



Washington
Department of
**FISH and
WILDLIFE**

Summary Report of the 2004 Experimental Purse Seine Fishery for Pacific Sardine (*Sardinops sagax*)

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**WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)
SUMMARY OF THE 2004 EXPERIMENTAL PURSE SEINE FISHERY
FOR PACIFIC SARDINE (*Sardinops sagax*)**

Background

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 is then allocated between the two areas which take into account the biological and ecological impacts of harvesting forage fish. Earlier this year, the Pacific Council adopted an interim allocation regime with plans to develop a long-term allocation strategy over the next year.

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, and 36,862 mt in 2003. In 2004, the overall coastwide harvest guideline increased from 110,908 mt in 2003 to 122,707 mt, producing an initial northern allocation of 40,493 mt.

Permits and Regulations

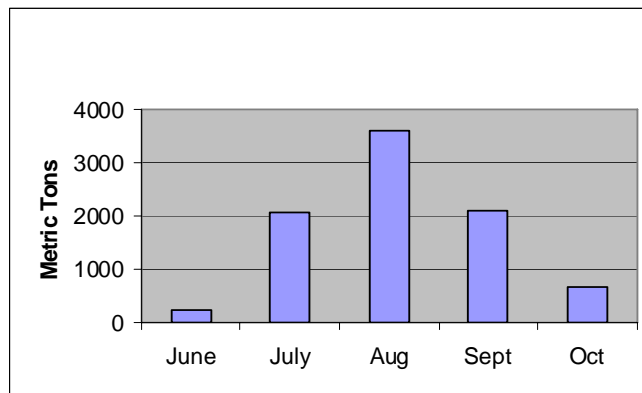
There were 17 fishers who met all of the criteria necessary to obtain a Washington sardine experimental fishery permit in 2004. The initial qualifying criteria included a cumulative total of 40 mt landed into Washington in the years 2000, 2001, and 2002, or landings in two of the three qualifying years. In addition to the minimum landing requirement, qualifying participants must have held a limited entry permit in 2003, paid any outstanding fees owed to the Department for observer coverage in the 2000-03 sardine fisheries, and renewed their fishing license by April 1. As the number of qualifying fishers was less than 20, the Director had the discretion to offer additional permits (up to a maximum of 25). A letter was sent to all fishers who had landed more than 40 mt of sardines into Washington (even those who did not hold permits in 2003) to solicit interest in the fishery. Four fishers indicated an interest in participating, which brought the number of permits issued in 2004 up to 21.

A full description of permit conditions and fishing regulations that applied in 2004 are contained in Appendix A.

Fishery Description

The fishery opened on May 15, 2004, however, the first landing into Washington occurred on June 24. The Department issued a total of 21 permits and 14 permit holders participated in the fishery. There were two primary vessels who accounted for 58% of the total landings—both vessels fished out of Ilwaco.

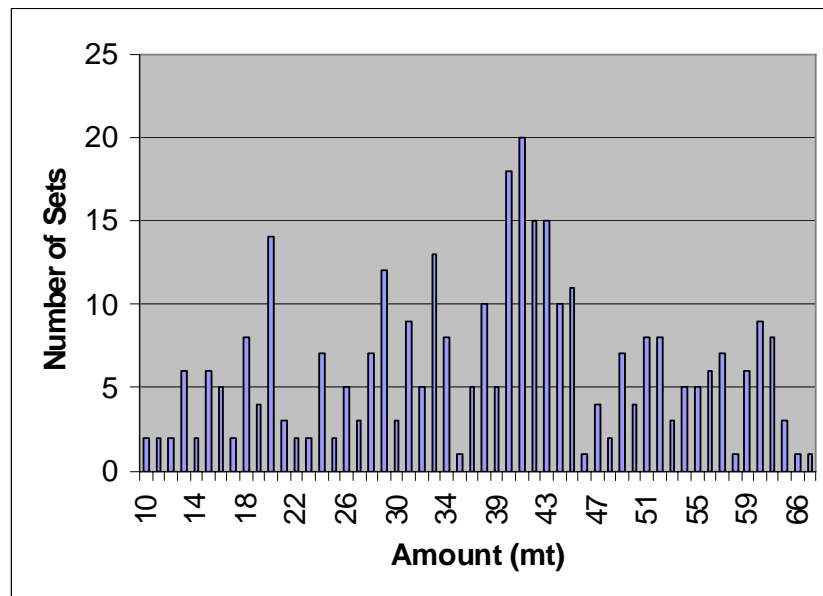
Figure 1. Washington sardine landings by month.



