



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 92037-1508

December 14, 2009

F/SWC1:AEH

CRUISE ANNOUNCEMENT

VESSEL: R/V *New Horizon* (SIO) Cruise 1001-NH.

CRUISE DATES: January 12 - February 6, 2010.

PROJECT: CalCOFI Survey, Fisheries Resources Division.

ITINERARY: Leg I: Depart San Diego, California at 0800 on January 12, 2010. Prior to occupying the first CalCOFI station, we will calibrate the Simrad EK-60 sounder in San Diego Bay. Once calibrating technicians are put ashore at Nimitz Marine Facility, we will proceed to the first CalCOFI station 93.3/26.7 (position 32° 57.4'N/117° 18.3'W) and begin a pattern up to and including line 83.3(see attached cruise track). The *New Horizon* will transfer personnel in Ventura, Ca.

Leg II: After the personnel transfer, the *New Horizon* will continue the cruise pattern to include line 70. We will transfer personnel in Monterey, Ca.

Leg III: After the personnel transfer, the *New Horizon* will proceed to station 67.1 47.7(position 36° 47.9'N/121° 50.8'W) and continue the pattern to complete work offshore on line 60.0(see attached cruise track). The vessel will return to San Diego, California on February 6, 2010.

- OBJECTIVES:
1. To continue an ongoing assessment of pelagic fish stocks between La Jolla and San Francisco, 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 record continuous acoustic targets obtained with the Simrad EK-60 scientific sounder.

PROCEDURES: 1. Each standard CalCOFI station will include the following:

- a. A CTD/Rosette consisting of 24 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. On stations 90.0 90.0 and 80.0 90.0, the CTD/Rosette will be lowered to 3500 meters. On line 66.7, the CTD/Rosette will be lowered to 1000 meters.

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. A PRPOOS (Planktonic Rate Processes in Oligotrophic Ocean Systems) net tow will be 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 are occupied as part of the LTER (Long Term Ecological Reserve) project. The mesh of the PRPOOS net is 202 μm and the tow is a vertical cast up from 210 meters.

g. 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.

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

i. A MOHT (Oozeki) pelagic trawl will be deployed on approximately 20 night time CalCOFI stations within the standard CalCOFI grid (lines 76.7 to 93.3). This will encompass both adaptive and non-adaptive sampling in conjunction with the EK-60. The Oozeki is a fixed-frame trawl with a 5.5 m^2 mouth opening that can be towed at speeds up to 4-5 knots. It is designed to capture a variety of organisms including krill, late larval and juvenile fishes, and micronekton. The Oozeki data will be used to groundtruth the EK-60 acoustic data as well as collect samples of juvenile fishes for the study of sardine recruitment processes.

j. During transit between stations, a bird observer and three mammal observers will be recording location and species of various sea birds and marine mammals.

k. During transit between most daylight stations, an acoustic hydrophone array will be towed off the stern with a cable/winch to record sounds from marine mammals. Upon approaching a station, a sonobuoy will be deployed one nautical mile prior to stopping for station work.

l. During the grid occupation, the CUFES pump will run continuously between stations to sample pelagic fish eggs. The CUFES pump/pipe will be hull mounted to draw water from a depth of three meters into a scientific laboratory van on the main deck, port side.

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 Bongo nets (SWFSC)
CalCOFI 150 µm calvet nets and codends (SWFSC)
CalCOFI pairovets frames (SWFSC)
333 µm mesh codends (SWFSC)
Inclinometer for bongo tows (SWFSC)
Digital flowmeters (SWFSC)
75 lb Bongo weights (SWFSC)
170 lb hydro weight (SWFSC)
CalCOFI Manta net frames (SWFSC)
60 cm CalCOFI 505 µm mesh Manta nets (SWFSC)
PRPOOS frames (LTER)
202 µm PRPOOS nets and codends
Standard CalCOFI tool boxes (SWFSC)
Bucket thermometers and holders (SIO)
Hand held inclinometer (SIO)
Oxygen titration rig with reagents (SIO)
Oxygen flasks (SIO)
Guildline Portasal (SIO)
Salinity bottles (SIO)
Standard sea water (SIO)
Data sheets for scheduled hydrographic work (SIO)
Weather observation sheets (SIO)
CTD and rosette (SIO)
10 liter hydrographic bottles (SIO)
Nutrient auto-analyzer (SIO)
Nutrient vials (SIO)
Isotope van (SIO)
LTER van (SIO)
CUFES van (SWFSC)
CUFES pipe/pump
Electric Sea-Mac winch for acoustic array
Disposable sonobuoys
Simrad EK-60 scientific sounder
MOHT(Oozeki) trawl and sampling equipment

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

Hydro winch with ¼" cable for standard Bongo, Pairovets and Manta tows
Oceanographic winch w/.322" conductive cable

J-frame w/blocks to accommodate .322" conductive cable and
 ¼" mechanical cable
 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
 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:

Amy Hays (Cruise Leader)	SWFSC
David Griffith	SWFSC
Susan Manion	SWFSC
Dimitry Abramenkoff	SWFSC*
Kyle Byers	SWFSC
Juan Zwolinski	SWFSC*
Bryan Overcash	SIO
James Wilkinson	SIO
David Wolgast	SIO
David Faber	SIO
M. Grant Susner	SIO
Susan Becker	SIO
Shonna Dovel	SIO
Megan Roadman	SIO
Ana Lara Lopez	SIO
Joshua Jones	SIO
Julie-Ann Kondor	Contractor (SIO)
Katherine Whitaker	Contractor (SIO)
Marguerite Blum	MBARI**
TBD	MBARI**
TBD	MBARI**
Dawn Breese	Bird Contractor
Maya Walters	Volunteer

* Embarking in Ventura, CA
 ** Embarking in Monterey, CA

NMFS personnel authorized per diem at the rate of \$3.00 per day to be paid via travel voucher at the termination of the cruise.

WATCH HOURS:

0000-1159.....OVERTIME:.....168 hours
 1200-2359.....NIGHT DIFF:.....156 hours

Date: _____

Prepared by: _____
 Amy Hays (Cruise leader)

Approved by: _____
 Usha Varanasi, Ph.D.
 Acting Science & Research Director
 Southwest Fisheries Science Center

