

TRIP REPORT:

SIGHTINGS OF BRANDED STELLER SEA LIONS IN SOUTHEAST ALASKA AND NORTHERN BRITISH COLUMBIA 5 JUNE – 2 JULY 2002

Alaska Department of Fish and Game Steller Sea Lion Program

By Lauri Jemison and Kim Raum-Suryan

OBJECTIVE

The primary objective of this trip was to survey Steller sea lion (*Eumetopias jubatus*) rookeries and haulouts throughout Southeast Alaska (SEA) and northern British Columbia (BC) to resight branded Steller sea lions (SSL). Pups were branded at their natal rookeries in June-July of 1994, 1995, and 2001 at the Forester Island complex and in 2001 at the Hazy Islands. Older pups and juveniles were branded at rookeries and haulouts in SEA during May and August 2001. Observations also were made of sea lions that were branded as pups in the western stock in 2000 (Marmot and Sugarloaf islands near Kodiak Island) and 2001 (Fish Island and Seal Rocks in Prince William Sound). A secondary objective of this trip was to assist the University of BC with scat collections at haulouts throughout SEA and northern BC. Dr. Andrew Trites of the University of BC will prepare a separate report on the diet information obtained from those scats.

STUDY AREA

In Alaska, we surveyed 22 sites (18 haulouts and 4 rookeries) from Glacier Bay in the north to the U.S. – Canadian Border in the south (Figure 1). In northern BC, we surveyed 15 sites (13 haulouts and 2 rookeries) along the northern, western, and southeastern shores of the Queen Charlotte Islands and the eastern shore of Hecate Straits.

VESSELS

We used the Alaska Department of Fish and Game vessel *R/V Medeia* (Captain Wade Loofbourrow) from 5 – 17 June and the U.S. Fish and Wildlife Service *M/V Curlew* (Captain Joe Spicciani) from 18 June – 2 July.

RESEARCH CREW

Section 1 (5 – 17 June): Tom Gelatt, Lauri Jemison, Jamie King, Ken Pitcher, Kim Raum-Suryan, Greg Snedgen, Dennis McAllister, Charlie Stinchcomb, Andrew Trites, Saeko Kumagai. Peter Olesiuk from the Canadian Department of Fisheries and Oceans joined the cruise while in BC waters from 10 – 14 June. Park Ranger Debbie Gardiner joined the trip while we surveyed along Gwaii Haanas National Park Reserve from 10 – 12 June.

Section 2 (18 – 23 June): Lauri Jemison, Kim Raum-Suryan, Greg Snedgen, Jay Ver Hoef, Dom Tollit, and Grey Pendleton. Additional observations were made by Tom Gelatt, Jamie King, Ken Pitcher, and Mike Rehberg during concurrent SSL captures in Frederick Sound.

Section 3 (24 June – 2 July): Lauri Jemison, Kim Raum-Suryan, Jay Ver Hoef, Dom Tollit, Dennis McAllister, and Ken Pitcher.

METHODS

The research crew observed SSLs from small boats (17' and 22' Boston Whalers and a 22' Safeboat) 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 observed for brands; animals in low-lying areas or otherwise obstructed were not included in this count. 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 D1X digital camera) 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 information (*e.g.*, tag color and number), and comments (Appendix I). 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.

Additional data collected at each site included: date, location, observers, photographer, start and end times, weather data, a count of animals observed for brands, and a count of pups (except at larger rookeries, where accurate pup counts were especially difficult and time consuming to obtain; Appendix I). We recorded and photographed sea lions with injuries, rope/net entanglements, or ingested fishing gear and recorded unusual sightings of other pinnipeds. We took GPS locations and photographs of each haulout and rookery for future reference.

RESULTS

Counts

Steller sea lions were observed at 13 of the 15 sites surveyed in BC; branded animals were present at four (Joseph Rocks, Reef Rocks, North Danger Rocks, and Warrior Rocks) of the 13 sites (Table 1). We counted approximately 3,141 SSL at the 13 sites and saw 11 branded animals. Twenty of the 22 sites surveyed in SEA had SSLs present and branded animals were seen at each of these sites. Overall we observed 299 unique brands in SEA. Seven sites in SEA were surveyed more than once (between 2-6 times). Using the highest count from each site, we counted approximately 6,272 non-pup SSLs in SEA, excluding the Forrester complex. The highest count of the Forrester complex was 1,323 non-pups. Because counts were usually conducted from skiffs, some animals could not be seen. Our counts reflect the number of animals that we were able to observe for brands not a total count of animals on shore and so counts reported here, particularly at larger sites, are low.

The presence of pups was noted for each rookery and haulout site. As the population of SSLs has increased in SEA, the number of pups born on sites north of the Forrester complex also has increased. In the early 1990s, pups were not observed at Graves Rock. Ken Pitcher reported seeing pups at this site in August of 1999 and Beth Mathews, with the University of Alaska Southeast, confirmed that pups were being born at Graves Rock in July 2000. We counted a minimum of 30, 49, and 61 pups at Graves Rock in 2000, 2001, and 2002, respectively (Table 1). Minimum counts of pups at Biali Rocks, a haulout off the outer coast of Baranof Island, were 21 (June 2000) and 27 (June 2001). Poor survey conditions precluded a pup count at this site in 2002.

