STAR 2000: McARTHUR WEEKLY REPORT
11 October 2000
Eric Archer

SCIENCE SUMMARY: 5 to 11 October 2000

Since leaving Puntarenas, the weather has been fairly cooperative. On our run to the southwestern corner of the survey area, we started with Beaufort 1 to 2 seas which later increased to 4 to 5. Luckily however, we haven't had any major precipitation or storm activity to speak of. Passing through the ITCZ, we were treated to a few light rain showers and mistings here and there, taking us off effort for 10 to 15 minutes at the most. We've had a trailing current most of the time which has been speeding us down the trackline.

Most of our sightings this past week have been of striped, bottlenose, and common dolphins. We've also seen a few schools of pilot whales and Risso's dolphins, each often mixed or associated with bottlenose dolphins. Our sighting rates have dropped since we passed the boundary of the core area at 5N. However, the behavior of many of the schools has noticeably changed. Whereas we had common dolphins on the bow in the core area, they are now more evasive and running from the ship. The observers are having a difficult time getting a good look at anything but disappearing flukes.

We also had a sighting of some Brydes or sei whales that weren't being very cooperative in our attempts to close in on them, even after spending about an hour trying to get better looks. However, they couldn't hide from the watchful ears of our acoustic team. They appeared very excited and were vocalizing throughout the sighting. Oh, and the whales were making some noises too.

Our biggest highlight however, was Wednesday's sperm whale sighting. Acoustics picked up some submerged animals first. But not to be outdone, the visual observers were soon on them as well. We ended up being in the middle of a dispersed group of asynchronously diving whales. The small boat was launched to try to get biopsies and photos. Acoustics and observers on the flying bridge worked well together to help position the small boat. After about an hour, one whale was approached and photos were taken, but the biopsy attempt was unsuccessful. As the whales were too spread-out and surfacing far from the small boat, we decided not to pursue a second opportunity. On a personal note, my congratulations goes out to everyone involved, from the scientific party to the command and crew of the McArthur for the first full-fledged sperm whale operation of the cruise. The focus on coordination and teamwork made it go exceedingly smoothly. Nice job all around!

Epilogue: Wednesday night, three large (~1.5 - 2 meters) squid were caught during fishing at the CTD station. Sperm whales during the day, large squid at night. hmmm. It's nice when these things work out like they're supposed to.

ACOUSTICS SQUEAKLY REPORT: (Shannon Rankin and Ann Chen)

I am pleased to announce that not only is acoustics up and running, but that we have had a successful week. We obtained recordings from bottlenose, common, striped and spotted dolphins, in addition to pilot whales, sperm whales and Bryde's whales. Unfortunately, many of the vocalizations recorded were from mixed species schools, which are problematic for acoustical analysis.

In comparing the observer sightings with our own, we have had surprisingly few distinct dolphins schools that were not sighted by the observers (3 for the week, compared with an average of 14 for Leg 1). It is also interesting to note that as we crossed equatorial waters, we typically did not hear dolphin schools until after the observers had located the school and we had approached within a close distance to the animals. Are the animals not vocalizing to the degree we had observed previously? Are oceanographic features hindering our ability to detect distinct schools at a distance? Or are the observers finding all the animals within a few miles of the trackline? It will be interesting to observe this trend as we go through different waters and dolphin stocks.

The acoustics highlight (in addition to the miracle of a functional array) were the Brydes' whale vocalizations recorded by a sonobouy on Monday (2 sonobouys attempted, 1 was functional). In addition to the low frequency moans typically recorded, we obtained downswept sounds (250 - 100 Hz) in groups of three. These sounds occurred with the low frequency (37 Hz) moans. These sounds have not been previously recorded in the presence of bryde's whales in this series of cruises.

BIRD SUMMARY: (Brett Jarrett and Chris Hoefer)

Bird flocks this week have produced high numbers of dark morph Red-footed Boobies with about 5 to 10% being white morphs. Also making a welcome return were small numbers of Nazca Boobies.

As we passed by the northeast to southwesterly track of the Galapagos area, about 20 Swallow-tailed Gulls were sighted in the dim wee hours before sunrise and then again in the early evening.

