

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>

04 October 2009

Weekly Report No. 4: 27 September – 02 October 2009

Susan Chivers, Cruise Leader

Friday morning October 2nd we pulled into San Diego Bay and tied up at the 10th Avenue Terminal. Our arrival marks the end of Leg 1, and everyone is looking forward to a few days of rest after a very busy and productive 25 days at-sea. Thanks everyone for all your hard work! Enjoy the in port.

This week we completed the pre-planned survey transects in the southern part of the Southern California Bight. These lines took us around San Clemente and Santa Catalina Islands south to the international border between the U.S.A. and Mexico. Favorable weather kept us working and collecting data all week, including more biopsy samples from both common dolphin species and more photographs to document dolphin color patterns and lengths from the ship and plane. With the tracklines covered this week, the total mileage surveyed this leg was 1104 nm and 174 schools of common dolphins were sighted along the way. The survey data will be used to estimate dolphin abundance and densities in the study area after we complete the cruise. The biopsy samples collected this week brings the total number of samples collected this leg to 369 long-beaked and 380 short-beaked common dolphin samples. Collecting these samples were a high priority this leg, especially for long-beaked common dolphin, and they will be used to determine the sex and reproductive status of each animal, to delineate demographically isolated populations (aka 'stocks') and to quantify concentrations of pollutants. Our biopsy sampling effort included collecting samples from both NOAA Ship *McArthur II* and the RHIB (rigid-hulled inflatable boat) deployed from the ship for 6 schools, which will provide data to examine potential sources of bias in estimating pregnancy rates using biopsy samples. And while working with the plane, we collected images to calibrate observer estimates of group size for 7 common dolphin schools (some from both species). Getting these data sets means we are about half-way to meeting these two project objectives.





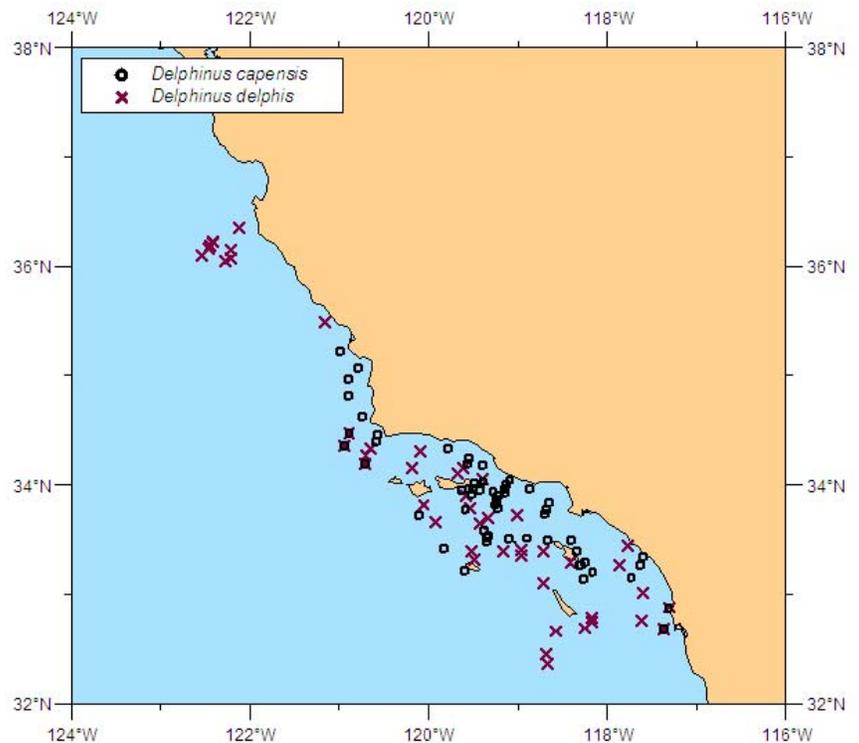
ENS John Petersen plotting our position on a chart while working on the bridge of NOAA Ship *McArthur II*. Photo credit: Siri Hakala

NOAA

Leg 2 begins on Thursday October 8th. We will head south when we leave San Diego, CA to survey the near-shore waters off Baja California, Mexico. The data we collect during this leg will be particularly valuable to understanding long-beaked common dolphin population structure and abundance in the eastern North Pacific and what proportion of the population, or populations, are in the coastal waters off the U.S.A. and Mexico. Stay tuned.