Brands

“F” Adults (branded as pups at Forrester Island complex in 1994 & 1995):

We made 123 observations of branded adult SSLs during our surveys; some individuals were seen multiple times (Table 2, Appendix II). Eighty-eight unique brands were seen which represents 11% of the total number branded in 1994 and 1995. Of the 88 brands, 69 (78%) were readable and 19 (22%) were difficult or impossible to read due to scarring. Although some of the digits on those 19 brands were unreadable, many of the brands were distinct and have been recognized in multiple years. Five adults (three females, two males) were sighted for the first time since branding; an additional three animals may have been sighted for the first time but this could not be confirmed due to poor brand quality. Only one adult SSL was sighted in BC, a seven-year-old male that was hauled out at Joseph Rocks. By comparison, in June-July 2001, 104 (13%) of the SSLs branded at the Forrester complex in 1994 and 1995 were observed during a 22-day resighting effort. Of those 104 brands sighted in 2001, 79% were readable and nine individuals were sighted for the first time since branding.

The 88 unique adults seen in 2002 included 50 females and 35 males (sex could not be determined for three animals). Of the 50 females, 13 (26%) were observed either nursing or with a pup (8) or juvenile (5); nine of those females were eight-year-olds and four were seven-year-olds. Six of the eight females with pups were hauled out at the Forrester complex and two were hauled out at Hazy Islands. The females with juveniles were seen at the Forrester complex, White Sisters, Hazy Islands, Timbered Island, and Sunset Island. In 2001, 21 adult females were seen with dependent young. We only saw two of those 21 adult females again with dependent young in 2002. F980 was observed with a pup at Hazy Islands in 2001 and with a juvenile at Hazy Islands in 2002. F3bowtie was observed with a pup at Hazy Islands in 2001 and with a juvenile at Timbered Island in 2002.

Twenty-nine adults were sighted at least twice during our surveys although only six of those individuals were seen at more than one location. Female F744 was sighted with a juvenile at North Rocks (Forrester complex) on 8 June and resighted alone at Cape Addington on 21 June (distance = 70 km). Female F860 was sighted at Cape Bartolome on 9 June and resighted again on 22 June at North Rocks (distance = 43 km). Female F836unsure was sighted at Easterly Island on 15 June and was resighted at Cape Addington on 21 June (distance = 245 km). Three eight-year-old males were sighted at haulouts on 8 or 9 June then resighted later in the month at rookeries. Male F377 was sighted at Cape Addington on 9 June and resighted at Hazy Islands on 19 and 20 June (distance = 69 km). Male F447 was sighted at West Rock (Forrester complex) on 8 June and resighted at White Sisters on 27 June (distance = 355 km). Male F496 was sighted at Cape Addington on 9 June and resighted at White Sisters on 27 June (distance = 290 km).

“F” and “H” Juveniles (branded as pups in 2001 at natal rookery: Forrester complex - F and Hazy Islands - H):

We made 134 observations of Forrester yearlings (Table 2, Appendix III). Ninety-six unique brands were sighted which represents 34% of the pups branded at the Forrester complex in 2001. Only one brand was unreadable due to scarring and we were able to identify this animal by reading its tag number. Twenty-two (23%) of the Forrester yearlings were seen suckling or with a female. Ten animals were sighted at more than one location although seven of these ten animals were seen at locations in the same general area (*e.g.*, different sites within the Forrester Island complex or different sites within Frederick Sound). The largest movements were made by F1055

(West Rock/Dixon Entrance on 14 June to North Rocks/Forrester complex on 22 June; 147 km), F1078 (Easterly Island on 15 June to SW Brothers on 20 June; 232 km), and F1211 (Warrior Rock, BC on 14 June to Sunset Island on 17 June; 476 km).

We made 161 observations of Hazy Island yearlings; 87 of these were individuals representing 41% of the pups branded there in 2001. Three additional brands were sighted but the brand numbers were not confirmed. Twenty-three of the 87 yearlings (26%) were seen suckling or with a female. Fourteen animals were seen at more than one location, although all sightings were at haulouts within Frederick Sound. In all, we observed 183 F and H branded yearlings; of these, only 10 were sighted in BC, all of which were branded at the Forrester complex.

“=” Juveniles (branded as pups and juveniles in May and August 2001 during SEA dive captures):

We recorded 75 observations of = brands, 39 of which were individuals (Table 2, Appendix IV). These 39 animals account for 51% of the total number branded during SEA capture operations in 2001. There was only one animal for which we could not confirm the brand number. One animal, =209 (branded as a pup in August 2001 at White Sisters), was seen with a female while hauled out at Graves Rock. Eight animals were seen at more than one location, although all sightings were at haulouts within Frederick Sound. Resighting efforts were greater at Frederick Sound haulouts (Yasha Island, SW Brothers, Sunset Island) as observations of branded animals were made in conjunction with concurrent SSL captures. Our higher resighting rate of the = branded animals is likely due to this increased effort and the fact that many of the SEA 2001 = branded animals were captured in the Frederick Sound area.

“Other” brands (branded as pups at Sugarloaf and Marmot islands in 2000 and Fish Island and Seal Rocks in 2001)

We observed 12 individuals that were branded at sites in the western stock: six from Marmot Island, three from Seal Rocks, two from Sugarloaf Island, and one from Fish Island (Appendix V). All but two animals were seen at either the White Sisters or Graves Rock rookeries. Six of the 12 animals were seen in SEA during June or July 2001.

Tags

Tags were applied to the foreflippers of SSLs branded in 1994 (n=399). We observed one adult male (F241) with a red tag in its left foreflipper but were unable to read the tag. In 2001, 146 pups were tagged in both left and right foreflippers at the Forrester complex. We observed 38 tagged Forrester yearlings and were able to read 23 of those tags.

We observed two tagged but unbranded SSLs during our surveys. One animal, sighted at Sea Lion Rocks, had a white/yellow tag in both foreflippers. The second animal, a juvenile seen at White Sisters, had a purple/red tag in both foreflippers. We were unable to confirm the tagging location of these animals without reading the tag numbers.

