



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 29, 2008

F/SWC1:DAG

CRUISE REPORT

VESSEL: NOAA Vessel *David Starr Jordan*, 0801-JD, DS 08-01.

CRUISE DATES: January 4 - 30, 2008

PROJECT: CalCOFI and northern extension, Fisheries Resources Division.

ITINERARY: Leg I: Departed the Nimitz Marine Facility, San Diego at 0800 on January 4, 2008 and moved to the naval fuel pier for fueling. Fueling was completed by noon and the ship proceeded to the first station 93.3/26.7 (position 32° 57.4'N/117° 18.3'W) and began the occupation of the southern section of the pattern (see attached cruise track). Prior to arriving at the first scheduled station, it was discovered that the engine cooling pressures were critically low and that the main engines were running excessively hot. The *Jordan* returned to port for repairs on January 4. Once repairs were completed, the ship got underway on January 7 at 0800. The originally scheduled stop for the completion of leg I in Avila Beach was abandoned due to high winds and seas and moved to Monterey Bay. The *Jordan* arrived in Monterey Bay on January 26, 2008 for the completion of leg I.

Leg II: Departed Monterey Bay on January 26 after personnel transfer and headed to station 67.1/47.7 within Monterey Bay. Returned to San Diego at 0800 on January 30, 2008.

- OBJECTIVES: 1. To conduct continuous underway sampling of surface waters. Temperature and salinity will be automatically logged by computer with the output from the GPS navigational unit.
2. To record current profiles throughout the duration of the cruise with the Acoustic Doppler Current Profiler.
3. To continue an ongoing assessment of pelagic fish stocks between La Jolla and San Francisco, California.
4. To monitor environmental conditions within the CalCOFI survey area.
5. To make continuous observations of sea birds and marine mammals.
6. To record continuous acoustic targets obtained with the EK-500 scientific sounder.

PROCEDURES: The *Jordan* conducted operations in the Southern California bight as well as occupying stations north of Point Conception up to Monterey Bay.

1. Each standard CalCOFI station included the following:
- a. CTD/Rosette - consisting of 24 10-liter hydrographic bottles, the CTD was lowered to 500 meters (depth permitting) to measure physical parameters and collect water at discrete depths for analysis of: salinity, nutrients and chlorophyll. Casts conducted on line 66.7 were to a depth of 1000 meters.



- b. CalBOBL (CalCOFI Bongo) - standard oblique plankton tow with 300 meters of wire out, depth permitting, used paired 505 μ m mesh nets with 71 cm diameter openings. The technical requirements for this tow were: Descent wire rate of 50 meters per minute and an ascent wire 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 should be closely maintained during the ascent and descent of the net frame.
 - c. Manta net (neuston) tow - using a 505 μ m mesh net on a frame with a mouth area of 0.1333 m². Tows were 15 minutes in duration at towing speed of approximately 1.5 - 2.0 knots. Wire angles were kept between 15° and 25°.
 - d. Weather observations.
 - e. Paironet - was fished from 70 meters to the surface (depth permitting) using paired 25 cm diameter 150 μ m mesh nets. The technical requirements for Paironet tows were: Descent rate of 70 meters per minute, a terminal depth time of 10 seconds and an ascent rate of 70 meters per minute. All tows with wire angles exceeding 15° during the ascent were repeated.
 - f. PRPOOS (Planktonic Rate Processes in Oligotrophic Ocean Systems) net - was taken at all stations on line 90.0 and 80.0 as well as stations out to and including station 70.0 on lines 86.7 and 83.3. These stations were occupied as part of the LTER (Long Term Ecological Research) project. The mesh of the PRPOOS net is 202 μ m and the tow was a vertical cast up from 210 meters.
 - g. Primary productivity - 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. The cast arrangement was determined by a Secchi disc observation. The purpose of the cast was to collect water from six discrete depths for daily *in situ* productivity experiments. Measurements of extracted chlorophyll and phaeophytin was obtained with a fluorometer. Primary production was measured as C¹⁴ uptake in a six 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 and MBARI technical staff.
 - h. A light meter - was used to measure the light intensity in the euphotic zone once a day with the primary productivity cast.
2. Acoustics - The scientific EK-500 depth sounder was operated at 38, 120 and 200 KHz and interfaced to a data acquisition system to estimate micronekton biomass between 0 and 500 m. Its use was continuous.
 3. ADCP - The ship's ADCP ran continuously and was logged to a data acquisition system. Complete system settings were provided by the oceanographer and included 5-minute averaging of currents, AGC and 4 beam returns in 60 8-meter bins.
 4. Marine mammal observations - During transit between stations, a bird observer and marine mammal observer recorded location and species of various birds and marine mammals.

