**CRUISE REPORT DY13-05**

**FOCI SPRING MOORING, Gulf of Alaska & Bering Sea**

**April 29 – May 11, 2013**

Cruise was aboard the NOAA Ship Oscar Dyson sailing from Seward Alaska on April 29th and arriving in Dutch Harbor Alaska on May 11th, 2013. The following individuals represented the scientific party for this cruise. From NOAA/PMEL/FOCI Wm. Floering (Chief Scientist) Scott McKeever and Carol DeWitt. From AFSC/FOCI Matt Wilson and Kathy Mier. From Univ. of Alaska Fairbanks, Dan Naber. We were joined by a representative of the Teacher at Sea Program, Frank Hubacz.

Two 40 foot containers of scientific equipment were shipped to Seward Alaska via Carlile Shipping. The Oscar Dyson arrived in Seward at the Alaska Rail Road Pier the morning of April 24th, 2013. Prior to loading, arrangements were made to offload the previous cruise equipment including contracting a shore side crane to remove the 20 foot Radiation Van from the back deck of the Dyson. Offload, loading and fueling continued over the next 2-3 days working around the vessels 3 scheduled rest days for the crew.

Our intent was to depart at 9am on April 29th but I was informed by the vessel captain that the Newport Oregon Marine Center had required him to conduct a Safety Stand Down Day prior to departure to train and familiarize several new augmenting crew members. We left Seward around 1500 on April 29th. The first mooring location was approximately 5 hours from Seward. We could have been on station by 2000 hours but again I was told by the vessel captain that there would be no mooring operations until 0800 the next morning because of the number of new crew members in the deck department.

At 0700 on April 30th we began preparations to deploy the first of 3 Gore Point moorings. The inshore 13-GPP-32A mooring went in the water at 0826 local time in 160 meters of water. Position was 59 deg. 06.133 min. N and 151 deg. 00.195 min. W with release #32579. Working off shore mooring 13-GPP-34A went into the water at 1018 local time in 147 meters of water. Position was 58 deg. 58.128 min. N and 150 deg. 56.870 min. W with release #31347. Mooring 13-GPP-36A was the next one to go in at 1231 on the 30th local time in 182 meters of water. Position was 58 deg. 44.721 min. N and 150 deg. 51.877 min. W with release #31348. A CTD cast was completed following each deployment.

We continued west to the Kennedy entrance mooring 13-KEP-41A which was deployed at 1642 local time on the 30th of April in 194 meters of water. Position was 59 deg. 01.284 min. N and 151 deg. 54.036 min. W with release #31349. Next up is the Stevenson mooring 13-SVP-39A that went in the water 2038 local time April 30th in 122 meters of water. Position is 58 deg. 46.173 min. N and 152 deg. 15.684 min. W. with release #31242. CTD casts were completed at each site post deployment. There was an issue that came up after the deployment of the Kennedy mooring. It appears we are about 250 meters from an underwater telecommunications underwater cable. The coast guard would prefer that we were at least 800 meters away. The original selected deployment site was further away but as we searched for the proper depth we moved closer to the cable and that fact was not recognized by the bridge until well after the mooring was deployed.

From Stevenson it was a couple day steam to the Pavlof Bay mooring site, mooring 13-PA-1A. The 2012 Pavlof mooring was recovered without incident. Mooring 13-PA-1A was deployed in 102 meters of water at position 55 deg. 10.885 min. N and 161 deg. 41.157 min. W. Time of deployment was 1041 on June 2nd local Alaska time with release #30630. A single CTD cast was completed between recovery and deployment.

To allow addition time for the ice to recede from the Bering Sea mooring sites BS-2 and especially BS-4 we steamed to Unimak Pass to complete a box configuration of stations consisting of CTD casts and Bongo tows. We started at the southwest corner of the box going west, then north, then east and finally down the eastern leg to the starting point. On May 3rd the temperature sensor on the bongo FastCat for casts 6 and 7 was providing questionable data. That unit was switch out using the Dyson’s SeaCat as a backup. Things worked fine until around 3am on May 4th when the entire unit stopped working. There were multiple symptoms, blown sea cable fuse, blown input power fuse on the deck unit. The FOO was available at the time and said that the ET would not be called out to assist with trouble shooting until he starts a normal shift at 0800. The decision was made to continue the east line of stations without the bongo tows and not wait 7-8 hours for the ET to go on watch and trouble shoot the issues. Later in the day it was determined that the solution to the SeaCat and Deck unit problem was replacing both the deck unit and the SeaCat and that configuration worked until the end of the cruise. The parts that were not working were air shipped to Seattle at the end of the cruise. Upon completion of the Unimak Pass Box of stations we steamed north to the Bering Sea Mooring site 2.