Independent Sightings/Brand Misreads/Photographs

When surveying each site, we typically had two observers and an additional photographer/observer in each skiff. When possible, at least two observers would independently read a brand and several photographs would be taken of the brand. Overall, 385 of our 493 brand observations (78%) were independently read by at least two observers in the field (Table 2). Of the 108 brands that were not independently read in the field, 44 (9%) were determined primarily or entirely from photographs (*e.g.*, a branded animal entered the water before the brand could be read

but a photograph was taken), 26 (5%) of the brands were observed by a single person then verified with a photograph, 29 (6%) of the brands were read by a single person but no photograph was taken, and 9 (2%) of the brands were misread in the field (brand was read differently by two or more observers, photograph was used to determine the correct brand number). Of the 29 brands that were not independently read or photographed, most (24) were observations made during SSL captures in Frederick Sound where less time was available for resighting efforts.

Of the 13 “other” (X, T, E, J) brands observed (Appendix V), 10 were read independently, two were determined from photographs, and one was observed by one person and verified with a photograph. Digital photographs continue to be an essential tool in brand identification and confirmation.

Entanglements

Twenty-one SSLs were entangled with some type of fishing gear, rope, or packing bands (Table 1). Entangled animals were observed at five of the 13 sites in BC and 10 of the 20 sites in SEA where animals were present. In BC, nine entanglements were documented in the 3,141 animals observed, resulting in a 0.29% entanglement rate. In SEA, 12 entangled animals were observed in the 7,595 animals counted resulting in a 0.16% entanglement rate. Nine individuals had flashers hanging from or near their lip and three animals had a leader/lure and fishing line hanging from their mouth, indicating they had swallowed some type of fishing gear. Eight individuals had rope, packing bands, or line encircling their necks resulting in deep wounds that cut into the blubber.

Of the 21 entangled animals, six were adult males, six were juveniles, five were unknown sex/age, and four were adult females. All of the adult females had dependent young (two with pups, two with juveniles). One of these adult females was near death and was lying on top of her pup, which was dead.

Mortalities

We observed three dead adults: two at White Sisters (one male, one female) and one adult male at Cape Addington. Dead pups were observed at Langara Island (1), Timbered Island (1), White Sisters (2), and Hazy Islands (2).

Scat

Approximately 1,062 scats were collected at 23 sites (Table 1). Scats were not collected on rookeries and so pups were not disturbed during scat collections. Scats were, however, collected at bachelor haulouts adjacent to rookery areas at Cape St. James, North Danger Rocks, Hazy Islands, White Sisters, and Graves Rock. An additional 200 – 225 scats were collected at the Forrester complex, White Sisters, and Graves Rock during a concurrent SSL branding project.

Other Pinniped Observations

In addition to observations of Steller sea lions, we observed three other pinniped species (harbor seal, *Phoca vitulina*; fur seal, *Callorhinus ursinus*; and California sea lion, *Zalophus californianus*). Harbor seals were seen at several haulouts including Yasha Island, Hazy Islands, and Lowrie Island. We observed five fur seals at Hazy Islands and one California sea lion at Cape Ommaney.

Table 1. Steller sea lion observations in SEA and BC from 6 June to 2 July 2002. Date, location, observation (obs) start time and total time, non-pup counts from which branded animals were observed, pup counts, number of animals disturbed (dist.) during scat collections, number/type of entanglement (A=adult F=female, M=male, juv=juvenile), number of brands (F-Forrester, H-Hazy Island, = -ADFG captures, and other brands: X-Sugarloaf Is., T-Marmot Is., E-Fish Is., and J-Seal Rocks), and number of scats collected.

Date	Location	Latitude (N)	Longitude (W)	Start obs	Total obs time	Est. # non-pups	Est. # pups	# Dist.	# & type of entanglement	# Brands				# Scat
										F	H	=	other	
6 June	Forrester Island Complex:													
	East Rock ^a	54°51.663	133°31.634	11:50	25 min	110	20	0	0	2	0	0	0	0
	NE Rock	54°52.476	133°33.131	12:20	16 min	35	0	0	0	1	0	0	0	0
	North Rocks ^a	54°52.478	133°33.749	12:37	53 min	500	^b	0	1 mouth - leader (juv)	4	0	0	0	0
	Cape Horn Rocks ^a	54°50.840	133°33.224	14:45	70 min	300	^b	0	1 neck - rope (AM)	6	0	0	0	0
	Sea Lion Rocks ^a	54°50.624	133°32.218	16:00	55 min	233	^b	0	0	4	0	0	0	0
	West Rock	54°51.657	133°33.064	17:00	20 min	68	0	0	0	2	0	0	0	0
8 June	Forrester Island Complex:													
	NE Rock	54°52.476	133°33.131	09:00	10 min	45	0	0	0	1	0	0	0	0
	North Rocks ^a	54°52.478	133°33.749	09:15	59 min	450	^b	0	0	6	0	0	0	0
	West Rocks	54°51.657	133°33.064	10:20	35 min	45	0	0	0	5	0	0	0	0
	Cape Horn Rocks ^a	54°50.840	133°33.224	11:00	89 min	250	^b	0	0	11	0	0	0	0
	Sea Lion Rocks ^a	54°50.624	133°32.218	14:00	46 min	408	^b	0	0	3	0	0	0	0
	East Rock ^a	54°51.663	133°31.634	14:50	10 min	100	^b	0	0	1	0	0	0	0
	West shore Lowrie ^a			15:05	22 min	25	^b	0	0	1	0	0	0	0
9 June	Cape Bartolome	55°14.516	133°36.660	10:50	23 min	150	0	0	0	1	0	0	0	0
	Cape Addington	55° 26.400	133°49.200	12:08	96 min	356	2	78	1 neck - band/line	6	1	0	0	50
10 June	Langara Rocks, BC	54°15.601	133°00.812	09:57	16 min	45	1	45	1 mouth - flasher (AF)	0	0	0	0	54
	Joseph Rocks, BC	53°48.798	133°08.418	17:45	93 min	435	0	~60	2 mouth - flasher 1 neck - band/line 1 mouth - leader (juv)	3	0	0	0	66
11 June	Hippa Island, BC			09:10	5 min	0	0							0
	Cone Head, BC	53°22.589	132°43.454	10:17	73 min	95	0	0	0	0	0	0	0	0
	Marble Island, BC			13:00	10 min	0	0							0
	S. Tasu Head, BC	52°42.324	132°04.545	18:05	20 min	40	0	0	0	0	0	0	0	0
12 June	Cape St. James, BC ^a	51°55.405	131°00.141	07:30	139 min	700 ^c	^b	27	0	0	0	0	0	31
	Anthony Island	52°04.911	131°13.777	13:01	53 min	202	0	31	0	0	0	0	0	36
	Garcin Rocks, BC	51°55.450	131°00.274	13:00	50 min	246	1	~90	0	0	0	0	0	23

