



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, CA 92037

August 19, 2004

F/SWC1:DAG

CRUISE REPORT

VESSEL: F/V *Frosti*, 0403-FR.

CRUISE DATES: February 29 - March 19, 2004

PROJECT: Oregon - Washington Sardine Survey, Fisheries Resources Division.

ITINERARY: Departed Port Angeles at 15:00 on February 29, 2004. Proceeded to first station of the proposed survey track and began occupying the 42 pre-determined stations. Once station work was complete, the ship returned to areas of observed high concentrations of fish schools and conducted an additional 17 trawls. The vessel returned to Port Angeles, Washington on March 19, 2004.

OBJECTIVES: 1. Collect fishery independent adult sardines for spawning biomass estimates.

2. Collect oceanographic data over a fixed cruise track which covers the region 42°N to 48°N out to 127° W.

3. Collect acoustic data continuously throughout the survey using the vessel's ES-60 Simrad sounder.

PROCEDURES: 1. Forty of the forty-two primary stations were occupied after dusk and prior to sunrise. Daytime activities included occupying fine scale patterns relative to the previous station using the ES-60 sounder. At each night station the following activities were performed:

a. Deployment of a Seabird SeaCat down to 100 meters, bottom depth permitting. The self-contained CTD collected depth, temperature, conductivity and chlorophyll data.

b. A standard Pairovet cast. The Pairovet net was fished from 70 meters to the surface (depth permitting) using paired 25 cm diameter 150 µm mesh nets. The technical requirements for the Pairovet tow was: Descent rate of 70 meters per minute, a terminal depth time of 10 seconds and an ascent rate of 70 meters per minute.

c. Standard meteorological data including SST, wind speed and direction, wave height and direction, cloud cover, relative humidity, air temperature and barometric pressure.

d. During all transit between stations continuous acoustic measurements were made using the ES-60.

e. A Nordic 264 mid-water trawl using 3.0 m² foam core doors was towed at the surface for 30 minutes traveling at approximately 3.5 knots. Every catch was sorted and sardines were sampled.

RESULTS:

<u>Activity</u>	<u>Requested</u>	<u>Completed</u>	<u>Aborted</u>
Pairovet tows	46	34	12
CTD casts	46	41	5
Weather	61	60	1
Surface Temp.	61	60	1
EK-60 (hours)	300	300	0
Trawls completed	61	59	2

Of the 59 trawls performed, a summary of the catch data is listed below and in appendix 1:

<u>Species</u>	<u>Total Weight (lbs.)</u>
<i>Sardinops sagax</i>	1649.1
<i>Engraulis mordax</i>	2808.0
<i>Loligo opalescens</i>	65.4
<i>Clupea pallasii</i>	452.0
<i>Merluccius productus</i>	20.0
<i>Onchorhyncus kisutch</i>	28.0
<i>Onchorhyncus tshawytscha</i>	15.0
<i>Ophiodon elongatus</i>	7.0

DISPOSITION OF DATA:

Pairovet tow data sheets and formalin preserved samples - Richard Charter, FRD (SWFSC).

Station activity logs, weather data and surface temperature data - Richard Charter, FRD (SWFSC).

CTD data - Dave Griffith, FRD (SWFSC).

EK-60 data - David Demer, FRD (SWFSC).

Trawl data and preserved samples - Beverly Macewicz, FRD (SWFSC).

INCIDENTS & MALFUNCTIONS:

None.

COMMENDATIONS:

The personnel of the *F/V Frosti* should be recognized and commended for their dedication and professional manner, ensuring the completion of the cruise.

PERSONNEL:

Dave Griffith SWFSC
 Elaine Acuña SWFSC
 Bev Macewicz SWFSC

SWFSC personnel authorized per diem at the rate of \$3.00 per day to be paid via the Imprest Fund at the termination of the cruise.

