

Form Rev. 1.17.14

\*Please refer to the Reporting Policy for all reporting, due date and technical submission requirements.

1. **Project Number:** See, Reporting Policy at III (C) (1).

12120114-M

2. **Project Title:** See, Reporting Policy at III (C) (2).

Long-term killer whale monitoring in Prince William Sound/ Kenai Fjords

3. **Principal Investigator(s):** See, Reporting Policy at III (C) (3).

Craig O. Matkin

4. **Time Period Covered by the Report:** See, Reporting Policy at III (C) (4).

February 1, 2013-January 31, 2014

5. **Date of Report:** See, Reporting Policy at III (C) (5).

March 1, 2014

6. **Project Website (if applicable):** See, Reporting Policy at III (C) (6).

[www.gulfwatchalaska.org](http://www.gulfwatchalaska.org), [www.whalesalaska.net](http://www.whalesalaska.net)

7. **Summary of Work Performed:** See, Reporting Policy at III (C) (7).

February–April 2013. The current killer whale photographic reference catalogue was updated with 2012 field data. Matriline diagrams were updated as well. The updated catalogue was provided electronically to all tour boat operators and to the Kenai Fjords National Park. A publication on population dynamics of resident killer whales was completed, submitted and subsequently accepted by Marine Mammal Science. Preparation for field work also occurred in this period.

May–October 2012. All fieldwork occurred during this period. During 63 days of fieldwork on the *Natoa* and 4 days on other vessels we logged 39 encounters with killer whales, 29 with residents, 4 with AT1 transients, 4 with Gulf of Alaska transients and 2 with offshores.

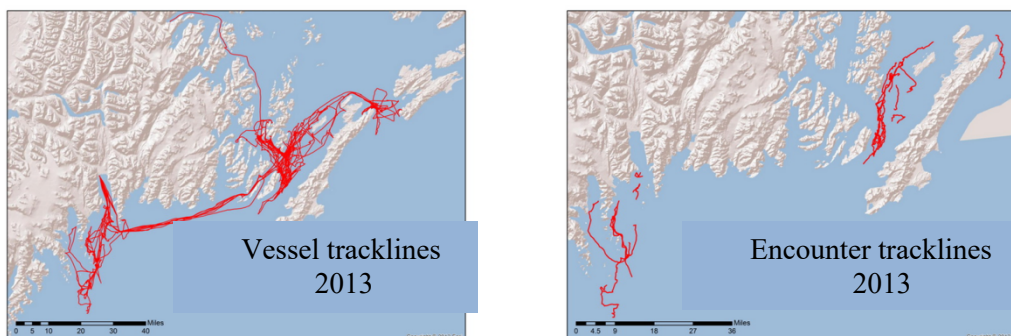


Figure 1. Vessel and encounter tracklines for sampling in 2013

Thirty five of the encounters were logged by the R.V. *Natoa* and 4 by other vessels with NGOS personnel on board. Effort was focused in the late season (September–October). AB pod was encountered on numerous

occasions; however, the AB 17 matriline was not with them. Contributed photos of AB17 indicate the AB17 matriline was swimming separately from the rest of AB pod in 2013 although we did not encounter them. Also, AB45 a 23 year old male orphaned following the spill was also missing. The number of whales in AB pod remains at 20 pending confirmation of the death of AB45. The number of whales in the AT1 group remains 7.