Date	Location	Latitude (N)	Longitude (W)	Start obs	Total obs time	Est. # non-pups	Est. # pups	# Dist.	# & type of entanglement	# Brands				# Scat
										F	H	=	other	
12 June	Reef Rocks	52°52.397	131°29.199	20:57	47 min	360	0	0	0	4	0	0	0	0
13 June	McInnes Is, BC	52°15.597	128°43.262	09:40	11 min	48	0	48	0	0	0	0	0	29
	Steele Rocks, BC	52°27.830	129°22.250	09:59	41 min	99	0	99	1 neck - band/line (AM) 1 neck - netting	0	0	0	0	53
	North Danger, BC ^a	53°15.330	130°20.770	18:45	65 min	436	^b	~50	1 neck - band/line (AM)	1	0	0	0	2
	Bonilla Rocks, BC	53°26.625	130°36.115	19:30	60 min	110	3	~40	0	0	0	0	0	61
14 June	Warrior Rocks	54°03.866	130°51.185	08:45	80 min	325	3	320	1 neck - band/line (AM)	3	0	0	0	41
	West Rocks	54°48.694	131°29.992	17:55	75 min	332	1	~250	1 neck - band/line (juv)	13	1	0	0	58
15 June	Grindall Island	55°26.414	132°06.582	08:15	47 min	160	0	160	0	1	1	0	0	60
	Easterly Island	55°53.720	132°05.484	13:15	88 min	212	0	40	1 mouth - flasher (AF w/juv suckling)	7	2	0	0	37
17 June	Sunset Island	57°30.000	133°35.200	16:40	73 min	322	0	0	0	4	7	5	0	0
	SW Brothers	57°16.034	133°52.577	19:25	65 min	55	0	0	0	1	3	2	0	0
18 June	Yasha Island	57°57.776	134°33.657	08:33	129 min	200	0	120	1 mouth - flasher	6	2	2	0	58
	Cape Ommaney	56°10.549	134°42.406	17:13	50 min	175	2	0	0	3	2	0	0	0
	Sea Lion Rocks	56°15.012	134°49.962	18:47	38 min	105	0	0	0	0	1	1	0	0
	SW Brothers ^d	57°16.034	133°52.577	10:26	8 min	320	0	0	0	2	3	3	0	0
19 June	Hazy Islands ^a	55°52.002	134°34.332	09:40	318 min	1138	^b	6	1 neck - band (AF)	12	6	0	0	67
	SW Brothers ^d	57°16.034	133°52.577	08:10		255	0	0	0	10	12	16	0	0
20 June	Hazy Islands ^a	55°52.002	134°34.332	08:33	178 min	1079	^b	0	1 neck - band (AF w/pup)	13	7	1	0	0
	SW Brothers ^d	57°16.034	133°52.577	09:00		236	0	0	0	8	20	10	1	0
21 June	Timbered Island	55°41.482	133°48.011	08:30	145 min	221	1	~172	0	8	5	0	0	60
	Cape Addington	55° 26.400	133°49.200	14:29	66 min	800	3	0	1 mouth - lure/line (AM) 1 neck - rope (juv)	15	1	0	0	5
	Sunset Island ^d	57°30.000	133°35.200			300	0	0	0	1	17	5	0	0
22 June	Sunset Island ^d	57°30.000	133°35.200	08:29	28 min	300	0	0	0	1	10	3	0	0
	SW Brothers ^{d,e}	57°16.034	133°52.577	12:17	44 min	300	0	0	0	1	11	1	0	~70
	Yasha Island ^d	57°57.776	134°33.657	16:07	64 min					4	1	2	0	0
	Forrester Island Complex:													
	East Rock ^a	54°51.663	133°31.634	10:25	26 min	142	^b	0	0	2	0	0	0	0
	NE Rock	54°52.476	133°33.131	10:57	10 min	19	0	0	0	2	0	0	0	0
	North Rocks ^a	54°52.478	133°33.749	11:09	60 min	495	^b	0	0	7	0	0	0	0
	Cape Horn Rocks ^a	54°50.840	133°33.224	14:17	58 min	235	^b	0	1 neck - band/line (AM)	5	0	0	0	0

