STAR 2000: McARTHUR WEEKLY REPORT
10 August 2000
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SCIENCE SUMMARY: 3 - 9August

Week 2's report begins with the weather news. Early in the week, tropical storm Fabio (yes, ...Fabio), gave us a scare and prevented our south and west progression, forcing us to divert north and east. Wild rumors began to circulate about a port call in central America (instead of our planned Honolulu stop), but fortunately, the storm progressed as forecast onward to the west and we began our southward steam once again. Before we had fully relaxed from the Fabio scare though, tropical storm Gilma (who names these storms...?) threatened our path; initial advice from the mainland: "Go East!" ... but a few hours of careful calculations led us (and our terrestrial guardians) to believe that we might just squeeze in front of the storm before it blocked our path. Sure enough, the morning of 7 August found us threading the eye of the needle, between the circles of influence of Fabio, 400 nm to our west, and Gilma, 400 nm to our northeast. Amazingly, the weather we have been experiencing has been ...kind of glorious (see the average sea state conditions below): seas a bit lumpy, perhaps due to the distant storms, but wind low, skies with scattered clouds and lots of sun. We reached our 9N 125W waypoint just at sunset 9 August with absolutely no sign of the ITCZ.

After a week of rather desert conditions for animals, ... we were still in a desert. Seabird data printouts for each day were far less than a single page (5 or 6 birds recorded all day....); mammal sighting totals were low (1 to 2). Finally, late in the week, animal abundance increased considerably. As of this writing, we have had two nine-cetacean-sighting days, and fair numbers of seabirds, including multispecies feeding flocks. Also a surprising number of turtles recorded on the afternoon of 6 August (due to nice sighting conditions or is this really a turtle hotspot?). Firsts for the trip have begun to pile up: first wahoo (Leroy Jordan again!), first flyingfish caught with a dipnet (finally James....), first successful XBT launch (another miracle performed by our ET and excellent survey tech), first SW (Marquesan-type) spinner dolphins (at 12N and with a school of striped dolphins!).

Two events deserve special mention. On 3 August, we sighted a striped dolphin school first thing in the morning; moments later we confirmed that killer whales were amongst them. Although we anticipated predatory behavior, the action calmed when we steamed onto the scene. After our data were collected from the dolphin school, we turned to try for photos and biopsy samples from the killer whales. Just as we were losing hope of closing on these aloof animals, a big male and female came right over to the ship. The crew and officers went wild (OK... so did the scientists) and we obtained great looks, quality photos, and a clear view of Vaquita Vazquez' biopsy dart hitting the male squarely below the dorsal fin. There followed outstanding ship maneuvering and sighting performance as we searched for bolts amidst a sea of waves, then recovered our visual aid floats and two biopsy bolts. (Unfortunately, this male had a tough hide and we obtained no sample.)

And the second, on 7 August we encountered a huge log the better part of an entire tree. Juan Fernandez Petrels were buzzing above it, so we pulled in the acoustic array and risked the announcement "Fishermen! A huge log is coming!" and crossed our fingers for successful sampling. Shortly afterward we left the scene with 19 mahi, 3 yellowfin tuna, and a messy but ecstatic ship's complement.

ACOUSTICS SQUEAKLY REPORT: (JAY BARLOW)

The squeaks are back. The acoustic team has now actually heard some of the same dolphins that observers are seeing. We are commonly picking up whistles at 6 nmi range now. Ishmael (our whale-finding software) is routinely estimating bearing angles to dolphin whistle sources (repeatedly, within 1-degree). We often have two acoustic detections working at the same time. We don't understand which factors are most important for the greater number of whistles compared to a week ago. We are certainly in an area with higher dolphin density. Also, that last couple of days has been calm, Beaufort 2 conditions with little background noise. Also, the oceanographic conditions may be more conducive to near-surface sound propagation. However, my favorite interpretation is that the observers have stopped turning down our volume knobs whenever we're not looking. The observers are very certain of their job security.

This week we dropped 3 sonobuoys on a pint-sized Bryde's whale; one actually worked and we got recordings of 5 low frequency moans (42 Hz for 2 seconds each). The sounds were so powerful that we could discern the echos after the sounds traveled to the bottom of the ocean (3900 meters) and back to the surface TWICE! These bottom bounces will allow us to accurately estimate the distance from the whale to the sonobuoy, and will therefore allow us to estimate absolute source levels of the signals (never before done for a Bryde's whale).

SIGHTINGS AND EFFORT SUMMARY FOR MARINE MAMMALS: 3 - 9 August

Date	Start/Stop Time	Lat	Long	Total NM	Av. Beaufort
080300	0702	N19:45.16	W123:11.20	82.1 nmi	3.3
	1929	N19:26.85	W121:42.00		
080400	0644	N20:02.19	W120:43.00	22.3 nmi	5.8
	1849	N21:38.81	W119:23.60		
080500	0631	N22:15.65	W118:23.34	136.4 nmi	3.6
	1933	N20:00.40	W119:05.95		
080600	0642	N18:41.59	W119:31.37	95.4 nmi	2.5
	1906	N16:59.20	W120:12.21		

080700 0648 N16:03.82 W120:47.68 90.1 nmi 3.8
1933 N14:33.96 W121:43.38

080800 0654 N13:29.74 W122:16.56 126.0 nmi 4.8
1934 N11:33.23 W123:20.28

080900 0705 N10:34.75 W123:56.50 94.0 nmi 2.7
1939 N09:04.17 W125:00.36

CODE	**SPECIES**	**TOT#**
002	Stenella attenuata (offshore)	5
010	Stenella longirostris orientalis	1
011	Stenella longirostris (whitebelly)	3
013	Stenella coeruleoalba	9
015	Steno bredanensis	1
018	Tursiops truncatus	4
021	Grampus griseus	1
034	Globicephala sp.	1
037	Orcinus orca	1
049	ziphiid whale	2
072	Balaenoptera edeni	1
077	unid. dolphin	6
079	unid. large whale	1
101	Stenella longirostris (southwestern)	1
	TOTAL	37

COMMON DOLPHINS 0

SPOTTED/SPINNER 10

BLUE/HUMPBACK WH. 0

OTHER DELPHINIDS 23

OTHER CETACEANS 4

BIOPSY SUMMARY: 3 - 9 August

Number of Samples /CumulativeTotal

Grand Total 0 /0

The totals in no way represent the skill of our biopsy team...!

35 mm PHOTO SUMMARY: 3 - 9 August

Number of Schools Photographed / Cumulative Total

Stenella attenuata 1 / 2

Stenella longirostris 3 / 3

Stenella coeruleoalba 1 / 1

Tursiops truncatus 1 / 1

Grand Total 6 / 7

OCEANOGRAPHIC SUMMARY: 3 - 9 August

This Week / Total

CTDs 14 / 24
XBTs 23 / 23
Manta Tows 7 / 12
Ring Net Tows 5 / 9
Bongo Tows 7 / 12