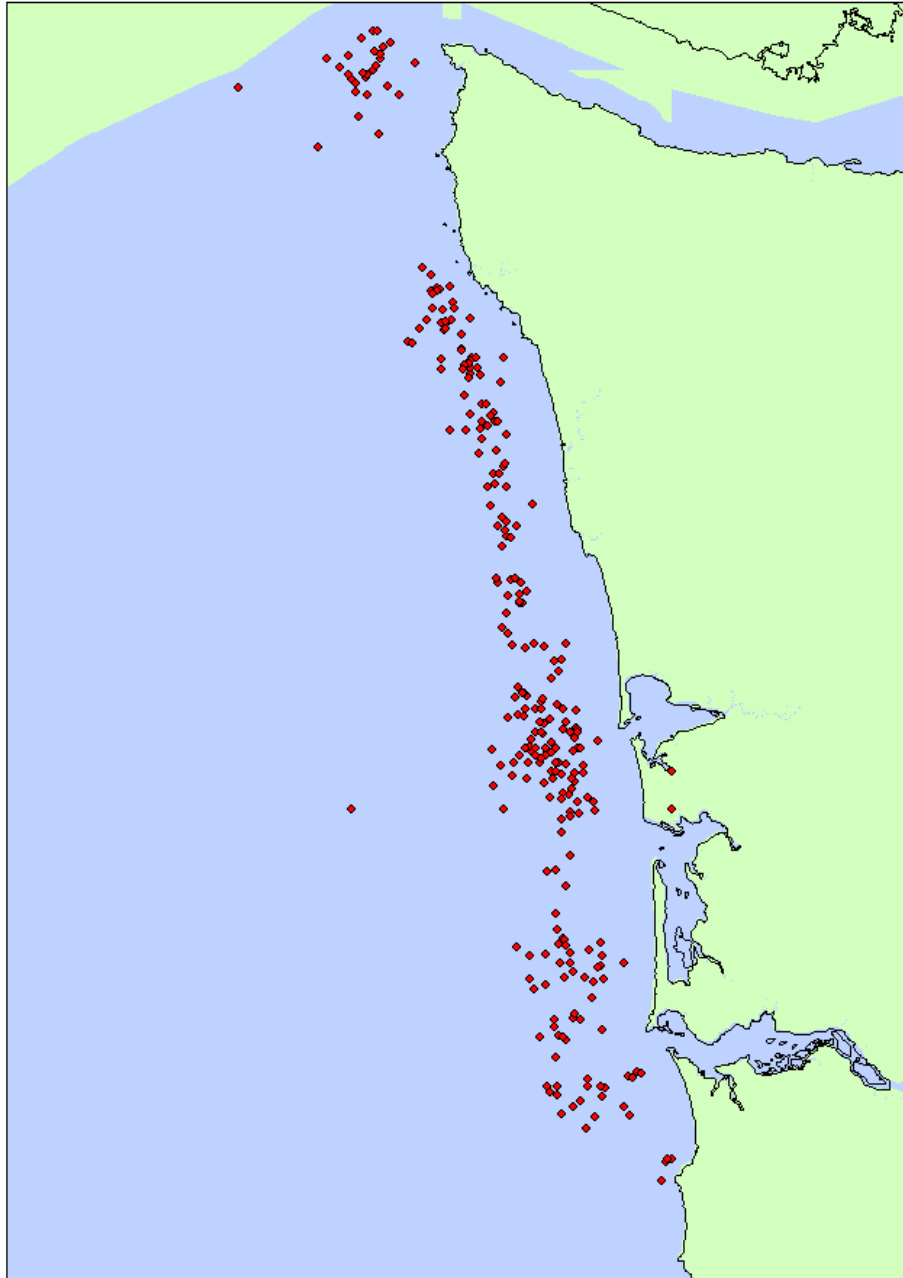
Observer Coverage/Logbooks

From 2000 to 2004 there was a mandatory observer program in place for the sardine fishery. The purpose of requiring observer coverage was to document total catch and bycatch in the purse seine 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. Observer coverage averaged about 25% overall.

In 2005, the Department decided to discontinue the observer program. Five years of observer data showed the fishery to be a relatively clean fishery and that there was a minimal impact on species of concern. The observer data was collected during the primary fishing months of June thru October. As such, the Department does not favor extending the season far beyond the period observed. Fishers have proposed a year-round season, and the Department is considering a season extension from May 1st – November 30th to April 1st – December 31st, beginning in 2006.

