

**TRIP REPORT: SIGHTINGS OF BRANDED STELLER SEA LIONS  
IN SOUTHEAST ALASKA AND NORTHERN BRITISH COLUMBIA  
10 – 25 JULY & 22– 30 AUGUST, 2006**

**Alaska Department of Fish and Game - Steller Sea Lion Program  
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Steller sea lion (*Eumetopias jubatus*) rookeries and haulouts throughout Southeast Alaska (SEA) and northern British Columbia (BC) were surveyed during July and August 2006 to observe branded Steller sea lions (SSL), estimate numbers of animals on shore, and record entanglements. Due to permit restrictions, scat was not collected during surveys this summer. Resightings of branded individuals will be used to estimate vital rates such as survival, recruitment, and dispersal and to describe seasonal distribution patterns. Haulouts and rookeries were surveyed in Alaska from Graves Rock (Cape Spencer) in the north to the Forrester Island complex near the U.S. – Canadian Border in the south, and in northern BC ( Figure 1).

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**Table 1.** Steller sea lion brand observations during July and August 2006. Table summarizes, by branding location and branding year, number of animals initially branded, the number of unique brands observed, and the percentage of those initially branded that were seen during the July and August 2006 resight cruises.

<b>Brand location (branding year)</b>	<b>Number initially branded</b>	<b>Number observed Jul/Aug 2006</b>	<b>% seen 2006</b>
<b>“F” Forrester complex (1994/1995)</b>	799	67	8.4
<b>“F” Forrester complex (2001)</b>	286	41	14.3
<b>“H” Hazy Islands (2001)</b>	213	58	27.2
<b>“F” Forrester complex (2002)</b>	141	28	19.9
<b>“W” White Sisters (2002)</b>	127	40	31.5
<b>“V” Graves Rock (2002)</b>	50	16	32.0
<b>“F” Forrester complex (2003)</b>	291	53	18.2
<b>“H” Hazy Islands (2003)</b>	101	23	22.8
<b>“F” Forrester complex (2004)</b>	277	54	19.5
<b>“W” White Sisters (2004)</b>	94	30	31.9
<b>“H” Hazy Islands (2005)</b>	225	79	35.1
<b>“W” White Sisters (2005)</b>	147	52	35.4
<b>“V” Graves Rock (2005)</b>	43	19	44.2
<b>“=” branded as older pup/juv in SEA</b>	184	67	36.4
<b>NMML brands</b>		35	
<b>TOTAL</b>		<b>662</b>	

## **METHODS**

Pups were branded by ADFG at their natal rookeries in June-July of 1994, 1995, 2001-2004 at the Forrester Island complex; in 2001, 2003, and 2005 at the Hazy Islands; in 2002, 2004, and 2005 at White Sisters; and in 2002 and 2005 at Graves Rock. Older pups (>2 months) and juveniles were branded at rookeries and haulouts in SEA during May and August 2001, June and November 2002, October 2003, and February and August 2004 (Table 1).

The timing and logistics of the resighting effort in 2006 differed somewhat from past years. We had intended to conduct surveys to overlap with previous year's data collection (mid June – early July and mid-late July). However, due to all SSL research permits being vacated by Federal court order in late May, and a subsequent month of negotiations between NMFS and the Humane Society of the United States, we did not receive permission to proceed with observational research in time to conduct vessel-based surveys during June. Instead, we surveyed during July, as initially planned (part of a reproductive rates study) and during late August. From 1999-2004, a single large vessel provided lodging and support for the research crew. In 2005 we used two vessels and two crews to cover northern SEA and central-southern SEA simultaneously. This year, we used two smaller vessels in July to collect data throughout SEA, and in August we chartered a single vessel and surveyed southern SEA and three sites in northern BC.

Research crews observed SSLs from small boats (22' Safeboats, 17' Boston whaler) at each haulout or rookery. Sites were approached at a slow speed and initially surveyed from a distance of >100 meters to allow sea lions to become accustomed to the boat. A count was made of all SSL that could be seen. This count is likely low as some animals were difficult or impossible to see, especially those in low-lying areas. Observers used binoculars (8X to 14X) to conduct counts and read brands. When a branded animal was sighted, the boat approached closer to the haulout and digital photographs (Nikon D100 or D1X cameras) were taken of the animal. When possible, each branded animal was photographed several times and once out of the field, one to four of the best photographs were saved. When a branded animal was observed the following data were recorded: brand number, brand quality, brand verification check (observer reads and records brand number, reads brand a second time and verifies the brand number written down), status (*e.g.*, female with pup, pup suckling), tag color and number, and comments. When possible, sex and age class (pup, juvenile, adult) were recorded. At some sites it was difficult to adequately survey all animals from the boat; when conditions allowed, observers went ashore and surveyed from a high point above the haulout or rookery, except in BC, where all observations were made from the skiffs. Additional data collected at each site included: date, location, observers, photographer, start and end times, weather data, a count of non-pups, and a count of pups (except at larger rookeries, where accurate pup counts were especially difficult and time consuming to obtain). We recorded and photographed sea lions with injuries, rope/net entanglements, or ingested fishing gear and recorded sightings of other pinnipeds.

Rookeries were surveyed more intensively during July as part of a study to estimate age-specific reproductive rates. The increased effort at rookeries included five surveys each at White Sisters and Forrester Island complex, four surveys each at Hazy Islands and Graves Rock, and 3 surveys at Bialli Rocks. During resights at rookeries, more detailed data were collected on adult females and their offspring, with each adult female being followed for approximately 20 minutes or until observed nursing a pup or juvenile.

