

Sit. Rep. #1
US AMLR Program
R/V Yuzhmorgeologiya
8 January 2007

1. The U.S. AMLR Program accepted the Russian *R/V Yuzhmorgeologiya* as ready for the 2007 charter at 0800 on 3 January 2006 in Punta Arenas, Chile. Over the next three days, provisions, equipment and personnel were embarked, laboratories were set up, and instrumentation was installed and tested. The vessel departed at 0700 on 06 January 2007 for the U.S. AMLR study area in the South Shetland Islands, Antarctica.
2. In route to the South Shetland Islands our vessel is currently experiencing good weather with a moderate sea state as we cross the Drake Passage. Our first stop once we transit the Drake will be Cape Shirreff field camp on Livingston Island.
3. Krill biomass and dispersion. During the survey active acoustic data will be collected continuously using two echosounders in hull-mounted transducers using 70, 38, 120 and 200 kHz frequencies. Data will be logged and processed throughout the survey. All equipment is functioning.
4. Krill, salps and other zooplankton. The krill survey consists of 108 net-sampling stations utilizing a standard 2m Isaac Kidd Midwater Trawl (IKMT) fitted with a 505-micron mesh net. Zooplankton samples are sorted fresh aboard the ship by a team of 8 AMLR plankton sorters. Antarctic krill (*Euphausia superba*) will be separated from the catch and enumerated, other adult and larval euphausiids, ichthyoplankton, and zooplankton material will be identified, counted and preserved. All equipment is functioning.
5. Oceanography and meteorology. During the krill survey 108 CTD casts will be conducted each to a depth of 750m. Sensors collect continuous measurements of ship's position, sea surface temperature, salinity, turbidity, fluorescence, air temperature, barometric pressure, relative humidity, and wind speed and direction. All equipment is functioning.
6. Ocean acidification. This is the first year in which US AMLR along with collaborators from PMEL (Dr. Richard Feely, marine chemist) and California State University San Marcos (Victoria Feely, biologist) will take samples to provide a baseline measure of the dissolved inorganic carbon in the South Shetland Island area. These measurements along with preservation of calcium carbonate shelled pelagic snails called pteropods will provide us with the ability to determine the impact of changing ocean conditions that are predicted to become critical over the next 10-30 years in the Southern Ocean. We expect to take a minimum of 40 samples along several transects extending from the shelf and into the Drake Passage. If possible, along the northward transit we will also take samples in the mid-Drake.
7. Phytoplankton. During the survey at every CTD station, water will be sampled for chlorophyll concentrations at a series of standard depths. In addition once a day at a chosen mid-day station four profiling instruments will be deployed measuring upwelling and down welling irradiance

and radiance, absorption and attenuation of light in the water column, photosynthetic parameters, total and dissolved iron concentrations. All equipment is functioning

8. Bird and marine mammal observations. A team of three observers collect and plot underway observations of seabirds and marine mammals during the Drake crossing and large area krill survey. They are currently observing birds during the Drake crossing as part of the international Christmas Bird count.

9. Inshore survey. At the conclusion of the large area survey a team of four NOAA/NSF scientists will conduct a high-resolution near shore oceanographic survey in the vicinity of Cape Shirreff using two specially equipped coastal vessels for the near shore areas and the ship for the offshore areas.

10. Scientific party aboard includes:

- A. Jenkins, SWFSC, cruise leader
- A. Cossio, SWFSC, acoustics, small boats
- C. Reiss, SWFSC, oceanography, acoustics
- V. Loeb, MLML, zooplankton
- K. Green, MLML, zooplankton
- K. Dietrich, SWFSC, zooplankton
- R. Driscoll, SWFSC, zooplankton
- L. Houser, NOAA Sea grant fellow, zooplankton
- K. Zaret, SWFSC, zooplankton
- K. Norton, SWFSC, zooplankton, small boats
- D. Lombard, SWFSC, zooplankton
- D. Needham, STS, oceanography, ET support, Inshore survey
- M. Van Den Berg, STS, oceanography, ET support, small boats
- C. Hewes, SIO, phytoplankton
- M. Van Ardelan, NTNU, phytoplankton
- L. Olsen, NTNU, phytoplankton
- B. Seegers, SIO, phytoplankton
- M. Cape., SIO, phytoplankton
- N. Sanchez, Universidad Austral de Chile, phytoplankton
- J. Warren, SUNY Stony Brook, Inshore survey
- M. Cox, St. Andrews, Inshore survey
- S. Sessions, SWFSC, Inshore survey
- J. Lipsky, SWFSC, lipid extractions and scat analysis
- J. Santora, CUNY, bird and marine mammal observations
- T. White, CUNY, bird and marine mammal observations
- M. Force, SWFSC bird and marine mammal observations
- A. Miller, SWFSC seabirds and zooplankton

Report submitted by AMLR researchers currently onboard the *R/V Yuzhmorgeologiya*. These reports are also posted at <http://swfsc.noaa.gov/aerd-field.aspx>.