A year-round season may be considered in the future, if additional observer data are collected to demonstrate continued minimal impact of species of concern (e.g. endangered salmon stock). Logbooks continue to be required (Appendix B). By continuing to collect logbooks this will allow us to collect data on the location of the sardine sets (Figure 3).

Figure 3. 2005 sardine set locations according to sardine logbooks.



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 time of the Northwest fishery. WDFW collected 30 biological samples of 25 sardines each (750 sardines total).

Both WDFW and ODFW staff extracted sardine otoliths which measured about 1.5-3 mm in length; these otoliths were sent to the WDFW laboratory in Olympia, Washington, for age-reading. Data sheets accompanied the otoliths which included the catch date, vessel name, standard lengths of the sardines, weight, sex, and maturity.

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

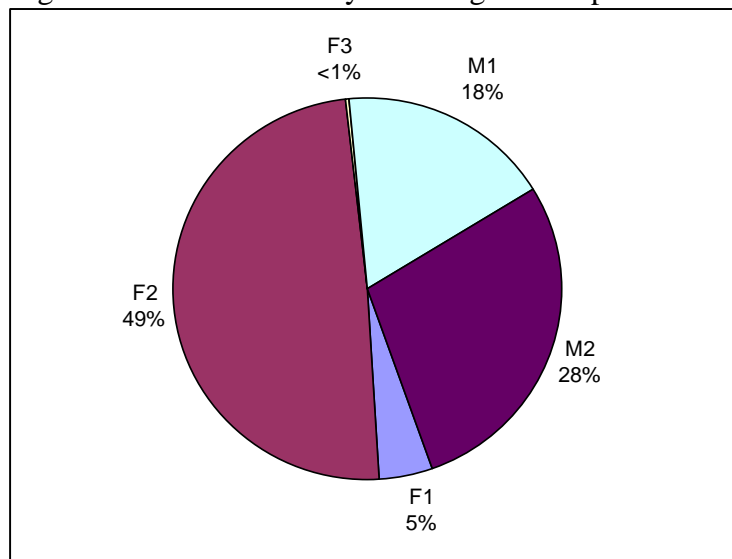
Sexual maturity codes 1-4 were used for the sardine samples:

<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. |

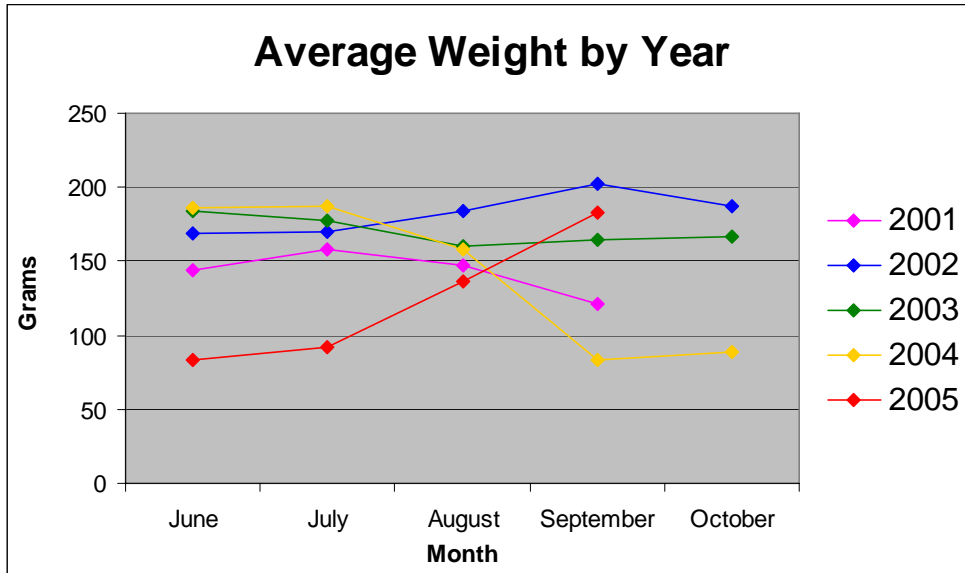
Most of the samples analyzed were females (49%), with the highest subcategory overall being females with a sexual maturity of 2 (Figure 4). There were very few females with a sexual maturity of 3 and no code 4 males or females were sampled.

Figure 4. Sex and maturity of biological samples.