Although permit limitations caused substantial changes to our summer field schedule, we were able to conduct resights at nearly all of the haulouts and rookeries in SEA. During the past three years, resights throughout BC have been conducted during a University of BC – Department of Fisheries and Oceans (DFO) cruise with an ADFG biologist along to assist with brand-resights. In 2006, the BC cruise was cancelled. We were able to survey three of the larger SSL haulouts in northern BC.

## **RESULTS**

We surveyed a total of 33 haulouts and rookeries, including three of the northern-most SSL haulouts in BC. Ten of the 33 sites had, at most, two animals present; the majority of these ten sites are primarily used during non-summer months. One exception is Wolf Rock, where nearly 300 animals have been counted in late June. No SSLs were present when this site was surveyed on 15 July. No animals were present at Little Island and Benjamin Island during our mid-July survey, and weather precluded us from surveying these sites again in late August when we know animals were present. Gran Point, in northern Lynn Canal, was surveyed by skiff in May when large numbers of animals congregate at this site. Estimates of the number of pups and non-pups are provided in Table 2. Counting animals was not the primary purpose of these surveys and these counts, made from skiffs offshore, are likely low and are included to provide general information on the number of animals present during our observations.

Overall, we observed and photographed 1,311 branded and tagged animals; 96.4% of these had a confirmed identity, based on the photograph. We have strong evidence that nearly half of the remaining observations were of branded animals seen during another survey day in 2006, but we could not confirm these sightings with a

photograph. We observed 668 unique individuals: 662 branded animals and six animals that were tagged but not branded (Table 1). Direct comparisons between 2005 and 2006 resight cruises are difficult to make due to differences between years in the timing of surveys and areas covered.

We made 67 observations of unique adult brands (branded at the Forrester complex in 1994 and 1995), representing 8.4% of the total number branded in those years (Table 1). We observed more than four times as many females (55) as males (12). Five of the 12 males were seen at rookeries; three of those males were surrounded by females and appeared to be holding territories. The low number of adult males is likely due to the timing of our surveys. In past years when rookeries were surveyed in mid-late June, at least twice as many adult males were resighted compared with surveys conducted in mid-late July and August.

Overall we observed 493 SEA natal rookery brands (animals branded from 2001-2005), including: 99 5-year olds, 84 4-year olds, 76 3-year olds, 84 2-year olds, and 150 yearlings, representing 20%, 26%, 19%, 23% and 36%, respectively, of the total number branded. For each cohort, we saw higher percentages of Hazy Island, White Sisters, and Graves Rock brands than we did Forrester brands.

#### National Marine Mammal Lab (NMML) brands

We observed 35 individuals that were branded by the NMML as pups at Sugarloaf and Marmot islands (Kodiak Island area), Seal Rocks (Prince William Sound), Rogue Reef (OR), St. George Reef (CA), and Shilshole Bay (WA); Shilshole Bay animals were captured as juveniles and so their natal rookery is unknown. Twenty-one SSLs were from the western stock (branded in Alaska) and 14 from the eastern stock (branded in California, Oregon, and Washington; Table 3). Fifty-four percent of the NMML brands were seen at sites in the Icy Strait - Glacier Bay area (S. Marble Island, Inian Islands, and Graves Rock) and 20% were seen in southern SEA - northern BC (Forrester complex – Chearnley Inlet).

#### Northern British Columbia haulouts

In August, we surveyed three sites in northern BC: Rose Spit, Warrior Rocks, and Chearnley Inlet. We hoped to survey Langara Island but skipped this site due to limited time and a poor weather forecast. Overall, we confirmed with photos 40 observations of branded animals, 35 of which were unique individuals not seen during our July resight cruises (Table 4). We saw 30 brands from the Forrester complex, six brands from California and Oregon (trailing Y and trailing R brands), three “=” brands (natal rookery unknown), and one animal from the Hazy Islands. Twenty-seven of the 40 branded animals at the BC sites were male. Chearnley Inlet was the largest of the BC sites we surveyed with an estimated 747 animals hauled out and 27 branded animals observed. We arrived at Rose Spit at 07:22 am on 25 August and counted 87 SSLs. Animals continued to haul out while we were there; our high count was 327 animals at 09:02. Five SSLs seen at BC sites in August were also seen at the Forrester complex during our July resight cruises.

#### Glacier Bay National Park (GBNP) brand observations

We made 197 observations of branded animals at sites within GBNP (S. Marble Island and Graves Rock), representing 108 individuals (Table 5). Overall, resights at GBNP contributed 91 unique individuals not seen elsewhere during our resight cruises this summer. Twenty-three Graves Rock brands were resighted within GBNP, seven juveniles born in 2002 and 16 yearlings born in 2005. Another 12 Graves Rock animals were seen at other sites, including nine at nearby Inian Islands and one each at White Sisters, SW Brothers Island, and Sail Island. Three branded females were seen nursing a pup at Graves Rock: one 5-yr old Forrester female, one 4-year old Graves Rock female, and one 4-year old White Sisters female. One Forrester female born in 1995 (F642) was seen nursing a juvenile at Graves Rock in July 2005 and July 2006. Thirteen branded yearlings and two branded 2-year olds were seen nursing or with their mothers.

Sites within GBNP continue to have the greatest diversity of brands compared with other areas. Branded animals from all SEA rookeries were seen within GBNP as well as branded animals from Marmot Island, Sugarloaf Island, Seal Rocks, Rogue Reef, and Shilshole Bay.

#### Entanglements

During July surveys, we recorded a total of 51 sea lions entangled with some type of fishing gear, rope, or packing bands; at least 33 of these were unique individuals (Table 2). In August, we observed 15 entangled animals, at least 12 of which were unique individuals.

