STAR 2000: McARTHUR WEEKLY REPORT
25 October 2000
Eric Archer

SCIENCE SUMMARY: 19 to 25 October 2000

The last week of this leg started out almost as uneventful as the previous, although the weather was slightly better. The sea teased us with Beaufort 3 conditions, winds dipping below 15 knots early on. As the week wore on however, we were returned to the familiar Beaufort 5/6 seas with 20 knots of wind. To add insult to injury, at times, the wind contained some, shall we say, "un-warm" droplets of the Humboldt Current as yet another wave would send sea spray over the bow into the observer's faces. But through it all, we managed what we all agree was probably our best week, all packed into two days.

On the 23rd, we came across what we thought was a simple sighting of killer whales. After following them for a while, other "Orcas", previously sighted a few miles away turned out to be pilot whales! Then some of the other "Orcas" (you'd think we'd have wisened up by now) started coming over to the ship. Of course they turned out to be bottlenose dolphins. Its important to note at this point that we actually did see real Orcas initially... really. Apparently we had come across a three species aggregation. We never saw any agressive behaviors from the Orcas to the pilot whales or Tursiops. However, it was apparent that our presence disturbed the killer whales and whereas they were spread out initially, they coalesced and were evasive during the chase.

The next day, we were treated to about three hours of action by a group of humpback whales. The whole ship got a very good show as we had whales repeatedly breaching during multiple surfacings a few hundred meters away. The only sound louder than a breaching humpback is the sound of a ship-load of shutters all clicking at once. Kudos go to the bridge team for an excellent job of maneuvering the ship during several photo passes. Our photographers were able to get a great series of shots of one fluke AND our steely-eyed Juan Carlos got a succesful biopsy from the bow. The crowning glory is that we're fairly certain that the biopsy and fluke photo are from the same animal!

As if that wasn't enough, about an hour after the humpbacks, we were treated to an extended visit by a US Navy SeaHawk. The helicopter hovered close by both sides of the ship for about 20 minutes as we checked each other out. For this aviator, it was a very memorable moment.

Almost immediately afterwards, as the day was ending, acoustics notified us that they had started to hear sperm whales; not just a few, but a lot. We only had about an hour before sunset, so we weren't very optimistic that we'd a) be able to see them, or b) if we saw anything, be able to catch it. Just as we were discussing our options, the whales began surfacing about a mile away from the ship. We ended up being able to get a few hundred meters away from several groups, do a few photo passes, and get some great video. Our day was made...our leg was made. We can enter Peru with our heads held high.

ACOUSTICS SQUEAKLY REPORT: (Shannon Rankin and Ann Chen)

This week has been a sperm whale gala for acoustics, with sperm whale encounters nearly every day. We started the week off with an individual that was beamformed to a location that was directly on the trackline... after having passed over the incredibly loud repetitive clicks of the animal, we turned to attempt to locate and photo the whale. The animal had indeed surfaced, however it dared to appear over a mile from where we (acoustics) had located it. The punishment for my overconfidence in our beamforming abilities was the unfortunate loss of my beamforming priviledges. Day two was a diversion from the sperm whale norm, with a day FULL of common dolphin vocalizations. The observers were able to locate several of these schools despite inclement weather. Unfortunately, without my beamforming super-powers, we were unable to distinguish distinct schools or subgroups of delphinus. Regardless, our consensus was there there were A LOT of common dolphin groups in the area. Another high point of the week were the vocalizations from the mixed species group of killer whales, pilot whales, and bottlenosed dolphins. All three of these species make some incredible vocalizations, and all three of them blessed us with some of their finest. To end the week, we had possibly the single most incredible sperm whale acoustic encounter I have ever had. There were so many clicks that our computer screen was almost a solid white, all of the clicks meshing together to blur any distinction between individual clicks. Of course, I would never talk numbers, but.....can I say A LOT????

