

July 6 – July 13, 2022



Figure 1: Flying Squid (right, image credit: Andreas Thurnherr). Bioluminescence in the water on a dark night (left, image credit Turner Johnson)

First off, a note that should have gone into last week's report: On July 1 when going on deck to help recover the CTD we found a small squid on our CTD platform (Fig. 1, right). As this was the second squid that had mysteriously appeared on our deck in as many days one of the scientists decided to google "flying squid". We recommend that those of you not already familiar with *Todarodes pacificus* do the same. As we have been approaching the California coast, this week has provided lots of interesting biology. To list just a few of the observations from the last two days there have been schools of fish and squid, a small shark, and a large sun fish hanging out while recovering the CTD. Most impressively to many of us was a dark night with lots of large bioluminescing pyrosomes, which were both bright and large enough to show up in a photo taken by Turner, one of our CTD watch standers (Fig 1, left, which has been cropped but is otherwise unaltered --- if you are not impressed with this we challenge you to send us a better one of bioluminescence taken free-hand with a cell phone from the deck of a moving vessel).

This report is written with views of the coastline near San Diego, and Radio Nova playing on the speakers in the computer lab, thanks to cellphone roaming on the TELCEL network. In a couple of hours, we will put the CTD in the water to collect the easternmost CTD profile of the section (#204). The reason we are currently standing by is that due to our continued great luck with the sea state we have been able to slow down our sampling since last Friday by adding extra time between stations. The extra time, which depends on the number of bottle samples collected, has allowed the CFC and Carbon groups to analyze more samples than is usually the case when profiling in relatively shallow waters. This reduction in sub-sampling will result in a more complete data set of higher vertical resolution.

After completing the profile at station 204 we will head back out to the P2 track at the bottom of the shelf where just a couple of days ago we deployed the 4th and final float of our leg. That is also the area where we experienced the coldest sea surface temperatures during our trip (about 17°C), before a sharp increase on the shelf (21C there). We will then spend the remaining science time of the cruise by occupying a partial 2nd crossing of the California Current system in a westward direction. Assuming that our luck holds we will be able to re-occupy our previous stations out to 122:09W before having to turn around again and heading to San Diego where we are expected to tie up at around 10am on July 16.

As should be pretty obvious from this report, we are happy to report another week of calm seas and great progress. The small leak in the primary winch has been monitored carefully and is not expected to cause any problems with the remaining work. The bottle system has now also been behaving as it should. In addition to the usual games, books, movies, TV shows, the biology of the productive waters of the California Current upwelling system has kept the participants occupied during our off-watch hours.

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(chief and co-chief scientists)