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>.



Leg 1 sightings of common dolphin schools.



Photography Report – James Cotton, Suzanne Yin, Sophie Webb & Nick Kellar

Amazing and frenetic are the best adjectives to describe this leg. This hard working group did an amazing job completing 6 tandem vessel sampling exercises plus 4 simultaneous plane/vessel sampling exercises while collecting 749 biopsies and over 30,000 vertical bow photos from both *Delphinus* species, in addition to all the other things that this group normally does during a survey cruise. That's frenetic. This effort is building an incredible data set, unique in size and scope that will help us better understand the biology and life-history of these two species.

I want to thank everyone from crew, officers, and scientists. I intended to put a list of special thank yous together for this week but as I look around this dry lab I realize every single one of you, bar none, has gone out the way to help me out. Thank you to all. Have a safe and enjoyable time during the rest of the cruise and may all of your crossbows return safely. Gratefully yours, Nick

Aerial Photography Report – Wayne Perryman, Morgan Lynn, Jim Gilpatrick & Fionna Matheson



Jim Gilpatrick ready to fly. Photo credit: Wayne Perryman.

After fighting fog and high winds since the start of the study, we finally got a break from a weak Santa Ana system that broke up the fog and low clouds. In two days of flying, the photogrammetry team sampled 24 *Delphinus* schools, several of them large (> 400 dolphins) and in glassy sea conditions. In addition to the *Delphinus* schools, the team photographed 7 blue whales (including 2 cow/calf pairs), several groups of Grampus, and an unidentified whale (possibly Bryde's Whale)

on the south side of San Clemente Island. Unfortunately, the schools we sampled on Thursday were not very cooperative (i.e., diving, splitting up) so we were not able to use them to calibrate group size estimates made by the shipboard observers, but will be great for measuring individual lengths and estimating calf production.

Photos at right from the aerial photogrammetry team: top: Morgan Lynn installing the cameras; upper middle: a pass over NOAA Ship *McArthur II*; lower middle: blue whale; bottom: part of a common dolphin school. (Photos taken by: Wayne Perryman).



Seabird Report – Michael Force & Sophie Webb

The notable event this week was our arrival in San Diego for a few days of shore leave, thus truncating this week's survey effort by a couple of days. Vociferous complaints to remain at sea were absent. Seabirds this week were very similar to previous weeks, finding 39 species and a daily average of 19; however, this was our second highest daily average of the cruise, bolstered by all of the near-shore littoral species we saw such as various ducks, loons and grebes. Flocks of feeding seabirds over Long-beaked and Short-beaked Common dolphins continue to be very diverse, often as many as 15 species of swirling, diving, ravenous gulls, terns, pelicans and shearwaters.



Elegant Terns. Photo credit: Sophie Webb.

Careful enumeration of these flocks, 63 on Leg 1, will enable us to discern patterns perhaps unique to the particular association and, by extension, help us to better understand the interactions between dolphins, their prey and the seabirds taking advantage of this food source. Excitement this week was provided by two Brown Boobies (an immature and adult female), an immature female Rose-breasted Grosbeak, a Peregrine Falcon, and



A flock of Pink-footed Shearwaters. Photo credit: Sophie Webb.

Chipping and Lincoln's Sparrows. Last week's report incorrectly stated that the Red-footed Booby departed the ship off Dana Point. For the record, the correct location was Point Dume. Thanks to Richard Rowlett for letting us know that Dana Point is not in Santa Monica Bay!

