We recovered the first of three moorings today. WHOI monitors the Beaufort Gyre using a network of three (previously four) moorings that are tethered to the bottom in the same location for a whole year. At their simplest, the moorings have three main components. First, a 3,800 lb. anchor keeps the mooring in place. The anchor is attached to enough cable to reach just below the water’s surface. In the case of today’s mooring, that was around 3,500 meters of cable that needed to be reeled in! Finally, there is a large 2,500 lb. buoy that keeps the cable taut. The buoy resides at a depth of around 30 meters, which keeps the whole mooring safe from sea ice. On both the cable and buoy are numerous instruments that continuously measure different ocean parameters and save that data for the year. The star of the show is the MMP or McLane Mooring Profiler. It has a small motor that allows it to move up and down at a predetermined amount of the cable to sample Conductivity, Temperature, and Depth (those parameters that measure the "weather of the ocean"). In effect, the MMP is performing a CTD cast twice every 2 days over the deployment. This gives scientists a look into how salinity, density, and temperature change in the Beaufort Gyre over time.

There are also sensors on the mooring that measure ocean currents, dissolved CO$_2$, and pH. Dissolved CO$_2$ and pH are of particular interest because, as we release more CO$_2$ into the atmosphere, it actually dissolves into the ocean. Dissolved CO$_2$ dissociates creating carbonic acid, which causes ocean acidification. More acidic oceans are bad news for many marine creatures that create shells out of calcium carbonate.

I’ll end the science tangent here for today and get back to the news of the day. It took us about 6 hours to get the buoy, the 3,500 meters of cable, and all the scientific instruments aboard the ship. Reeling in that much cable takes time as multiple wooden spools need to be put on the winch to accommodate such a long length. In addition, the buoy and all the science instruments need to be cleaned and placed in the hold for servicing. All in all, mooring recovery is a practice in patience with a focus on taking your time and making sure each step is done carefully and safely. One must be methodical when moving thousands of pounds of equipment around and reeling in an extremely long length of cable that is under plenty of tension.

After everything was brought on board, it was time for the second half of the mooring recovering to begin, servicing the instruments. Most of the scientific instruments and the buoy will be redeployed to the same location tomorrow. And this time for two years! In preparation, the WHOI team downloaded all the data from those instruments, cleaned them, and replaced batteries. They got all that done before 9:00 p.m. Just in time to get some sleep before part two of mooring operations – redeployment. I’ll have all the details on that in tomorrow’s dispatch!