A total of 8,799.5 mt of sardines were landed into Washington. A total of 238 landings were made and 100 occurred within the month of August (Figure 1.).

A total of 375 sets were made with 89% (333) of them successful. Average catch per successful set was about 38 mt (Figure 2).

Figure 2. Amount of sardines produced per successful set.



Landings averaged about 37.3 mt overall. The majority of the landings (61%) were made into Ilwaco, and the majority of the catch (about 54%) occurred in waters adjacent to Washington.

Spotter planes were used regularly by all 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 about \$0.04-0.075.

Observer Coverage/Logbooks

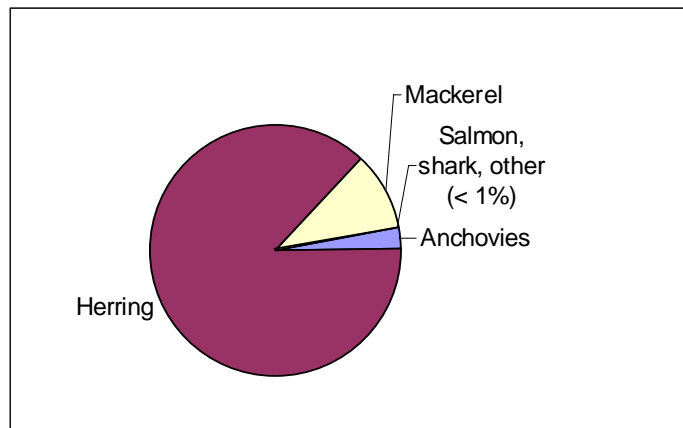
The purpose of requiring observer coverage was to document total catch and bycatch in the purse seine fishery. Bycatch was recorded in terms of species, amount, and condition; observers noted whether the fish were released or landed, and whether the fish were alive, dead, or in poor condition. The Department was aiming for 25% coverage and averaged about 27% overall.

All of the vessels participating in the fishery chose to utilize Department observers, rather than contract with private observer companies. A “sardine hotline” was established for fishers to notify the Department of their planned fishing activities so observer coverage could be scheduled accordingly. Observers were in daily contact with the vessels and were able to schedule onboard trips directly. Fishers were very cooperative in allowing observers on board and in scheduling departure times and locations. In general, logbooks were completed and submitted as requested. See Appendix B for a sample log sheet.

Bycatch

Based on observer data, the bycatch of non-targeted species was minimal. Bycatch included chinook and coho salmon, herring, dogfish, blue shark, and other species. One fisher accidentally set his net on a school of herring thinking that they were sardines which is why the herring bycatch is so large (Figure 3.).

Figure 3. Total bycatch in the Washington sardine fishery.