Date	Location	Latitude (N)	Longitude (W)	Start obs	Total obs time	Est. # non-pups	Est. # pups	# Dist.	# & type of entanglement	# Brands				# Scat	
										F	H	=	other		
22 June	Forrester Island Complex (continued):														
	Sea Lion Rocks ^a	54°50.624	133°32.218	15:20	83 min	230	^b	0	0		5	0	0	0	0
	West Rock	54°51.657	133°33.064	12:15	17 min	47	0	0	0		2	0	0	0	0
26 June	Biali Rocks	56°42.600	135°20.400	08:30	120 min	273	^b	0	1 mouth - flasher (AF w/juv)		5	5	4	0	0
	Jacob Rock ^f	56°47.367	135°30.102	11:00	20 min	40	^b	0	0		1	1	1	0	0
27 June	White Sisters ^a	57°38.095	136°15.162	08:47	351 min	739	^b	60	0		13	8	4	2	80
28 June	Graves Rock ^a	58°14.312	136°45.384	08:11	152 min	477	61	49	0		2	0	1	8	27
	Inian Islands	58°16.300	136°40.000	13:27	26 min	84	0	0	0		1	2	0	0	0
	South Marble Island	58°38.838	136°02.805	17:12	75 min	150	0	110	0		0	5	0	0	33
30 June	White Sisters ^a	57°38.095	136°15.162	08:25	269 min	819	^b	0	1 mouth - flasher (juv)		14	4	3	1	0
	Sea Lion Island	57°16.910	135°53.356	16:05	40 min	105	0	0	1 mouth - flasher (AM)		4	0	0	0	0
	Point Lull	57°18.600	134°48.400	10:05	1 min	0	0	0							0
1 July	Yasha Island	57°57.776	134°33.657	15:40	85 min	236	0	0	0		5	3	1	1	0
2 July	SW Brothers	57°16.034	133°52.577	08:24	107 min	350	0	0	0		7	12	10	0	0
	Sunset Island	57°30.000	133°35.200	12:33	95 min	445	0	365	1 mouth - flasher (SA)		4	11	5	0	61
	Point League	57°36.400	133°38.500	15:00	1 min	0	0	0							0

^a Indicates a rookery

^b No dedicated pup counts were conducted

^c Pup and non-pup counts combined

^d Observations conducted opportunistically during SSL captures in Frederick Sound

^e Scats collected during SSL captures in Frederick Sound

^f Incomplete survey due to rough sea conditions

Table 2. Steller sea lion brand observations in SEA and northern BC during resighting surveys from 6 June – 2 July 2002. Table summarizes (by branding location and branding year) the number of: animals initially branded, total brand sightings, unique brands observed and the % of the total the unique brands represent, brands read independently, misread brands, brands determined from photographs, and non-independent brand readings with and without photo verification. F brands: pups branded at their natal rookery, Forrester Island complex, in 1994, 1995, and 2001; H brands: pups branded at their natal rookery, Hazy Islands, in 2001; and = brands: pups and juveniles branded during capture operations at rookeries and haulouts in SEA during May and August 2001.

	F brands (1994 & 1995)	F brands (2001)	H brands (2001)	= brands SEA (2001)	TOTAL
Number initially branded	799	286	213	76	1374
Total number brands sighted	123	134	161	75	493
Number of unique brands	88	96	87	39	310
Percent of total resighted	11%	34%	41%	51%	23%
Independent	85	109	132	59	385
Misread brands	3	2	4	0	9
From photograph	21	7	10	6	44
Non independent + photo verification	14	5	2	5	26
Non independent + no photo verification	0	11	13	5	29

