

CSCAPE 2005: NOAA Ship *David Starr Jordan*
Weekly Science Report – Leg 4

22 September 2005

Eric Archer – Cruise Leader

SCIENCE SUMMARY: 15 September – 21 September 2005

When we last left our intrepid CSCAPers, the *Jordan*, its scientists and crew had just had a fun-filled weekend of well-deserved rest and had completed a few days of effort. This week started in much the same vein as we worked westward first, then south to the westernmost point on this leg.

We were greeted on Thursday with some fairly close sightings of Baird's beaked whale (*Berardius bairdii*). The fun didn't stop the next few days with many sightings of short-beaked common dolphins (*Delphinus delphis*) often mixed with schools of striped dolphins (*Stenella coeruleoalba*). The common dolphins readily came over and rode the bow, and thanks to the efforts of our biopsy team, we've collected many samples this week (over half of that collected on the cruise to date). On the other hand, the striped dolphins don't seem to ride the bow as readily. A few will come over in singles and pairs, but otherwise seem to stay aloof and remain at a distance.

As the week progressed, our sighting rate of fin whales (*Balaenoptera physalus*) increased. Mixed in with the fins, we've also come across a couple of blue whales (*Balaenoptera musculus*) which we've spent some time with trying to get good photos. Our rorqual-filled week ended on Wednesday with an impressive encounter with humpback whales (*Megaptera novaengliae*). After much begging and pleading, we finally got Chico to take out the small boat to get photos and biopsies of these animals (of course, it was Chico doing the begging). Working in concert with observers on the flying bridge, photographers from both the big and small boat were able to get good pictures of all of the animals in the group. As icing on the cake, Tim O'Toole brought home two biopsies as well.

Speaking of icing, everyone should flood Candy Hall's mailbox (if you've already done it, do it again) with happy birthday wishes. Now that it's passed (I won't say the number, but it's somewhere in the range of 29 to 31), she's much perkier, which is good because <\begin sarcasm> she's usually such a downer to be around <\end sarcasm>.

We've been battling growing winds (no, that's not just the cruise leader yapping too much) that have been forcing us south. We lost a day of effort midweek as we transited through Beaufort 6 seas to workable high Beaufort 4, low Beaufort 5 conditions. Forecasts are for these winds to continue increasing in strength, reaching 25-30 knots, with upwards of 12-foot seas. This is all moving south as we do, so as I write this we are currently truckin' south to find some workable trackline before we are overrun and put the nastiness above us. Tune in next week to find out how we did.

Sightings and Effort Summary for Marine Mammals

Date	Start Stop	Position	Total Distance	Avg. Beaufort
091505	0718	N41:38.00 W127:23.24	88.8 nmi	4.0
	1929	N42:40.78 W127:58.36		
091605	1442	N42:45.76 W128:42.59	39.5 nmi	5.4
	1937	N42:02.57 W128:54.01		
091705	0719	N42:02.90 W128:56.34	52.1 nmi	3.0
	1841	N40:57.87 W129:20.64		
091805	0727	N40:58.96 W129:18.65	80.7 nmi	2.5
	1934	N39:28.13 W129:44.86		
091905	0727	N39:28.36 W129:50.99	105.4 nmi	4.3
	1930	N38:24.65 W128:51.54		
092005			0.0 nmi	5.0
092105	0715	N37:25.87 W124:07.37	48.9 nmi	3.4
	1909	N36:34.49 W124:13.60		

CODE	SPECIES	Weekly Total	CSCAPE Total
5	Unidentified common dolphin		1
13	Striped dolphin	4	8
17	Short-beaked common dolphin	11	45
18	Bottlenose dolphin		5
21	Risso's dolphin	2	54
22	Pacific white-sided dolphin		88
27	Northern right whale dolphin		26
37	Killer whale		9
40	Harbor porpoise		77
44	Dall's porpoise		149
46	Sperm whale	3	26
49	Ziphiid whale	1	3
51	Mesoplodon sp.		4
61	Cuvier's beaked whale		3
63	Baird's beaked whale	1	4
69	Gray whale		2
70	Balaenoptera sp.	4	29
71	Minke whale		7
74	Fin whale	15	75
75	Blue whale	2	45
76	Humpback whale	5	369
77	Unid. dolphin	2	41
277	Unid. medium delphinid		1
78	Unid. small whale		3
79	Unid. large whale	3	42
96	Unid. Cetacean		3
	TOTAL		1,119

Note: Pinnipeds not included; mixed groups are counted once for each species.

