

Ecosystem Survey of *Delphinus* Species



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ADDITIONAL PRD INFORMATION:

<http://swfsc.noaa.gov/prd.aspx>

ADDITIONAL CRUISE INFORMATION:

<http://swfsc.noaa.gov/prd-delphinus.aspx>

25 October 2009

Weekly Report No. 6: 18 – 24 October 2009

Eric Archer, Cruise Leader

This week started with the *McArthur II* halfway down the Pacific coast of Baja California, just north of Bahia Magdalena. Hurricane Rick was on its northward trek towards Cabo San Lucas and our main goal was staying safely far away and in conditions where we could work. This meant that we couldn't go much farther south until Rick either diminished or moved elsewhere. However, we took advantage of this restriction to stay close to the coast and try to work with the NOAA Twin Otter based on the other side of the peninsula in Loreto. Early in the week we were able to find some cooperative schools for observer calibration, but as Rick got closer, sea surface conditions became less amenable to aerial photography and the schools we were coming across were more diffuse as well.

As Rick began to diminish midweek and started his eastward swing south of Cabo San Lucas, we began our push south. We had to cancel survey effort for a day and a half as we ran across large swells being generated by the remnants of Rick. By Thursday we were in good seas again as Rick fizzled out over the Sea of Cortez and mainland Mexico. As we continued to the southern edge of our survey area into more tropical waters, there was a noticeable shift in the fauna. Schools of spotted (*Stenella attenuata*) and spinner dolphins (*S. longirostris*) started to become more common along with striped dolphins (*S. coeruleoalba*) and occasional groups of rough-toothed dolphins (*Steno bredanensis*). The short-beaked common dolphin (*Delphinus delphis*) schools we have been encountering down here are noticeably more evasive than those farther north and are very skilled at avoiding being approached by the *McArthur II* and the RHIB.

Friday was by far our busiest day. In a shipping lane about 50 nm west of Cabo San Lucas, we had several pilot whale (*Globicephala macrorhynchus*) sightings along with some blue whales (*Balaenoptera musculus*), Bryde's/sei whales (*B. edeni/borealis*), and multiple spotted and spinner dolphin schools.



During one exciting moment, a blue whale was kind enough to surface right next to the ship, so we were able to get some excellent pictures and a biopsy. This week marks the southernmost point in our survey area and we begin our trip back north to San Diego over the next week and a half.

More information about individual projects, including summaries of data collected, follow. Additional information about the project and past weekly reports can be found on our cruise website:

<http://swfsc.noaa.gov/prd-delphinus.aspx>.



Blue whale visiting ship. Photo credit: Sophie Webb.



Pilot whales. Photo credit: Sophie Webb.



Photography Report – James Cotton, Suzanne Yin, Corey Sheredy, Sophie Webb, & Iris Segura

Our low photo count of 3,479 for the week is an artifact of both the influence of hurricane Rick and the continued evasive behavior of common dolphins. Most of the photos were of the usual suspects but just prior to reaching the southern terminus of this leg three species (spotted, striped and spinner dolphins) that had not previously been recorded on this cruise were photographed. Seen but not captured by our Paparazzi was the rough-toothed dolphin.

Seabird Report – Michael Force & Sophie Webb

The tropical theme was evident in many ways this week as we officially entered the tropics, delineated in the Northern Hemisphere by the Tropic of Cancer. It wasn't only the warm sea and air temperatures, the lovely Green Flashes at sunrise and sunset and the sightings of tropical dolphins that brought to mind fruity coconut-flavoured tropical drinks. The birds too, provided additional proof that we were surveying a tropical ocean habitat.