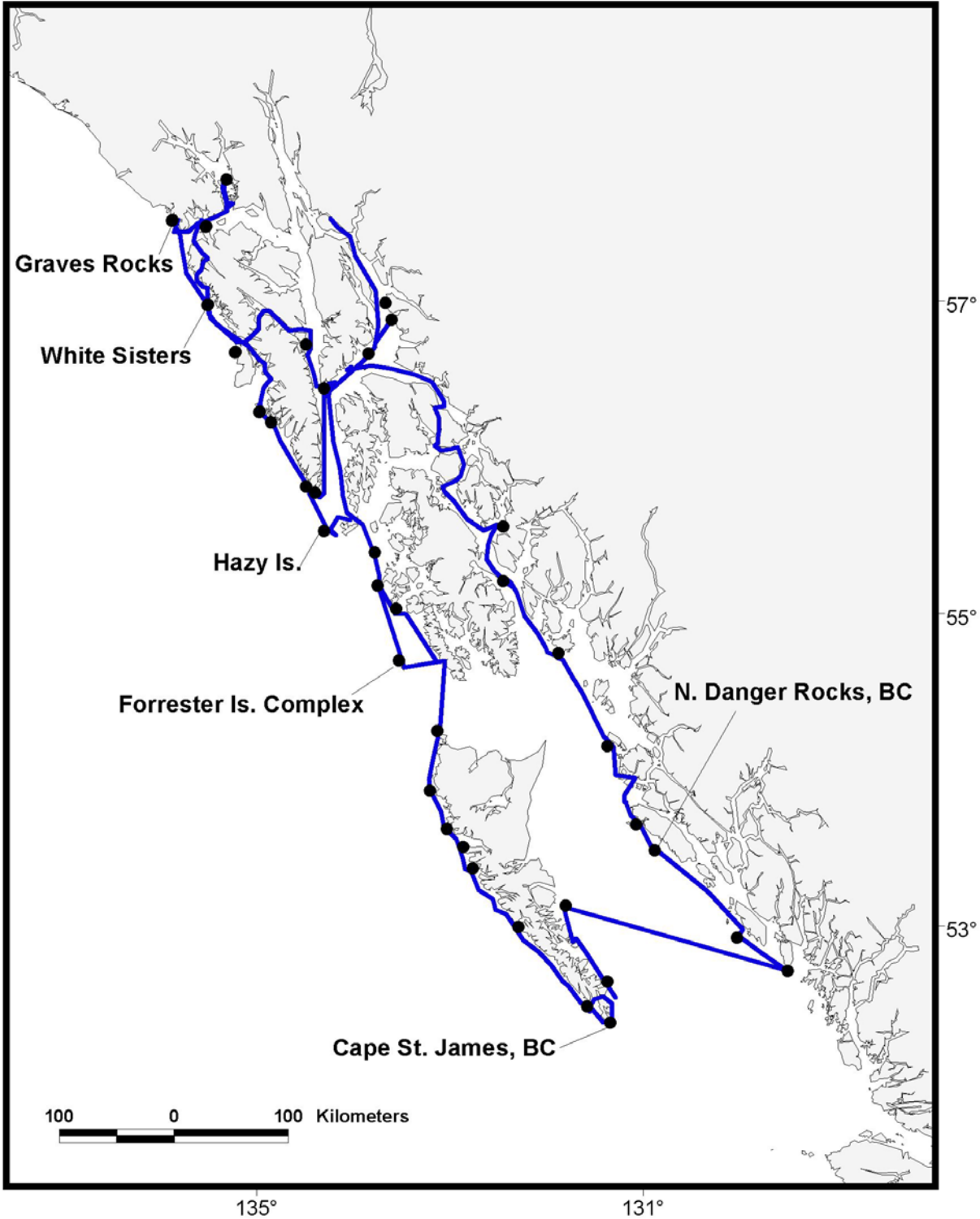


Figure 1. Trackline of brand-resight cruise aboard the *R/V Medeia* and *M/V Curlew* during 5 June – 2 July 2002. Dots depict haulouts and rookeries visited. Rookeries are labeled.

Appendix I. Steller Sea Lion Brand Resight Form

Location: _____ Area: _____ Habitat type: _____
 Date: _____ Observer: _____ Photographer: _____
 Start time: _____ End time: _____ Count: _____
 Temp: _____ Bar: _____ WS: _____ Dir: _____ Sky: _____ Swell: _____ Precip: _____ CC: _____
 Comments: _____

Brand #	Brand Quality	√	Ind	Tag Color	Tag #		Photo Card/Frame	Age	Sex	Status	Comments
					Left	Right					

Appendix I. Codes and instructions for Steller Sea Lion Brand Resight Form

Location: Location of rookery or haulout (be as specific as possible, especially if site is named “sea lion rocks” or “seal rocks”, write: sea lion rocks off Forrester Is, give latitude and long. if possible).

Area: Be as specific as possible, *e.g.*, Beach 1A on Lowrie Is.

Habitat Type: **RC:** Rocky Cove **SB:** Sandy Beach

Date: Record date of resight, *e.g.*, 23 June 2000.

Observer: If standard crew, use initials, for fill-in crew, use full name.

Photographer: Full name. List last names of all observers if > 1.

Start / End Time: Indicate time you began searching for branded animals and the time you stop.

Total Count: Count the total number of sea lions within your brand resight observation area, *e.g.* there are 150 sea lions on the haul-out, you count 80 from your observation area from which you could see a branded animal, the **total count would be 80**.

Weather: Temp: Temperature (indicate °C or °F) **Bar:** Barometric pressure **WS:** Wind Speed **Dir:** wind direction

Sky:	0	clear	Swell:	0	< 4 feet	Precip:	7	drizzle
	1	scattered clouds		1	> 4 feet		8	rain
	2	partly cloudy, broken		2	> 6 feet		9	snow
	3	high overcast		3	> 8 feet		99	hail
	4	low overcast		4	> 10 feet		0	none
	5	lt. Fog						
	6	heavy fog						

CC: Cloud cover - In octas (eighths of total sky) *e.g.* 0 = clear, 8 = complete overcast.

GLARE: Consider glare when taking photos - none, slight/low, moderate, or severe

Brand #: Record the brand number or a resemblance of the mark if the brand is not readable.

Brand Side: No longer on data form as nearly all animals branded on left shoulder. This note is a reminder to record in comments and highlight row if you see an animal branded on right side.

Brand Quality: Score each digit separately, including the first letter or symbol, using the following criteria

- +** The digit is easily readable and is cleanly formed. **You are absolutely certain of the digit you record.**
- 0** The digit is readable but takes some time to discern, or it is not a clear brand. This is unrelated to poor lighting, distance of animal, or angle of view. The “0” indicates the branded digit has some distortion, scarring, smearing, or hair, etc; describe in comments. **You are absolutely certain of the digit you record.**
- The digit is difficult to read because of scarring, distortion, hair, or smeared numbers. You are unable to determine the digit, or **you are uncertain of the digit** but have a best guess. In either case, this digit should be recorded as “?” in the **Brand #**. Describe the digit, and why you are uncertain, in the comments. Sketch, if possible. If the questionable digit is likely a certain number, record that in comments along with your estimate of certainty (70% sure).
- \$** The digit is unreadable because it is obscured by an object, at an odd angle, the lighting is poor, or the animal is too far away. **You are uncertain of the digit.** The digit should be recorded as “?” in the **Brand #**. Describe why you are uncertain in the comments.

Five +++++ can be written in shorthand as a single “+” with a circle around it.

√ (**Check**): Record a “Y” for yes or “N” for no to verify brand reading/recording. This means that you read the brand, recorded it in your notebook, read the brand a second time then verified the number you had written down. This is **unrelated** to how certain you are of a digit; *e.g.*, you could observe then record F3?4, observe this again, and verify that you had written this correctly in your notebook.