Oceanography Report – Candice Hall, Justin Garver, Siri Hakala & Corey Sheredy

Leg 1 has taken us over some incredibly dramatic seascapes, enticing us with the potential for upwelling and the thrill of a multitude of converging currents and eddies. We've crossed temperature fronts, deep canyons and shallow shores, gathering a full suite of biological, physical and chemical oceanographic samples. We are still the proud owners of all our equipment: three UCTD probes, the Bongo and IKMT nets, the IKMT TDRs and flowmeters. Oh, and the Portasal too. It's here, but we never could convince it to work... maybe next leg. Regardless of the inevitable So-Cal (Southern California) fog, we've had some mirror flat days that just stir excitement in even the saltiest sea dog. Excitement that's on par with the excitement we felt over Justin winning this leg's cribbage tournament. Thank you, Susan! Siri, Corey and Bob, your hours on the fun- I mean fantail have been invaluable! You will be sorely missed next leg. Corey, we are counting ourselves lucky that you're able to stay! So long and thanks for all the krill...



An oarfish caught in the IKMT this week. Photo credit: Justin Garver.



Outreach and Education Report – Siri Hakala

Schools have begun to use the wiki for two-way communication and it has been rewarding to hear that we have a following. Skyline Elementary in Solana Beach had questions about whether the ship felt crowded or if the number of people on board made meeting our research goals more difficult. I assured them that every person on board fills a needed role.

This past week was “Navigation” week for the wiki and the internet connection has improved enough to post several videos. Scientists, officers and crew have continued to be exceptionally supportive and tolerant of ‘the paparazzi’. I’ve included a couple of photos here that are part of the Navigation post. While I leave the ship tomorrow (Friday) morning, I’ve gathered enough video and photos to continue weekly wiki posts. I’ve also asked several people on board to continue taking some video and provided input ‘from the ship.’ Thanks everybody.

You can check out our wiki at the following website:
<http://www.sbsd.k12.ca.us/groups/noaa/>
 Username: noaaproject
 Password: read



A Burrowing Owl that rested on the ship for a few hours. Photo credit: Sophie Webb.

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

This week was another busy one with good weather and lots of animals. With the sightings we made this week, the total number of common dolphin groups seen was 72

long-beaked, 67 short-beaked, and 35 unidentified common dolphins. The latter category is the groups we did not get close enough to determine the species.

Summary of Marine Mammal Effort

Date	Time	Position		On Effort Survey Miles (nm)	Average Beaufort
092709	0657	N32:27.14	W118:55.15	64.1	3.5
	1834	N33:27.13	W118:21.54		
092809	0651	N33:34.15	W118:02.36	51.6	2.3
	1752	N32:44.04	W118:20.57		
092909	0658	N32:41.83	W118:30.85	65.1	4.1
	1737	N32:36.18	W118:16.18		
093009	0656	N33:04.81	W118:00.92	32.9	3.4
	1747	N33:09.26	W117:41.55		
100109	0653	N32:37.15	W117:25.21	47.1	2.5
	1832	N32:37.25	W117:40.95		



Summary of Marine Mammal Sightings

Species	Number of groups
<i>Delphinus</i> sp.	7
<i>Delphinus capensis</i>	10
<i>Delphinus delphis</i>	18
<i>Tursiops truncatus</i>	8
<i>Grampus griseus</i>	7
<i>Lagenorhynchus obliquidens</i>	3
<i>Balaenoptera</i> sp.	4
<i>Balaenoptera acutorostrata</i>	4
<i>Balaenoptera physalus</i>	4
<i>Balaenoptera musculus</i>	9
<i>Megaptera novaeangliae</i>	1
Unid. dolphin	2
Unid. cetacean	1
Unid. small delphinid	2
Unid. medium delphinid	4
Total	84

Photographs Taken – James Cotton, Suzanne Yin, Sophie Webb & Nick Kellar

Species	Common Name	No. of Sightings this week	No. of Photos this week	Total No. of Sightings	Total No. of Photos
<i>Balaenoptera musculus</i>	Blue whale	0	0	4	112
<i>Balaenoptera physalus</i>	Fin whale	1	19	7	327
<i>Delphinus capensis</i>	Long-beaked common dolphin	5	887	53	16,955
<i>Delphinus delphis</i>	Short-beaked common dolphin	11	2,592	50	14,670
<i>Grampus griseus</i>	Risso's dolphin	1	7	7	159
<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	0	0	6	1,756
<i>Orcinus orca</i>	Killer whale	0	0	2	578
<i>Tursiops truncatus</i>	Bottlenose dolphin	3	144	10	492