5. Acoustic hydrophone - During transit between most daylight stations, an acoustic hydrophone array was towed from the stern with a cable/winch and recorded sounds from marine mammals. Upon approaching a station, a sonobuoy was deployed one nautical mile prior to stopping for station work.
6. CUFES - The egg pump was mounted inside the ship's hull drawing water from a depth of three meters. During the grid occupation, the pump ran continuously between stations to sample any pelagic fish eggs.
7. SCCOOS - An additional nine stations were occupied within the CalCOFI pattern for SCCOOS (S. California Coastal Ocean Observation System). These are 20 meter depth stations and consisted of a CTD lowered to within a few meters from the bottom and a Bongo tow. These stations were included in the original station plans provided to the ship.

RESULTS:

<u>Activity</u>	<u>Requested</u>	<u>Completed</u>	<u>Aborted</u>
Bongo tows	95	68	27
Manta tows	86	65	21
Paironet tows	54	39	15
CTD casts	103	76	27
Salinity	103	76	27
Nutrients	103	76	27
Chlorophyll	103	76	27
Weather	103	76	27
Surface Temp.	103	76	27
ADCP (hours)	552	552	0
EK-60 (hours)	552	552	0
CUFES samples	490	490	0
PRPOOS tows	35	33	2
SCCOOS stations	9	5	4

DISPOSITION
OF DATA:

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

PRPOOS tow data sheets and formalin preserved samples - Ralf Goericke, IOD (SIO).

EK-500 data files - David Demer, FRD (SWFSC).

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

ADCP data - Richard Charter, FRD (SWFSC).

CTD data - Ralf Goericke, IOD (SIO) and Tim Pennington (MBARI).

Water analysis data (temperatures, salinities, nutrients and chlorophylls) - Ralf Goericke, IOD (SIO) and Tim Pennington (MBARI).

Underway data - Richard Charter, FRD (SWFSC).

Alcohol preserved bongo samples - William Watson, FRD (SWFSC).

INCIDENTS &
MALFUNCTIONS:

Soon after departing San Diego Bay, it was necessary to return to MARFAC to clean the intake pipes for the main engine cooling water supply. This resulted in a loss of three days to the

project.

After completion of the first two stations it was necessary to replace a blown head gasket on one of the main engines. Approximately seven hours lost to project.

Due to a medical emergency of a crew member, the ship was re-routed to Port Hueneme. The ship remained in Port Hueneme until personnel could be replaced.

Due to constant high winds and seas the project was delayed several times either hove to on station or running for shelter. It is estimated that a combined time of four days was lost to the project.

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. Unfortunately, in this case, the majority of the weather conditions were bad.

PERSONNEL:

Leg I:

Dave Griffith, Cruise Leader	SWFSC
Amy Hays	SWFSC
Sue Manion**	SWFSC
Noelle Bowlin	SWFSC
Bryan Overcash*	CDFG
Dave Wolgast	SIO
Jennifer Wolgast	SIO
Jim Wilkinson	SIO
Robert Thombley	SIO
Shonna Dovel	SIO
Sue Reynolds	SIO
Greg Campbell	SIO
Dominique Camacho	CR
Brett Hembrough	SIO
Michael Bentley, bird observer	PRBO

Leg II:

Dave Griffith, Cruise Leader	SWFSC
Amy Hays	SWFSC
Dimitry Abramenkoff	SWFSC
Brian Overcash	CDFG
Robert Thombley	SIO
Marguerite Blum	MBARI


*Embarked in Dana Point, CA
**Disembarked in Dana Point, CA

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: 1200 - 2359
0000 - 1159

Charge to account #F8LAF28-PCS

Date: June 17, 2008

Prepared by: 
David Griffith

Approved by: _____
Norman W. Bartoo, Ph.D.
Acting Science & Research Director
Southwest Region

