Day 84: October 8, 2010

I have attached two more pictures showing the oil in the fish. These were taken with Johnny's phone when they processed the fish on the boat. The previous one was with my phone on the dock.

The weather was good today. But no whales. That is until late this evening when the engine blew a hole in the radiator hose. We were stopped so Bob could fix the hose. Of course then whales started clicking all over the array. Not sure we could have done much as it was 7 pm and getting dark, but it frustrated all of us not to be able to move. It reminded me of something my uncle Karl told me when I had my first car- "anytime you replace a part change the belts and hoses". Have not thought about that in years. Guess Karl was right this time. We don't have a spare radiator hose so Captain Bob is making one now. We continue to be pleased we have Bob as he is good at these types of on the spot repairs.

Alas, our oven is down too, faulty safety valve, no such part in Louisiana so Iain will have them for us at our next stop. In the meantime, the stove is fine and the microwave is also a convection oven that and we have a crockpot (thankfully Iain is a big believer in redundancy). But, we are looking for good crockpot recipes so if you have a favorite please send it to me. Alone. Please remember DO NOT HIT REPLY ALL.

The good news came out of our land lab today. Hong reports that all of the DNA samples have been extracted from the whale skin and quantitated. In addition, the PCR assay I told you about for gender id is working. She sent along a picture that I can share with you. It is attached and called "gender id test".

If you look at the picture you will see it looks like it's made out of something like gelatin. It is and it's called agarose. If you look at the top, you will see part of it is ripped off and it is not as square as it should be- that is no problem, but it help me orient you to the picture. Now, just below the top are holes that look like slots. The rip goes through some of them (the rip happened at the end so nothing was lost). These slots are where you insert the DNA. Each slot is called a "lane". You add the DNA and then you apply an electrical charge with negative at the top and positive at the bottom and the DNA being negative will move into the gel and move towards the positive end. The gel has pores in it so smaller pieces will move faster than bigger ones and so you can see different size DNA fragments.

If you look at the picture you will see that there are slots that lead into the tear. Once you have convinced yourself what a slot looks like, then look in the middle of the gel and you will see more slots only these are glowing green. These are the lanes/slots that Hong used. If you look at the first lane (we go left to right so lane one is the first on the left). You will see many glowing yellow lines or "bands". These are DNA fragments of a known size so we can compare to them to determine the size of our whale bands. We call it a ladder as it looks like rungs of a ladder to some. There is one ladder in the first lane and another in the last lane.

Now, look in the lanes in between the ladders. There you will see one lane (lane 4) that has a single glowing yellow band. This single band is a gene that all sperm whales have so this whale is a female. Now, look at the next lane (lane 5). This lane has two glowing yellow bands. One band is that same gene that all sperm whales have and the other is a gene that only male whales have so this whale is male. The other lanes have experimental controls that are boring to explain but necessary to have so I won't bother you with their details. These whale DNA samples were ones we did from whales on the last voyage so we now know we have the assay working again. The Lab will now process all of the whales' DNAs and determine the gender of each whale. Thanks Hong! And Happy Birthday!

We also had two papers just accepted by the Biochemical Society Transactions: 1. Mechanisms of metal-induced centrosome amplification by Amie L. Holmes and John Pierce Wise, Sr. and 2.Aneuploidy as an early mechanistic event in metal carcinogenesis by Sandra S. Wise and John Pierce Wise, Sr. We were very pleased by this outcome. I always enjoy publishing papers.

I did hear from our collaborators at OSS in Orono, Maine. The water samples we took in the Atlantic were clean of oil except one taken at 40 feet deep of Stellwagen bank in a marine sanctuary. Stellwagen is off of Massachusetts. That one sample had 1 part per million of petroleum products. Curious. Not sure what it means yet.

Tonight we are drifting along while Captain Bob fixes the hose. The stars in the sky are phenomenal so it's a good time to drift. We heard whales for a while so wish us luck- we may see them tomorrow.

Hope all is well on the mainland.

John