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

May 9, 2002 F/SWC1:DAG

CRUISE REPORT

VESSEL: NOAA Vessel *David Starr Jordan*, 0204-JD, DS 02-03, (329).

CRUISE DATES: March 27 - April 25, 2002.

PROJECT: CalCOFI/DEPM Survey, Fisheries Resources Division.

ITINERARY: Leg I: The *David Starr Jordan* was scheduled to depart on March 27, 2002 but due to problems during the shipyard period, the ship delayed sailing for one day. The ship departed for the first station 93.3/26.7 (position 32° 57.4'N/117° 18.3'W) on March 28, 2002. Once the designated station work was completed, the ship sailed to Port Hueneme on April 12 to exchange personnel and set the ship up for trawling operations.

Leg II: Departed Port Hueneme on April 14 and moved to an area south of Santa Cruz island to conduct test trawls prior to occupying the desired station. The ship returned to San Diego on April 25, 2002.

OBJECTIVES:

1. To continue an ongoing assessment of pelagic fish stocks between Morro Bay and La Jolla, California.
2. To monitor environmental conditions within the CalCOFI survey area.
3. To conduct a continuous underway sampling of surface waters using CUDLS (CalCOFI Underway Data Logging System). Temperature, salinity and chlorophyll were automatically logged by computer with the output from the GPS navigational unit.
4. To record current profiles throughout the duration of the cruise with the Acoustic Doppler Current Profiler (ADCP).
5. To make continuous observations of sea birds and marine mammals.
6. To operate a continuous submerged pumping system for identifying and mapping the horizontal egg distribution of epi-pelagic fish.
7. To collect adult Pacific sardine (*Sardinops sagax*)for estimating the standing biomass using the daily egg production method (DEPM) in conjunction with data being collected on the NOAA ship *McArthur*.
8. To acoustically map the survey area using the Simrad EK-500 scientific sounder.

PROCEDURES:

1. Each standard CalCOFI station included the following:

   a. A CTD/Rosette consisting of 20 10-liter hydrographic bottles was lowered to 500 meters (depth permitting) to measure physical parameters and collect water at discrete depths. Sea water from each hydrographic bottle was analyzed for chlorophyll from 200 meters and above, oxygen, salinity, and nutrients from all depths. Continuous profiling during the cast was obtained for

oxygen, temperature, conductivity, light transmittance and fluorometry.

b. A CalBOBL/OPC (CalCOFI Bongo with and optical particle counter installed) standard oblique plankton tow with 300 meters of wire out, depth permitting, used paired 505 µm mesh nets with 71 cm diameter openings. The technical requirements for this tow were: Descent rate of 50 meters per minute, ascent rate of 20 meters per minute. All tows with ascending wire angles lower than 38° or higher than 51° in the final 100 meters of wire were repeated. Additionally, a 45° wire angle was closely maintained during the ascent and descent of the net frame. Contents of the starboard side net were preserved in buffered formalin for later identification. For tows taken at station 60 and inshore, the port side net contents were preserved in buffered ethanol for later identification of ichthyoplankton and DNA studies.

c. A Manta net (surface) tow, using a 505 µm mesh net on a frame with a mouth area of 0.1333 m^2. The duration of each tow is 15 minutes at approximately 1½ knots.

d. Weather observations.

e. A Pairovet (vertical) plankton tow was taken at all stations inshore of, and including station 70. The Pairovet net was fished from 70 meters (depth permitting) to the surface using a 25 cm diameter 150 µm mesh net. The technical requirements for Pairovet tows are: Descent rate of 70 meters per minute, ascent rate of 70 meters per minute. All tows with wire angles exceeding 15° during the ascent were repeated.

f. At about 1100 hours on each day of the cruise a primary productivity CTD cast consisting of six 10-liter hydrographic bottles was carried out in conjunction with the normal 500 meter CTD cast. The cast arrangement of sample bottles used for productivity measurements was determined by a Secchi disc observation and the chlorophyll maximum layer and mixed layer depth measured during the CTD cast. The purpose of the cast was to collect water from 6 discrete depths for daily *in situ* productivity experiments. Measurements of extracted chlorophyll and phaeophytin were obtained with a fluorometer. Primary production was measured as C^{14} uptake in a 6 hour *in situ* incubation. Nutrients were measured with an auto-analyzer. All radioisotope work areas were given a wipe test before the departure of the SIO technical staff.

