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Preliminary report on eastern gray whale tagging in 2009
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An Update of Tagging and Re-sighting Efforts on Eastern North Pacific Gray Whales off of Oregon and California from 1 September to 7 December 2009

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Deployments and initial tracking

Between 1 September and 4 December, we tagged 18 whales off the central Oregon coast and near Crescent City, California (Table 1, updated to 7 December). We used nine of two different tag types (2- and 3-battery versions developed in part with ONR support) to determine if either version may be more suitable for tagging western gray whales than Telonics ST-15 tags used in 2007 to track gray whales from Mexico to the high arctic. We received data from all of the deployed tags, indicating no acceleration or deceleration shock failures during deployments. Biopsies were obtained from 14 of the tagged whales (78%).

At the time of preparing this summary (12 December), we are hearing from 10 tags (5 of each type, 56%), all of which were fully deployed and have operated for up to 101 days. Until all tags stop transmitting, we will not be able to evaluate which tag type has done the best job, as present differences in attachment duration merely represent different initial deployment dates, rather than actual tag longevity. Six of the 8 tags we are no longer hearing were not fully deployed, sticking up 2-4", which was associated with tagging very close to the midline. Seven of the tagged whales are off of Crescent City, CA. A recent 10-day map of movements is shown in Figure 1. Some of the whales have begun slowly moving south, but not yet migrating as they stop for extended periods presumably to feed. The most southerly whale is presently off Point Arena, CA (~39°N).

Resighting Summary: movements, tag loss and healing

Re-sighting efforts took place off Oregon and California, principally during our tagging activities, but also on several dedicated surveys during virtually all good weather days for three months. Up to 1,000 digital images have been taken in a single day and the best ID photos are being shared with collaborating gray whale researchers. In addition to tagged whales, the OSU team has re-sighted 4 of the 8 whales whose tags are not sending data and confirmed that their tags are no longer attached (tags 4174, 5670, 10838, 23029). One whale's tag (10838) had a damaged end-cap before the tag was lost. Most lost tag sites have an expected "divot", a depression up to 5-6" in diameter and 2".

Table 1. Deployment information, tracking durations (to 7 December), and location information received from satellite-monitored Eastern North Pacific gray whales, tagged off central Oregon and northern California in 2 September – 4 December 2009.

Tag #	Tag Style	Deployment Date and Time (UTC)	Deployment Location	Last Transmission (UTC)	Biopsy Yes/No	Known Attachment Time (days)	# Good-Quality Locations*	Amount of Tag Protruding at Deployment (inches)	Distance from Whale's Midline (inches)
827	Long, 3 batteries	9/2/2009 21:59	44.504°N 124.112°W	11/30/2009 14:01	Y	95.7	353	0	8
831	Long, 3 batteries	9/2/2009 23:25	44.500°N 124.112°W	11/30/2009 13:58	Y	95.6	324	0.5	4
847**	Long, 3 batteries	9/3/2009 18:26	44.555°N 124.099°W	9/29/2009 21:57	N	26.1	81	0	6
1385**	Long, 3 batteries	9/4/2009 19:07	44.763°N 124.079°W	10/15/2009 5:25	Y	40.4	6	3	2
4174***	Long, 3 batteries	9/4/2009 20:18	44.741°N 124.077°W	9/14/2009 0:55	N	9.2	36	4	2
5670***	Long, 3 batteries	9/4/2009 22:04	44.753°N 124.080°W	9/23/2009 0:39	Y	18.1	73	4	3-4
5801	Short, 2 batteries	9/21/2009 19:24	44.709°N 124.083°W	11/30/2009 13:57	Y	76.7	167	0	9
5923**	Short, 2 batteries	9/21/2009 20:17	44.730°N 124.077°W	11/13/2009 0:16	Y	52.2	258	2	5
23029***	Short, 2 batteries	10/5/2009 20:24	44.743°N 124.076°W	11/18/2009 17:03	Y	43.9	143	0.5	8
10838***	Short, 2 batteries	10/6/2009 21:44	44.959°N 124.038°W	10/26/2009 13:49	N	20.1	92	3	6
10836**	Short, 2 batteries	11/14/2009 17:08	41.779°N 124.283°W	11/18/2009 0:18	N	3.3	17	4	4
23032	Short, 2 batteries	11/14/2009 21:16	41.779°N 124.284°W	11/30/2009 13:37	Y	22.7	99	0	8
10842	Short, 2 batteries	11/15/2009 19:50	41.779°N 124.285°W	11/30/2009 13:57	Y	21.7	98	0	8
23033	Short, 2 batteries	11/15/2009 20:36	41.779°N 124.285°W	11/30/2009 0:11	Y	21.2	6	0	11
23041	Long, 3 batteries	12/1/2009 18:21	41.793°N 124.298°W	12/07/2009 13:01	Y	5.8	25	0	12
23035	Long, 3 batteries	12/1/2009 18:56	41.787°N 124.307°W	12/07/2009 13:55	Y	5.8	20	0	6
23038	Long, 3 batteries	12/3/2009 17:40	41.738°N 124.213°W	12/07/2009 13:59	Y	3.8	16	0	5
5938	Short, 2 batteries	12/4/2009 19:04	41.789°N 124.310°W	12/07/2009 00:36	Y	2.2	1	0	12

* Represents locations that have met our error filtering criteria.

