



Winter AMLR Oceanographic Survey

Weekly Report Number 2

August 24 to August 30, 2014

The second week of the survey concentrated survey effort on the West Shelf, off King George and Livingston Islands. Weather was relatively warm with winds averaging about 15 knots, and air temperatures a balmy -8 to -10°C. Ice conditions were dominated by large expanses of small pancake ice on the shelf to the shelf break. Farther offshore, larger floes were common, many with the characteristic yellow color indicating the presence of a well-developed ice-algae community. Based on analysis of AMSR satellite data, it was clear this ice was shed from floes west of Anvers Island.

Nineteen stations were sampled on the West Shelf. *Thysanoessa macrura* was the most abundant euphausiid collected in this area and occurred at all stations. Antarctic krill were found at 58% of the stations, and were second most abundant. In contrast to the extremely high abundances of krill in the South Area (1760 krill per 1000 m⁻³), krill on the West Shelf averaged just 46 krill per 1000m⁻³. *Themisto gaudigauchii* were also abundant at offshore stations. Antarctic krill larvae were also collected on the West shelf, and samples were stored for lipid analysis as part of a study on the condition of krill during the winter period in the peninsula region.

Large numbers of Antarctic fur seals and a dozen Minke whales were observed on the West Shelf. These species were associated with ice floes that were also in areas of high krill abundance. Observers noted that ice floes offshore where fur seals were present had scats on them that were dark brown or black suggesting that animals in offshore areas were feeding on fish rather than krill.

Integrated chl-a (100m) averaged about 20 µg m² in the west area, This is about 25% higher than the values observed in winter 2013, at the same stations during the same August frame. In the Bransfield Strait, chlorophyll-a samples collected last week were about 10 µg m², intermediate between 2013 (13 µg m²), or 2012 (6 µg m²), although the number and spatial allocation of stations differed among years. These values are between 15 and 20% of the integrated chl-a values commonly observed during the austral summer. Upper mixed layer depth in the Bransfield was deeper in 2014 (116m) compared to 2013 (108m) or 2012 (92 m). On the West Shelf, the upper mixed layer depth was about 92 m in 2013, and this was significantly deeper than in 2012 (76 m).

We successfully calibrated the acoustics aboard the *RVIB Palmer*, allowing us to use the acoustic data quantitatively. This includes a 200kHz transducer provided by the US AMLR Program and installed during the recent shipyard period. Additionally, we conducted the first four of 13 planned bottom trawls with a 17ft otter trawl to collect data on the reproductive status of commercially important fish species. 338 individuals of eight species were collected. Of these, 122 were *Lepidonotthen larsenii*, and four were *Notothenia coriiceps*.

We begin sampling the Elephant Island region tonight.

Submitted by C. Reiss, Chief Scientist, on behalf of the AMLR researchers aboard the RVIB Palmer. Photos provided by AERD researcher Jen Walsh.