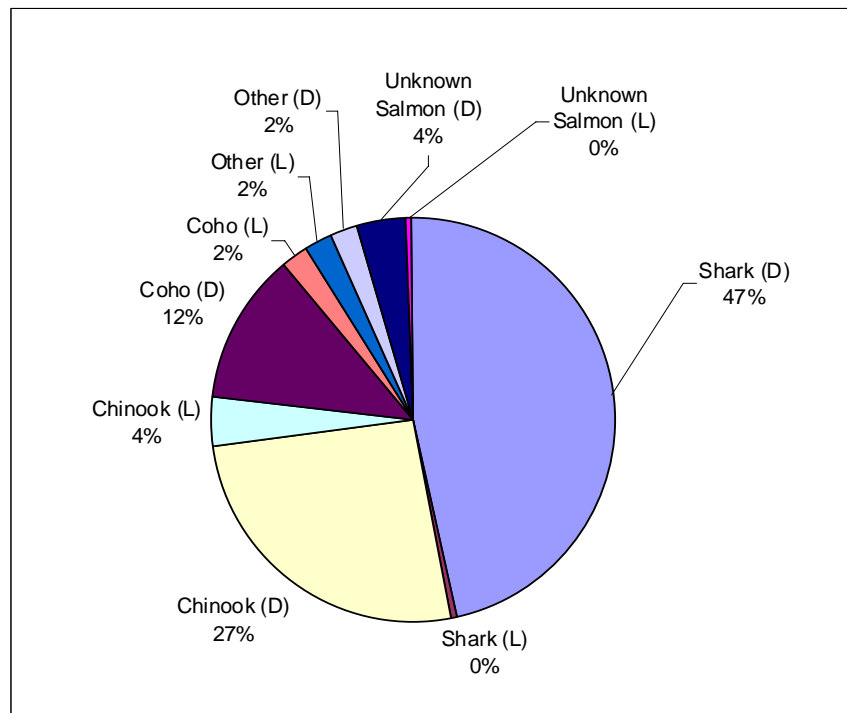
Salmon, shark, and herring were the three primary bycatch species of concern. The observed catch of these species (in numbers of individuals) is contained in Table 1.

Table 1. (L) = live; (D) = dead.

Chin (L)	Chin (D)	Coho (L)	Coho (D)	Other (L)	Other (D)	Unk Salmon (L)	Unk Salmon (D)	Shark (L)	Shark (D)	Herring
9	58	5	27	5	5	1	9	1	104	26 mt

Salmon and shark species accounted for less than 1% of the overall bycatch with 58 observed chinook mortality (Figure 4.). Incidental catch included anchovy, big skate, giant squid, Pacific mackerel, Pacific whiting, sole, thresher shark, and other species.

Figure 4. Salmon and shark bycatch in the Washington sardine fishery (less than 1% of the total).



A complete list of the observed and reported catches of non-targeted species caught in the fishery is contained in Table 2.

Table 2.

Species	Observer Data		Logbook Data	
	# Released Alive	# Dead	# Released Alive	# Dead
Anchovy	0	540 lbs	0	0
Blue shark	0	1	0	0
Chinook salmon	9	58	28	18
Coho salmon	5	27	32	16
Dogfish	0	103	0	0
Dungeness crab	5	0	0	0
Unidentified mackerel	1	1000	0	0
Herring	23 tons	3 tons	0	0
Mola mola	0	0	1	0
Pacific mackerel	400	33,695	0	0
Sandab sole	1	21	0	0
Skate	1	0	0	0
Shark	0	0	0	1
Thresher shark	1	0	0	0
Unknown salmon	6	14	9	1
Unknown sole	0	2	0	0

Biological Samples

WDFW staff coordinated the collection of biological samples with Oregon Department of Fish and Wildlife staff to ensure sample coverage was evenly distributed throughout the time of the Northwest fishery. WDFW collected 40 biological samples of 25 sardines each (1,000 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, sex, and maturity.

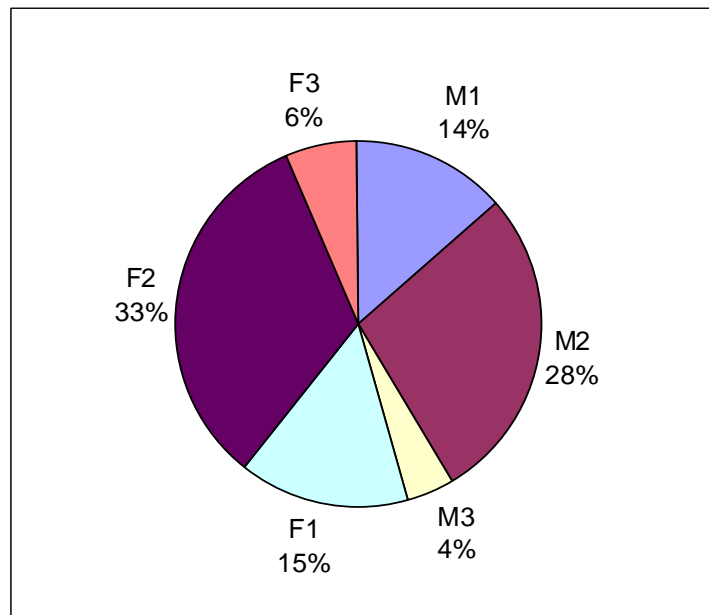
Sex and maturity were determined by using the California Department of Fish and Game (CDFG) Standard Maturity Guide for Wetfish which was based on Hjort, J. (1914) State of Sexual Organs.