To estimate entanglement rates, we used counts of animals at haulouts and smaller rookeries (Graves Rock and Biali Rocks) and excluded the larger rookeries (Forrester Island complex, Hazy Islands, White Sisters) where animals are difficult to count and the numbers recorded are rough estimates. We included data from sites that were

visited more than once, provided a count had been conducted. Using those criteria, the overall entanglement rate during the July surveys was 0.29%. Of the 33 entangled sea lions, 52% had a flasher hanging at or near its mouth (and likely had swallowed a hook), 36% had packing bands or line encircling their necks, and 12% were entangled with a hook and line in/around the mouth. It should be noted that these are minimum estimates; our surveys focused on resighting branded animals so some entangled animals may have been overlooked, and some entanglements are not externally visible (*e.g.*, swallowed hook). Our estimated entanglement rate for July 2006 is slightly higher than those estimated during brand-resight trips in June 2002 (0.18%), June 2003 (0.19%), June 2004 (0.17%), and July 2005 (0.23%).

One of the entangled animals we saw during summer surveys was branded. W39, a 4-year old male, was seen with a flasher embedded in its mouth on 12 July at Sea Lion Island. ADFG recently received a photograph of this animal taken on 15 August at Jacob Rock. Based on the photo, there is no evidence that this animal is entangled (the flasher is gone), although we have no way of knowing if the animal swallowed a hook that is still present internally. On 20 July 2005, we saw female W249 at White Sisters with a hook embedded in its mouth, trailing line that had a flasher attached. This female was seen on 14 July 2006 at Biali Rocks; the line and flasher were gone and it appears that the hook may also be gone. H445, a female born at Hazy Islands in June 2005, was seen on 21 March 2006 with a black band encircling her neck. The band was tight but not yet cutting into the flesh. When we resighted this female on 11 July at Cape Ommaney, the band was gone and there was no obvious scarring on the animal's neck.

#### Other marine mammals

We observed three other pinniped species (harbor seals, *Phoca vitulina*; northern fur seals, *Callorhinus ursinus*; and California sea lions, *Zalophus californianus*). Harbor seals were seen at Hazy Islands (3), Wolf Rocks (about 60), Yasha Island (20), Sunset Island (15), Sail Island (10), Warrior Rocks (2), Rose Spit (250-300), and East Rock-Forrester complex (1). California sea lions were seen at Coronation Island (1 subadult male), Graves Rock (1 adult male and 2 subadults or adult females), and SW Brothers Island (vocalization heard but animal never seen). Fourteen northern fur seals were seen at Hazy Islands in July (2 male, 5 adult female, 7 pups), and 16 in August. One sea otter (*Enhydra lutris*) was seen at Yasha Island. Killer whales (*Orcinus orca*) were observed at Rose Spit (1 adult male, 1 adult female, 1 calf), near Cape Chacon (5+), and south of SW Brothers Island (20-40 individuals). Humpback whales were seen on a number of occasions but detailed observation were not recorded.

#### **ACKNOWLEDGEMENTS**

Field logistics for this season were especially challenging with the vacating and restricted reissue of our research permit. Although we eventually were able to continue our brand-resighting program, we had to cancel our primary trip scheduled for June-early July. As a result, a great deal of time was spent re-scheduling charters and obtaining the necessary permits and legal approvals. Luckily, we have a great team of dedicated, flexible biologists that were willing to change personal plans in order to participate in re-scheduled field work. Along with the biologists on these cruises, a big thanks go to the ADFG Vessels Section, in particular Kyle Hebert, Helmer Olson, and Russell Sandstrom. These individuals went to great effort holding vessel charters open and shifting schedules to accommodate our needs. Helmer Olson, Kevin Kivisto, and Lito Skeek worked beyond the call of duty to help us maximize our time at sea and were critical to making our August trip successful and productive.

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Table 2. Steller sea lion observations in Southeast Alaska in July and August 2006. Data include date/time; location; estimated number of non-pups and pups (blank indicates no count conducted); number/type of entanglement; and sex/age of entangled animal (JUV=juvenile, AM=adult male, AF=adult female, SAM=subadult male, SA=subadult). Table includes all sites visited even if no counts were made or entangled animals observed.

Date/Time	Resight Location	Non-pups	Pups	Flasher	Ring-neck	Hook/line	Sex/age of entangled
7/10/2006 13:30	Sunset Pt/Island	120					
7/10/2006 13:54	Sail Island	153					
7/10/2006 15:20	Southwest Brothers Island	809					
7/11/2006 10:53	Cape Ommaney	285		1	1		2 SAMs; SAM with flasher blind in right eye
7/11/2006 13:02	Sea Lion Rock (Puffin Bay)	68				1	SAM
7/11/2006 17:35	Jacob Rock	41					
7/11/2006 18:15	Kaiuchali Island	1	0				
7/12/2006 10:01	Sea Lion Island	105	2	2			1 SAM + 1 JUV (branded animal W39)
7/13/2006 9:19	Biali Rocks	475	53	1	2		Ring-neck: AF, SAM or AM; Flasher: SAM or AM
7/13/2006 15:47	Biali Rocks	446	59	2	1	1	Ring-neck: SAM; Flasher: AF, SAM or AM; Hook/line: SAM
7/14/2006 8:45	Biali Rocks	457	45	1	2	1	Ring-neck: AF, AM; Flasher: SAM; Hook/line: AF
7/15/2006 8:24	Timbered Island	273	1		1		1 AM
7/15/2006 11:18	Cape Addington	627	3	2			1 AM, 1 Unknown
7/15/2006 15:48	Cape Bartolome	2	0				
7/15/2006 16:25	Wolf Rock	0	0				
7/16/2006 8:14	Sea Lion Rocks - Forrester				2		2 AF, one is nursing
7/16/2006 13:45	Sea Lion Rocks - Forrester				2		2 AF
7/16/2006 14:01	North Rocks - Forrester				1		1 AF
7/16/2006 16:00	Cape Horn Rocks - Forrester			1			1 AF
7/16/2006 16:18	Lowrie Is			1			1 AF
7/17/2006 10:00	Benjamin Island	0	0				
7/17/2006 10:25	Little Island, near Benjamin Island	0	0				
7/18/2006 8:15	Cape Horn Rocks - Forrester	208	103				
7/18/2006 8:16	Sea Lion Rocks - Forrester	525	189		2		2 AF, one with pup
7/18/2006 9:17	Graves Rocks	923	90	1	1		Flasher: SAM; Ring neck: Unknown
7/18/2006 9:59	West Rock - Forrester	47	0				
7/18/2006 10:10	North Rocks - Forrester						
7/18/2006 10:35	East Rocks - Forrester	66	113				
7/18/2006 12:19	Northeast Rock-Forrester	16	0				

