

## **STAR 2000: DAVID STARR JORDAN WEEKLY REPORT**

12 October 2000

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### **SCIENCE SUMMARY: 5 - 11 October**

We departed from Puntarenas, Costa Rica, on 5 October, right on time, all repairs successfully completed. The McArthur led the way out of the Gulf and headed southwest toward the distant Humboldt Current; we followed but our track took us to the southeast along the coast. A few hours later, the McArthur disappeared over the horizon; we will see her again on 9 December in waters offshore of San Diego at the end of the project.

The Jordan has been in green water all week, the first two days in shelf habitat of Costa Rica and Panama. These days we were pleasantly surprised to find that among the most numerous of cetaceans were cow/calf pairs of humpback whales, seven in two days, including two pairs with escorts. These must be Southern Hemisphere whales, come to the tropics to calve and mate. Our permit does not allow biopsy samples from cow/calf pairs but we did obtain good identification photographs and one extremely active pair left awed small boat occupants and sloughed skin for our molecular ecology group. We also sampled the escort. Our transit offshore was a textbook example of habitat gradient and accompanying faunal changes, from bowriding coastal spotted and bottlenose dolphins less than 10 nm from shore in 75 meters of water, to killer whales mid-shelf, on to pilot whales at the shelf break and finally Mesoplodon, common, and striped dolphins at the end of the day, some 100 nm offshore and in several thousand meters depth. It was on this day that our oceanographer ran up to the flying bridge with news of a sharply shoaling and thick scattering layer just as we encountered a dispersed assemblage of false killer whales accompanied by dozens of endangered Parkinson's Petrels and surface-raffing sailfish which swam slowly side by side in groups of 5-8 animals; we passed bunch after bunch after bunch. Offshore for most of the rest of the leg, we have so far remained in waters with high surface chlorophyll. Not surprisingly, common dolphins have been regularly sighted, a veritable pile-up of them on one day, accompanied by large and speciose bird flocks (hundreds of individuals and 12 or so species), and hundred-pound tuna catapulting out of the water in pursuit of prey. Then, suddenly, cetaceans and seabirds dropped out of the picture; the green water remained. At the end of the week we sighted four Balaenoptera including a sunset sighting of a blue whale just as we approached 9N and 90W, the nominal geographic center of the Costa Rica Dome.

Flyingfish have been the center of much attention. We are sailing this leg with visiting scientist Dr. Nathan Lovejoy of U.C. Berkeley/University of Manitoba, who will collaborate with Robert Pitman in phylogenetic studies of this group. Early in the week master craftsman Raphael Guillen was kept busy making a flyingfish photo box, which has been used on all kinds of freshly-captured specimens since. Dipnetters have been avidly seeking their specimens during evening, and morning stations (the latter manned by an all-female crew which is decidedly outperforming their evening counterparts to date), aided by first engineer Noah Gomes who pointed out a valuable Cypselurus callopterus one evening.

Other news of note: oceanographer Ron Dotson has mastered "Ocean Data View" and is now producing all kinds of color plots which show the geographical distribution of physical and biological parameters for the cruise to date, causing much speculation about patterns they reveal; the small boat brings back nine turtles on one day when adults are abundant but juveniles lacking (an interesting contrast to coastal sections of southern Mexico last leg); skies clear enough for three helicopter flights, a calibration school, and help from the air in finding a whale shark for a valuable biopsy sample; Dr. Lovejoy becomes a small boat convert; Michael Force learns Vedit; Mongolia night is enjoyed by all while watching a tape of the Olympics considerately sent to the ship by our Captain's father.

A final note for the week: we are missing our Chief Boatswain who has left us this leg to travel to Washington, D.C. for his Department of Commerce Bronze Medal award. The ship is not the same without him but this ship's amazing deck department are keeping us well supplied with their usual easy competence in all things deck department-related.