Once past the equator Markham's Storm-petrels made a brief appearance in small numbers. Other notables this week have been Dark-rumped and Parkinson's Petrels, Red-billed Tropicbirds, Magnificent Frigatebirds, Parasitic, Long-tailed, and Pomarine Jaegers.

Two interesting behavioral notes this week include a feeding and drinking Markham's Storm-petrel and a Brown Booby pursuing in typical parasitic fashion a Red-footed Booby and successfully talking it out of keep its very large flying fish.

SIGHTINGS AND EFFORT SUMMARY FOR MARINE MAMMALS: 5 - 11 October 2000

100500 1202 N09:38.04 W084:42.62 39.0nmi 1.9
1630 N08:54.13 W084:31.41

100600 0552 N07:40.06 W084:33.88 79.1nmi 1.9
1732 N07:02.29 W086:16.73

100700 0643 N06:30.30 W087:31.65 82.9nmi 2.2
1826 N05:44.49 W089:08.49

100800 0642 N04:58.34 W090:03.81 117.4nmi 4.2
1629 N04:22.02 W091:40.66

100900 0707 N03:08.41 W092:55.11 122.7nmi 4.6
1804 N01:34.89 W094:18.69

101000 0724 N00:57.36 W094:52.13 51.6nmi 4.0
1830 S00:04.88 W095:39.79

101100 0718 S01:02.54 W096:39.50 60.8nmi 3.2
1900 S02:08.87 W097:35.80

Code	Species	Tot#
99	Balaenoptera borealis/edeni	1
17	Delphinus delphis	7
36	Globicephala macrorhynchus	4
21	Grampus griseus	3
46	Physeter macrocephalus	1
02	Stenella attenuata (offshore)	2
06	Stenella atten. graffmani (coastal)	2
13	Stenella coeruleoalba	9
18	Tursiops truncatus	8
61	Ziphius cavirostris	1
77	Unid. dolphin/porpoise	7
78	Unid. small whale	2
98	Unid. whale	2
OTHER		2
TOTAL		51

Common dolphins 4
Spotted/spinner 0
Blue/humback wh. 0
Other delphinids 2
Other cetaceans 2

BIOPSY SUMMARY: (Juan Carlos Salinas)

Species	Number of Samples	Cumulative Total
Balaenoptera edeni	0	1
Globicephala macorhynchus	0	7
Stenella attenuata graffmani	1	1
Stenella attenuata subsp.	0	1
Tursiops truncatus	11	14
Grand Total	12	24

35mm PHOTO SUMMARY: (Paula Olson)

Species	Number of Schools/Individuals	Cumulative Total
Delphinus delphis	4	4
Stenella attenuata	0	6
Stenella attenuata graffmani	1	1
Stenella longirostris (SW)	0	7
Stenella coeruleoalba	1	2
Tursiops truncatus	0	2
Grampus griseus	0	1
Globicephala macrorhynchus	0	3
Indopacetus pacificus	0	1
Orcinus orca	0	2
Balaenoptera edeni	0	2
Physeter macrocephalus	1	1
Pseudorca crassidens	0	1
Grand Total	7	33

OCEANOGRAPHY SUMMARY: (Dagmar Merkle)

The past week saw us crossing the equator for the third time, all be it further inshore. Since leaving Costa Rica there has been a steady decrease in water temperature (from 27.91øC to 21.55øC) and a slight increase in salinity (from 32.47ppt to 34.81ppt). The equatorial front is very prominent with a temperature drop from 24.78øC [north of the equator] to 21.00øC [south of the equator] over a very short period of time. Salinity increased from 33.91ppt to 34.71ppt over the same period.

The Chlorophyll data shows a definite chlorophyll max ranging between 30 to 40m during the morning CTD's and 40 to 60m during the evening CTD's. While the surface chlorophylls seemed to increase as we got nearer to the equator.

Sample	This Week	Total
CTD's	14	111
XBT's	22	188
Manta Tows	7	56
Ring Net Tows	7	31
Bongo Tows	7	57