



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES SCIENCE CENTER
P.O. BOX 271
LA JOLLA, CA 92038-0271

December 20, 1999

F/SWC1:DAG

CRUISE ANNOUNCEMENT

- VESSEL: R/V *New Horizon* (SIO) Cruise 0001-NH.
- CRUISE DATES: January 7 - 29, 2000.
- PROJECT: Coastal Fisheries Resources Division, CalCOFI Survey.
- ITINERARY: Depart San Diego, California at 0800 on January 7, 2000. Proceed to first CalCOFI station 93.3/26.7 (position 32° 57.4'N/117° 18.3'W) and begin a modified CalCOFI pattern (see attached cruise track). The vessel will return to San Diego, California on January 29, 2000.
- 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 continuous underway sampling of surface waters. Temperature, salinity and chlorophyll will be 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.
 5. To measure optical profiles within the California bight. The optical profile measurements will include pigment concentration and particle absorption.
 6. To operate a continuous submerged pumping system for identifying and mapping the horizontal egg distribution of epi-pelagic fish.
- PROCEDURES:
1. Each standard CalCOFI station will include the following:
 - a. A CTD/Rosette consisting of 20 10-liter hydrographic bottles will be lowered to 500 meters (depth permitting) to measure physical parameters and collect water at discrete depths for analysis of: oxygen



concentration, salinity, nutrients, chlorophylls and phytoplankton.

b. A CalBOBL (CalCOFI Bongo) standard oblique plankton tow with 300 meters of wire out, depth permitting, using paired 505 μm mesh nets with 71 cm diameter openings. The technical requirements for this tow are: 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 will be repeated. Additionally, a 45° wire angle should be closely maintained during the ascent and descent of the net frame.

c. A Manta net (surface) tow, using a 505 μm mesh net on a frame with a mouth area of 0.1333 m^2 .

d. Weather observations.

e. A Pairovet (vertical) plankton tow will be taken at all stations inshore of, and including station 70. The Pairovet net will be fished from 70 meters to the surface (depth permitting) using paired 25 cm diameter 150 μm mesh nets. 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 will be repeated.

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

g. A light meter will be used to measure the light intensity in the euphotic zone once a day with the primary productivity cast.

2. Additional bio-optic studies will be performed during the cruise. A bio-optics package (Multi-wavelength Environmental Radiometer - MER) will be lowered each day in conjunction with the primary productivity cast.

3. The egg pump will be mounted to the port side of the ship's hull drawing water from a depth of three meters. During the grid occupation, the pump will be running constantly while the ship is underway.
4. Additional studies will be conducted as time allows related to the identification of pelagic egg patches and the vertical distribution of foraminifera. Gear to be used for these studies will be the 1 m² MOCNESS (Multiple Opening/Closing Nets-Environmental Sensing System), drift buoys and plankton nets.

EQUIPMENT:

1. Supplied by scientific party:
 - 37% Formalin (SWFSC)
 - Sodium borate (SWFSC)
 - 30 cc and 50 cc syringes (SWFSC)
 - Canulas (SWFSC)
 - Pint, quart and gallon jars (SWFSC)
 - Inside and outside labels (SWFSC)
 - CalCOFI net tow data sheets (SWFSC)
 - 71 cm CalCOFI Bongo frames (SWFSC)
 - 71 cm CalCOFI 505 µm mesh nets (SWFSC)
 - CalCOFI 150 µm calvet nets and codends (SWFSC)
 - CalCOFI pairovet frames (SWFSC)
 - 333 µm mesh codends (SWFSC)
 - Inclinometer for bongo tows (SWFSC)
 - Digital flowmeters (SWFSC)
 - 75 lb Bongo weights (SWFSC)
 - 100 lb hydro weights (SWFSC)
 - CalCOFI Manta net frames (SWFSC)
 - 60 cm CalCOFI 505 µm mesh nets (SWFSC)
 - Standard CalCOFI tool boxes (SWFSC)
 - Bucket thermometers and holders (SIO)
 - Hand held inclinometer (SIO)
 - Oxygen titration rig with reagents (SIO)
 - Oxygen flasks (SIO)
 - Guideline Portasal (SIO)
 - Salinity bottles (SIO)
 - Standard sea water (SIO)
 - Data sheets for scheduled hydrographic work (SIO)
 - Weather observation sheets (SIO)
 - CTD and rosette (SIO)
 - Self contained OPC unit for bongo frame (SIO)
 - 10 liter hydrographic bottles (SIO)
 - Isotope van (SIO)
 - Bio-optics van (SIO)
 - Egg pump van (SWFSC)
 - Overboard mounted egg pumping system (SWFSC)
 - Deck loaded winch w/.322" conductive wire (SIO)
 - 1 m² MOCNESS (SWFSC)

2. Supplied by R/V *New Horizon*:

Hydro winch with 1/4" cable for standard Bongo, Pairovet and Manta tows
Oceanographic winch w/.322" conductive cable
J-frame w/block to accommodate .322" conductive cable
Center traction winch w/.680" wire for MOCNESS tows
Stern A-frame w/block to accommodate .680" wire
Constant temperature in main lab set at 22°C ±1°C (71.5°F ±2°F)
Winch monitoring system
12 kHz Knudsen precision depth recorder with spare recording paper
Acoustic Doppler Current Profiler

MISCELLANEOUS:

1. At the completion of the cruise an inspection will be made of scientific working and berthing spaces by the Master or his designated representative. The scientific party is responsible for the condition and cleanliness of spaces assigned to the scientific party.
2. The Cruise Leader will hold a pre-cruise meeting aboard the vessel before departure.
3. All dates and times recorded will be in Pacific Standard Time.

PERSONNEL:

Ed Renger, MLR technical coordinator MLRG
David Wolgast MLRG
Dennis Gruber MLRG
Jim Wilkinson MLRG
Steve Bograd MLRG
Antoine Poteau MLRG
David Griffith SWFSC
Ronald Dotson SWFSC
Amy Hays SWFSC
Alex Curtis, graduate student MLRG
David Field, graduate student MLRG
Scott Storms MRD
Susan Becker, chemist ODF
TBD MRD
TBD MLRG
TBD CDFG

NMFS personnel authorized per diem at the rate of \$2.00 per day to be paid via the Imprest Fund on a Travel Roll Voucher at the termination of the cruise.

WATCH HOURS: 0000-1159 . . OVERTIME: . . 136 hours
1200-2359 . . NIGHT DIFF.: 132 hours

Date: _____

Prepared by: _____
D.A. Griffith

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

