STAR 2000: McARTHUR WEEKLY REPORT
17 August 2000
Lisa T. Ballance

SCIENCE SUMMARY: 10 - 16 August

For the third week in a row, the weather is big news. During the past seven days, we have covered over 1300 nautical miles in the deep Pacific, moving from 13.5N to 4N, and 125W to 140W ... and the weather has been no less than stunning. Particularly surreal was the morning twilight of the 12th, which found us floating on a mirror sea with pastel colors spreading from the horizon upwards to cover the stars until the sun rose with a green flash. That day continued on with Beaufort 1 conditions right through to sunset. On the 13th of August, we finished our fifth straight day of winds below 10 knots and sunshine. Despite the fact that we have traversed the supposed axis of the ITCZ, it has been nowhere in sight. Surface waters have been high, almost reaching 30 C on 11 August. Finally, on the 14th, we lost our no-whitecap conditions and returned to the more typical Beaufort 4/5 conditions, still quite tolerable.

Cetaceans out here have been interesting. Blackfish have been particularly prevalent; we have recorded them on six of the seven days covered by this report. We are also seeing mixed schools of spotters and spinners with birds just about every day; many of these schools are "well behaved" -- jumping in synchronous groups in front of the ship and giving observers (and sight-seers) a good look. Patchy is the message of the week. When we are seeing animals, they tend to be clumped and abundant. Not a new lesson, of course, but strongly reinforced to us these last few days. Case in point, 10 August we had nine sightings, piggybacked one upon another. The 12th was one big day of "patch" that day we had eighteen sightings, one right on top of the next. That day, the green flash sunrise, Beaufort 1 day, was also Richard Rowlett's Birthday; he was overheard saying that he couldn't recall spending a finer day at sea in his entire life. But there was yet more to come.

The biggest news of this week may very well turn out to be the biggest news of this leg. On 15 August we were working a sighting of pilot whales when there appeared in their midst a different animal it was none other than Indopacetus pacificus (if Pitman et al. 1999 are correct that the tropical bottlenose whale is in fact this species). Despite the Beaufort 5 conditions, swell that conformed perfectly to the maximum roll factor for the McArthur's hull shape, and the dinner hour, we stayed with these animals for almost 3 hours (our formal apology and gratitude goes out to the steward's department!). We promptly planted Ernesto on the bow with his crossbow for the entire time but were unable to get near enough to even try a shot. Nevertheless, we did obtain dive and surface intervals, photos, spectacular video (which has been reviewed a number of times since!), and the first acoustic recordings ever of this species (see Jay's squeakly report below). Richard has now filled out the first SWFSC sighting form with this species' name on it ... working it to a state of perfection until 0100 the next morning and now claims he will never use that pencil again.

A few more notes of interest: seabirders record a single flock containing Black-wing, White-wing, and Herald petrels; magnificent white-tip shark accompanied by four pilot fish appears at an evening dipnet station giving all a good look; small boat operations fail for pilot whale biopsy samples (animals are too spooky) but give us an opportunity to calibrate the laser sights on the crossbow; the good weather makes for social hour on the fantail during the evening CTD and dipnet station when also occurring are cribbage lessons, squid jigging lessons, and swing dance lessons; repeated barbeques on the fantail featuring mahi and other side dish delights mean weight gain per person this trip stands at 8 pounds ... and gaining!

ACOUSTICS SQUEAKLY REPORT: (JAY BARLOW)

We had another busy week on the acoustic frontier, recording a species that has probably never been recorded before. Yes, we are convinced that we have Indopacetus in the "can". It was a difficult case to make convincingly, because of the presence of pilot whales among the group. However, we isolated two sounds that we have not previously recorded from pilot whales: regular (sperm-whale-type) clicks with a period of 5 per second and very high frequency whistles, starting (!) at over 30 kHz. Our week began less auspiciously, with a total system meltdown. We lost one hydrophone element and 3 computer systems within 24 hours. The hydrophone loss was apparently caused by a broken wire within the tow cable. The break was probably caused by turning too sharply while retrieving the array, and we have subsequently modified protocol to avoid retrieval when we are turning. Fortunately, we were able to hot-jumper to another, unused wire and are back to having 5 functional hydrophones. ISHMAEL software updates were received this week from Dave Mellinger, and the computer systems appear to be functioning now with only occasional crashes. We also got great recordings this week of pilot whales, rough-toothed dolphins, and striped dolphins. We received lots more of the 42 Hz tones from a sonobuoy drop on Bryde's whales. Our localization of dolphins in real-time with beamforming is truly groundbreaking (or waterbreaking?). We have found that with pilot whales and striped dolphins, there are often subgroups that are acoustically detected but not seen. Of course, we still cannot say how many there are. Jim says he can tell more about dolphin schools than we can without leaving his bunk. Richard claims job security, again.

SIGHTINGS AND EFFORT SUMMARY FOR MARINE MAMMALS: 10 - 16 August

Date Start/Stop Time Lat Long Total NM Av. Beaufort

081000 0615 N09:37.82 W125:54.03 80.2 nmi 2.7
1821 N10:36.21 W127:22.72

081100 0624 N11:09.36 W128:23.02 78.6 nmi 2.1
1831 N11:58.36 W129:42.22

081200 0634 N12:34.80 W130:41.35 60.0 nmi 1.4
1840 N13:26.57 W131:58.85

081300 0635 N12:40.62 W132:26.43 93.3 nmi 2.0
1901 N10:56.13 W132:40.56

081400 0641 N09:40.41 W132:58.60 116.9 nmi 4.1
1902 N07:56.54 W133:42.31

081500 0653 N07:20.38 W134:40.87 69.6 nmi 5.0
1852 N06:40.87 W135:44.76

081600 0707 N06:03.30 W136:50.52 97.9 nmi 4.0
1923 N05:08.63 W138:05.28

CODE	SPECIES	TOT#
002	Stenella attenuata (offshore)	11
011	Stenella longirostris (whitebelly)	10
013	Stenella coeruleoalba	5
015	Steno bredanensis	3
017	Delphinus delphis	1
018	Tursiops truncatus	9
021	Grampus griseus	5
032	Feresa attenuata	1
033	Pseudorca crassidens	1
034	Globicephala sp.	3
036	Globicephala macrorhynchus	3
048	Kogia sima	5
049	ziphiid whale	2
051	Mesoplodon sp.	1
061	Ziphius cavirostris	1
065	Mesoplodon pacificus	1
072	Balaenoptera edeni	3
077	unid. dolphin	7
096	unid. cetacean	1
098	unid. whale	2
099	Balaenoptera borealis/edeni	1
TOTAL		76

COMMON DOLPHINS 1
SPOTTED/SPINNER 21
BLUE/HUMPBACK WH. 0
OTHER DELPHINIDS 37
OTHER CETACEANS 17

BIOPSY SUMMARY: 10 - 16 August

Number of Samples / Cumulative Total

Grand Total 0 / 0

35 mm PHOTO SUMMARY: 10 - 16 August

Number of Schools/Individuals

Cumulative /Total

Stenella attenuata 2 / 4
Stenella longirostris 2 / 5
Stenella coeruleoalba 0 / 1
Tursiops truncatus 0 / 1
Grampus griseus 1 / 1
Globicephala sp. 2 / 2
Indopacetus pacificus 1 / 1
Grand Total 8 / 15

OCEANOGRAPHIC SUMMARY: 10 - 16 August

This Week / Total
CTDs 14 / 38
XBTs 28 / 51
Manta Tows 7 / 19
Ring Net Tows 0 / 9
Bongo Tows 7 / 19