STAR 2006: NOAA Ship *David Starr Jordan*
Weekly Science Report

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Science Summary: 19 - 24 October 2006

Hallelujah! We have sun! We have calm seas!

This abbreviated weekly report summarizes our activities for the last three days of Leg 4. After our record-setting bad weather last week, seeing the blue sky, working a regular schedule with all scientific operations in full swing, and sleeping through the night makes one glad to be alive. We've been in blue water, with typical oceanographic and biological signals of the core area – this means surface waters of 28-29 degrees Celsius, thermocline depths at 40-50 m, and spotted and spinner dolphins with bird flocks and tuna. Schools have been admittedly and unexpectedly sparse – even our last day of survey, some 100 nautical miles offshore of Acapulco, typically an area of flat calm conditions with high abundance of animals, netted us but five cetacean groups and two turtles. We did add a bucketful of new fish (captured from the small boat by hand from underneath a small log) to our outside aquarium for display back in San Diego at the Birch Aquarium (a couple of species of pelagic triggerfish, 1 Sergeant Major, several Carangids, and 1 Tripletail), hold a dark-rumped Leach's Storm Petrel in our hands (many seabirds are attracted to lights and it blundered on to the back deck during an evening station, but was set free off the bow a short while later – after we had checked for bands on its leg, measured its wings, and allowed its eyes to readjust to the darkness), and photographed three foot-long sailfish captured at the dipnet station (perfect miniatures of the adult-sized versions). On Sunday morning, we arrived into Acapulco, Mexico. Here, we have three days to rest, re-provision, and otherwise prepare for Leg 5.

Of Historical Note – James Anthony, Chief Electronics Technician Extraordinaire for the David Starr Jordan will be retiring at the end of the STAR 2006 cruise and is scheduled to return home in less than a week. Jim has been with NOAA for decades, and has been a regular fixture aboard the David Starr Jordan for over 10 years. Of all the positions in every discipline out here, none have changed through time more than that of an Electronics Technician. During the early years, "ETs", as they have come to be known, were mainly radio operators, responsible for maintaining communications between ship and shore using furniture-sized pieces of equipment with lots of wires to receive and transmit essential but faint and full of static voices from afar. One of the main requirements was that they knew Morse Code. Today, an ET is responsible for all things electronic on the ship, which includes a vast array of scientific, navigational, and recreational equipment, dozens of computers of all kinds, the connections between everything and the software that runs all, that life-changing and now essential technological advancement – e-mail! and everything sending and receiving messages and parsing them out to some 30+ people aboard entails, etc! It is a mind-boggling amount of expertise that this single person is expected to carry with them and remain current on, and, because sea and electronics do not mesh well, things are continually in need of repair. For any ordinary person, the job would be simply overwhelming. Not so for Jim Anthony. Wrapped in this single individual is astounding knowledge, an unparalleled work ethic, and a dry (and keen) sense of humor. No request is too small, too large, too late, or too much. At every turn and seemingly every hour, he can be seen quietly working away at the latest problem, patiently and persistently pursuing a solution until it is found. His presence has been a reassuring comfort for us out here for the majority of this Chief Scientist's career. Jim – our sincerest of thanks. We wish you well. You will be sorely missed.

Sightings and Effort Summary for Marine Mammals

Date	Start/ Stop Time	Position	Total nmi	Average Beaufort
101906	0655	N11:50.41 W105:09.70	65.1	4.5
	1828	N12:46.25 W104:11.85		
102006	0647	N11:54.66 W103:46.20	88.6	4.2
	1820	N13:11.99 W102:45.45		
102106	0642	N14:17.38 W101:53.87	81.5	3.2
	1816	N15:34.07 W101:00.67		
102206	---	In port	0	---
102306	---	In port	0	---
102406	---	In port	0	---

Code	Species	Number of Sightings
002	*Stenella attenuata (offshore)*	8
010	*Stenella longirostris orientalis*	4
015	*Steno bredanensis*	1
061	*Ziphius cavirostris*	1
077	*Unid. Dolphin*	1
Total		15

Photography (Cornelia Oedekoven, Laura Morse, Adam Ü)

Species Code	Species	This week	Total
002	*Stenella attenuata* (offshore)		14
003	*Stenella longirostris* (unid.)		6
006	*Stenella attenuata graffmani*		11
010	*Stenella longirostris orientalis*	1	8
002/010	*St. l. orientalis/a* (offshore)		2
013	*Stenella coeruleoalba*		11
015	*Steno bredanensis*		11
017	*Delphinus delphis*		30
018	*Tursiops truncatus*		34
021	*Grampus griseus*		7
032	*Feresa attenuata*		1
036	*Globicephala macrorhynchus*		12
037	*Orcinus orca*		13*
046	*Physeter macrocephalus*		20*
049	*Ziphiid whale*		1
063	*Berardius bairdii*		3
072	*Balaenoptera edeni*		3
074	*Balaenoptera physalus*		2*
075	*Balaenoptera musculus*		21*
076	*Megaptera novaeangliae*		6*