2. Once the basic CalCOFI work was completed, the ship moved north of Point Conception to conduct trawling operations. The objective was to collect adult sardines for the estimation of fecundity, sex ratio, maturity, spawning frequency and age. Several whole frozen fish were sent to Ron Hedrick at UC Davis for viral studies. A total of 12 trawls were conducted in which 62 mature fish were collected.

RESULTS:

Activity	Requested	Completed	Aborted
OPC/bongo tows	66	66	0
Manta	66	66	0
Pairovet	42	42	0
CTD	66	66	0
Salinity	66	66	0
Oxygen	66	66	0
Nutrients	66	66	0
Chlorophyll	66	66	0
Weather	66	66	0

Surface Temp.	66	66	0
Secchi	28	28	0
Phytoplankton	66	66	0
Primary Prod.	14	14	0
CUDLS (hours)	360	360	0
ADCP (hours)	600	600	0
EK-500 (hours)	600	600	0
Mid-water trawl	12	12	0

In addition, approximately 180 hours of bird observations were logged by Sophie Webb.

DISPOSITION OF DATA:

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

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

ADCP data - Paul Smith, FRD (SWFSC)and Teri Chereskin (SIO).

EK-500 data - Paul Smith and Dave Demer, FRD (SWFSC).

Water analysis data (temperatures, salinities, oxygens, nutrients and chlorophylls) - Arnold Mantyla, MLRG (SIO).

Phytoplankton samples - Elizabeth Venrick, MLRG (SIO).

CTD, primary productivity and CUDLS data - Ralf Goericke, MLRG (SIO).

Alcohol preserved bongo samples - Russ Vetter, FRD (SWFSC).

Mid-water trawl samples - John Hunter, FRD (SWFSC).

INCIDENTS & MALFUNCTIONS:

On two occasions, the CTD's fluorometer malfunctioned requiring replacement. Time loss approximately 3 hours.

The bongo mounted OPC flooded during a tow rendering it inoperable.

During station 87.55, the Navy rerouted the Jordan during operations. Time loss approximately 4.5 hours.

Approximately 4 days were lost to inclement weather during leg II.

During the first tow of the high speed mid-water trawl, the net was severely damaged which required the ship to return to Port Hueneme to receive two trawls borrowed from the Santa Cruz lab. Approximately 2 days were lost.

COMMENDATIONS:

The personnel of the *David Starr Jordan* should be recognized and commended for their dedication and professional manner, ensuring the completion of the cruise:

The deck department for their ability to meet the needs of all types of gear with speed and expertise.

The bridge officers for their assistance with all sampling operations as well as assuring the safety and well-being of all personnel aboard. Efforts to complete stations in a timely

manner and meet specific time schedules for projects contributed to the completion of all scheduled work.

The engineering department for their performance and ability correcting major and minor malfunctions to allow the completion of the cruise with little or no loss of time.

The electronics specialist for his assistance with communications and correcting any electronic malfunctions for both the ship and scientific gear.

The stewards department for providing excellent meals and accommodations in all weather conditions.

In addition, the scientific staff personnel of the SWFSC and SIO should be commended on their ability to continuously collect high quality data throughout the duration of the cruise.

PERSONNEL:		
	David Griffith, Cruise Leader	SWFSC
	Ronald Dotson	SWFSC
	Josh Fluty †	SWFSC
	Cornelia Oedekoven †	SIO
	Jim Wilkinson *	SIO
	Fernando Ramirez †	SIO
	Dave Wolgast †, MLR technical coordinator	SIO
	Dennis Gruber **	SIO
	Karie Holtermann †	SIO
	Susan Becker †, ODF chemist	SIO
	Haili Wang †	SIO
	Jesse Powell †	SIO
	Sophie Webb †, bird observer	PRBO
	Beverly Macewicz ††	SWFSC
	Richard Hasler ††, volunteer	

SWFSC personnel authorized per diem at the rate of $2.00 per day to be paid via the Imprest Fund at the termination of the cruise.