Standard lengths of sardine samples were taken and ranged between 155- 261 mm. They weighed 25.5-273.3 gm (Figure 5). In 2005, the average weight of the samples increased over time but in sardine size was down during the months of June, July, and August compared to previous years. Average weight overall was 124.1 gm.

Figure 5. Average lengths taken from sardine samples.



Comparison of Past Data

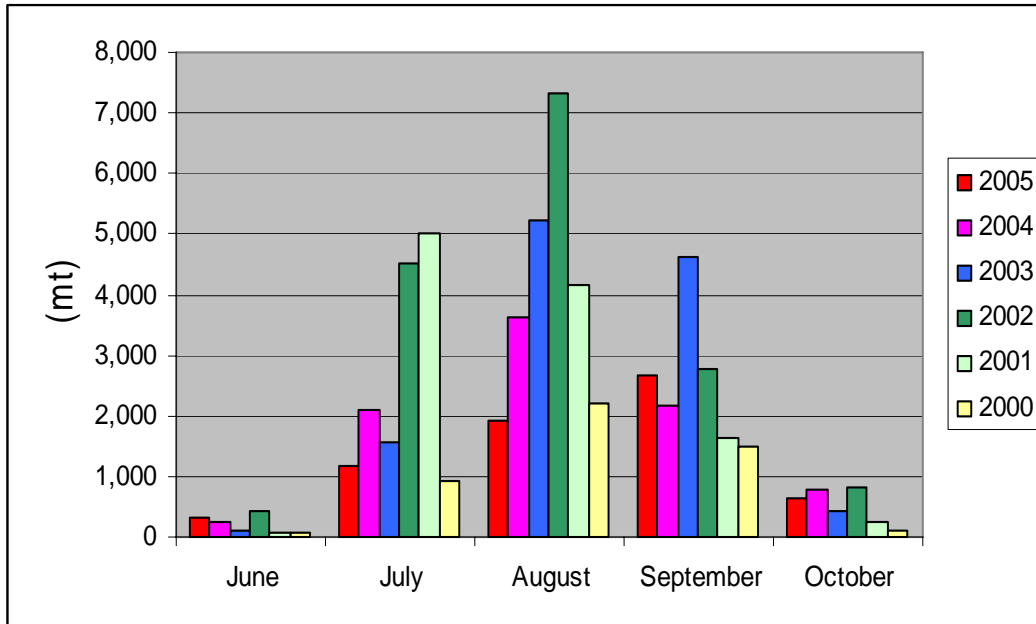
During the past six years the sardine fishery has been active, the number of vessels participating in the fishery has fluctuated. There were only 3 vessels participating in the fishery during the 2000 season, but in 2002 there were 19 vessels participating in the fishery (Table 3).

Table 3. Comparison summary of Washington sardine fisheries.

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

The metric tons of sardines landed into Washington were from 4,791 in 2000 to 15,212 in 2002. The majority of sardines landed are typically during the months of July, August, and September (Figure 6). While the landings and vessels may have varied the observer coverage was consistently 24% to 27% prior to 2005.

Figure 6. Washington sardine landings by month.



