



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

March 6, 2002 F/SWC1:DAG

CRUISE REPORT

VESSEL: NOAA Vessel *David Starr Jordan*, 0201-JD, DS 02-01, (327).

CRUISE DATES: January 24 - February 14, 2002.

PROJECT: CalCOFI Survey, Fisheries Resources Division.

ITINERARY: Leg I: The *David Starr Jordan* was scheduled to depart on January 22, 2002 but due to additional work during the shipyard period, the ship delayed sailing for two days. Additional days were added to the end of the cruise period. The ship departed for the first station 93.3/26.7 (position 32° 57.4'N/117° 18.3'W) on January 24, 2002. Once the designated station work was completed, the ship moved to an additional site off of Long Beach to conduct CTD casts for PMEL. Personnel exchanges were made at Ventura and Avila Beach on February 5 and 9, respectively. The ship returned to San Diego on February 11, 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.

- 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. An OPC/CalBOBL (CalCOFI Bongo with and optical particle counter installed) standard oblique plankton tow with 300 meters of wire out, depth permitting, used paired 505  $\mu$ m 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.



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  $\mu\text{m}$  mesh net on a frame with a mouth area of 0.1333  $\text{m}^2$ . 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  $\mu\text{m}$  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  $\text{C}^{14}$  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. In addition to the standard CalCOFI work, 10 additional sites were sampled with a 1  $\text{m}^2$  MOCNESS (Multiple Opening/Closing Nets - Environmental Sampling System) down to 250 meters. The frame was equipped with 150  $\mu\text{m}$  mesh nets.

RESULTS:

<u>Activity</u>	<u>Requested</u>	<u>Completed</u>	<u>Aborted</u>
OPC/bongo tows	66	66	0
Manta	66	66	0
Pairovet	42	42	0
CTD	78	78	0
Salinity	76	76	0
Oxygen	66	66	0
Nutrients	66	66	0
Chlorophyll	66	66	0
Weather	66	66	0
Surface Temp.	66	66	0
Secchi	29	29	0
Phytoplankton	66	66	0
Primary Prod.	17	17	0
CUDLS (hours)	456	456	0
ADCP (hours)	456	456	0
1 $\text{m}^2$ MOCNESS	10	10	0
Verb 150	47	48	1

In addition, 180 hours of bird observations were logged by Cornelia Oedekoven.

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).

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).

OPC data - David Checkley, MLRG (SIO).

Verb 150 and 1 m<sup>2</sup> MOCNESS samples - David Fields, MLRG (SIO).

Additional CTD cast data - Bill Parker, OERD2 (PMEL).

INCIDENTS &  
MALFUNCTIONS:

Due to some loose wraps on the CTD winch, the wire jammed between the frame and drum cheeks on station 93.40. Approximately 1 hour to free cable.

On station 83.70, the CTD software locked up at depth requiring the cast to be redone. It was then necessary to wait on station for the primary productivity cast. Approximately 3 hours lost.

The starboard side hydrographic winch blew out an internal oil seal. The winch was repaired upon returning to San Diego.

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
Amy Hayst	SWFSC
Ronald Dotson†	SWFSC
Cornelia Oedekoven*, bird observer	SWFSC