BIRD SUMMARY: (Brett Jarrett and Chris Hoefer)

This week while entering the western boundary of the Humboldt Current, we recorded our first Hornby's Storm-Petrel 780 nautical miles off the Peru coast. Leach's and Galapagos Storm-Petrels have been our most abundant birds while several new species encountered n the colder waters include DeFillipe's and White-Chinned Petrels, Buller's, Waved, Salvini's and Chatham Island Albatross, Southern Giant Petrel and Chlean Skua along with high numbers of Markham's and Hornby's storm-petrels. Swallow-tailed gulls have been a regular visitor to the evening dipnetting station and even presenting some good photo opportunities.

SIGHTINGS AND EFFORT SUMMARY FOR MARINE MAMMALS: 19 - 25 October 2000

101900 0648 S09:19.98 W092:51.82 100.8nmi 4.0
1736 S09:12.97 W091:03.73

102000 0652 S09:26.78 W090:16.49 94.2nmi 4.4
1813 S10:30.03 W088:48.72

102100 0632 S10:55.78 W088:01.93 97.4nmi 4.3
1753 S11:57.08 W086:31.78

102200 0626 S12:19.44 W085:48.83 114.6nmi 5.0
1802 S12:21.05 W083:48.88

102300 0614 S12:25.11 W082:58.99 87.7nmi 4.8
1752 S12:28.46 W081:18.67

102400 0610 S12:31.49 W079:48.11 60.2nmi 4.8
1726 S12:38.80 W078:29.63

Code	Species	Tot#
99	Balaenoptera borealis/edeni	2
72	Balaenoptera edeni	1
17	Delphinus delphis	5
76	Megaptera novaeangliae	1
37	Orcinus orca	1
46	Physeter macrocephalus	2
02	Stenella attenuata (offshore)	1
03	Stenella long. subsp.?	1
18	Tursiops truncatus	5
49	unid. ziphiid	1
61	Ziphius cavirostris	1
77	Unid. dolphin/porpoise	2
79	Unid. large whale	1
OTHER		4
TOTAL		28

Common dolphins 0
Spotted/spinner 0
Blue/humback wh. 1
Other delphinids 1
Other cetaceans 1

BIOPSY SUMMARY: (Juan Carlos Salinas)

Species	Number of Samples	Cumulative Total
Balaenoptera edeni	0	1
Globicephala macorhynchus	0	7
Stenella attenuata graffmani	0	1
Stenella attenuata subsp.	0	1
Tursiops truncatus	0	14
Megaptera novaeangliae	1	1
Grand Total	1	24

35mm PHOTO SUMMARY: (Paula Olson)

Species	Number of Schools/Individuals	Cumulative Total
Delphinus delphis	1	5
Stenella attenuata	0	7
Stenella attenuata graffmani	0	1
Stenella longirostris (SW)	0	7
Stenella longirostris (whitebelly)	0	1
Stenella coeruleoalba	0	2
Tursiops truncatus	0	2
Grampus griseus	0	1
Globicephala macrorhynchus	0	3
Indopacetus pacificus	0	1
Orcinus orca	1/3	3
Balaenoptera edeni	0	2
Physeter macrocephalus	1/1	2
Pseudorca crassidens	0	1
Megaptera novaeangliae	1/1	1
Grand Total	4	39

OCEANOGRAPHIC SUMMARY: (Dagmar Merkle)

On finally entering the coastal waters off Peru (Which according to Wyrtki, 1967 and I quote " Upwelling along the coast of Peru is probably the strongest anywhere in the ocean") it's quite disappointing to note that the coldest the water temperature reached

was18.47ø C. What happend to the cold nutrient rich water that upwells to support large phytoplankton blooms. To say the least I'm quite disappointed.

Chlorophyll values seem rather low with no real chlorophyll max to speak of. This could be due to the overcast conditions we have been experiencing of late, limiting light intensity. The daily surface chlorophylls show that there has been a continuous increase in chlorophyll values as the day progresses with the late afternoon value being the largest. These values are still overall relatively low.

Salinitys have been fairly constent over the last few days staying around 35.33 ppt.

Sample	This Week	Total
CTDs	11	137
XBTs	12	221
Manta Tows	6	69
Ring Net Tows	0 (out of survey area)	32
Bongo Tows	6	70