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Beaufort Gyre Exploration Project: Dispatch 12: Visitors Always Welcome!

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This morning the foredeck was a flurry of activity as the BGOS A mooring was recovered. This mooring sits in the south western corner of the deep Canada Basin (75°N, 150°W), at a depth of 3824m. Because of its proximity to the shelf slope, BGOS A is in a good spot to occasionally catch eddies as they come off the shelf into the deep basin. The recovery today was a remarkable success, as well as being incredibly speedy (3.5hrs!), 100% of the instruments were collected unharmed and found to be fully operational after the 1 year deployment. The WHOI Mooring team looked rosy cheeked and quite satisfied after such a flawless recovery!

The moorings recovered and redeployed by the WHOI Beaufort Gyre Observation System group have a variety of instruments positioned along the more than 3.5 kms of wire making up the array (for more information on the specifics of the instrumentation please visit: http://www.whoi.edu/page.do?pid=66457). One of the new instruments included with last year's BGOS A mooring package was a McLean Remote Access Sampler (RAS) added by JOIS Lead Geochemist Michiyo Yamamoto-Kawai (Tokyo University of Marine Science and Technology). The RAS sampler is able to take discrete liquid samples (500 mL) from the water column and is programmed to sample every 8 days from within the surface ocean mixed layer (35m depth). This truly novel year-long time series gives Michiyo and her team a view of the seasonality of the surface ocean, including the critical time periods of freeze up and deep winter, when samples from this part of the Arctic Ocean are almost impossible to collect. Michiyo was all smiles when the RAS came up in tact - and full of samples! - during the mooring recovery this morning. She explained that this was the first time this kind of sampler has been deployed in the deep Arctic Ocean, and that having it set as shallow as 35m gave an extra worry that it could have been damaged during the winter months, as ice floes moving at the ocean surface can have keels as deep as 20m. The 48 samples collected by the RAS will now be sub-sampled by Michiyo and her student Yusuke Ogiwara to measure nutrients, salinity, alkalinity, oxygen isotopes, and barium. These samples will give some insight into the seasonal cycle of sea ice formation and melt, as well as a better understanding of how surface nutrients are replenished by deep winter mixing and later drawn down by phytoplankton in the spring as the surface waters stratify with fresh water.

With the mooring recovery and CTD/Rosette sampling at this station, there was a lot of time spent outside today, so we were thrilled when some surprise visitors landed in the calm icy waters surrounding the ship. After some head scratching and zoom-lens picture snapping, the consensus amongst the more avian-inclined scientists (and an iPhone app for the Sibley's guide to Birds) was that our visitors were Red Phalarope (*Phalaropus fulicarius*). The rarely seen Red Phalarope breed in the high Arctic over summer (May- August) and then head south to spend the frozen winters in warmer climes. They feed on tiny prey from the surface waters as they swim, paddling to stir food up from the waters below. They also make a shrill "zweet" call that reminded us of their presence while we did work off the ship's foredeck. From early this morning until late in the evening our operations were carried out in the company of our feathery visitors, with as many as 7 birds chirping and flitting about in the calm waters during our evening 3hr rosette cast. They were a much welcome addition to the backdrop of floating ice and fog.

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