Species Code	Species	This week	Total
090	*Stenella attenuata* (unid.)		1
099	*Balaenoptera borealis/edeni*		6

* Individual whales photographed

Biopsy (Juan Carlos Salinas Vargas and Ernesto Isaac Vázquez Morquecho)

Species	Common Name	# Weekly samples	# Weekly Takes	Total Samples	Total Takes
Balaenoptera edeni	Byrde's whale	0	0	4	4
Balaenoptera musculus	Blue whale	0	0	9	17
Delphinus delphis	Short-beaked common dolphin	0	0	19	40
Globicephala macrorhynchus	Short-finned pilot whale	0	0	62	137
Megaptera novaeangliae	Humpback whale	0	0	2	5
Orcinus orca	Killer whale	0	0	7	17
Physeter macrocephalus	Sperm whale	0	0	8	8
Stenella attenuata	Pantropical spotted dolphin	0	0	21	38
Stenella attenuata graffmani	Coastal spotted dolphin	0	0	27	42
Stenella coeruleoalba	Striped dolphin	0	0	2	8
Stenella longirostris orientalis	Eastern spinner dolphin	0	0	8	32
Stenella longirostris subsp.	unidentified spinner dolphin	0	0	25	42
Steno bredanensis	Rough-toothed dolphin	0	0	11	22
Tursiops truncatus	Bottlenose dolphin	0	0	48	78
		0	0	253	490

Seabirds and Marine Debris (Rich Pagen and Chris Cutler)

It's always fascinating to see where certain species of seabirds turn up compared to others, and our reports are often filled with stories of the surprising, the unbelievable, and the unforeseen (as well as, of course, the norm). We are also fortunate to witness the at-sea behavior of seabirds out here, which more often than not consists of a whole lot of flying alternating with a whole lot of sitting. Once in awhile, however, we come across the particularly interesting or, even less frequently, the completely bizarre. Two observations this week fall into the latter categories. Mammal Observer Ernesto Vazquez witnessed a Kermadec Petrel and a Wedge-tailed Shearwater chasing a group of what appeared to be flying squid. The squid were rocketing out of the water (hence the name, "flying squid"), most likely fleeing from an equally ominous threat pursuing them below the water's surface.

Interesting and perhaps verging on odd was a Juan Fernandez Petrel and a Parasitic Jaeger seen flying high above the horizon. Usually when a jaeger is associating with another species of seabird, it's almost always harassing the other bird to get it to regurgitate food. Jaegers are masters of this kleptoparasitic behavior; however, as these two birds came into closer view, it became apparent that this was not the situation at all. The Juan Fernandez Petrel was in pursuit of the jaeger (though not terribly aggressively), and the jaeger seemed both disinterested and completely at ease with this other bird swirling around behind it. At times the petrel flew up in front of the jaeger, but again the jaeger showed no reaction to it.

Part of the reason that this encounter was so strange was that the two birds were flying 25-35m above the sea surface for at least 3 minutes (we never saw them come back down), a height above the sea that Juan Fernandez Petrels rarely visit, even on their most arching flights.

Turtle Operations (Lindsey Peavey, *et al.*)

A short, 3-day work week yielded three olive ridley turtles. We expected more, but were happy with our total - three greater than last week's total of zero.

A short week indicates another port stop – Acapulco for a few relaxing days. Along with the end of Leg 4, this is also the end of Bob Pitman's ETP journey for 2006. Apart from his wife, I can safely say I will miss Bob the most. Way back when, Bob spearheaded the marine turtle work done on ETP cruises, and without his passion for sea turtles I wouldn't have the opportunity to be here. His enthusiasm for this project, knowledge of pelagic turtle ecology, and mastery of small boat operations is remarkable. He has shown me the 'sea turtle processing' ropes on the DSJ and I am grateful for the guidance he has provided on a daily basis. In addition to all he's shown me in terms of turtles, by example he demonstrates how much fun working so hard can be. The turtles will miss him too, as he is almost a permanent figure on the back deck when turtles are onboard. It will take many of us to fill his Keens (field biologist preferred footwear) on legs 5 and 6, but we will do our best and have a great time doing it, just as he would if he were here.

Species	**Common name**	**Number sampled**	
		Weekly	**Total**
Caretta caretta	Loggerhead	0	8
Eretmochelys imbricata	Hawksbill	0	1
Lepidochelys olivacea	Olive ridley	3	175
Total		3	184

Fish Sampled for Diet and Isotope Analysis

Species	Samples	
	Weekly	Total
Yellowfin tuna	0	22
Skipjack*	0	13
Wahoo	0	3
Mahi mahi	0	11

*includes black skipjack

Oceanographic Operations (Candy Hall)

Date	**CTD**	**XBT**	**Bongo tow**	**Manta tow**
19 Oct	2	3	1	1
20 Oct	2	3	1	1
21 Oct	2	2	1	1
22 Oct*	0	0	0	0

Date	CTD	XBT	Bongo tow	Manta tow
23 Oct*	0	0	0	0
24 Oct*	0	0	0	0
Total	6	8	3	3
Grand Total	126	205	52	54

* In Port