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. |

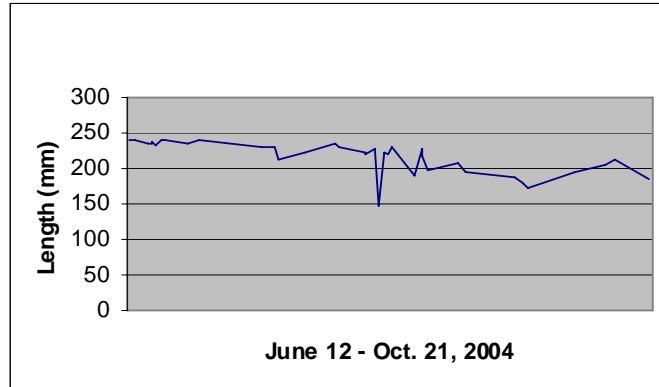
Figure 5. Sex and maturity of biological samples.



Most of the samples analyzed were females (54%), with the highest subcategory overall being females with a sexual maturity of 2 (Figure 5.). There were very few males with a sexual maturity of 3 and no code 4 females were sampled.

Standard lengths of sardine samples were taken and ranged between 113-338 mm (Figure 6.). In general, the average lengths of the samples decreased slightly over time. Average length overall was 209.3 mm.

Figure 6. Average lengths taken from sardine samples.



Comparison of Past Data

During the past five years the sardine fishery has been active the number of vessels participating in the fishery has fluxuated. 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).

The metric tons of sardines landed into Washington were from 4,791 in 2000 to 15,212 in 2002. While the landings and vessels may have varied the observer coverage was consistently 24% to 27%.

Table 3. Comparison summary of Washington sardine fisheries.

	2004	2003	2002	2001	2000
Landings (mt)	8,799	11,604	15,212	10,837	4,791
# Landings	236	288	424	299	153
Tons/Vessel	628.5	1160.4	800.6316	833.6154	1597
# Vessels	14	10	19	13	3
Obs Coverage	27%	27%	24%	24%	24%

The highest individual mortalities for chinook and coho were in 2002 and the lowest encounters were in 2000 (Table 4). This may be because there were only 3 vessels participating in the 2000 fishery and because the fishers took more care in their fishing technique to reduce the mortality of salmon by dip netting salmon out of the purse immediately.

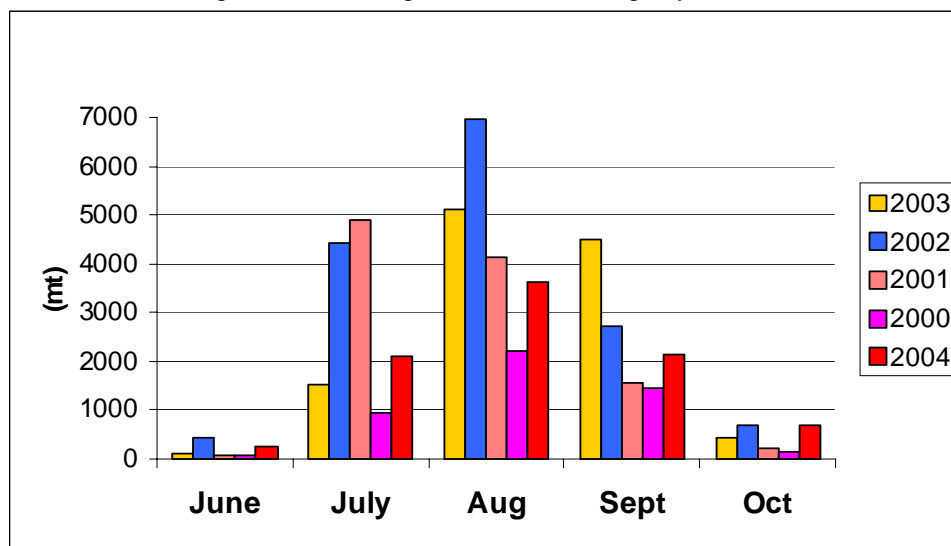
There were approximately 260 chinook encountered in the 2004 sardine fishery with a mortality rate of 86.5% (225 dead chinook). This is the highest mortality rate of the past five years in the fishery.