WATCH HOURS:

1800 - 0559
 0600 - 1759

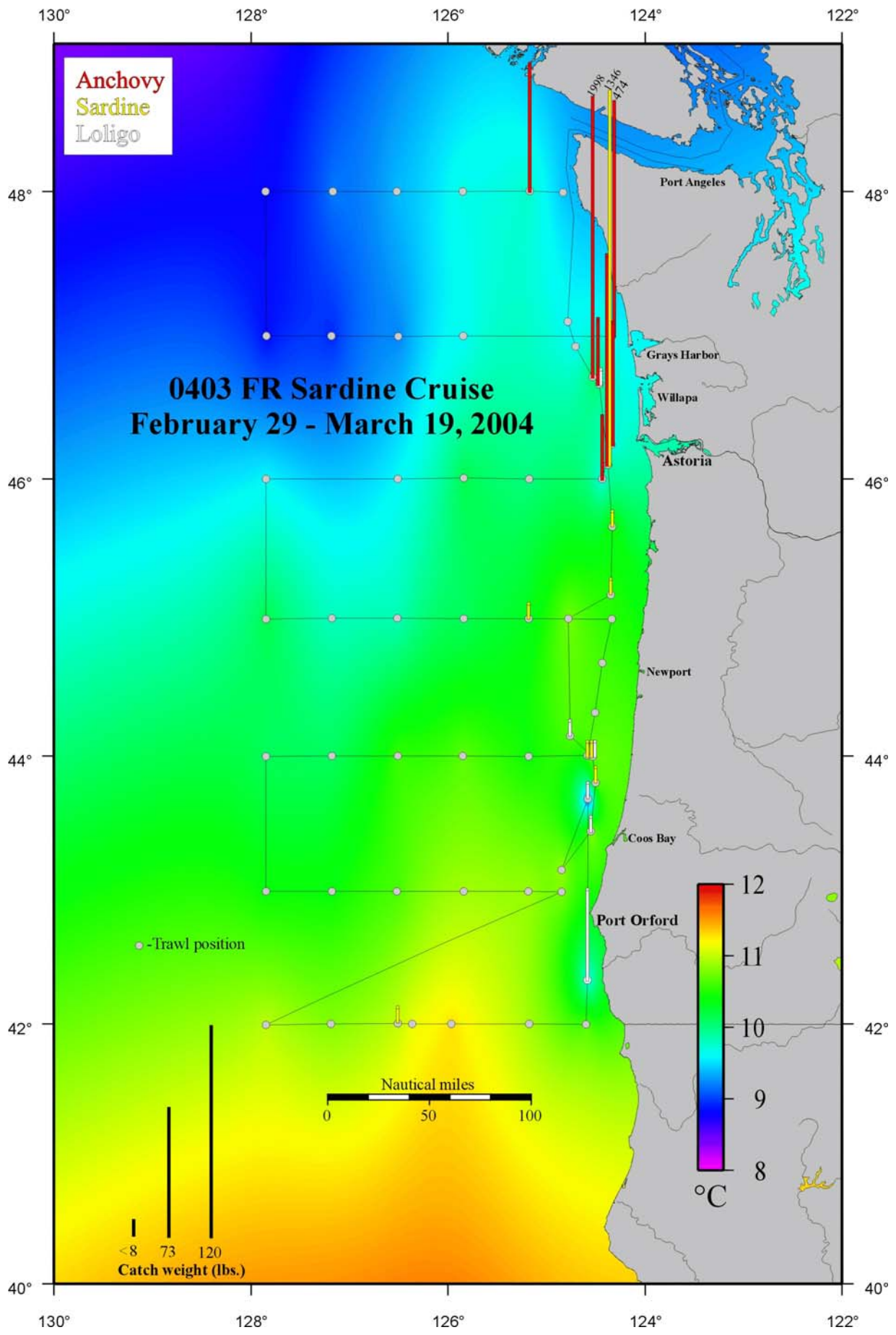
Date: _____

Prepared by: _____

David Griffith

Approved by: _____

William Fox, Ph.D.
 Science & Research Director
 Southwest Region



Appendix I.