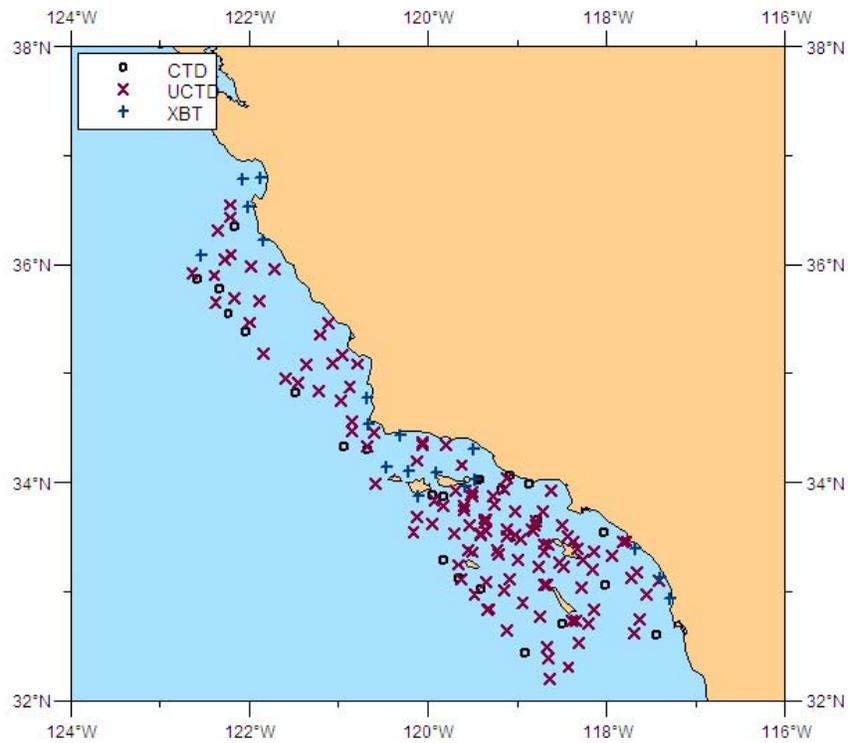
Biopsy Samples Collected – Juan Carlos Salinas, Ernesto Vázquez, Rich Pagen & Robert Pitman

Species	Common Name	Weekly No. of Samples	Weekly No. of Takes	Total No. of Samples	Total No. of Takes
<i>Balaenoptera physalus</i>	Fin whale	1	1	2	2
<i>Delphinus capensis</i>	Long-beaked common dolphin	58	94	369	611
<i>Delphinus delphis</i>	Short-beaked common dolphin	143	217	380	615
<i>Lagenorhynchus obliquidens</i>	Pacific white-sided dolphin	0	0	9	15
<i>Lissodelphis borealis</i>	Northern right whale dolphin	0	0	1	1
<i>Orcinus orca</i>	Killer whale	0	0	8	9
<i>Tursiops truncatus</i>	Bottlenose dolphin	15	19	39	53



Oceanography Samples Collected and Stations Completed – Candice Hall, Justin Garver, Siri Hakala & Corey Sheredy

Date	CTD	Surface Chlorophyll	HAB	UCTD (XBT)	Squid Stations	Bongo Tows	IKMT
09/27/09	1	6	4	6	1	1	1
09/28/09	1	6	4	6	1	1	1
09/29/09*	1	5	4	6	1	1	1
09/30/09**	1	5	4	5 (1)	1	1	1
10/01/09*	1	6	4	4 (2)	1	1	1
Week Total	5	28	20	27 (3)	5	5	5
Grand Total	24	141	96	146	20	23	25



Leg 1 oceanographic sampling stations are shown as locations of CTD, UCTD and XBT casts.