Date/Time	Resight Location	Non-pups	Pups	Flasher	Ring-neck	Hook/line	Sex/age of entangled
7/18/2006 14:56	North Rocks - Forrester					1	AF with line around chest; with pup
7/18/2006 16:05	Graves Rocks	787	126	1	1		Flasher: SAM; Ring neck: AF
7/18/2006 18:28	Petrel Island South Tip - Forrester	13	0	1			Flasher: Unknown
7/19/2006 7:32	Sea Lion Rocks - Forrester				1		AF with pup
7/19/2006 8:06	Graves Rocks	1012	155				
7/19/2006 14:19	Cape Addington		3	1			1 AM
7/19/2006 14:32	Graves Rocks		134				
7/19/2006 16:51	Timbered Island	245	3				
7/20/2006 9:57	S. Marble Island	360	1		1		1 JUV
7/20/2006 10:24	Coronation Island	155	0				
7/20/2006 17:00	Inian Island	796	0				
7/21/2006 7:00	Inian Island	185					
7/21/2006 17:14	Coronation Island						
7/22/2006 8:56	White Sisters	898		1	1		Flasher: JUV; Ring neck: AM
7/22/2006 9:11	Grassy Island, Hazy Islands			1			1 AF
7/22/2006 13:00	Hazy Island			1			1 AF (seen during morning survey)
7/22/2006 16:20	White Sisters				1		1 AM (seen during morning survey)
7/23/2006 8:35	White Sisters		165		1		1 AM (seen previous day)
7/23/2006 9:32	Grassy Island - Hazy Islands						
7/23/2006 9:34	Rocky Islands - Hazy Islands						
7/23/2006 13:30	Grassy Island - Hazy Islands						
7/23/2006 13:32	Rocky Islands - Hazy Islands						
7/23/2006 15:00	White Sisters				1		AM; seen during morning survey and previous day
7/24/2006 7:55	White Sisters			1			Flasher: JUV; Ring neck: AM
7/24/2006 9:00	Coronation Island	140					
7/24/2006 18:40	Inian Island	905	0	1			1 SAM
7/24/2006 19:06	Yasha Island	402		2	1		Flasher: JUV, Unknown; Ring neck: JUV
7/25/2006 8:40	Southwest Brothers Island	569	0	1	1		Flasher: Unknown; Ring neck: SAM
7/25/2006 10:35	Sail Island	271	0				
7/25/2006 11:52	Sunset Island	20					
7/25/2006 11:52	Sunset Point	0					
7/25/2006 12:20	Point League	0	0				
7/25/2006 14:30	Mist	0	0				

Date/Time	Resight Location	Non-pups	Pups	Flasher	Ring-neck	Hook/line	Sex/age of entangled
8/23/2006 8:22	Sunset Pt/Island	2	0				
8/23/2006 8:56	Sail Island	427	0	1	1		Flasher: SA; Ring neck: JUV
8/23/2006 9:25	Southwest Brothers Island	518	3		1		1 AM
8/23/2006 16:06	Yasha Island	1076	5		1		1 JUV
8/24/2006 8:12	Coronation Island	466	2	1			1 SAM
8/24/2006 13:41	Timbered Island	327	3	1	1		Flasher: AF; Ring neck: AF
8/24/2006 15:41	Cape Addington	996	2				
8/25/2006 9:02	Rose Spit, BC	327	0		1		1 SAM
8/25/2006 12:22	Warrior Rocks	459	4		1		1 AF
8/25/2006 14:45	Chearnley Inlet	747	0				
8/26/2006 8:53	West Rock, Dixon Entrance	534	1		1		1 AF
8/26/2006 14:37	Pt Marsh, Dixon Entrance	197	0				
8/27/2006 10:00	Cape Bartolome	0	0				
8/28/2006 9:00	Cape Addington		2				
8/28/2006 10:46	Timbered Island	242	4	1	1		Flasher: JUV or SA (looking sick); Ring neck: Unknown
8/28/2006 16:10	Coronation Island	429	20			1	1 JUV
8/29/2006 7:51	Grassy Island - Hazy Islands	503					
8/29/2006 18:30	Yasha Island	746	1				
8/30/2006 8:00	Turnabout Island	0	0				
8/30/2006 8:30	Round Rock (sw of SW Brothers)	0	0				
8/30/2006 9:00	Southwest Brothers Island	698	11		1		1 JUV
8/30/2006 10:12	Sail Island	360	0		1		1 AM

Table 3. Steller sea lions branded as pups at their natal rookery by the National Marine Mammal Lab (in the western stock: Sugarloaf Is. (X), Marmot Is. (T), and Seal Rocks (J) and in the eastern stock: Rogue Reef in OR (R), St. George Reef in CA (Y), and Shilshole Bay in WA (no letter – digits only; natal rookery unknown)) and resighted in Southeast Alaska, July and August 2006. Data include resight date, brand number, resight location, sex, age of animal when resighted, and association (assoc'n; U = unknown, A = alone). All animals were photographed and photographs confirmed with the photo library.