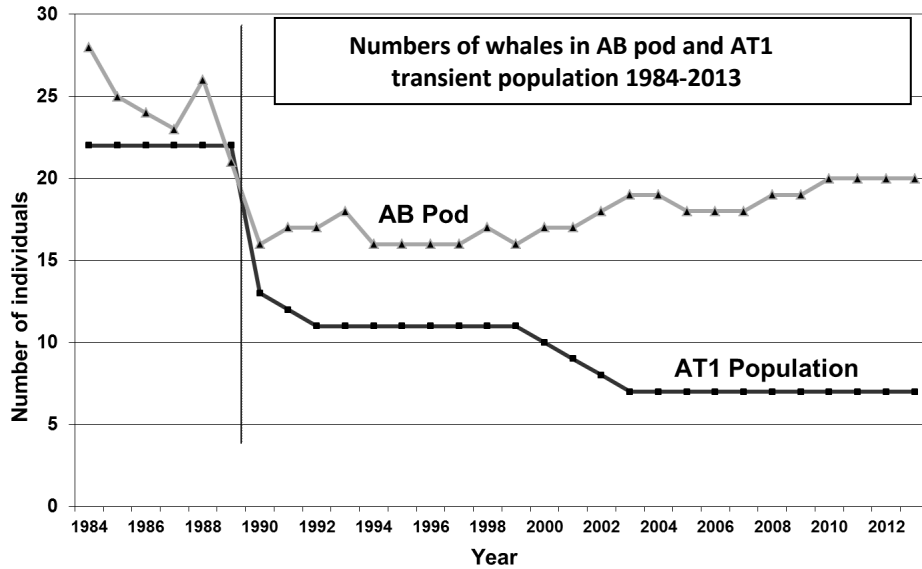


Figure 2. AB and AT1 pod counts from 1984 to current

We collected 6 biopsy samples for lipid, stable isotope and contaminant analysis during the fall field season. These samples were collected in parallel with our tagging effort in southwestern Prince William Sound and as part of our examination of feeding ecology at this time of year.

We attached tags to 3 whales in AJ pod during the September-October feeding aggregation in southwestern Prince William Sound. Tags deployed lasted an average of two weeks and were of the Mark 10 type (Wildlife Computers) which transmitted location and dive data. We are attempting to characterize feeding ecology during the crucial pre-winter period. Dive depths recorded by tags during feeding bouts were surprisingly consistent with the great majority at 200-280 meters. The depths indicated feeding near the bottom. This has been a surprise as the putative coho salmon prey were not necessarily thought to swim at these depth, and suggests other prey, possibly king salmon. Sampling of prey was nearly impossible from the single vessel with two crew while completing other aspects of the study and in the future it may be necessary to use an additional inflatable vessel and personnel dedicated to prey sampling.

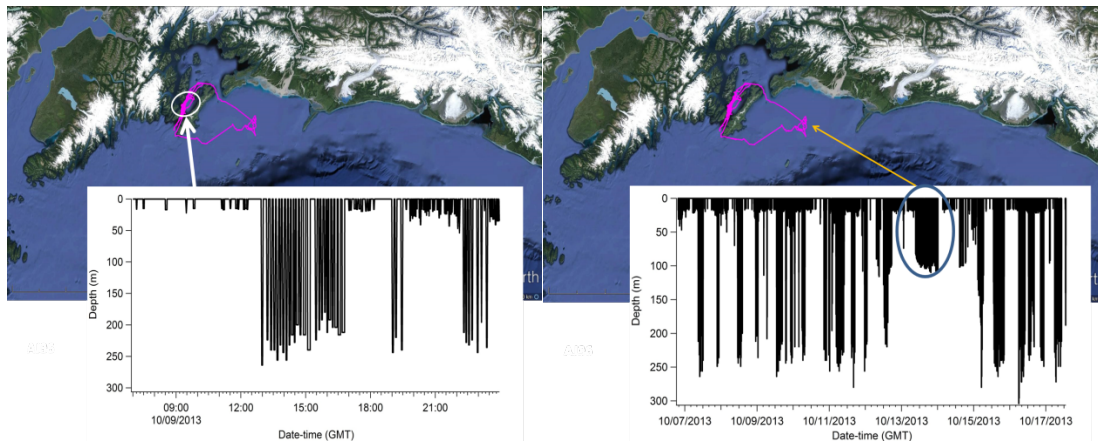


Figure 3. In lower Knight Island Passage tagged AJ whales tended to dive to depths of 200-250m during feeding bouts while feeding boats offshore near Wessels reef were in the 100m range

October 2013-January 2014. Photo analysis was completed during this period. A presentation was prepared and delivered at the annual Gulf Watch meeting in November. We updated numerous databases at

NGOS with 2013 field data including survey and encounter access database and biopsy and tagging summaries. We filtered tagging data and constructed maps and tracks and associated dive data for tagged whales. Samples of tissue and scales were sent out for analysis. We supplied our humpback whale photo-identification and encounter data to Project 12120114-N(Humpback Whale Predation on Herring in Prince William Sound). Facebook and web sites were updated.

