



CCAMLR

COMM CIRC 10/05
SC CIRC 10/03

Thursday, 7 January 2010

Notification for Scientific Research in 2009/10 - USA

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**TO ALL MEMBERS OF THE COMMISSION
AND THE SCIENTIFIC COMMITTEE**

**COMM CIRC 10/05
SC CIRC 10/03**

7 January 2010

Notification for Scientific Research in 2009/10 – USA

In accordance with Conservation Measure 24-01, Members are advised that the USA has submitted a notification to conduct scientific research in Subarea 48.1 in January to March 2010 (see attached). This notification falls under paragraph 2 of Conservation Measure 24-01.

Dr D.G.M. Miller
Executive Secretary

Attch.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

5 January 2010

Dr. Denzil Miller, Executive Secretary
Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
PO Box 213
North Hobart 7002
Tasmania, Australia

Dear Denzil,

As per the requirements of Conservation Measure 24-01, I am writing to notify the Secretariat that, as part of the US AMLR Program, NOAA plans conduct a research survey within Subarea 48.1 during the period January-March 2010. We intend to estimate the biomass of krill in an area surrounding Elephant Island and the South Shetland Islands and collect observations to facilitate our studies of various other ecosystem processes. Less than 0.1% of the catch limit for Antarctic krill (*Euphausia superba*) will be taken during this survey. Attached please find Annex 24-01/A (which provides the notification *pro forma* required under CM 24-01) and a copy of our cruise plan. If issues regarding this notification require further clarification, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, reading "George M. Watters". The signature is fluid and cursive, with the first name "George" being more prominent.

George M. Watters, Director
Antarctic Ecosystem Research Program



FORMATS FOR NOTIFICATION OF RESEARCH VESSEL ACTIVITY

Format 1

NOTIFICATION OF RESEARCH VESSEL ACTIVITY IN ACCORDANCE
WITH PARAGRAPH 2 OF CONSERVATION MEASURE 24-01

Name and registration number of vessel R/V Moana Wave (see below)

Division and subarea in which research is to be carried out 48.1

Estimated dates of entering and leaving CAMLR Convention Area 25 Jan 2010
13 Mar 2010

Purpose of research Annual US AMLR survey to estimate
Krill biomass and study ecosystem processes.

Fishing equipment likely to be used:

Bottom trawl _____

Midwater trawl _____

Longline _____

Crab pots _____

Other fishing gear (specify) 6' Isaacs-Kidd Midwater Trawl (IKMT)

US Coast Guard Doc # : 1094642

IMO # : 7319008

Call Sign: WCZ8065



Antarctic Ecosystem Research Division
Southwest Fisheries Science Center
3333 North Torrey Pines Ct.
La Jolla, California, 92037
USA

AMLR 2010 CRUISE PLAN

VESSEL: R/V *Moana Wave*

OPERATING AREA: South Shetland Islands, Antarctica

ITINERARY:		Sea Days	Port Days
Port call in Punta Arenas	20Jan - 22 Jan		3
Leg I	23 Jan - 13 Feb	21	
Port call in Punta Arenas	14 Feb - 15 Feb		2
Leg II	16 Feb - 15 Mar	28	
Port call in Punta Arenas	16 Mar - 18 Mar		3
Total Days		49	8

SCHEDULE OF EVENTS:

LEG I:

Transit to South Shetland Islands	3	23 - 26 Jan
Conduct Large-area Survey	14	27-Jan - 09 Feb
Transfer personnel and trash from Cape Shirreff	1	10 Feb
Transit to Punta Arenas	3	11 - 13 Feb
Total days	21	

LEG II

Transit to South Shetland Islands	3	16 - 18 Feb
Copacabana Field Camp resupply/ personnel/calibrate	2	19 Feb - 20 Feb
Cape Shirreff Field Camp resupply/ personnel	2	21- 23 Feb
Conduct Large-area Survey	12	24-7 Mar
Close Cape Shirreff Field Camp	3	8-10 Mar
Calibrate in Admiralty Bay, close Copacabana field camp	2	11-12 Mar
Transit to Punta Arenas	3	13-15 Mar
Total Days	28	



OVERVIEW: One of the goals of the U.S. AMLR field research program is to describe the functional relationships between krill, their predators, and key environmental variables. For the past 24 years the U.S. AMLR field program has been conducted in the vicinity of the South Shetland Islands and the Antarctic Peninsula. Shipboard mapping of these waters indicates that several water masses converge in the area, forming a hydrographic front along the shelf break north of the archipelago. High densities of phytoplankton and Antarctic krill are associated with the position of the frontal zone, although seasonal timing of their appearance can vary by several weeks. The U.S. AMLR program has also documented large year-to-year variability in the reproductive success of krill and this variability has been associated with multi-year trends in the physical environment, including sea-ice and global atmospheric patterns.