Table 4. Expanded Observer Data - Numbers of Individuals

	2004	2003	2002	2001	2000
Chinook (live)	35	92	150	449	38
Chinook (dead)	225	262	356	170	3
Coho (live)	19	81	61	571	276
Coho (dead)	105	231	765	504	116
Unknown Salmon	39	173	200	80	7

The amount of sardine landed monthly varied greatly with the most sardines being landed in August 2002 and the months of June and October of all years having minimal landings (Figure 7).

Figure 7. Washington sardine landings by month.



Summary of WDFW Activities

WDFW staff administered the observer program, notification process, port sampling, data recording, and biological analyses. Two additional full-time observers were hired and existing staff were utilized to augment our observer program and conduct dockside sampling. The observers worked onboard commercial fishing trips to document bycatch, determine catch composition, and collect market samples.

Samplers monitored unloading at processing plants for incidental catch data, weighed subsamples 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.

**2004 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, 2004.
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 15-October 31) 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 (and may be revoked from) 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 15, 2004 through October 31, 2004

Observer Coverage

8. WDFW retains the right to require certified observers to be on-board for the duration of any trip harvesting sardines and the Director has the discretion to recover costs for observer coverage.
9. Options for observer coverage are:
 - A. Use a Department-provided observer - The Department will have observers available; fishers electing this option would need to reimburse the Department at a rate of \$100 per landing (even if the trip was not observed) and payment must be received by the 10th day of each month for the previous month's landings; or
 - B. Hire a NMFS-certified observer - Fishers may contract with an independent observer company to hire NMFS-certified observers; these observers would need to complete a training session with the Department prior to observing a trip. Fishers electing this option are required to have a minimum of 50% of their trips observed and their first fishing trip observed.
11. Fishers must notify the Department which option they are electing for observer coverage at least 48 hours prior to their first fishing trip of the season; this option cannot be changed during the season without approval by the Director.

12. If Option (a) is selected, checks should be made payable to the Washington Department of Fish and Wildlife and mailed to:
Washington Department of Fish and Wildlife
Attn: Accounts Receivable - Sardine Payment
600 Capitol Way North
Olympia, WA 98501-1091
13. Regardless of which option is selected, fishers are required to have their first fishing trip observed.

Notification

14. Each fisher participating in the trial fishery must contact the Department's fishing hotline (360-249-4628 ext. 263) during official business hours (Monday-Friday; 8:00 a.m.-5:00 p.m.) at least 48 hours prior to departing for their first fishing trip, and at least 24 hours prior to departing for their subsequent fishing trips. On the message hotline, fishers are required to provide the following information:
 - Name
 - Phone number to contact fisher
 - Time and location of departure
 - Estimated time of return

NOTE: This notification requirement may be waived if other arrangements are made with individual fishers and/or processors.

Data Collection

15. Participants must identify the vessel to be used in the fishery and agree to carry WDFW employees on board the fishing vessel whenever fishing under the permit. 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.
16. 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:

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

Gear

17. 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.
18. Legal purse seine gear must be onboard the vessel making the landing.

Species

19. Participants may retain and sell sardine and incidental catches of mackerel, squid, and anchovy. All other species must be released immediately and care taken to minimize damage to prohibited species.
20. 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.
21. 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

22. 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

23. All landings made under the authority of this permit into Washington must comply with existing state and federal regulations and requirements including observers.
24. The transfer of catch from one vessel to another vessel is prohibited.
25. All landings must be made to a shoreside processing facility.

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 _____