Biopsies (Tim O’Toole, Gary Friedrichsen, Laura Morse)

<u>Species</u>	<u>Weekly</u>	<u>CSCAPE Total</u>
Humpback whale	3	3
Blue whale	-	3
Fin whale	-	1
Sperm whale	-	11
Short-beaked common dolphin	41	63
Pacific white-sided dolphin	-	21
Northern right whale dolphin	-	6
Dall’s porpoise	-	3
Killer whale	-	5
Risso’s dolphin	-	4
Grand Total	44	120

Photo-Project (Annie Douglas, Cornelia Oedekoven and Holly Fearnbach)

This week the photo opportunities were thankfully more abundant and diverse than those described in the previous report. First, we would like to welcome our dear beloved humpback whales back into the picture of which we got seven fluke pictures on the last day of this week. This included a group of four with a calf that was rolling playfully at the surface.



Chief Bosun Chico Gomez lining up J-3 for our shooters to get a good aim - Tim O’Toole equipped with the crossbow, Holly Fearnbach and Laura Morse with the cameras and Dawn Breeze with the naked eye – how close does Chico have to get them...? (photo: Annie Douglas).

The next sighting was a nice treat as well with a few hundred short-beaked common dolphins and a couple of striped dolphins coming to the bow. The day was topped off with a couple of blue whales that were going in a straight line at about 8 knots into the swell (about 9-foot), with heads breaking through the water like submarines upon surfacing. With a few people pushing from behind, we were able to catch up with them and run on a parallel course for a while to get beautiful first right, then left ids of both of the whales. In addition, we managed to get one more blue whale id and two fin whale ids during the week.

The count for the dolphins is four single species schools of short-beaked common dolphins and three mixed schools that had striped dolphins as well. We added nine more of those curiously dark looking common dolphins that are missing the thoracic patch on their sides to our photo collection and have total of thirteen different individuals now for the cruise.



The head of a blue whale breaking the waterline as it surfaces into the swell (photo: Holly Fearnbach).



A short-beaked common dolphin with an anomalous color pattern: the thoracic patches reach up high into the dorsal fin turning the dark overlay pattern forward of the dorsal fin into a thin strip along the spine (photo: Annie Douglas).

And with a cruise leader like this, how can anything go wrong!?! (photo: Cornelia Oedekoven)



Total count:

Blue whales: 3

Fin whales: 2

Humpback whales: 7

Short-beaked common dolphins: 4*

Mixed short-beaked common dolphin/stripped dolphin: 3*

(*schools photographed)

Bird Buzz (Dawn Breese and Thomas Staudt)

Bird sightings this week have been relatively slow. We had 15 species of seabirds, and a smattering of migrating shorebirds, ducks, a rail (Virginia?), an unidentified warbler and sparrow, and a hitchhiking Lincoln's Sparrow, still choosing to stay in our Aft Lab amongst the foul weather gear. We're consistently seeing Sooty Shearwaters headed S-SW to whom we pass our regards in hopes they'll pass by our fellow voyagers on the McArthur II down past Hawaii somewhere. We've had daily sightings of Black-footed Albatross, Leach's Storm-Petrels, Arctic Terns and Phalaropes. Our Pterodroma of the Week has been Cook's Petrel, eight within our

300m transect! And, while we were further offshore in warmer water (18.3-19 C), we saw a few Red-tailed Tropicbirds, or rather, they saw us and flew in for a closer look! Always a treat to see any tropicbird, with their long tail feathers streaming in the wind. Flocks were scarce, although there was a “pure” flock of 16 Jaegers (all three species) proving they don’t always steal food, they were feeding over a school of tiny fish.

I think the real treat for the week has been the Mola Mola, or Ocean Sunfish. Along our transect we saw a huge one (2m or so), a big one (1.5m or so), and even a leaping one, or maybe it was flying (Does that count as a flying fish?). We saw Albacore chasing baitfish, and later, a Blue Shark swam by. Even when the bird numbers are low, there’s always something great to see. One day when the Marine Mammal Observers were in hibernation due to the Beaufort 6+ Sea State, and though it was lonely on the flying bridge, we watched petrels arc gracefully in the high winds (that is really when they’re at their best as flyers), occasionally dolphins zipped in to ride the bow, and misty whale blows trailed off in the gale.

