



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*, 0407-FR.

CRUISE DATES: July 6 - July 25, 2004.

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

ITINERARY: Departed Astoria, Oregon at 18:00 on July 6, 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 egg densities. The vessel returned to San Francisco, California on July 25, 2004.

OBJECTIVES: 1. Collect fishery independent adult Pacific sardines (*Sardinops sagax*) for spawning biomass estimates.

2. Map sardine egg distribution with CUFES (Continuous Underway Fish Egg Sampler) off of Oregon and Washington.

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

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

5. Conduct quantitative plankton tows using a Pairovet net for calibration of the CUFES and attempt to quantify the sardine spawning biomass using an EPM (Egg Production Method).

6. Collect continuous underway temperature and conductivity measurements of surface waters. These measurements will be collected using NOAA's SCS software which is also interfaced with the CUFES software.

PROCEDURES: 1. 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 CUFES and 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 measurements were made of pelagic fish eggs (CUFES) and acoustic targets 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>
Paironet tows	57	54	3
CTD casts	82	81	1
Weather	103	102	1
Surface Temp.	103	102	1
EK-60 (hours)	300	300	0
CUFES samples	665	665	0
Trawls completed	63	58	5

Of the 58 trawls performed, a summary of the catch data is listed below:

<u>Species</u>	<u>Total Weight (lbs.)</u>
<i>Sardinops sagax</i>	4394.7
<i>Engraulis mordax</i>	3480.1
<i>Clupea pallasii</i>	6341.4
<i>Trachurus symmetricus</i>	1788.3
Myctophidae	201.9
<i>Merluccius productus</i>	5268.6
Assorted sharks	1413.0
<i>Onchorhyncus kisutch</i>	185.5
<i>Onchorhyncus tshawytscha</i>	183.0

DISPOSITION OF DATA:

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

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

CUFES data and preserved samples - Richard Charter, FRD (SWFSC).

CTD data - Christian Reiss, FRD (SWFSC).

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

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

INCIDENTS & MALFUNCTIONS:

Due to problems encountered with the underway system GPS, underway fluorometry and CUFES flowmeter data was not collected.

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
Noelle Bowlin	SWFSC
Amy Thurman	WDFW

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



