

June 21 – June 29, 2022

First off, a couple of updates on last week's report:

1. Jim Swift pointed out that closing Niskin bottles on downcasts was done regularly without problems during the TTO expedition on the R/V Knorr in 1981 and that, therefore, it is much more likely that the bottle we lost had been closed with air inside (Fig 1 - left).

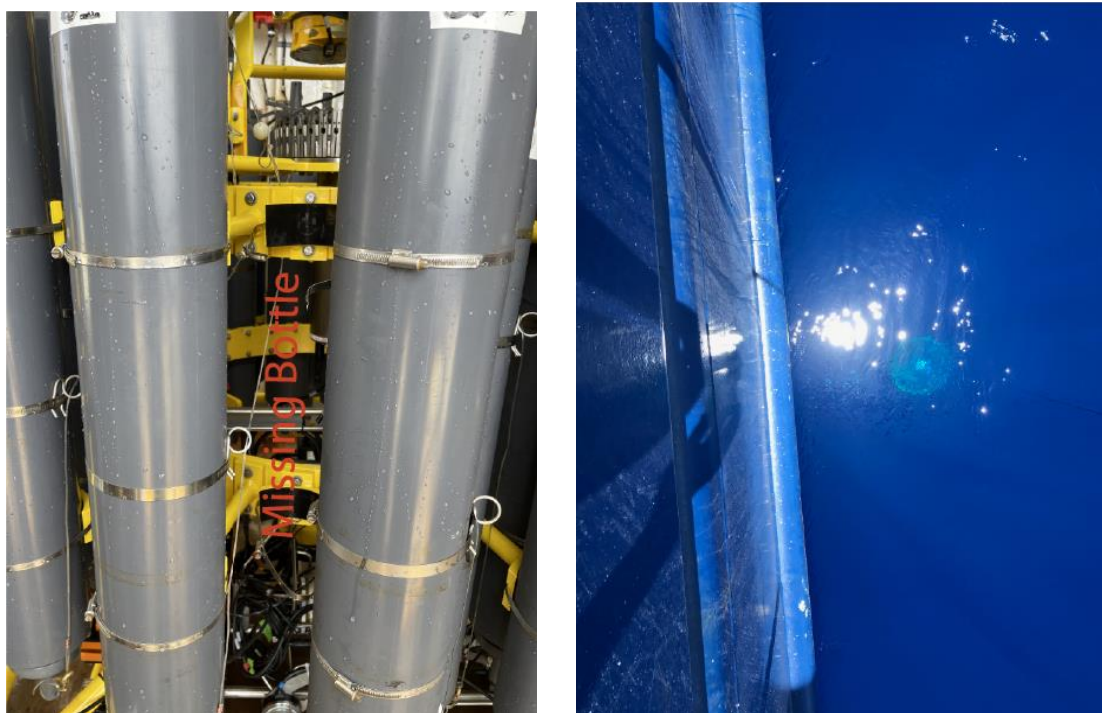


Figure 1: Left - Empty space on P02 rosette after the bottle was lost (Image credit: M. Kovatch); Right – sight! (Image Credit: A Thurnherr)

2. After much back and forth, the marginal flow rate in the underwater PCO₂ system was finally traced to an improperly manufactured piece of plumbing partially blocked by Teflon tape. After clearing the blockage, the flow immediately increased to a rate that is sufficient to provide more than adequate flow to all flow-through instruments. While the flow rate decreased again after a few days, the latter problem was quickly diagnosed as insufficient air pressure to the diaphragm pump. The system appears to be working well now.

The operations during the second week of our cruise have gone well. Shuttling the rosette between the hangar and the deck for deployment has become routine and handling the tag lines

is a welcome addition to the work of the CTD watch standers (Fig 2). Weather and sea state have remained great, with the CTD sometimes visible down to 40m (Fig 1 - right). Bottle closings have been observed at 25m and heard at 5m. At night, squid and Mahi having been hanging out almost every cast under the CTD lights.