* Disembarked in Dana Point
** Embarked in Dana Point
† Disembarked in Port Hueneme
†† Embarked in Port Hueneme

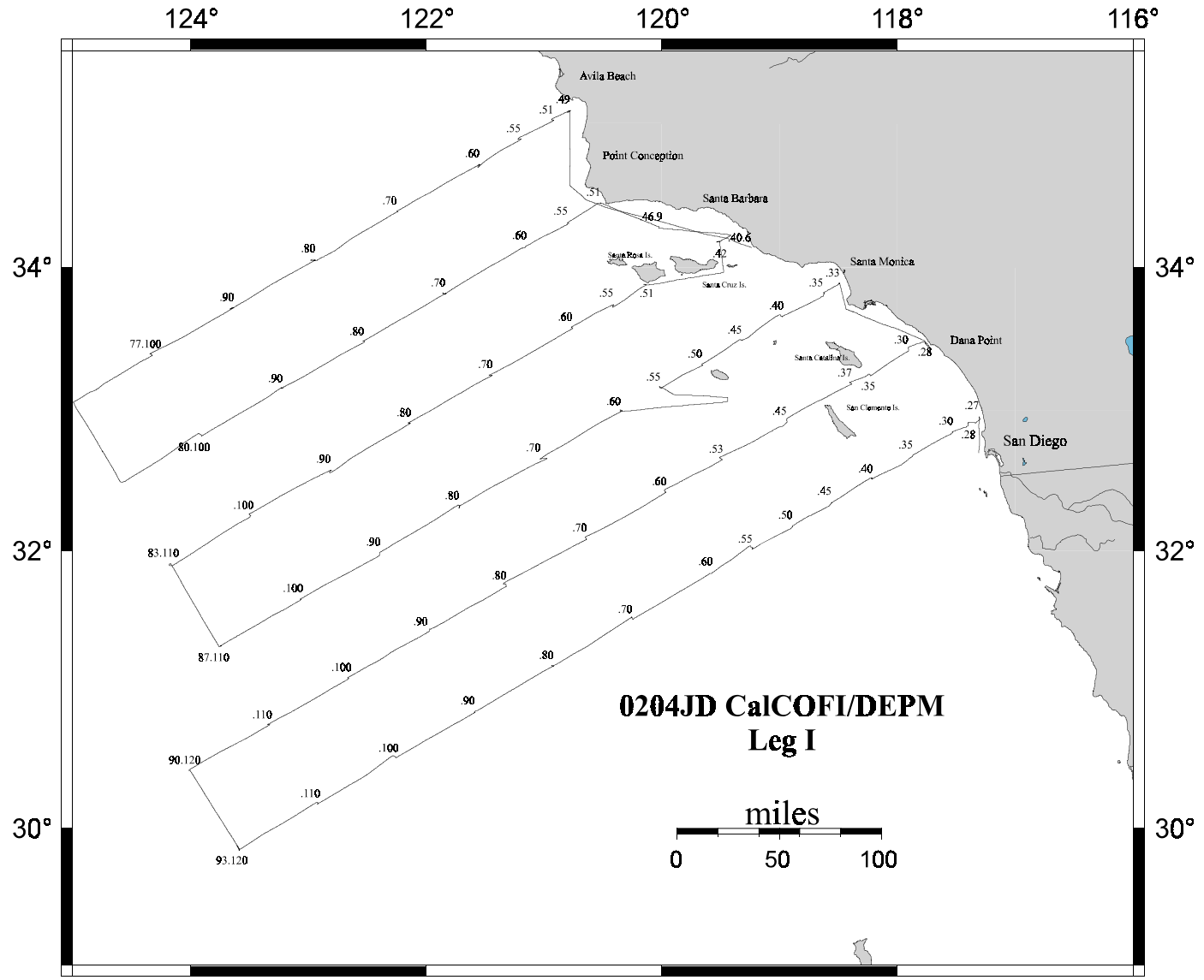
WATCH HOURS: 1200 - 2359
0000 - 1159

Charge to account #8L4S0D05

Date: _____

Prepared by: _____