** Tag(s) we are no longer hearing from

***Tag(s) we are no longer hearing from and have been re-observed without their tag

Within 24 hours of submitting their photos, Cascadia Research identified 8 of the first 10 tagged whales through photo catalogs they maintain (J. Calambokidis, pers. comm.). Several of these whales moved through all of their previously known range (from catalog photos), some in less than two weeks. Whales (both tagged and untagged) have been observed milling and defecation has provided evidence of feeding, although no conspicuous surface skim feeding has been noted. More recently, whales are starting to show signs of behavioral interactions more typically seen in the winter range associated with reproduction. By a thorough examination of photographs, it has been possible to do some evaluation of the tag-loss process and subsequent healing at the tag site. Some tag sites have had a circle of discoloration of unidentified brown material (tissue or more likely cyamids), which has been seen to change from one day to the next. One whale has had an oblong area of swelling (approximately 8" wide by 12" long) posterior to the tag extending down from the midline, although no brown material or skin discoloration has been seen at this tag site.

The Next Steps Forward

An assessment of our present financial status on this contracted activity will determine if we make additional tagging efforts and to what extent we make efforts to relocate whales while they are in their winter reproductive habitat. Based on re-sighting records, we expect to see most of the tagged whales next summer in the Pacific Northwest, when we will resume relocation efforts to further document tag conditions and healing after tag loss. This will be the first-ever documentation of the southward migration from Argos tagged gray whales and will compliment the northward data obtained in 2007. The partial funding of this project by Exxonmobil and Sakhalin Energy Investment Company is sufficient to cover the costs of tags and some re-sighting efforts, but does not include analyses of the local or long-distance movements of the tagged whales. We have submitted a proposal to work up these data to other possible funders, who may have such interests.

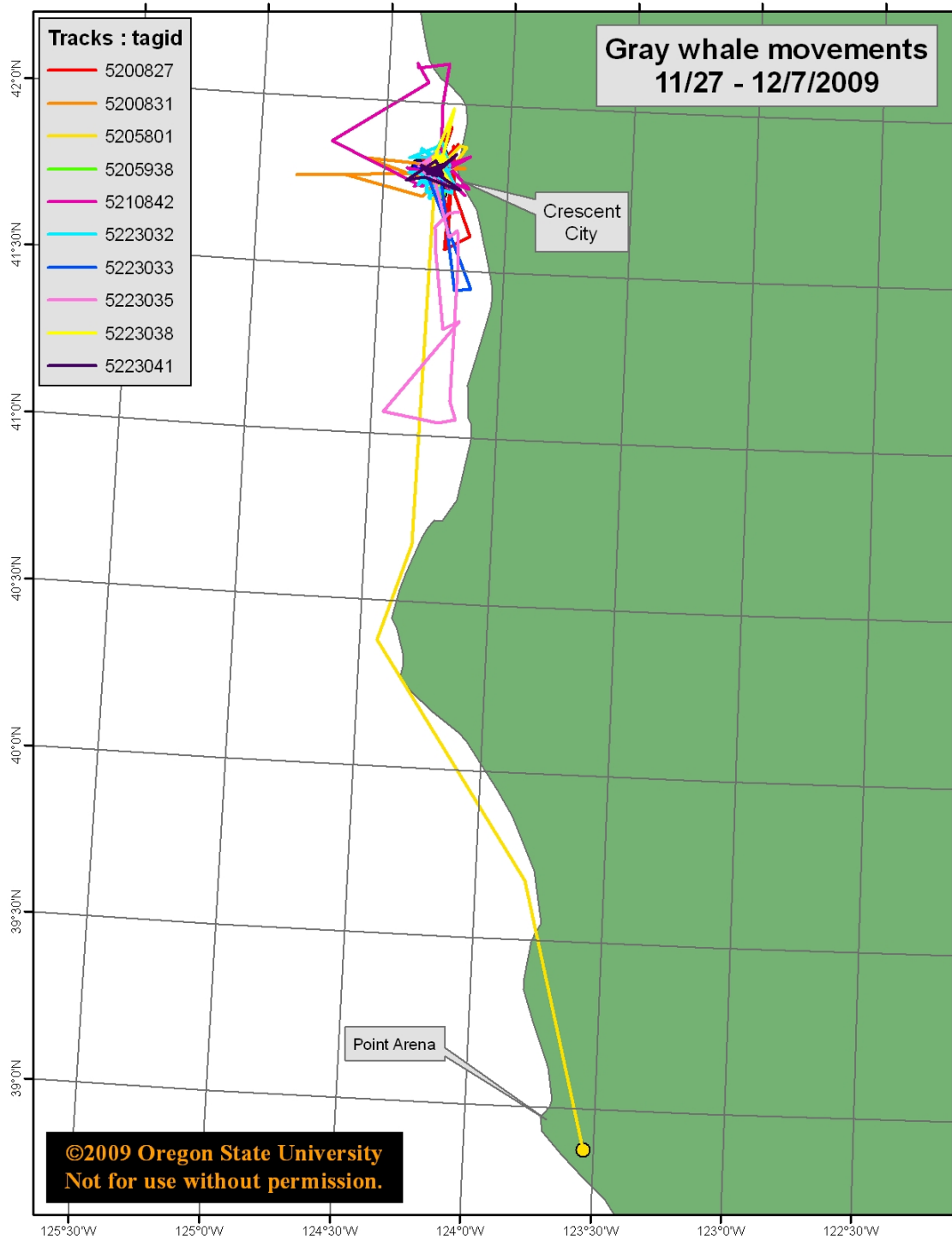


Figure 1: Ten recent days of satellite-monitored tracklines for Eastern North Pacific gray whales tagged off central Oregon and northern California during September-December, 2009. Lines show consecutive locations, not actual paths taken between locations.