In the austral summer of 2009/2010 the U.S. AMLR program will conduct a quantitative survey of the pelagic ecosystem in the vicinity of the South Shetland Islands consisting of one 21 day and one 28 day leg (Figure 1). The survey in the South Shetland Islands will be similar to the 24-year time series of bio-acoustic krill surveys conducted by the U.S. AMLR program, in this region.

The U.S. AMLR program also monitors reproductive performance and foraging ecology of land-breeding krill predators based in field camps at Admiralty Bay (Copacabana), on the south side of King George Island and at Cape Shirreff, on the north side of Livingston Island (Figure 1). Personnel occupy the field camps at Cape Shirreff and Admiralty Bay from October through mid-March. Provisions, gear and staff will be delivered to the Copacabana field camp and Cape Shirreff camp at the beginning of Leg II. Personnel will be transferred from Copacabana to Cape Shirreff at the end of Leg I or beginning of Leg II. Both field camps will be closed; personnel gear and refuse collected at the end of Leg II.

Table 1. List of shipboard personnel for both legs.

Table 2. List of personnel for both field camps and the method of transport in and out of camp.



OBJECTIVES:

1. Conduct a bio-acoustic, oceanographic and net-based krill survey in the vicinity of the South Shetland Islands (Legs I and II) to map meso-scale features of water mass structure, phytoplankton biomass and productivity, zooplankton constituents, and the dispersion and population demography of krill.
2. Calibrate shipboard acoustic system at Admiralty Bay the end of Leg I and again near the end of Leg II.
3. Collect continuous measurements of ship's position, sea surface temperature, salinity, turbidity, fluorescence, air temperature, barometric pressure, relative humidity, and wind speed and direction.
4. Collect underway observations of seabirds and marine mammals.
5. Deploy drifter buoys (number to be determined)
6. Provide logistical support to field camps at Cape Shirreff, Livingston Island and Admiralty Bay (Copacabana), King George Island. Support will include transfer of personnel, equipment, building materials, other supplies, and provisions.
7. Prepare fur seal milk for lipid analysis, process shore-based collections of fur seal diet samples, collect fur seal and penguin prey (krill, squid and fish) for lipid analysis, bomb calorimetry, and measure krill for validation of krill carapace to total length relationship.

OPERATIONS:

1. **South Shetland Survey, Leg I and Leg II (Figure 1).** Each leg will consist of a survey of ~112 CTD and net-sampling stations (time and weather permitting), along approximately 2400 n. miles of acoustic transects. Operations will be conducted 24 hours per day (~ 6 stations per day); desired transect speed between stations will be 10 knots, depending on sea state. Both surveys will be conducted in this order depending on sea state: Elephant Island Area then West Area, then Joinville Island Area, then stations in northwest Weddell Sea if ice conditions permit, then South Area.

2. **A) Acoustic transects.** Active acoustic data will be collected continuously using Simrad ES60 echosounder and hull-mounted transducers (38, 120 and 200 kHz). Data will be logged and processed by computers located in the Computer Room. Continuous supply of vessel position and speed data from the ship's GPS receiver will be required in the Computer Room.

B) CTD operations. CTD casts will be conducted to 750m or 10 m from the bottom. The scientific party will supply a Seabird SBE-9/11 CTD instrument, dissolved oxygen sensor, carousel, altimeter, fluorometers, light sensors, Niskin bottles and stand. A computer, also supplied by the scientific party, will be located in the Computer Room to log CTD data. The ship will supply a winch, conducting cable with strain relief and electrical termination, slip rings, a deck cable terminating in the Computer Room, and a method for monitoring the amount of wire out and the rate of recovery. Water samples (10 per cast) will be obtained at a series of standard depths. Assistance from ship's personnel will be required in collecting water samples from the Niskin bottles for both salinity measurements and phytoplankton analyses. Measurements of the salinity of the water samples will be determined using a Guildline PortaSal salinometer, and dissolved oxygen levels will be determined at two stations per day to calibrate electronic instruments on the CTD.

C) Net sampling operations.