Resight Date	Brand	Resight Location	Sex	Age	Assoc'n
07/18/06	10	Graves Rocks	M	5+	U
07/18/06	10	Graves Rocks	M	5+	U
08/29/06	11	Yasha Is.	M	5+	U
08/23/06	11	Yasha Is.	M	5+	U
07/20/06	11Y	Inian Is.	M	4.1	U
08/25/06	154Y	Chearnley Inlet	M	2.2	U
08/25/06	188Y	Chearnley Inlet	M	2.2	U
08/25/06	241Y	Chearnley Inlet	M	2.2	U
07/18/06	244R	Graves Rocks	M	3.1	U
07/18/06	244R	Graves Rocks	M	3.1	U
07/24/06	244R	Inian Is.	M	3.1	U
08/29/06	250R	Yasha Is.	M	3.2	U
08/23/06	250R	Yasha Is.	M	3.2	A
07/10/06	250R	Southwest Brothers Is.	M	3.1	U
07/22/06	261R	Grassy Island, Hazy Islands	M	3.1	A
08/25/06	269Y	Chearnley Inlet	M	2.2	U
07/16/06	269Y	Sea Lion Rocks (Forrester)	M	2.1	A
08/25/06	348R	Chearnley Inlet	M	3.2	U
07/18/06	396R	Graves Rocks	M	1.1	U
07/19/06	396R	Graves Rocks	M	1.1	U
07/11/06	447R	Kaiuchali Is.	M	1.1	U
08/25/06	67Y	Chearnley Inlet	M	4.2	U
07/19/06	J137	Graves Rocks	F	3.1	U
07/19/06	J137	Graves Rocks	F	3.1	U
07/18/06	J141	Graves Rocks	F	3.1	U
07/18/06	J141	Graves Rocks	F	3.1	U
07/20/06	J171	Inian Is.	M	3.1	U
07/16/06	J220	Sea Lion Rocks (Forrester)	M	1.1	U
07/16/06	J220	Sea Lion Rocks (Forrester)	M	1.1	A
07/20/06	J229	S. Marble Is.	F	1.1	U
07/19/06	J248	Graves Rocks	F	1.1	U
07/18/06	J248	Graves Rocks	F	1.1	U
07/19/06	J251	Graves Rocks	M	1.1	U
07/18/06	J251	Graves Rocks	M	1.1	U
08/23/06	J30	Yasha Is.	m	5.2	A
07/19/06	J30	Graves Rocks	m	5.1	U
08/23/06	J86	Yasha Is.	M	3.2	A
07/22/06	T143	White Sisters	F	4.1	U
07/23/06	T143	White Sisters	F	4.1	U
07/23/06	T143	White Sisters	F	4.1	U
07/24/06	T143	White Sisters	F	4.1	U



Resight Date	Brand	Resight Location	Sex	Age	Assoc'n
07/22/06	T143	White Sisters	F	4.1	U
07/20/06	T175	Inian Is.	M	4.1	U
07/24/06	T175	Inian Is.	M	4.1	U
07/24/06	T22	Yasha Is.	M	6.1	U
07/19/06	T229	Graves Rocks	M	2.1	U
07/18/06	T229	Graves Rocks	M	2.1	U
07/18/06	T23	Graves Rocks	F	6.1	A
07/18/06	T23	Graves Rocks	F	6.1	A
07/19/06	T23	Graves Rocks	F	6.1	U
07/19/06	T246	Graves Rocks	F	2.1	U
07/19/06	T246	Graves Rocks	F	2.1	U
08/29/06	T252	Yasha Is.	F	2.2	U
08/23/06	T252	Yasha Is.	F	2.2	U
07/20/06	X160	Inian Is.	M	4.1	U
07/20/06	X207	Inian Is.	M	4.1	U
07/19/06	X211	Graves Rocks	F	4.1	A
07/19/06	X211	Graves Rocks	F	4.1	A
07/18/06	X212	Graves Rocks	M	4.1	U
07/24/06	X352	Inian Is.	F	2.1	U

Table 4. Steller sea lion brand observations at sites in northern British Columbia during ADFG's brand-resight cruise in August 2006. Data include resight date and time, brand number, resight location, sex, age at time of observation, and association (assoc'n; U = unknown, A = alone). All animals were photographed and all photographs were confirmed with the photo library.

Resight Date/Time	Brand	Resight Location	Sex	Age	Assoc'n
8/25/2006 14:45	=413	Chearnley Inlet	M	4.2	U
8/25/2006 14:45	=523	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	=524	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	148F	Chearnley Inlet	F	2.2	U
8/25/2006 14:45	154Y	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	157F	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	169F	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	188Y	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	216F	Chearnley Inlet	F	2.2	U
8/25/2006 14:45	219F	Chearnley Inlet	F	2.2	U
8/25/2006 14:45	241Y	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	269Y	Chearnley Inlet	M	2.2	U
8/25/2006 14:45	348R	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	37F	Chearnley Inlet	F	2.2	U
8/25/2006 14:45	67Y	Chearnley Inlet	M	4.2	U
8/25/2006 14:45	F1055	Chearnley Inlet	M	5.2	U
8/25/2006 14:45	F121	Chearnley Inlet	F	3.2	U
8/25/2006 14:45	F125	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F1269	Chearnley Inlet	M	5.2	U
8/25/2006 14:45	F168	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F2079	Chearnley Inlet	M	4.2	U
8/25/2006 14:45	F22	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F3053	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F43	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F65	Chearnley Inlet	M	3.2	U
8/25/2006 14:45	F79	Chearnley Inlet	F	3.2	U
8/25/2006 14:45	H524	Chearnley Inlet	F	1.2	U
8/25/2006 7:22	96F	Rose Spit, BC	M	2.2	U
8/25/2006 7:22	F2035	Rose Spit, BC	M	4.2	U
8/25/2006 7:22	F2132	Rose Spit, BC	M	4.2	U
8/25/2006 7:22	F67	Rose Spit, BC	F	3.2	U
8/25/2006 7:22	F71	Rose Spit, BC	M	3.2	U
8/25/2006 12:22	F1019	Warrior Rocks	F	5.2	U
8/25/2006 12:22	F1069	Warrior Rocks	M	5.2	A
8/25/2006 12:22	F1072	Warrior Rocks	F	5.2	A
8/25/2006 12:22	F298@	Warrior Rocks	M	12.2	U
8/25/2006 12:22	F3074	Warrior Rocks	F	3.2	A
8/25/2006 12:22	F3080	Warrior Rocks	F	3.2	U
8/25/2006 12:22	F861@	Warrior Rocks	F	11.2	A
8/25/2006 12:22	F984	Warrior Rocks	M	11.2	A