Adult Nazca Booby. Photo credit: Sophie Webb

Not surprisingly, we found several species typical of the tropical eastern Pacific Ocean that we hadn't yet seen on this cruise. Wedge-tailed Shearwaters, a single Christmas Shearwater, Nazca Booby, and Galapagos (Wedge-rumped) Storm-Petrels all fall into this category. Ship-following boobies, (leading us would be more apt as they ride the bow updraft looking for flying fish flushed by our forward progress) confounded us as we tried our best to sort out new arrivals from previous freeloaders. Red-footed Booby (brown morphs) were the

most abundant, but also present in the mix were Brown, and to a lesser extent, Masked Boobies. Keeping one eye on our survey transect and another on their wagging rear ends is always a good idea when they, and the wind, are on the bow. It's only a short booby-squirt away to our observation platform on the flying bridge.

We found a total of 36 species this week, slightly below our five week average of 39. Our daily average, however, remains fairly constant at 20 species as does the species we see each day, reflecting the survey's emphasis on neritic habitat. Lost migrants add some variety to the mix. This week there were several Barn Swallows, Yellow-rumped and Orange-crowned Warblers (one of each), a Merlin, and a very lost Grasshopper Sparrow.



Immature female Brown Booby. Photo credit: Sophie Webb.

Oceanographic and Mid-trophic Project Report – Candice Hall, Justin Garver, Corey Sheredy, Iris Segura, Heriberto Santana and SST Lacey O'Neal.

In addition to our usual suite of habitat sampling mentioned in previous weeklies, we are collecting samples to be used in harmful algal bloom (HAB) studies at the University of California, Santa Cruz. During four daily stations, ~15 ml of seawater is reserved for nutrient analysis (analyzed for the macronutrients necessary for phytoplankton growth, such as nitrate, orthophosphate, silicic acid). This is followed by four 500ml filtered samples; two of these are destined for pigment analysis (to be used as a diagnostic measure of the general phytoplankton assemblage) and the other two designated for toxin



analysis. Toxins of particular interest are domoic acid (produced by species of the diatom *Pseudo-nitzschia*; causing Amnesic Shellfish Poisoning in humans) and saxitoxin (produced by the dinoflagellate *Alexandrium*; causing Paralytic Shellfish Poisoning in humans). Other toxins produced by dinoflagellates whose distribution is less well-known are also of interest, for example yessotoxin (also produced by dinoflagellates). The HAB samples collected these waters off the Baja Peninsula are of particular and immediate interest as little research has been conducted in this area.

We have had a delightful first for our diehard squid jiggers. Finally, after 36 days of squid jigging, we have caught a large Humboldt squid (*Dosidicus gigas*). We

wrestled the 36 pound squid onboard at one of the southern most stations in Delphinus 2009. Unfortunately, we were unable to hook any other large squid at this station, but we are all very excited to have collected our first large squid sample, as shown in the photo below.

Outreach and Education Report – Siri Hakala

You can check out our wiki at the following website:

<http://www.sbsd.k12.ca.us/groups/noaa/>.

Username: noaaproject

Password: read



Triumphant squidders, Justin Garver, Heriberto Santana and Corey Sheredy. Photo credit: Candice Hall.



Line transect Survey Report: Juan Carlos Salinas, Jim Cotton, Rich Pagen, Richard Rowlett, Ernesto Vázquez & Suzanne Yin

Summary of Marine Mammal Effort

Date	Time	Position		On Effort Survey Miles (nm)	Average Beaufort
101809	0636	N24:19.28	W111:55.50	14.7	1.6
	0942	N24:32.85	W112:18.10		
101909	0639	N25:40.35	W112:44.88	79.5	3.6
	1750	N26:23.12	W113:35.22		
102009	0641	N25:45.86	W112:21.37	67.8	4.2
	1411	N25:05.51	W112:51.13		
102109	0636	N24:10.05	W111:34.91	68.2	2
	1749	N23:14.94	W111:53.87		
102209	No effort due to Beaufort 5 conditions in the wake of Hurricane Rick				
102309	0633	N23:51.26	W111:02.99	77.9	3.7
	1746	N22:35.86	W110:42.31		
102409	0631	N22:29.28	W110:44.80	68.6	3.8
	1714	N22:12.25	W110:09.79		