Oceanographic Operations (Candice Hall & Liz Zele)

This week started out perfectly but is turning into a week of repairs (we’re keeping the poor ET very busy earning his keep!) and bad weather. Therefore, the CTD is currently in the sick bay, although a total recovery is imminent. We’ve discovered that the XBT launching gun has a “broken arm” (loose connection between the cable and the launch gun) so we’re splinting it at the moment. Happily, we’ve not missed any XBT stations during this infirmity period.

Again, we have traversed variable waters this week. The 15th – 18th September yielded waters of 17 – 18.5 °C (63 – 65 °F), with a salinity value in the low 32 psu’s. On the 19th the temperature rose into the late 18 °C’s and early 19 °C (65 – 67 °F), while the salinity increased for the most part to the middle to late 32 psu’s. Little work was done on the 20th due to the rough weather but by the 21st, the temperature had dropped dramatically to 13.8 °C. It rose during the day to the late 16 °C’s (55 – 60 °F), accompanied by an increase in salinity (33.5 psu). Since then the temperature has slowly been climbing (currently 17.6 °C or 63 °F), while the salinity has slowly decreased back to 32 psu.

These water temperatures indicate that we have again passed through the impressive upwelling area between the two current systems (without even looking at the chart!). An increase in the backscatter layer, a minor increase in our bongo sample size (still pint sized samples), visible albacore schools and mammals that seem to want to join us onboard (they’re so close) show that we are in a very productive area. I guess the folks from San Francisco will be very happy to hear that their offshore region currently depicts a textbook example of an eastern boundary current large marine ecosystem.

Date	CTD's	XBT's	Bongo Tows	Comments
09/15	1	4	1	
09/16	1	4	1	
09/17	1	3	1	Mammal sighting cancelled 3pm XBT
09/18	1	4	1	
09/19	1	4	1	
09/20	0	1	0	Off track in search of better weather!
09/21	0	3	1	CTD repairs. 9am XBT station cancelled due to mammal sighting.

Straight from the Bongo's Mouth:

This week's bongo has provided us with a few unique participants. Although unsure, we believe figure 1 to be a partial section of a *Pneumodermopsis* sp., due to its golf-ball like pitting. However, it seems to be missing its buccal apparatus (proboscis with radula, hook sacs and jaw) and siphon, possibly due to being mangled in the Bongo net.



Figure 1: Portion of a possible *Pneumodermopsis* sp. (Photo: Jamie Hall)

Figure 2 shows the “critter” that was found in last night's catch. We believe that this is a *Carinaria* sp., which was approximately 10cm in length. ‘Cari’ (for lack of a better name!) in figure 2 below was lacking the external spiral shell when we looked at it, leaving the visceral mass uncovered. Later we discovered the separated shell in the rest of the sample. The only reference onboard that we have to this family is that of the *Carinaria cristata*. However, they have a ‘sail-like’ ventral fin (triangular shape) whereas ‘Cari’ below definitely has a rounded ventral fin, which didn't look torn by the net (similar to that of the *Firoloida desmaresti*). Overall, we are definitely in the correct location to be seeing Cari and her friends. We would greatly appreciate any insights or confirmations that the readers of our weekly reports can give us, so please feel free to mail us at Candice.hall.atsea@jonems.jordan.oma.noaa.gov or Liz.zele.atsea@jonems.jordan.oma.noaa.gov.



Figure 2: Possible *Carinaria* sp. (Photo: Jamie Hall).

My comments for the week: Thank you SO much to everyone for making my 30th birthday so special! I really didn't expect such a large amount of effort from my fellow scientists (especially Holly & Liz) and crew on the Jordan (great banner and what a cake!!). As for all the presents – how spoiled am I!!! MacII, thank you for all the great birthday wishes! I can't believe so many of you remembered! Val and Annette – thank you for sending up presents for me last in port (you crafty girls!!). I'm definitely not parading them for anyone!! Thank you ALL for a truly special birthday at sea!

Squeakly Report (Liz Zele)

We haven't had too much more going on acoustically this week. Just when I think we have a single species school of *Delphinus* on the bow and they are whistling away, a few striped dolphins enter within sight of the flying bridge. Now that we are surveying in more nutrient and plankton rich waters, we hope to come across more vocally rich animals as well!