ID	Sample No	Haul	Day	Time	Temp	Lat	Long	Sard	Anch	Loligo	Salmon
1	2051	1	1	1835	9.4	47.99433	124.82917				3 small coho, 1 large coho
2	2052	2	1	2115	9.8	48.00267	125.17233		73		
3	2053	3	2	121	9.7	47.99983	125.85083				
4	2054	4	2	527	9.4	48.00067	126.51833				
5	2055	5	2	1828	9.2	48.00017	127.167				
6	2056	6	2	2213	8.8	47.99983	127.85033				
7	2057	7	3	517	8.8	47.00517	127.84467				
8	2058	8	3	1815	8.9	47.00467	127.18133				
9	2059	9	3	2212	9.2	47.00217	126.50483				
10	2060	10	4	154	9.6	47.00267	125.84617				
11	2061	11	4	1818	9.6	47.00067	124.34467	290	474		
12	2062	12	5	30	9.6	46.24367	124.34033		70		
13	2063	13	5	308	9.6	45.99967	124.43583		36		
14	2064	14	5	1815	10	45.99867	125.1755				
15	2065	15	5	2255	10.2	46.0055	125.84067				
16	2066	16	6	322	9.6	46.00067	126.50983				
17	2067	17	6	2356	9.6	46.00083	127.84533				
18	2068	18	7	1835	10.2	44.99733	127.8475				
19	2069	19	7	2225	9.8	45.0025	127.17783				
20	2070	20	8	218	9.8	45.0025	126.5145				
21	2071	21	8	600	10.1	45.00033	125.83767				
22	2072	22	8	1817	10.3	44.99983	125.1795	1.7			
23	2073	23	8	2248	10.5	44.99567	124.33483				
24	2074	24	9	126	10.6	44.67817	124.433				
25	2075	25	9	411	10.6	44.31883	124.50867				
26	2076	26	9	1849	10.6	44.00383	124.58367	0.2			
27	2077	27	9	2251	10.4	43.99733	125.18033				
28	2078	28	10	312	10.7	43.99983	125.84883				
29	2079	29	10	1814	10.6	44.00033	126.50967				
30	2080	30	10	2210	10.1	44.00067	127.17583				
31	2081	31	11	217	10.1	43.99767	127.845				1 juvenile salmon
32	2082	32	11	1820	10.4	42.998	127.84917				
33	2083	33	11	2251	10.4	42.99983	127.18033				
34	2084	34	12	302	10.6	42.99867	126.51733				
35	2085	35	12	1815	10.9	42.99767	125.841				
36	2086	36	12	2208	10.9	42.9985	125.1845				
37	2087	37	13	45	10.8	42.99617	124.84633				
38	2088	38	13	1816	11	41.99583	127.84783				
39	2089	39	13	2211	10.8	42.00067	127.18783				
40	2090	40	14	212	11	42.00383	126.50967	2.2			
41	2091	41	14	328	11.15	42.00317	126.36383				
42	2092	42	14	610	11.3	42.00017	125.96517				
43	2093	43	14	1815	10.9	42.00167	125.176				
44	2094	44	14	2245	10.7	41.99817	124.60033				
45	2095	45	15	211	9.5	42.33283	124.58467			52	
46	2096	46	15	502	8.8	43.68483	124.58067			2.2	
47	2097	47	15	1835	10.9	43.15767	124.84817				
48	2098	48	15	2150	10.9	43.44583	124.55183			8.1	
49	2099	49	16	49	10.7	43.80333	124.5025	0.2			

50	2100	50	16	237	10.7	43.99733	124.53033	8.6		2.6
51	2101	51	16	449	10.7	44.14783	124.7565			0.2
52	2102	52	16	1835	10.8	45.00183	124.7765			
53	2103	53	16	2128	10.5	45.17183	124.3455	0.1		
54	2104	54	17	114	10.5	45.66183	124.33417	0.1		
55	2105	55	17	437	10	46.101	124.37567	1346	120	
56	2106	56	17	1838	10	46.66817	124.462		37	1 chinook 9 lb, 6 chinook <
57	2107	57	17	2006	10.1	46.71833	124.53233		1998	0.3 250mm
58	2108	58	17	2219	9.6	46.9295	124.70767			
59	2109	59	18	10	9.6	47.104	124.785			