I) During both legs of the survey, a standard 2 m IKMT fitted with 505-micron mesh net, supplied by the scientific party, will be used to sample zooplankton and micronekton (including krill). The ship will supply a second winch, conducting cable with strain relief and electrical termination, slip rings, a deck cable terminating in the Computer Room, and a method for monitoring the amount of wire out and the rate of recovery.

Primary sample processing for both legs will be conducted in laboratory compartments within the ship. Antarctic krill (*Euphausia superba*) will be separated from the catch and enumerated; salps (*Salpa thompsoni*) will be separated, counted and morphometric measurements collected from a sub-sample of the catch; other adult and larval euphausiids, ichthyoplankton, and zooplankton material will be identified, counted and preserved. Sub-samples of *E. superba* from each tow will be processed in the onboard

laboratory space to determine length distribution of krill, weight, maturity stage, molt stage, sex ratio, reproductive condition, and gut fullness.

D) Phytoplankton operations: At every CTD station, water will be sampled for chlorophyll concentrations at all depths in which Niskin bottles are fired, between 5 and 200 meters. A deck cell for the collection of PAR will be installed on the ship super structure. Assistance from the deck crew may be required to properly and efficiently collect water samples for phytoplankton and chl-a determinations.

E) XBT operations: XBT probes will be deployed to collect temperature data to depths of up to 750 meters, during the Drake Passage transits and at other times during the cruise. The expendable probes are launched from the stern of the ship while underway along a high density line, every 15km, from the polar front (58 degrees South) to the South Shetland Islands during southward transits. On northward transits of the Drake Passage, we will repeat similar deployments. Opportunistic sampling will be conducted between the Shackleton Ridge and Elephant Island, across the Bransfield Strait and along certain AMLR transects at 4km intervals.

3. **Acoustic system calibration, Legs I and II.** At the end of Leg I and again at the end of Leg II, the ship will anchor in approximately 25 fathoms of water in Admiralty Bay (either Ezcurra or Martel Inlet, depending on ice and wind conditions) for the purpose of calibrating the acoustic system. Ship's personnel will be required to run a transfer line under the hull before deploying the anchor. The scientific party will supply all additional hardware and cables required for calibration. Historically, the best and most efficient calibration occurs with propellers disengaged from the shafts so that they do not turn.
4. **Continuous environmental data collection, Legs I and II.** During Legs I and II a meteorological instrument package will be mounted on the ship's forward mast and a coax cable led to computers located in the Computer Room. The ship will provide a continuous salt water supply to the thermosalinograph, supplied by the scientific party. Continuous measurements of sea surface temperature and salinity, air temperature, barometric pressure, relative humidity, wind speed, wind direction, scalar and cosine PAR, and shortwave radiation will be collected and logged on data-logging computers located in the Computer Room. The ship will provide data feeds from the ship's GPS receiver and gyro compass to computer room for this navigational data logging.
5. **Deploying drifters:** Drifters will be deployed from the ship. Drifters will be released on three of the four transits between the SSI region and Punta Arenas, south of 58S. Additional drifters will be deployed in the Elephant Island region, in the Weddell, and along transits to the South Orkney Islands, as dictated by the chief scientist.
6. **Seabird and marine mammal observation.** Seabird and marine mammal observations will be made from one of the bridge wings or inside the pilot house during inclement weather along transects between stations and during the transits to and from Punta



Arenas. Access to GPS position data and electrical power inside the pilot house will be required for a laptop computer.

7. **Garbage removal:** At every opportunity when visiting camps, and especially at the end of Leg I and Leg 2, we shall offload garbage from Cape Shirreff and at Copacabana. This will also occur at the beginning of the survey at both sites weather permitting.
8. **Field camp logistical support, Legs I and II.** The scientific party will provide two Zodiac Mark V's and four outboard motors for the following operations:
 - Near the end of Leg I, personnel may be picked up from Copacabana field camp and brought aboard the ship and trash will be recovered to the ship.
 - Near the end of Leg I personnel may be transferred from Copacabana to Cape Shirreff and personnel will be picked up from Cape Shirreff field camp and brought to Punta Arenas. Trash will be recovered to the ship.
 - Near the end of Leg II, personnel, equipment and trash will be recovered from Cape Shirreff in effect closing the field camp for the season.
 - Near the end of Leg II, personnel, equipment and trash will be recovered from the Copacabana field camp in effect closing the field camp for the season.
 - The acoustic system will also be re-calibrated in Admiralty Bay at the end of Leg II.
 - Daily radio communications will be maintained between the various field sites and the ship. The Cruise Leader will provide instructions for these radio communications.