Between Unimak and mooring site 2 we deployed 6 Argos tracked drifters in a box pattern. 4 were cut for a 40 meter drogue and two were adjusted to a 20 meter drogue. To time our arrival at site 2 in the morning/daylight hours we sampled 3 of the 4 box stations around site 2 before beginning the mooring recovery operations. Moorings 12-BS-2C and 12-BSP-2B were both recovered on station without incident. There was some evidence that once again our mooring had been hit by a fishing boat. 3 of the instrument frames were bent but it is not known at this time if there was damage to the instruments themselves. At 1247 local time on June 5th mooring 13-BSP-2A was deployed at 56 deg. 51.949 min. North and 164 deg. 03.424 min. West in 72 meters of water. The release number is 33946. The “Peggy” surface mooring was deployed on June 5th just before 4pm local time. Deployment position is 56 deg. 52.159 min. North and 164 deg. 03.443 min. West. The depth was 72 meters using acoustic release number 32671. We completed CTD casts before recovery and following the deployments plus the CalVets at the center station and the CTD/bongo sampling at the remaining corner station before heading north west to the Bering Sea site 4 mooring locations.

The recovery of moorings 12-BS-4B and 12-BSP-4B went smoothly as did the deployments of the two 2013 moorings. Mooring 13-BSP-4A was deployed in 72 meters of water at 1448 local time on June 6th. Position is 57.867 deg. North and 168.872 deg. West using acoustic release number 34681. Mooring 13-BS-4A was deployed at 1629 local time on June 6th at position 57.866 deg. North and 168.884 deg. West in 72 meters of water with release number 34393. CTD cast were taken before recovery and following the deployments and we completed the box of sampling stations surrounding the BS-4 mooring location. There was little or no ice visible as we worked our way around the box of sampling stations. Following the completion of the box stations we traveled northwest along the 70 meter line to see how far we could go before hitting ice. We didn’t have to go far picking up 2 stations on the 70 meter line north of the northern most corner station. It was here that we began the 70 meter line CTD and bongo sampling working north to south to mooring site BS-2.

At the end of the 70 meter line we picked up the “L” line of CTD stations that leads west then dog legs south toward the Aleutians after dropping off the shelf. We finished this line of stations with approximately 6 hours of available cruise time left on the clock, not enough time to head back to Unimak pass to pick up the missed bongo tows so we steamed for Dutch Harbor at a reduced speed arriving around 9am on the morning of June 11th.

On June 11th and 12th all the mooring related equipment that remained on the Oscar Dyson was offloaded and placed in a 40 foot container for shipment back to Seattle. This included equipment from the February S.E. Alaska cruise, the Chiniak Bay mooring cruise and the spring Gulf and Bering Sea mooring cruise.

Sampling Statistics:

Moorings Deployed 10 (including one surface mooring)

Moorings recovered 5

Argos tracked drifter buoys deployed 6

CTD Casts 75

60/20 CM bongo tows 29 ( 1 failed tow)

CalVet tows 6 (3 failed tows)

Chlorophyll samples 284, Salinity Samples 50, Nutrient Samples 564, Oxygen Samples 69, CTD DIC Samples 303, DIC Samples from the Underway Sea Water System 168

Dan Naber from University of Alaska Fairbanks ran the Oxygen samples from this cruise. The salinity and Nutrient samples will be processed at PMEL. The CTD cast sheets, vessel SCS data and abstract of station location is available on an archived data disk. Attached is a chart of the station locations.

Report completed by Wm. Floering/NOAA/PMEL/FOCI William.floering@noaa.gov