

EVOS ANNUAL PROJECT REPORT

Project Number: 050012 

Project Title: Monitoring of Killer Whales in Prince William Sound and Kenai Fjords, Alaska

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Time Period Covered by Report: October 2004-September 2005

Date of Report: 3 October 2005

1. **Work Performed:** During August-September 2005, we completed a total of twelve field days dedicated to photoidentification of AB pod, other major resident pods, and the AT1 transient group. The AB17 and AB10 subpods were thoroughly photographed and there were no new calves. Possible new mortalities cannot be determined until recent film is processed and examined, but we suspect one reproductive female AB26 is missing. Members of AB25 subpod were observed twice in October 2004, both times travelling with AJ pod as has been the case since the oil spill. All members of the AB25 subpod were photographed except for AB55 which is tentatively listed as missing and calculated as a mortality in Figure 1. As has been the case the AB17 and AB10 subpods are functioning as a pod, and it appears that the AB25 subpod has permanently split with AB pod. We believe that deaths of important matriarchs following the oil spill caused the initial splitting of ABpod and possibly affected the viability of the AB25 subpod.

We have not analyzed the 2005 photographic data, but the data on individuals within major resident pods has been updated through 2004 and is presented graphically in Figure 1. AB25 subpod has not been split from AB pod in this representation for the purposes of consistency with previous years. Overall numbers in Prince William Sound and southeastern Alaska resident pods continue to increase and only AB pod has declined since 1988 (pre spill counts). AB pod may have a net loss of one or two this year (AB 55, AB26), but our analysis is not complete.

We have had 6 encounters with members of the AT1 population in 2005. A total of 7 AT1 whales were repeatedly encountered in various groupings. The AT2,3, and 4 subgroup and the AT9,10, and 18 subgroup were encountered separately. The male AT6 was also photographed both alone and with the AT2,3,4 subgroup. Three males that were last sighted in 2001 (AT 13 and AT17) and one last sighted in 2002 (AT14) were missing again in 2005 (Table 1, Figure 2). From mtDNA analysis it was determined that one AT1 whale died and stranded on Latouche Island in spring 2003 and another died and stranded on Hinchinbrook Island in 2002. Nuclear DNA analysis indicated the Latouche Island whale is either AT14 or AT17, the Hinchinbrook whale has been difficult to sequence. In any event, two of these three missing males are apparently dead leaving a maximum of 8 whales in the AT1 group. We are strongly suspect that all three males (AT14, 13, and 17) are dead.

No new predation events were observed with the AT1 whales. Harbor seals and Dall's porpoise were previously identified as important prey items (Saulitis 2000), however, a new item was added to the list of known prey when they were observed attacking and consuming a northern fur seal on the outer coast between Kenai Fjords and Prince William Sound in 2004. Again, there was no evidence of predation or attempted predation on Steller sea lions by AT1 whales. It is notable that AT1 whales have never been observed (by boat or camera) to forage near the Chiswell sea lion rookery.

Most of the encounters with the AT1 whales were in the Kenai Fjords area although contributed photos from Prince William Sound placed them in tidewater glacial areas of the Sound on two occasions; historically most encounters have been in Prince William Sound. Members of the AT1 population were extremely difficult to approach this season and may have avoided areas and times of peak tourboat operation

A side effect of the repeated presence of the AT1 whales in Kenai Fjords is their repeated exposure to tourboat traffic. Unfortunately now that the tourboat fleet is aware of their status as depleted, there is considerable effort made to view these rare whales, and the extended viewing times may impact the ability of these whales to hunt and cause them to be more boat shy and avoid the area during hours of peak boat operation. Strict viewing guidelines in regard these whales should be considered.

Figure 1.

The number of resident killer whales in AB pod, in seven other Prince William Sound pods, and in three Southeastern Alaska pods (all pods of the Southern Alaska Resident population). 1984-2004