Table 5. Steller sea lion brand observations at sites within Glacier Bay National Park during ADFG's brand-resight cruises in July and August 2006. Data include brand number, resight location, resight date and time, sex, age at time of observation, and association (assoc'n; S = suckling, U = unknown, A = alone, NJ = nursing juvenile, NP = nursing pup, WP = with pup, WF = with female). All animals were photographed and all photographs were confirmed with the photo library.

Brand	Resight Location	Resight Date/Time	Sex	Age	Assoc'n
=196	Graves Rocks	7/19/2006 14:32	M	6.1	U
=205	Graves Rocks	7/18/2006 9:17	M	7.1	U
=394	Graves Rocks	7/18/2006 9:17	M	5.1	U
=394	Graves Rocks	7/18/2006 16:05	M	5.1	U
=415	Graves Rocks	7/18/2006 9:17	F	4.1	A
=426	Graves Rocks	7/18/2006 16:05	M	4.1	U
=426	Graves Rocks	7/19/2006 8:06	M	4.1	U
=426	Graves Rocks	7/19/2006 14:32	M	4.1	U
=474	Graves Rocks	7/18/2006 9:17	F	3.1	A
=474	Graves Rocks	7/18/2006 16:05	F	3.1	A
=474	Graves Rocks	7/19/2006 14:32	F	3.1	A
10	Graves Rocks	7/18/2006 9:17	M		U
10	Graves Rocks	7/18/2006 16:05	M		U
153F	Graves Rocks	7/19/2006 8:06	M	2.1	U
153F	Graves Rocks	7/19/2006 14:32	M	2.1	U
244R	Graves Rocks	7/18/2006 9:17	M	3.1	U
244R	Graves Rocks	7/18/2006 16:05	M	3.1	U
273F	S. Marble Is.	7/20/2006 9:57	M	2.1	U
396R	Graves Rocks	7/18/2006 9:17	M	1.1	U
396R	Graves Rocks	7/19/2006 8:06	M	1.1	U
65F	S. Marble Is.	7/20/2006 9:57	M	2.1	U
F100	Graves Rocks	7/18/2006 9:17	M	3.1	U
F100	Graves Rocks	7/18/2006 16:05	M	3.1	U
F110	Graves Rocks	7/18/2006 16:05	M	3.1	U
F110	Graves Rocks	7/19/2006 8:06	M	3.1	U
F1170	Graves Rocks	7/18/2006 9:17	F	5.1	NP
F1170	Graves Rocks	7/18/2006 16:05	F	5.1	NP
F1170	Graves Rocks	7/19/2006 8:06	F	5.1	NP
F1205	Graves Rocks	7/18/2006 9:17	M	5.1	U
F1205	Graves Rocks	7/19/2006 8:06	M	5.1	U
F1205	Graves Rocks	7/19/2006 14:32	M	5.1	U
F1213	Graves Rocks	7/18/2006 16:05	M	5.1	A
F2004	Graves Rocks	7/18/2006 16:05	M	4.1	U
F2004	Graves Rocks	7/19/2006 8:06	M	4.1	U
F2004	Graves Rocks	7/19/2006 14:32	M	4.1	U
F2069	Graves Rocks	7/18/2006 9:17	F	4.1	A
F2069	Graves Rocks	7/18/2006 16:05	F	4.1	A
F2069	Graves Rocks	7/19/2006 14:32	F	4.1	A
F2102	Graves Rocks	7/18/2006 9:17	M	4.1	U
F2102	Graves Rocks	7/19/2006 8:06	M	4.1	U
F3079	Graves Rocks	7/19/2006 8:06	M	3.1	U
F3079	Graves Rocks	7/19/2006 14:32	M	3.1	U