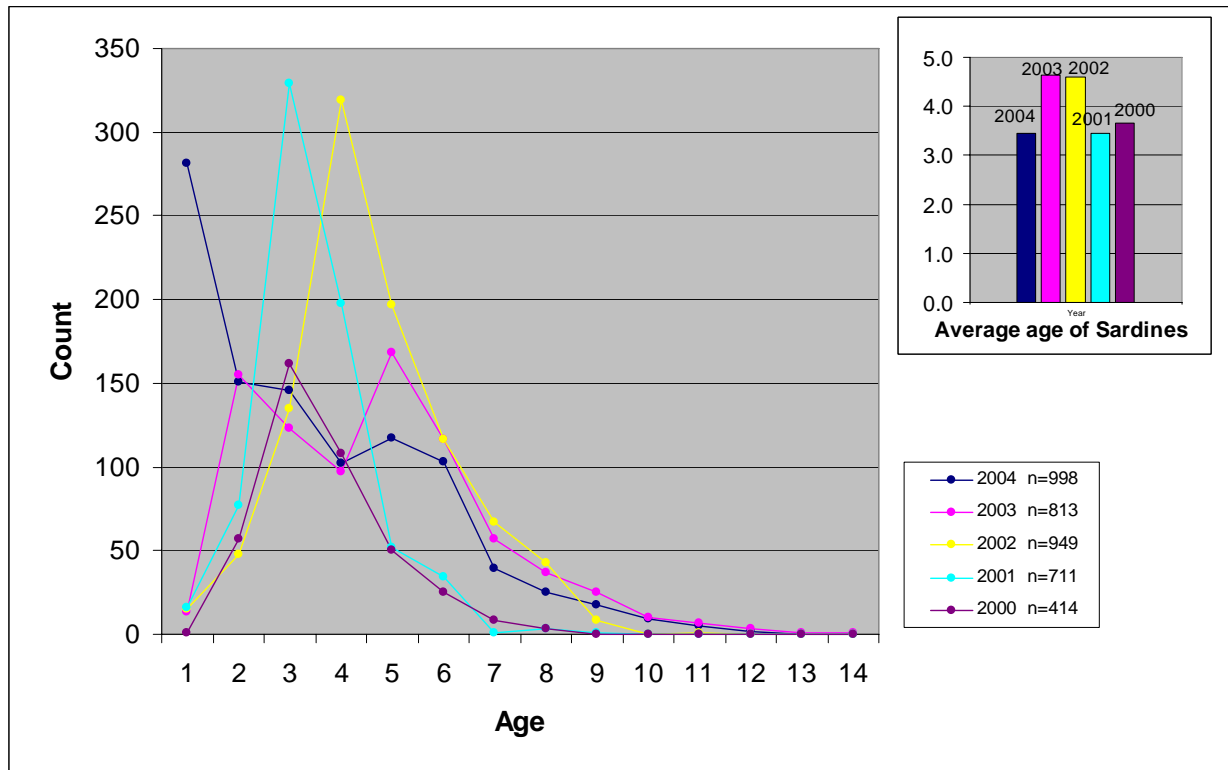
A comparison of logbooks to observer data 2000 – 2004 indicates that logbook data in general, can be under reported by 20% to 80%. Therefore, using the observer data, we calculated bycatch rates of live and dead chinook and coho (Table 4).

Table 4. Catch rate of chinook and coho in 2005.

	Catch Rate	2005 Estimated Catch
Chinook Live	0.0070425	47
Chinook Dead	0.0232442	156
Coho Live	0.0042611	29
Coho Dead	0.0265063	178

The age of sardines encountered in the fishery range from one year old up to fourteen years old. However, the majority of sardines caught in the fishery are between three and five years old (Figure 7). Very few of the sardines are more than ten years old.

Figure 7. Age of sardines sampled from 2000 to 2004.



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 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.

**2005 WASHINGTON EXPERIMENTAL SARDINE FISHERY
PERMIT CONDITIONS**

Permits

1. Participants are required to purchase an Emerging Commercial Fisheries License (\$185 for residents; \$295 for non-residents) and an Experimental Sardine Fishery Permit issued by the Director by April 1, 2005.
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 cannot be changed during the sardine season (May 1-November 30) each year.
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.
6. Permits will not be issued to those who have an outstanding balance of fees owed to the Department for greater than 30 days. This decision will be at the discretion of the Director and may be waived if special circumstances warrant.

Season

7. Permits would be valid during the time period of May 1, 2005 through November 30, 2005

Observer Coverage

8. 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

9. 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.
10. Logbooks are required and will be provided by WDFW. Completed logs must be submitted to the Department by the 15th 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

11. 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.

12. Legal purse seine gear must be onboard the vessel making the landing.

Species

13. 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.
14. 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.
15. 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

16. 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

17. All sardine landings made under the authority of this permit into Washington must comply with existing state and federal regulations and requirements.
18. The transfer of catch from one vessel to another vessel is prohibited.
19. All landings must be made to a shoreside processing facility.
20. Not more than 10% of a sardine landing 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.
21. It is unlawful to deliver more than one sardine landing per calendar day.
22. Once a delivery has commenced at a processing plant, all fish onboard the vessel must be offloaded at that plant.

Appendix B.



TRIAL SARDINE FISHERY LOGBOOK - 2004

PERMIT # _____

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

Vessel Name _____ Reg. No. _____ Skipper Name _____

Gear Length _____ Gear Depth _____ Mesh Size _____ Grate used? Yes ___ No ___ Mesh size _____

Departure Date _____ Return Date _____ Date on which fishing occurred _____ **Fish Ticket No.** _____

Was there an observer on board this trip? Yes ___ No ___ Observer's signature _____

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

Remarks:

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

Skipper's Signature _____