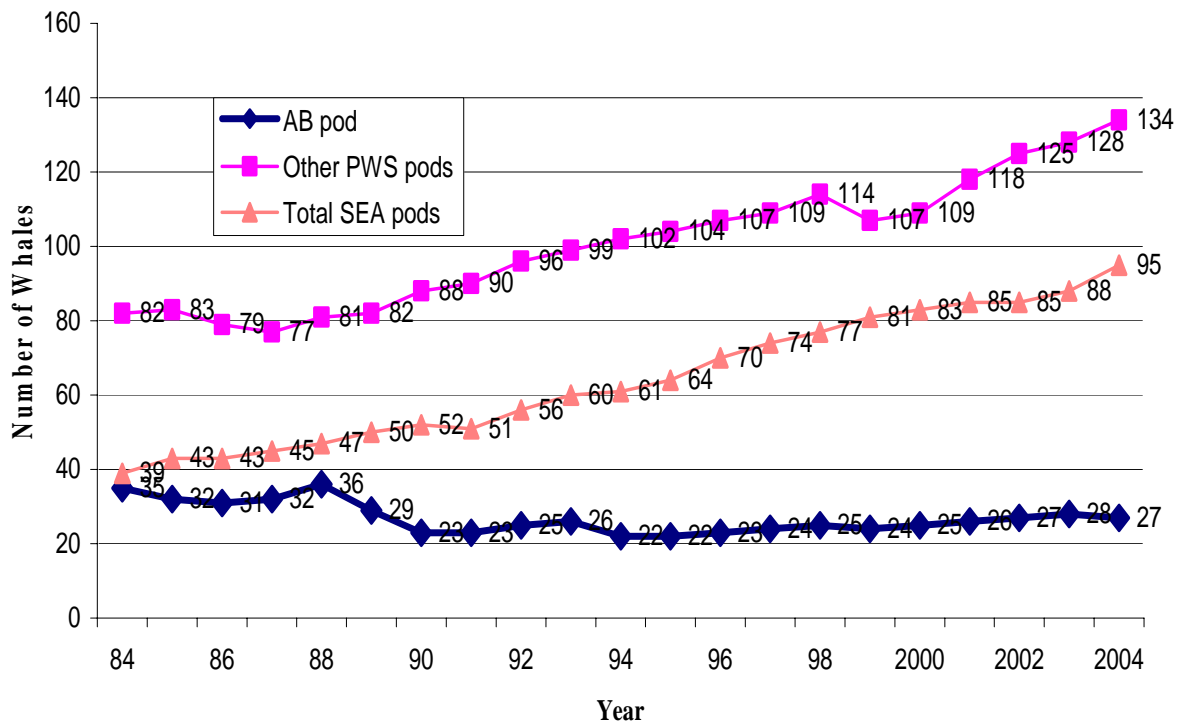


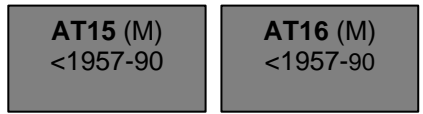
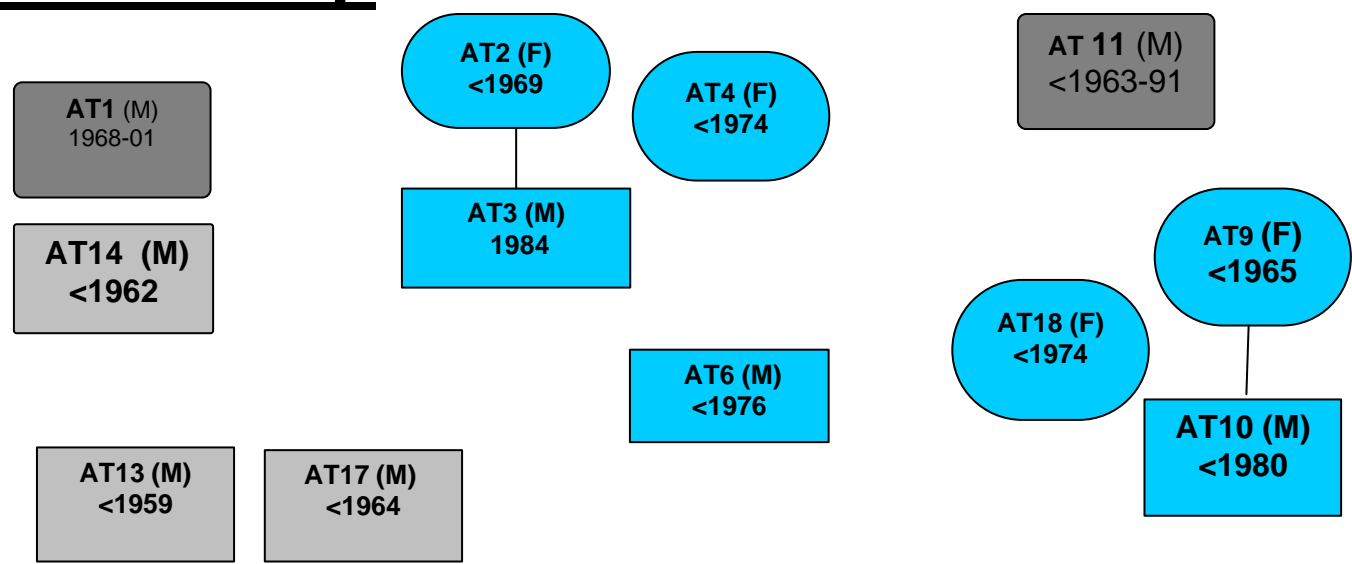
Table 1. Sighting histories for all AT1 transient whales for years with effort greater than 40 days.

