

## Beaufort Gyre Exploration Project: Dispatch 7: Tales from the Deep Sea

Judy Twedt  
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What would it be like to spend a year deep in the Beaufort Sea? Imagine being anchored to the seafloor but capable of moving up and down in the water column. You'll feel the pull of ocean currents, taste changes in the saltiness of the water as it fluctuates in height, after a big storm, with the seasons. You'll find warm layers and cold layers. If you pay close attention you'll hear when the sea ice thickens and thins; you'll feel ever so slight changes in pressure as the sea level shifts up or down. By the end of the year, you'll have lots of stories to tell.

In pursuit of these stories, we spent the better part of today recovering BGOS mooring D: a giant, buoyant yellow sphere suspended 30 meters below the surface by a tether anchored to the seafloor 3500 meters below. Instruments on this mooring have been listening and sensing properties of the sea for a year now. A bottom pressure sensor measures sea level height. Two profilers mounted on the cable run up and down the water column, measuring depth, conductivity and temperature. A current profiler sits on top of the yellow float, measuring velocities in the top 30 meters of the water column by sending out a sound signal that reflects off of particles in the water column. Similar to the way an ambulance siren changes pitch as it whizzes by due to the Doppler effect, the sound that bounces off the moving water particles also shifts. From the shifts, we learn about ocean currents.

Under damp early morning fog scientists Bill Williams and Rick Krishfield met with Captain Rothwell and the ships officers to discuss the mooring recovery. After pinning down the location of the mooring, the ship made figure eights around the site to break up the ice and make a clearing so that when the mooring is released, it will surface in open water and not get caught under ice.

With the ship on target and the deck crew in position, Rick sent a signal to release the mooring from the anchor.

Attempt one. The anchor pinged back a response that it didn't release.

Attempt two. Again, the anchor pinged back 'no release'.

Unlike surface buoys, we're not able to collect mooring data remotely. We must recover it. To our relief the bright yellow globe popped despite the error message, in open water less than 30 meters from the ship.

To get the mooring onto the ship, Kris Newhall and Kirby Vatcher were lowered in a large metal basket over the side of the boat and down near the surface, where they connected a line to the mooring so that it could be lifted onto the deck. Six chilly hours later the instruments and all 3500 meters of cable were safely recovered. Tomorrow, with a new battery and instruments, we'll return the mooring to the sea for another year of observations.

*Last updated: October 19, 2015*

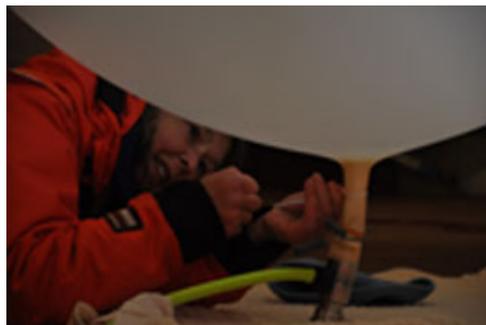
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Mail: Woods Hole Oceanographic Institution, 266 Woods Hole Road, Woods Hole, MA 02543, USA.

E-Contact: [info@whoi.edu](mailto:info@whoi.edu); press relations: [media@whoi.edu](mailto:media@whoi.edu), tel. (508) 457-2000

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