Summary of Marine Mammal Sightings

Species	Number of groups
<i>Stenella attenuata</i> (offshore)	5
<i>Delphinus</i> sp.	8
<i>Stenella longirostris orientalis</i>	5
<i>Stenella coeruleoalba</i>	3
<i>Steno bredanensis</i>	1
<i>Delphinus capensis</i>	15
<i>Delphinus delphis</i>	3
<i>Tursiops truncatus</i>	6
<i>Lagenorhynchus obliquidens</i>	2
<i>Globicephala macrorhynchus</i>	2
<i>Physeter macrocephalus</i>	2
<i>Balaenoptera</i> sp.	1
<i>Balaenoptera musculus</i>	2
Unid. dolphin	2
<i>Stenella attenuata</i> (unid. subsp.)	1
<i>Balaenoptera borealis/edeni</i>	5
unid. small delphinid	6
unid. medium delphinid	2
Total	71



Photographs Taken – James Cotton, Suzanne Yin, Corey Sheredy, Sophie Webb & Iris Segura

Species	Common Name	No. of Sightings this week	No. of Photos this week	Total No. of Sightings	Total No. of Photos
<i>Stenella attenuata</i> (offshore)	Offshore pantropical spotted dolphin	6	50	6	50
<i>Stenella longirostris orientalis</i>	Eastern spinner dolphin	4	43	4	43
<i>Stenella coeruleoalba</i>	Striped dolphin	3	12	3	12
<i>Delphinus capensis</i>	Long-beaked common dolphin	14	2,759	47	7,904
<i>Delphinus delphis</i>	Short-beaked common dolphin	2	215	12	2,140
<i>Tursiops truncatus</i>	Bottlenose dolphin	3	58	12	588
<i>Grampus griseus</i>	Risso's dolphin			1	1
<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	2	159	9	232
<i>Globicephala macrorhynchus</i>	Short-finned pilot whale	2	135	7	853
<i>Balaenoptera musculus</i>	Blue whale	1	45	3	212
<i>Balaenoptera borealis/edeni</i>	Rorqual identified as a Sei or Bryde's whale	1	3	3	16
Grand Total		38	3,479	107	1,2051

Biopsy Samples Collected – Juan Carlos Salinas, Ernesto Vázquez & Rich Pagen

The biopsy team would like to thank Corey Sheredy for her help processing samples. She's been a valuable member of the team and has made their jobs considerably easier.

Species	Common Name	Weekly No. of Samples	Weekly No of Takes	Total No. of Samples	Total No. of Takes
<i>Balaenoptera musculus</i>	Blue whale	1	1	2	2
<i>Balaenoptera physalus</i>	Fin whale	0	0	2	2
<i>Delphinus capensis</i>	Long-beaked common dolphin	27	27	475	769
<i>Delphinus delphis</i>	Short-beaked common dolphin	3	4	414	671
<i>Globicephala macrorhynchus</i>	Short-finned pilot whale	0	0	2	5
<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	0	0	17	25
<i>Lissodelphis borealis</i>	Northern right whale dolphin	0	0	1	1
<i>Orcinus orca</i>	Killer whale	0	0	8	9
<i>Stenella attenuata</i>	Pantropical spotted dolphin	1	1	1	1
<i>Stenella coeruleoalba</i>	Striped dolphin	1	2	1	2
Grand Total		37	43	970	1555



Oceanography Samples Collected and Stations Completed – Candice Hall, Justin Garver, Corey Sheredy, Iris Segura, Heriberto Santana and SST Lacey O’Neal

Date	CTD	Surface Chlorophyll	HAB	UCTD (XBT)	Squid Stations	Bongo Tows	IKMT
10/18/09	1	5	4	5	1	1	1
10/19/09	1	6	4	6	0*	0*	0*
10/20/09	0	7	4	7	0*	0*	0*
10/21/09	0	4**	4	4	1	1	1
10/22/09	1	6	4	6	1	1	1
10/23/09	1	6	4	4(2)	1	1	1
10/24/09	1	6	4	5(1)	1	1	1
Week Total	5	40	28	37(3)	5	5	5
Grand Total	40	236	161	227 (47)	37	40	35