<u>YEAR</u>	<u>AT1</u>	<u>AT2</u>	<u>AT3</u>	<u>AT4</u>	<u>AT5</u>	<u>AT6</u>	<u>AT7</u>	<u>AT8</u>	<u>AT9</u>	<u>AT10</u>	<u>AT11</u>	<u>AT12</u>	<u>AT13</u>	<u>AT14</u>	<u>AT15</u>	<u>AT16</u>	<u>AT17</u>	<u>AT18</u>	<u>AT19</u>	<u>AT20</u>	<u>AT21</u>	<u>AT22</u>
84	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
85	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
86	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
88	X	X	X	X				X	X	X	X	X	X	X	X		X	X		X	X	X
89	X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
90	X	X	X	X	-	X	-	-	X	X	X	X	X	X	-	-	X	X	O	-	-	-
91	X	X	X	X	-	X	-	-	X	X	-	X	X	X	-	-		X	O	-	-	-
92	X	X	X	X	-	X	-	-	X	X	-	-	X	X	-	-	X	X	O	-	-	-
93		X	X	X	-	X	-	-	X	X	-	-			-	-	X	X	O	-	-	-
94	X				-		-	-	X	X	-	-		X	-	-		X	O	-	-	-
95	X	X	X	X	-	X	-	-	X	X	-	-	X	X	-	-	X	X	O	-	-	-
96	X	X	X	X	-	X	-	-	X	X	-	-		X	-	-		X	O	-	-	-
97	X	X	X	X	-		-	-			-	-	X		-	-	X		O	-	-	-
98	X				-	X	-	-	X	X	-	-	X	X	-	-	X	X	O	-	-	-
99		X	X	X	-	X	-	-	X	X	-	-			-	-		X	O	-	-	-
2000	O				-		-	-			-	-	X	X	-	-	X		O	-	-	-
2001	O	X	X	X	-	X	-	-	X		-	-	X		-	-	X	X	O	-	-	-
2002	O	X	X	X	-		-	-	-		-	-		X	-	-			O	-	-	-
2003	O	X	X	X	-	X	-	-	X	X	-	-			-	-		X	O	-	-	-
2004	O	X	X	X	-	X	-	-	X	X	-	-			-	-		X	O	-	-	-
2005	O	X	X	X	-	X	-	-	X	X	-	-	-	-	-	-	-	X	O	-	-	-

X whale present
 - whale missing, believed dead
 O whale known dead

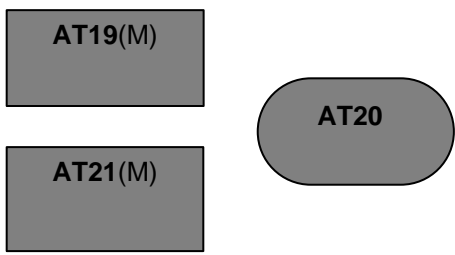
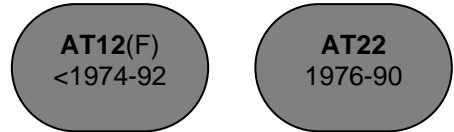
Figure 2. Structure of the AT1 group of transient killer whales.

AT1 Group



Arranged
by
association

All have
been
biopsied



= Presumed dead
 Probable Dead
 = Alive

2. **Future Work:**

Fieldwork through 2005 is nearing completion and results will be incorporated into a report to the Alaska Sea Life Center due in the winter 2004-2005. The annual EVOS workshop will be attended in January 2005. We will participate in meetings regarding potential lingering oil damage in December 2004 and January 2005. Limited monitoring will continue through 2007 as part of the GEM program

3. **Coordination/Collaboration:**

We are collaborating with Steller sea lion research projects (examining predation by killer whales) as well as with killer whale projects extending into Kodiak and the Aleutian Islands to assess the killer whale populations and aid in interpretation of genetic data. We are also collaborating with Jim Bodkin (sea otter program) to assess any potential changes in predatory behaviour of killer whales toward sea otters and with Anne Hoover Miller and Gail Blundell to examine changes in numbers and behaviours of killer whales in regard harbour seal numbers and distribution.

4. **Community Involvement/TEK & Resource Management Applications:**

We participated in Youth Area Watch Program in May 2005 taking young students to participate in field work. We held workshops in Seward in May 2005 for tourboat operators and others detailing the latest research findings and providing guidelines for behaviour when observing marine mammals. A poster was presented at the Anchorage Science Symposium in January 2005. Popular presentations were made in Seattle, Seward, and Homer during winter and spring 2005.

5. **Information Transfer:**

a. Publications produced

K.Heise, L.G. Barrett-Lennard, E. Saulitis, D. Bain, C.O. Matkin. 2003 Examining evidence for killer whale predation on Steller sea lions. *Aquatic Mammals* 29.3 .

Saulitis, E.L., C. O. Matkin, F.H. Fay 2005. Vocal repertoire and acoustic behavior of the isolated AT1 Killer Whale (*Orcinus orca*) subpopulation in southern Alaska. *Canadian Journal of Zoology* 83: 1015-1029

Matkin, C.O. Olesiuk, P. , G. Ellis, and E. Saulitis. Population dynamics of resident killer whales in southern Alaska. In prep. *Fishery Bulletin*.

b. Conferences attended

Paper presented at the joint EVOS/SSLRI symposium in Anchorage, Alaska in January 2004.
Two papers to be presented at the Marine Mammals of the Holarctic Conference in the Ukraine
November 2004

c. Data/information products

Updates to our website are made on a regular basis. Popular public presentations are given at regular intervals in various towns in Alaska. A paper on the AT1 transients was just published in the Canadian Journal of Zoology.

6. Budget:

Budget is on schedule and project total costs will fall within budget

Report Prepared By: Craig O. Matkin

Project Web Site Address: <http://www.whalesalaska.org>