David Griffith

Approved by: _____
Michael F. Tillman Ph.D.
Science & Research Director
Southwest Region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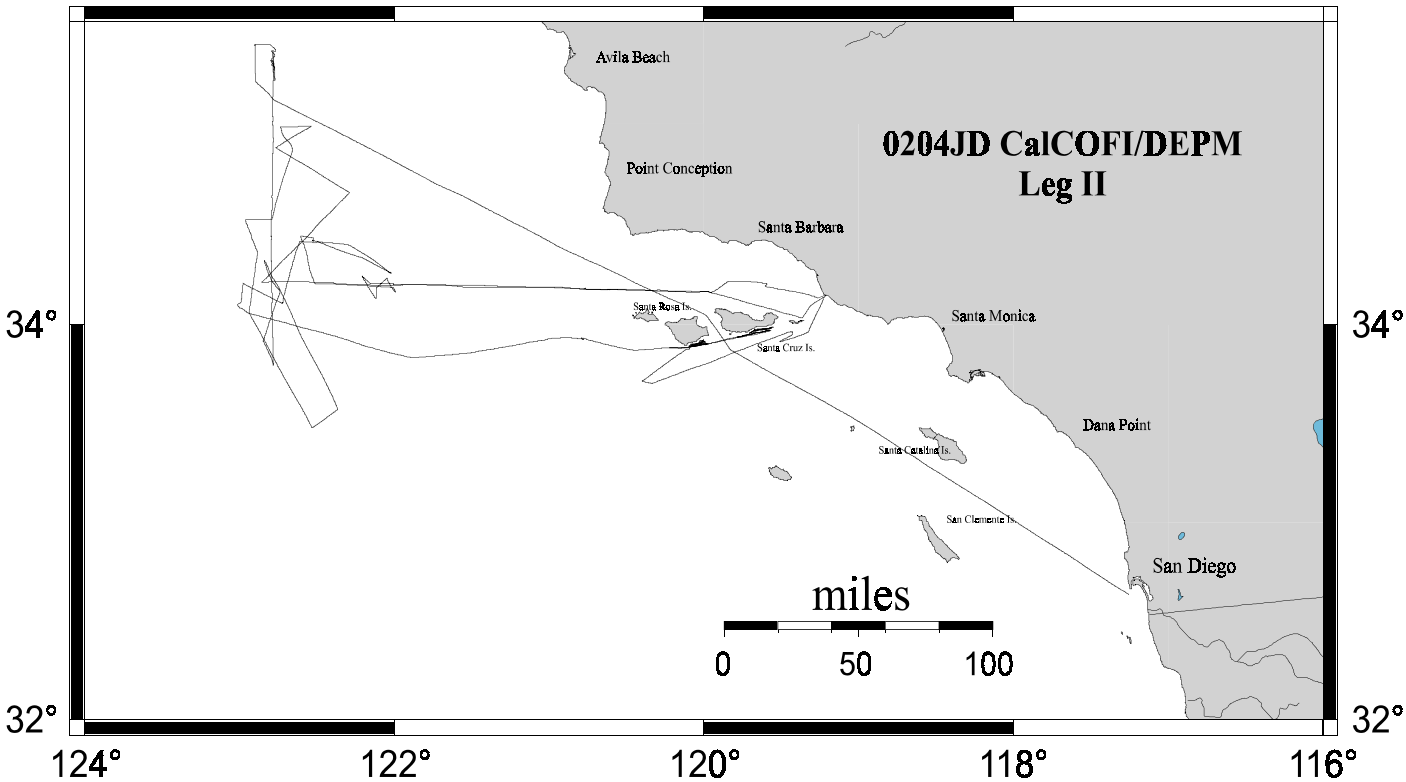
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