Appendix I. Codes and instructions for Steller Sea Lion Brand Resight Form

- Ind.:** Independent reading of brand by more than one observer. Must individually read the brand, record in notebook, read and confirm (i.e., you are doing the “check” described above) WITHOUT discussing with other observer. Then, compare brand reading and record “B” for yes if brand number is the same, “N” for no. If tag read independently by 2 observers, record “T”. When looking at photos, if brand number is determined from a photograph, record “FP”. When two observers have different readings of brand number, use photo to determine correct number and record “MB” for misread brand; in comments, note problems with the brand reading.
- Tag color:** Record the color of the tag.
- Tag # / Left – Right:** If you see and read a tag on left (or right) flipper, write the tag # in that box. If a tag is present but you can’t read it, record “NR” in appropriate box (left or right). Use “NT” to indicate flipper seen but no tag present (**be very certain of this & document with photos**). Use “NS” to indicate you couldn’t see flipper or couldn’t determine definitively whether there was a tag. “TR” indicates tag rip – be certain of this and document with photo.
- Photo: Card/Frame:** **Y** – Yes (photo taken); **N** – No. Indicate # of digital flash card used and frame number (if standard camera – Roll/Frame #).
- Sex:** Record sex of the animal only if 100% confident (must see ventrum); **M** = male; **F** = female; **U** = unknown.
- Age:** **P** – pup, **J** – Juvenile, **SA** – subadult, **A** - adult
- Status:** Record status using the following codes: **TB** – Territorial Bull, **S** – suckling, **WF** – with female, **NF** – no female, **WP** – with pup, **NP** – no pup, **U** - unknown
- Comments:** Notes on brand condition and description of problematic brands. Notes on tags, behavior, wounds, scars, etc. **Be liberal with comments!**

Appendix II. Steller sea lions branded as pups at Forrester Island complex during 1994 and 1995 and resighted from 6 June to 2 July 2002. Brand number, resight location (FC = Forrester Island complex), resight date, sex (F = female, M = male), age (yr), association (assoc'n.) of female (S = suckling, juv = juvenile), photograph taken (Y = yes, N = no), if brand was read independently (indep) by two or more observers in the field (Y = yes, N = no, FP = determined from photo, MB = misread brand), and if animal was observed for the first time since branding.

Brand Number	Resight Location	Date	Sex	Age (yr)	Assoc'n	Photo	Indep	New 2002
F209	Hazy Is.	6/19/02	F	8	S (pup)	Y	Y	
F209	Hazy Is.	6/20/02	F	8	S (pup)	Y	Y	
F220	West Rock - FC	6/6/02	M	8		Y	FP	
F231	West Rock (Dixon Entrance)	6/14/02	F	8		Y	Y	
F232	Sunset Is.	6/21/02	F	8	With juv	Y	Y	
F232	Sunset Is.	6/22/02	F	8		N	Y	
F241	Cape Addington	6/21/02	M	8		Y	Y	
F2461	Cape Horn Rocks - FC	6/22/02	F	8	S (pup)	Y	N	
F267	Cape Horn Rocks - FC	6/6/02	F	8		Y	Y	
F267	Cape Horn Rocks - FC	6/8/02	F	8		Y	Y	
F267	Cape Horn Rocks - FC	6/22/02	F	8		Y	Y	
F270	Jacob Rock	6/26/02	M	8		Y	Y	
F306	Hazy Is.	6/19/02	F	8	With pup	Y	Y	
F306	Hazy Is.	6/20/02	F	8	With pup	N	Y	
F324	North Rocks - FC	6/8/02	F	8		Y	N	
F351	Northeast Rock-FC	7/22/02	M	8		Y	Y	
F357	White Sisters	6/27/02	F	8		Y	Y	Y
F357	White Sisters	6/30/02	F	8	With juv	N	Y	
F377	Cape Addington	6/9/02	M	8		Y	Y	
F377	Hazy Is.	6/19/02	M	8		Y	Y	
F377	Hazy Is.	6/20/02	M	8		Y	N	
F404	East Rock - FC	6/8/02	F	8		Y	Y	
F431	Lowrie Is.	6/6/02	F	8		Y	N	
F442	Timbered Is.	6/21/02	F	8		Y	FP	
F4461	West Rock - FC	6/8/02	M	8		Y	FP	
F447	West Rock - FC	6/8/02	M	8		Y	Y	
F447	White Sisters	6/27/02	M	8		Y	Y	
F473	Cape Horn Rocks - FC	6/6/02	F	8	With pup	Y	Y	
F496	Cape Addington	6/9/02	M	8		Y	Y	
F496	White Sisters	6/27/02	M	8		Y	Y	
F501	Sea Lion Rocks - FC	6/6/02	F	8	With pup	Y	N	
F519	Cape Horn Rocks - FC	6/6/02	F	8		Y	Y	Y
F519	Cape Horn Rocks - FC	6/8/02	F	8		Y	Y	
F528	Cape Addington	6/9/02	F	8		Y	Y	
F528	Cape Addington	6/21/02	F	8		Y	Y	
F5351	Sea Lion Rocks - FC	6/6/02	F	8		Y	N	