MAJOR EQUIPMENT AND SUPPLIES TO BE LOADED ABOARD SHIP

1. 20-foot laboratory van
2. 12-foot laboratory van
3. Two Zodiac inflatable boats
4. Four outboard motors
5. Small amount of lumber and building supplies for field camps
6. One 55-gallon drum of gasoline for outboard motors
7. 30-40 propane cylinders
8. 1 tank of nitrogen gas
9. Various chemicals to be stored in the Dry Laboratory (designated for phytoplankton work). MSDS forms will accompany all chemicals used by the phytoplankton group.

EQUIPMENT AND CAPABILITIES TO BE SUPPLIED BY THE SHIP:

1. INMARSAT telephone line and modem port supplied to the Computer Room.
2. Global Positioning Systems (GPS) with NEMA 0183 output in RS232 format, supplied to the Computer Room.
3. Heading output from gyrocompass to be supplied to a data-logging computer (supplied by scientific party) in Computer Room.
4. Location on forward mast to mount portable WeatherPak instrument (supplied by scientific party).



5. 110v, 60 cycle, 45 amp regulated electrical power supplied to the Computer Room and wet Laboratory.
6. 110v, 15 amp electrical power supplied to the wet and dry laboratories.
7. Winch with conducting cable, slip rings, and meter for deployment of the large CTD stand. The sea cable will be fairlead through the central A-frame and the deck cable will be terminated in the Computer Room.
8. Winch with conducting cable, slip rings and meter for deployment of the IKMT net. The sea cable will be fairlead through the central A-frame and the deck cable will be terminated in the Computer Room.
9. Continuous salt water supply to scientific party's flow-through instruments located in wet Laboratory.
10. Assistance in loading scientific equipment, securing it in place, and providing power, water, and drain connections.
11. Swimmers in dry suits to assist with Zodiac landings at the field camps.
12. Assistance in drawing water samples from the Niskin bottles.



SOUTHWEST FISHERIES SCIENCE CENTER CONTACT:

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Mailing Address:	Antarctic Ecosystem Research Division Southwest Fisheries Science Center 3333 North Torrey Pines Ct. La Jolla, CA 92037
INTERNET Email Address:	Amy.VanCise@noaa.gov or Christian.reiss@noaa.gov

SHIPBOARD CONTACT:

INMARSAT Voice/Fax
Tel: (Region code) TBD
Fax: (Region code) TBD

Region codes:
871-Atlantic Ocean region (East)
872-Pacific Ocean region
873-Indian Ocean region
874- Atlantic Ocean region (West)
870-UNIVERSAL

Table 1. Shipboard personnel
Table 2. Field Camp Personnel
Figure 1. AMLR 2010 station plan.



Usha Varanasi, Ph.D.
Director
Southwest Fisheries Science Center


George Watters, Ph.D.
AERD Director

Table 1. Shipboard personnel

Leg I	Leg II
Christian Reiss (cruise leader)	Christian Reiss (cruise leader)
Anthony Cossio (acoustics)	Anthony Cossio (acoustics)
Derek Needham (oceanography)	Mike Soule (oceanography)
Andre du Randt (oceanography)	Andre Hoek (oceanography)
Guido Bordignon (phytoplankton)	Guido Bordignon (phytoplankton)
Tara Clement(phytoplankton)	
Ashley Maloney (zooplankton)	Ashley Maloney (zooplankton)
Douglas Krause (zooplankton)	Jasmine Maurer (zooplankton)
Summer Martin (zooplankton)	Summer Martin (zooplankton)
Suzanne Romain (zooplankton)	Suzanne Romain (zooplankton)
Ryan Driscoll (zooplankton)	Nicolas Sanchez (zooplankton)
Kimberly Dietrich (zooplankton)	Kimberly Dietrich (zooplankton)
Nissa Ferm (zooplankton)	Nissa Ferm (zooplankton)
Ian Bystrom (zooplankton)	Ian Bystrom (zooplankton)
Jarrold Santora (seabirds)	Jarrold Santora (seabirds)
Mike Force (seabirds)	Mike Force (seabirds)
Amy Van Cise (lipids)	Amy Van Cise (lipids)
Raul Vasquez del Mercado	
Plus 0 on southbound transit	Plus 2 on southbound transit
Plus 1 on northbound transit	Plus 14 on northbound transit