Brand	Resight Location	Resight Date/Time	Sex	Age	Assoc'n
F517	Graves Rocks	7/18/2006 9:17	F	12.1	A
F517	Graves Rocks	7/18/2006 16:05	F	12.1	A
F517	Graves Rocks	7/19/2006 8:06	F	12.1	U
F517	Graves Rocks	7/19/2006 14:32	F	12.1	U
F642	Graves Rocks	7/18/2006 9:17	F	11.1	A
F642	Graves Rocks	7/19/2006 8:06	F	11.1	U
F642	Graves Rocks	7/19/2006 14:32	F	11.1	NJ
H123	Graves Rocks	7/18/2006 9:17	M	5.1	U
H123	Graves Rocks	7/18/2006 16:05	M	5.1	U
H127	Graves Rocks	7/19/2006 14:32	M	5.1	U
H206@	Graves Rocks	7/19/2006 8:06	M	5.1	U
H206@	Graves Rocks	7/19/2006 14:32	M	5.1	U
H320	Graves Rocks	7/19/2006 14:32	F	3.1	A
H345	S. Marble Is.	7/20/2006 9:57	M	3.1	U
H419	Graves Rocks	7/18/2006 16:05	F	1.1	S
H419	Graves Rocks	7/19/2006 8:06	F	1.1	U
H422	S. Marble Is.	7/20/2006 9:57	M	1.1	U
H447	Graves Rocks	7/18/2006 9:17	M	1.1	U
H447	Graves Rocks	7/19/2006 8:06	M	1.1	U
H447	Graves Rocks	7/19/2006 14:32	M	1.1	U
H456	Graves Rocks	7/19/2006 8:06	F	1.1	U
H468	Graves Rocks	7/18/2006 9:17	M	1.1	U
H468	Graves Rocks	7/19/2006 8:06	M	1.1	U
H468	Graves Rocks	7/19/2006 14:32	M	1.1	WF
H473	Graves Rocks	7/18/2006 16:05	M	1.1	U
H473	Graves Rocks	7/19/2006 8:06	M	1.1	S
H476	Graves Rocks	7/18/2006 9:17	F	1.1	U
H476	Graves Rocks	7/18/2006 16:05	F	1.1	U
H476	Graves Rocks	7/19/2006 8:06	F	1.1	U
H476	Graves Rocks	7/19/2006 14:32	F	1.1	U
H562	S. Marble Is.	7/20/2006 9:57	M	1.1	U
H590	S. Marble Is.	7/20/2006 9:57	M	1.1	U
H70	Graves Rocks	7/18/2006 16:05	M	5.1	U
H70	Graves Rocks	7/19/2006 8:06	M	5.1	U
H94	S. Marble Is.	7/20/2006 9:57	M	5.1	U
J137	Graves Rocks	7/19/2006 8:06	F	3.1	U
J137	Graves Rocks	7/19/2006 14:32	F	3.1	U
J141	Graves Rocks	7/18/2006 9:17	F	3.1	U
J141	Graves Rocks	7/18/2006 16:05	F	3.1	U
J229	S. Marble Is.	7/20/2006 9:57	F	1.1	U
J248	Graves Rocks	7/18/2006 9:17	F	1.1	U
J248	Graves Rocks	7/19/2006 8:06	F	1.1	U
J251	Graves Rocks	7/18/2006 16:05	M	1.1	U
J251	Graves Rocks	7/19/2006 8:06	M	1.1	U
J30	Graves Rocks	7/19/2006 14:32	m	5.1	U
T229	Graves Rocks	7/18/2006 9:17	M	2.1	U
T229	Graves Rocks	7/19/2006 8:06	M	2.1	U

Brand	Resight Location	Resight Date/Time	Sex	Age	Assoc'n
T23	Graves Rocks	7/18/2006 9:17	F	6.1	A
T23	Graves Rocks	7/18/2006 16:05	F	6.1	A
T23	Graves Rocks	7/19/2006 14:32	F	6.1	U
T246	Graves Rocks	7/19/2006 8:06	F	2.1	U
T246	Graves Rocks	7/19/2006 14:32	F	2.1	U
V14	Graves Rocks	7/18/2006 9:17	F	4.1	A
V14	Graves Rocks	7/18/2006 16:05	F	4.1	A
V14	Graves Rocks	7/19/2006 8:06	F	4.1	U
V14	Graves Rocks	7/19/2006 14:32	F	4.1	U
V20	Graves Rocks	7/18/2006 9:17	F	4.1	A
V20	Graves Rocks	7/18/2006 16:05	F	4.1	NP
V20	Graves Rocks	7/19/2006 8:06	F	4.1	WP
V3	Graves Rocks	7/18/2006 9:17	M	4.1	U
V30	Graves Rocks	7/19/2006 8:06	M	4.1	U
V30	Graves Rocks	7/19/2006 14:32	M	4.1	U
V4	Graves Rocks	7/19/2006 8:06	F	4.1	U
V4	Graves Rocks	7/19/2006 14:32	F	4.1	U
V42	Graves Rocks	7/19/2006 14:32	M	4.1	A
V45	Graves Rocks	7/18/2006 9:17	F	4.1	U
V45	Graves Rocks	7/19/2006 14:32	F	4.1	U
V55	Graves Rocks	7/18/2006 16:05	M	1.1	U
V55	Graves Rocks	7/19/2006 8:06	M	1.1	U
V55	Graves Rocks	7/19/2006 14:32	M	1.1	U
V56	S. Marble Is.	7/20/2006 9:57	M	1.1	U
V57	Graves Rocks	7/18/2006 9:17	F	1.1	U
V62	S. Marble Is.	7/20/2006 9:57	M	1.1	U
V63	Graves Rocks	7/19/2006 8:06	F	1.1	U
V64	Graves Rocks	7/18/2006 9:17	M	1.1	U
V64	Graves Rocks	7/18/2006 16:05	M	1.1	U
V64	Graves Rocks	7/19/2006 8:06	M	1.1	S
V64	Graves Rocks	7/19/2006 14:32	M	1.1	S
V65	Graves Rocks	7/19/2006 8:06	M	1.1	U
V66	S. Marble Is.	7/20/2006 9:57	M	1.1	U
V68@	Graves Rocks	7/19/2006 14:32	F	1.1	U
V72	Graves Rocks	7/19/2006 14:32	F	1.1	U
V74	Graves Rocks	7/18/2006 9:17	F	1.1	S
V74	Graves Rocks	7/19/2006 8:06	F	1.1	U
V76	Graves Rocks	7/18/2006 16:05	M	1.1	U
V76	Graves Rocks	7/19/2006 8:06	M	1.1	U
V76	Graves Rocks	7/19/2006 14:32	M	1.1	S
V78@	Graves Rocks	7/19/2006 8:06	M	1.1	U
V78@	Graves Rocks	7/19/2006 14:32	M	1.1	U
V86@	Graves Rocks	7/18/2006 9:17	F	1.1	U
V86@	Graves Rocks	7/18/2006 16:05	F	1.1	U
V87	Graves Rocks	7/18/2006 9:17	F	1.1	S
V87	Graves Rocks	7/18/2006 16:05	F	1.1	U
V87	Graves Rocks	7/19/2006 8:06	F	1.1	U

