

Day 38: August 23, 2010

A couple of adjustments from yesterday's email. One- it was a leatherback turtle Johnny and I saw not a loggerhead. Not sure why I miswrote it- but it was a long and trying day. Also, Juli did manage to cover all of her shifts yesterday so was not part of the confusion of missing shifts. Today, everything went extremely well despite the chaos that ensues when we encounter whales. All shifts were covered and Matt and Johnny extended our platform to the crow's nest to get a better view. We are finally in "Gulf" weather - flat and HOT.

Today arrived too early. I was up, often, late last night trying to get the software to download- ultimately it did. Then at about 8 am, Johnny woke me with the magical word "whales". Captain Bob had planned for us to wake up on whales and indeed we did. The goal was to simply keep turning the boat to keep the whale clicks loud. It worked for the most part. So we all assembled on the deck looking for the whales or the whale blows. No luck - they had disappeared. Odd because no one saw any tail flukes and they usually fluke before a deep dive.

After a little while, blows were spotted again and we were once again moving towards a whale. However, before we could get in position, the whale swam in a direction opposite to ours and while we had a good view of it, we could only watch while it swam away. Then it resurfaced again and we headed in that direction. Johnny was on the whale boom ready to sample. Rick was in the bow as his back up. Kyle was up the mast on lookout. Another team member was center of the bow ready to record the data. Juli was on the starboard rail ready to capture the photo ID picture, Rob was also starboard ready to collect the arrow with the biopsy. Matt was headed out on the whale boom attempting to get the best video angle. Bob was driving the boat and me, I was in the pilothouse doorway relaying directions provided by the team to Bob.

Just as it looked like we were not going to quite get close enough, Johnny let his arrow fly and it collected a sample. Within moments, Rob had the arrow in the net. Juli had the photo id picture taken and the data was recorded- really an excellent team effort. Have not seen Matt's video or any pictures yet- but I am sure they will be good.

For me that was simply the beginning of the work. You may recall, I am leading on the cell culture part with Matt my able assistant. With this whale biopsy it was time to go to work. It's been 12 years since my last work with a whale biopsy in culture, but it's like riding a bike. The basic process is that you cut away the blubber, cut away the skin (they go for genetics and contaminant analysis) and then mince up the interface of the two. It sounds quite easy. But really, it's a bit tricky and ON A BOAT, there is a whole new layer of complexity. The boat is rocking and rolling and everything moves. Whale skin is tough so it does not dice or mince well. Then there is the stool one sits on- also swinging with the boat. Matt watched and videoed as eventually he will do this too.

About halfway through I told Matt that we had not given Cathy near enough credit. This cell culture job is really hard and technically speaking may be the hardest to do on the

boat given the restrictions in movement you must observe in cell culture. That Cathy did it- first- before anyone else (thus had to find all the bugs in the process), that she did it alone with little help (I had Matt), in much rougher seas, in an 85-90 degree cabin (Matt and I had 74) - truly a hard earned achievement! There is a lot of work to get it all done and when we finally washed and put away the dishes. We heard those magical words again- "whales".

...and there we were again, approaching a whale, no rest for the weary. A team member went up the mast since Kyle just had a long stretch. Matt covered data because by the time we made it up from the lab, the biopsy had been taken and no video needed to be shot. Rick took the biopsy this time. Johnny was backup shooter. Juli took the photo id. Then Matt and I, once again retreated into the laboratory. It turned out this whale was the same one as the first, unfortunate, but useful.

There being no other whales, I called for us to stop and sample water. Johnny and Juli collected the water while Matt assisted in between laboratory jobs (there is about a 30 min wait period in the processing). During this wait period, I also resumed efforts to get that array software working - as I said no rest for the weary. There was a bit of a kaffuffle, when someone poured coffee into the ocean near where they were collecting water samples. But, those are the simple lessons one learns in the field- anything can happen. I have seen and corrected worse mistakes than this one, silly as it was. I suspect the sampler was deep enough that this error will not pose a problem, but if we find high levels of cocoa beans or caffeine- we will know otherwise. Nevertheless, the water was collected.

Next, Matt and I did an experiment to test the sampling procedure. We biopsied a steak and then threw the arrow in the water and then recollected the arrow and processed it for contaminants. Oil and dispersants are not normally in steak so if it shows up it will tell us that we are getting contamination from the arrow in the water. If not, then anything we see in the whale tissue will have come from the inside the whale. We of course have a piece of steak that we will measure that we did not put in the water. By about 12:30 pm, Matt and I were able to break for lunch. We were a bit jealous of our teammates who had taken the opportunity to shower or eat or nap or some combination of the three. They were right to do so as part of their routine and we harbored no bitterness as it simply was our job to do what took so long. But you do notice these things while moving in and out of the laboratory and it, again, made us appreciate Cathy's work all the more and savor the break we were now getting too. I must say that Matt really did work hard today. His rhythm he tells me is one bad day at sea and then he is fine. Yesterday, he says, was the bad day. Maybe so, but he is getting stronger each week and really striving to learn everything and take the work to the next level. I am proud of him and enjoyed having him as my trusty assistant. We accomplished a lot in a compressed amount of time, surrounded by whale chaos.

As for myself, It was good to get into the laboratory and get my hands wet. I have generally tried over the years to keep as much of the hands-on stuff for the students to maximize their training. It was like riding a bike, though I was a bit rusty and not

satisfied with some of my efforts. I am sure this leg will both refine and polish my skills and provide Matt with some new ones.

Other highlights from the day- we found a buoy, an oil boom and two Styrofoam lids - yes sometimes we do clean the ocean for macro debris too. Lots of clicks and I am closer on this array software - just not there yet. Team is in great spirits- flat water really helps.

We are also now knee deep in bananas!!! They have ripened quickly. We have frozen a bunch (no punt intended) and there are rumors of banana bread coming. Meanwhile, we monkeys eat as many as we can. By the way, thanks to Greg for the picture of all of us on the banana- it really brought some laughter into a frustrating day (yesterday). I imagine by now you can all see it on the website. It really made us laugh.

The day ended with no further whales, but Chris Gianios and Josh Jones (at Scripps) have managed to work through me to get the array software working... we think. We won't know for sure until we hear whales, which we cannot hear right now so we'll see. The daylight ended with a beautiful pink sunset in front of us and a full moon rising behind us. It was beautiful and peaceful over calm water. Amazingly relaxing after a very full day. Johnny and Matt and I headed for the bow sprit to enjoy the views and the quiet and the calm- frozen bananas in hand. Rob and Rick joined us for some good reflection and conversation.

It was a good day. It was a full day. It was a day of excellent teamwork.

John