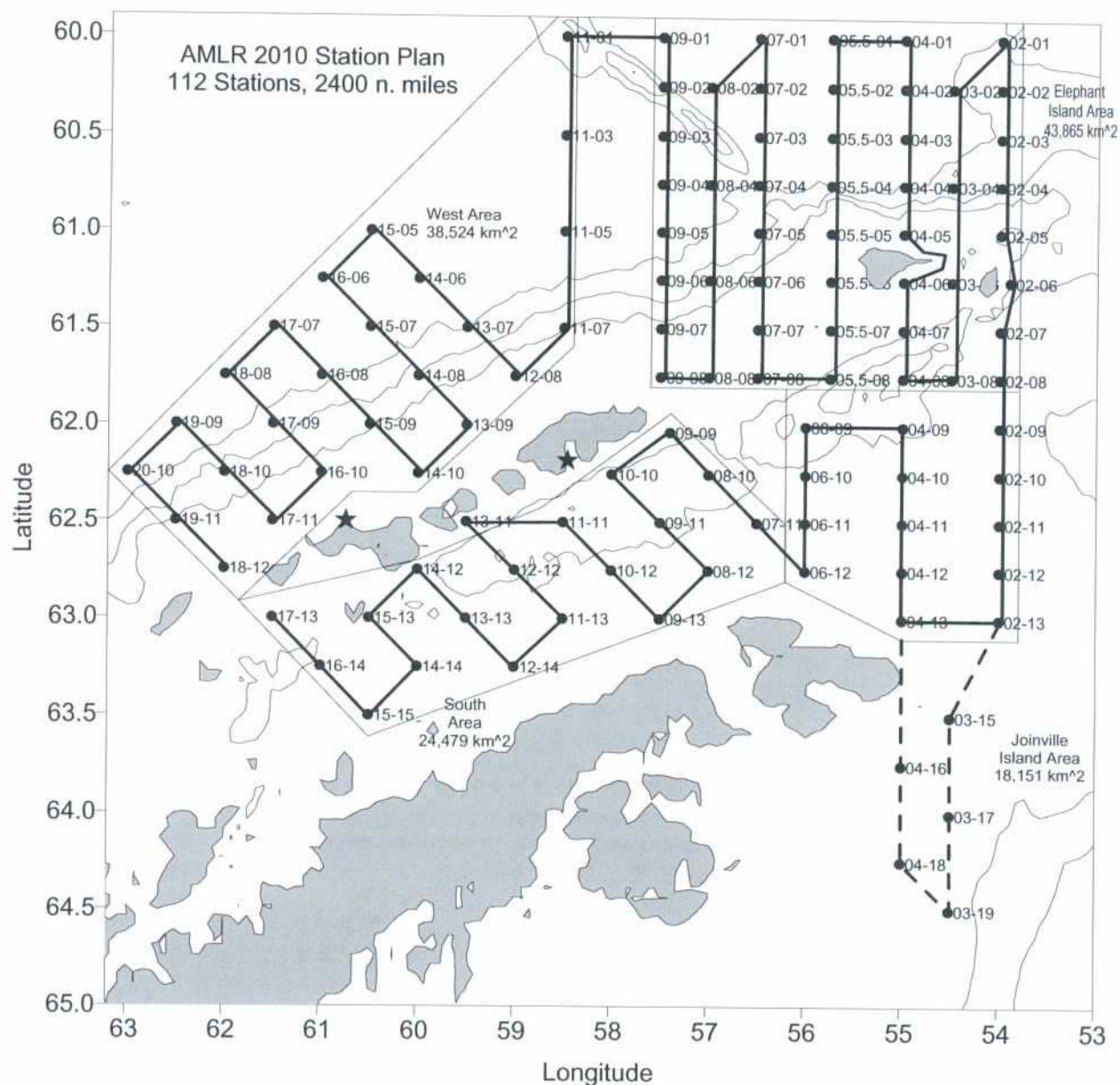


Figure 1. AMLR 2010 station plan. Black dots indicate station locations; heavy lines indicate transects between stations; thin lines outline stratum; stars indicate locations of Cape Shirreff and Copacabana field camps; depth contours are 1000, 2000, and 3000 m. Surveys will be conducted in the following order: West Area, then Elephant Island Area, then Joinville Island Area, then stations in northwest Weddell Sea (if ice conditions permit), then South Area.