Brand	Resight Location	Resight Date/Time	Sex	Age	Assoc'n
V90@	S. Marble Is.	7/20/2006 9:57	F	1.1	U
W102	S. Marble Is.	7/20/2006 9:57	M	4.1	U
W218	S. Marble Is.	7/20/2006 9:57	M	2.1	U
W228@	S. Marble Is.	7/20/2006 9:57	F	2.1	U
W24	Graves Rocks	7/18/2006 16:05	M	4.1	U
W24	Graves Rocks	7/19/2006 8:06	M	4.1	U
W241	S. Marble Is.	7/20/2006 9:57	M	2.1	U
W244	Graves Rocks	7/18/2006 9:17	F	2.1	U
W244	Graves Rocks	7/18/2006 16:05	F	2.1	U
W244	Graves Rocks	7/19/2006 8:06	F	2.1	U
W244	Graves Rocks	7/19/2006 14:32	F	2.1	U
W255	S. Marble Is.	7/20/2006 9:57	M	2.1	U
W272	S. Marble Is.	7/20/2006 9:57	F	2.1	U
W273	Graves Rocks	7/18/2006 9:17	F	2.1	U
W273	Graves Rocks	7/19/2006 14:32	F	2.1	U
W285@	Graves Rocks	7/18/2006 16:05	M	2.1	U
W285@	Graves Rocks	7/19/2006 8:06	M	2.1	S
W288	S. Marble Is.	7/20/2006 9:57	M	2.1	U
W289@	Graves Rocks	7/18/2006 9:17	U	2.1	S
W289@	Graves Rocks	7/18/2006 16:05	U	2.1	S
W289@	Graves Rocks	7/19/2006 14:32	U	2.1	U
W307	Graves Rocks	7/19/2006 8:06	F	1.1	U
W317	Graves Rocks	7/18/2006 9:17	F	1.1	S
W317	Graves Rocks	7/18/2006 16:05	F	1.1	U
W317	Graves Rocks	7/19/2006 8:06	F	1.1	S
W317	Graves Rocks	7/19/2006 14:32	F	1.1	S
W33	S. Marble Is.	7/20/2006 9:57	M	4.1	U
W336@	S. Marble Is.	7/20/2006 9:57	M	1.1	U
W337	Graves Rocks	7/18/2006 9:17	M	1.1	S
W337	Graves Rocks	7/19/2006 8:06	M	1.1	U
W337	Graves Rocks	7/19/2006 14:32	M	1.1	U
W354	Graves Rocks	7/18/2006 9:17	M	1.1	U
W354	Graves Rocks	7/19/2006 8:06	M	1.1	U
W354	Graves Rocks	7/19/2006 14:32	M	1.1	U
W360	S. Marble Is.	7/20/2006 9:57	M	1.1	U
W364	S. Marble Is.	7/20/2006 9:57	M	1.1	U
W381@	Graves Rocks	7/18/2006 9:17	U	1.1	U
W381@	Graves Rocks	7/19/2006 8:06	U	1.1	U
W384	Graves Rocks	7/19/2006 8:06	M	1.1	S
W386	S. Marble Is.	7/20/2006 9:57	F	1.1	U
W389	S. Marble Is.	7/20/2006 9:57	F	1.1	S
W397	S. Marble Is.	7/20/2006 9:57	M	1.1	U
W400	Graves Rocks	7/18/2006 9:17	F	1.1	U
W406	Graves Rocks	7/18/2006 9:17	M	1.1	S
W406	Graves Rocks	7/18/2006 16:05	M	1.1	S
W406	Graves Rocks	7/19/2006 14:32	M	1.1	U
W411	S. Marble Is.	7/20/2006 9:57	F	1.1	U

Brand	Resight Location	Resight Date/Time	Sex	Age	Assoc'n
W415	S. Marble Is.	7/20/2006 9:57	M	1.1	U
W424	Graves Rocks	7/18/2006 9:17	M	1.1	S
W424	Graves Rocks	7/19/2006 14:32	M	1.1	U
W6	Graves Rocks	7/18/2006 9:17	M	4.1	A
W6	Graves Rocks	7/18/2006 16:05	M	4.1	U
W68@	Graves Rocks	7/19/2006 8:06	F	4.1	U
W95	Graves Rocks	7/19/2006 8:06	F	4.1	NP
W95	Graves Rocks	7/19/2006 14:32	F	4.1	NP
X211	Graves Rocks	7/19/2006 8:06	F	4.1	A
X211	Graves Rocks	7/19/2006 14:32	F	4.1	A
X212	Graves Rocks	7/18/2006 9:17	M	4.1	U
275Y <sup>1</sup>	S. Marble Is.	7/20/2006 9:57	M	2.1	U
343Y <sup>2</sup>	Graves Rocks	7/18/2006 9:17	M	1.1	U
343Y <sup>2</sup>	Graves Rocks	7/19/2006 14:32	M	1.1	U

<sup>1</sup> Tagged as a pup at White Sisters rookery in June 2004 (animal not branded)

<sup>2</sup> Tagged as a pup at Hazy Islands rookery in June 2005 (animal not branded)

Figure 1. Steller sea lion haulouts and rookeries visited during ADFG's brand-resight cruises in Southeast AK and northern BC in July and August, 2006. Rookeries are labeled.