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

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

100500 1230 N93:05.94 W084:44.46 18.8 nmi 2.2  
1724 N09:13.19 W084:27.55

100600 0623 N08:16.97 W083:38.37 86.7 nmi 2.4  
1812 N07:45.74 W082:10.51

100700 0613 N07:30.50 W081:23.03 55.2 nmi 2.7  
1807 N06:07.88 W081:57.57

100800 0626 N06:11.05 W083:13.33 78.7 nmi 3.5  
1817 N06:28.69 W084:40.67

100900 0637 N07:37.27 W085:36.25 84.1 nmi 3.1  
1831 N08:57.68 W086:34.89

101000 0642 N10:03.99 W087:26.74 110.6 nmi 4.2  
1841 N11:39.70 W088:42.73

101100 0653 N10:46.36 W089:25.79 90.1 nmi 4.1  
1748 N09:28.66 W090:25.10

CODE	SPECIES	TOT#
006	Stenella attenuata graffmani	12
013	Stenella coeruleoalba	8

015	Steno bredanensis	1
017	Delphinus delphis	7
018	Tursiops truncatus	7
033	Pseudorca crassidens	1
034	Globicephala sp.	1
036	Globicephala macrorhynchus	2
037	Orcinus orca	1
048	Kogia sima	3
049	ziphiid whale	1
051	Mesoplodon sp.	2
061	Ziphius cavirostris	1
070	Balaenoptera sp.	2
072	Balaenoptera edeni	5
075	Balaenoptera musculus	1
076	Megaptera novaeangliae	7
077	unid. dolphin	12
078	unid. small whale	1
TOTAL		75

COMMON DOLPHINS 7  
SPOTTED/SPINNER 12  
BLUE/HUMPBACK WH. 8  
OTHER DELPHINIDS 33  
OTHER CETACEANS 15

### **AERIAL PHOTOGRAMMETRY SUMMARY: 5 - 11 October**

5.5 flight hours

Species	Schools/ Indivs. Photographed	Schools Calibrated
Delphinus delphis	1	1
Balaenoptera edeni	1	0
Rhynchodon typus	1	0

**BIOPSY SUMMARY: 5 - 11 October**

Species	This Week	Total
<i>Balaenoptera edeni</i>	1	3
<i>Balaenoptera musculus</i>	0	10
<i>Berardius bairdii</i>	0	2
<i>Delphinus capensis</i>	0	3
<i>Delphinus delphis</i>	1	5
<i>Feresa attenuata</i>	0	6
<i>Globicephala macrorhynchus</i>	13	37
<i>Lagenorhynchus obliquidens</i>	0	4
<i>Megaptera novaeangliae</i>	1	1
<i>Orcinus orca</i>	2	7
<i>Pseudorca crassidens</i>	3	3
<i>Stenella attenuata</i>	0	54
<i>Stenella attenuata graffmani</i>	27	52
<i>Stenella attenuata</i> subsp.	0	54
<i>Stenella coeruleoalba</i>	0	2
<i>Stenella longirostris orientalis</i>	0	44
<i>Steno bredanensis</i>	1	5
<i>Tursiops truncatus</i>	7	59
Total	57	352

Non-cetaceans:

*Rhincodon typus*, 1

**35 mm PHOTO SUMMARY: 5 - 11 October**

Species	No. Schools/Individuals
<i>Stenella attenuata</i> (coastal)	3 schools
<i>Stenella coeruleoalba</i>	1 school
<i>Delphinus delphis</i>	1 school
<i>Orcinus orca</i>	1 school
<i>Globicephala macrorhynchus</i>	1 school
<i>Megaptera novaeangliae</i>	8 animals
<i>Balaenoptera edeni</i>	1 animal

### **TURTLE CAPTURES: 5 - 11 October**

Species	This Week	Total
Loggerhead ( <i>Caretta caretta</i> )	0	9
Olive Ridley ( <i>Lepidochelys olivacea</i> )	14	149
Green ( <i>Chelonia mydas</i> )	0	6
Total	14	164