We followed our list of objectives as stated in the original proposal, although we are using the new time/depth recording Mark 10 tags instead of location only tags. With limited field time and the single vessel it was difficult to complete all aspects of project, especially sampling prey during deep diving bouts when prey and infrequently brought to the surface and the research vessel is involved in. We are considering the possibility of using an inflatable and additional personnel to sample prey in Prince William Sound. Outreach included the creation of a Facebook site for the North Gulf Oceanic Society that allows quicker posting of events and more direct interaction than the website.

**Table 1. Status of project milestones for year 2**

| <b>Deliverable/Milestone</b>  | <b>Status</b>                         |
|---|---------------------------------------|
| Prepare population dynamics manuscript  | Accepted MMS, 30 April 2013           |
| Update of photographic catalogue, population database, mapping database, lab analysis | Completed May 10 2013 (for 2012 data) |
| Field work: PhotoID, Biopsy, prey sampling, tagging.                                  | 15 May- 15 October 2013               |
| Annual meeting Gulf Watch<br>Alaska Marine Science Symp                               | November 2013<br>January 2014         |

**8. Information and Data Transfer: See, Reporting Policy at III (C) (8).**

- Publication of book “Into Great Silence”, by Eva Saulitis (Beacon press), the story of the AT1 transient population
- Presentations at NRDC (New York), Center for Coastal Studies, Wellfleet Audubon (Cape Cod) Maui Whale Fest, Kenai  
Fjords Tourboat Association, Pratt Museum, U of A Fairbanks, and U of A Juneau
- Cover article in spring 2013 “On Earth” magazine (NRDC)
- Publication of article on killer whales for Delta Sound Connections 2013 (PWSSC) in March 2013
- Complete rework of North Gulf Oceanic Society website by webmaster Eric Poncelet
- Initiated Facebook page and provide feedback to Facebook comments
- Gathering reports/photographs and daily web posting of whale sighting information in Kenai Fjords with feedback to participants
- Attendance of Alaska Marine Science Symposium (Jan 2014) and presentation of “Are recent changes in dietary patterns of Southern Alaska Resident killer whales leading to nutritional stress?”
- Data sets uploaded or updated on the Gulf Watch site in 2013 include Killer whale photo summary 2012, Killer whale matriline 2012, Killer whale sat tag summary 2012, Killer whale GAT registry 2012, Killer whale biopsy summary 2012. Other summary data include AKW Master 2013, Orcadatabase 2012, GOA transient summary 2012, Killer whale vessel interactions 2012

**9. Response to EVOSTC Review, Recommendations and Comments: See, Reporting Policy at III (C) (9).**

We thank the reviewers for their positive remarks. This project did not receive direct recommendations from EVOSTC. We have responded to suggestions of staff regarding reporting.

**10. Budget:** See, Reporting Policy at III (C) (10).

Our budget and billing typically runs about 6 months behind the EVOS schedule because of our offset with fiscal year (the NGOS fiscal year ends June 1). This has been the case for many years

Attached budget form reflects the notification and acceptance of changes in annual budget category amounts. There has been no change in total project budget. At this time there has not been more than 10% deviation in budget categories for FY13.

**11. Summary bullets** Please provide 3-5 bullets summarizing project findings this year

- AB pod was not completely photographed (AB17 matriline was not present) but there is no increase in numbers for the matrilines photographed and pod has not recovered to prespill numbers
- AT1 (Chugach transients) remain at 7 individuals, from 22 prespill
- Lipid and stable isotope analysis indicates shift in prey for residents (fish eaters) over past decade, perhaps indicating a greater dependence on coho and/or chum salmon and less on Chinook.
- Overall resident population (other than AB pod) continues to increase at a rate of over 3% suggesting recovery from historical perturbation or the improvement of environmental conditions (eg increase salmon abundance)
- Time/depth/location tags indicated deeper diving than expected (200-250m) during fall feeding by residents in Montague Strait