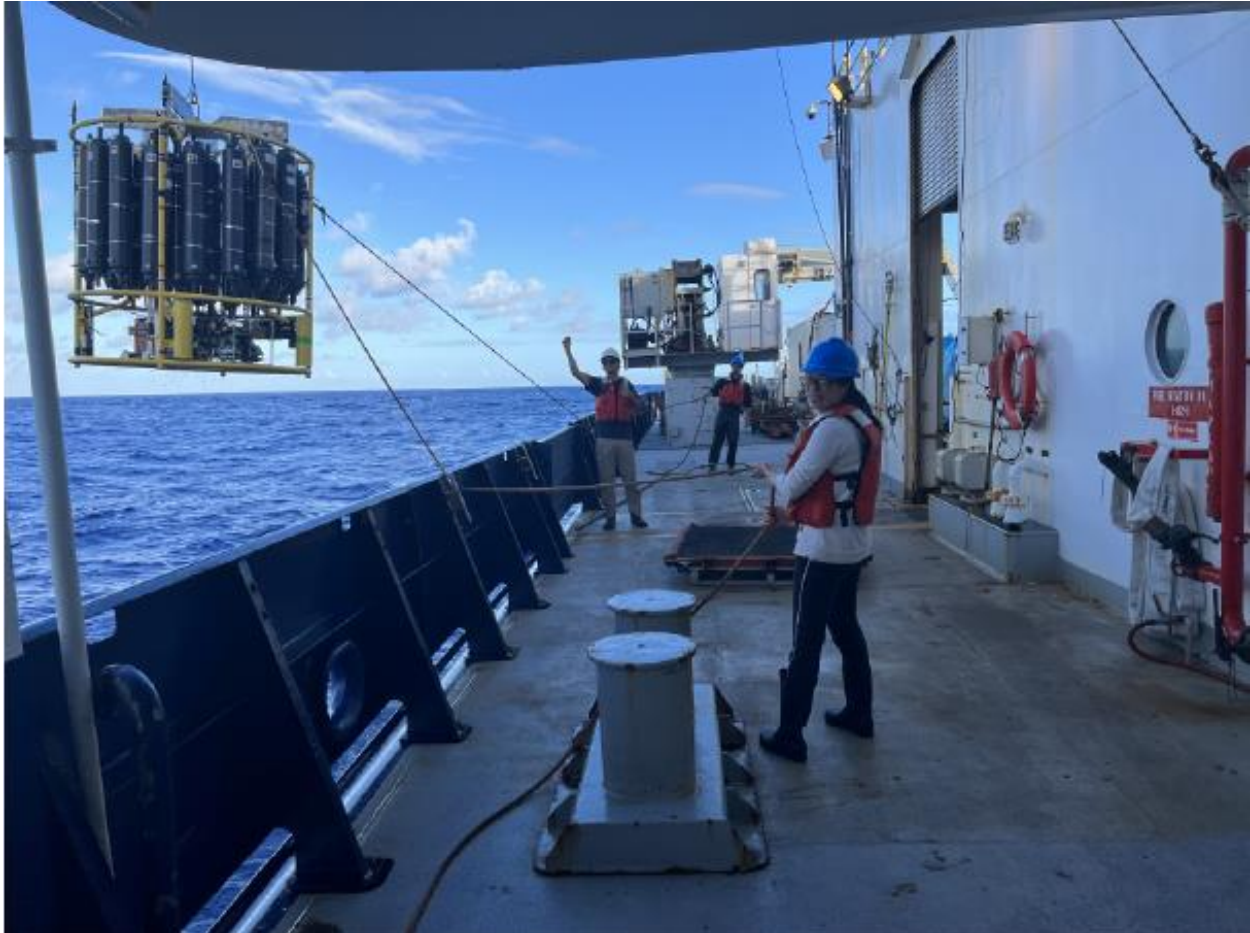


Figure 2: Deck work (Image credit: S. Bigorre)

The day before yesterday we deployed our second float, flanked by a perfect sunset and a rainbow. Pictures should appear in the blog over the next few days (<https://www.gobgc.org/expedition-logs/north-pacific-2022>).

Great weather, calm seas, as well as lack of significant technical problems mean that we have continued making excellent progress along 30N — we are now steaming toward station 157 at 138:42 W. The biggest, unexpected delay happened during profile 137/02 when a faulty keyboard on the CTD console caused 8 bottles to close in rapid succession at 350m. We repeated the upper part of the profile so as not to lose any samples. A variety of occasional problems with individual bottles have continued, including another lanyard snapping during bottle cocking. Since then, all bottle lanyards with any sign of wear, no matter how slight, have been replaced using ODF stock, since the broken lanyards were all from stock kept by the vessel.

It appears that we entered the Pacific garbage patch a few days ago. With the calm sea state, yesterday in particular there was quite a lot of floating debris at the sea surface, including a fairly large whale being picked over by birds. Too far away for photos, unfortunately.

The ping pong table in the main lab is being used a lot. Officers, crew, and scientists are in high spirits.

Andreas Thurnherr & Sebastien Bigorre
(chief and co-chief scientists)



Figure 3: Another perfect day for sampling (Image credit: A. Thurnherr)