Appendix II. Continued

Brand Number	Resight Location	Date	Sex	Age (yr)	Assoc'n	Photo	Indep	New 2002
F5351	Sea Lion Rocks - FC	6/8/02	F	8		N	Y	
F538	Sea Lion Rocks - FC	6/22/02	F	8		Y	Y	
F551	White Sisters	6/30/02	M	8		Y	Y	
F565	Cape Horn Rocks - FC	6/6/02	F	8		Y	Y	
F565	Cape Horn Rocks - FC	6/8/02	F	8		Y	Y	
F574	Cape Horn Rocks - FC	6/22/02		8		Y	N	
F579	North Rocks - FC	6/22/02	F	8		Y	Y	
F593	Cape Horn Rocks - FC	6/26/02	M	8		Y	FP	
F594	Cape Horn Rocks - FC	6/8/02	M	8		Y	FP	Y
F594	Cape Horn Rocks - FC	6/8/02	M	8		Y	Y	
F607	Easterly Island	6/15/02	M	7		Y	Y	
F623	Cape Horn Rocks - FC	6/8/02	F	7		Y	Y	
F637	Timbered Is.	6/21/02	M	7		Y	Y	
F641	Lowrie Is.	6/7/02	F	7	With pup	N	Y	
F642	Sea Lion Rocks - FC	6/6/02	F	7		Y	Y	
F642	Sea Lion Rocks - FC	6/8/02	F	7		N	Y	
F642	Sea Lion Rocks - FC	6/22/02	F	7		Y	Y	
F6461	North Rocks - FC	6/8/02	M	7		Y	Y	
F674	Cape Addington	6/21/02	F	7		Y	Y	
F682	West Rock - FC	6/22/02	M	7		Y	Y	
F686	Sea Lion Rocks - FC	6/22/02	F	7		Y	N	
F687	Cape Horn Rocks - FC	6/8/02	F	7		N	Y	
F732	Hazy Is.	6/19/02	M	7		Y	Y	
F732	Hazy Is.	6/20/02	M	7		N	Y	
F733	Cape Horn Rocks - FC	6/8/02	F	7		N	Y	
F733	Cape Horn Rocks - FC	6/26/02	F	7		Y	FP	
F737	Graves Rocks	6/28/02	M	7		Y	Y	
F744	North Rocks - FC	6/8/02	F	7	With juv	Y	FP	
F744	Cape Addington	6/21/02	F	7		Y	MB	
F746	West Rock - FC	6/8/02	M	7		Y	MB	
F746	West Rock - FC	6/22/02	M	7		Y	Y	
F768	Graves Rocks	6/28/02	M	7		Y	Y	
F770	North Rocks - FC	6/6/02	F	7		Y	FP	
F770	North Rocks - FC	6/22/02	F	7		Y	Y	
F772	Cape Horn Rocks - FC	6/6/02	F	7		Y	Y	
F772	Cape Horn Rocks - FC	6/8/02	F	7		N	Y	
F787	North Rocks - FC	6/8/02	F	7		Y	FP	
F787	North Rocks - FC	6/22/02	F	7		Y	Y	
F826	North Rocks - FC	6/6/02	F	7		Y	Y	
F827	Cape Addington	6/21/02	F	7		Y	Y	
F833	Cape Addington	6/21/02	F	7		Y	Y	
F860	Cape Bartolome	6/9/02	F	7		Y	Y	

Appendix II. Continued

Brand Number	Resight Location	Date	Sex	Age (yr)	Assoc'n	Photo	Indep	New 2002
F860	North Rocks - FC	6/22/02	F	7		Y	Y	
F861	North Rocks - FC	6/8/02	F	7		Y	FP	Y
F869	Sunset Is.	6/21/02	M	7		Y	Y	
F875	Hazy Is.	6/19/02	F	7		Y	Y	
F875	Hazy Is.	6/19/02	F	7		Y	Y	
F885	North Rocks - FC	6/6/02	F	7		Y	FP	
F899	Timbered Is.	6/21/02	M	7		Y	Y	
F908	West Rock - FC	6/8/02	M	7		Y	Y	Y
F910	Sea Lion Rocks - FC	6/22/02	F	7	With pup	Y	FP	
F937	Joseph Rock - BC	6/10/02	M	7		Y	N	
F943	Hazy Is.	6/21/02	M	7		Y	Y	
F953	White Sisters	6/30/02	M	7		Y	FP	
F954	West Rock - FC	6/6/02	M	7		Y	FP	
F962	White Sisters	6/27/02	M	7		Y	Y	
F964	Yasha Is.	6/22/02	F	7		Y	Y	
F964	Yasha Is.	7/1/02	F	7		Y	Y	
F980	Hazy Is.	6/19/02	F	7	With juv	Y	Y	
F983	Hazy Is.	6/19/02	F	7		Y	Y	
F983	Hazy Is.	6/20/02	F	7		Y	Y	
F417unsure	North Rocks - FC	6/8/02	F	8		Y	FP	
F441unsureFI	West Rock - FC	6/6/02	M	8		Y	N	?
F441unsureFI	West Rock - FC	6/8/02	M	8		Y	N	
F441unsureWS	White Sisters	6/27/02	M	8		Y	FP	
F464unsure	North Rocks - FC	6/8/02	F	8		Y	Y	?
F621unsure	East Rock - FC	6/22/02	F	7		Y	Y	
F701unsure	Lowrie Is.	6/8/02	F	7		Y	Y	
F786unsure	White Sisters	6/27/02		7		Y	FP	
F836unsure	Cape Addington	6/21/02	F	7		Y	MB	
F836unsure	Easterly Island	6/15/02	F	7		Y	FP	
F298unreadable	Hazy Is.	6/19/02	M	8		Y	Y	
F298unreadable	Hazy Is.	6/20/02	M	8		N	Y	
F3bowtie	Timbered Is.	6/21/02		8	S (yrl)	Y	Y	
F490unreadable	Timbered Is.	6/21/02	M	8		Y	Y	?
F4MFI	North Rocks - FC	6/22/02		8	S (pup)	Y	Y	
F4MWS	White Sisters	6/30/02	F	8		Y	FP	
F539unreadable	Hazy Is.	6/20/02	M	8		Y	FP	
F583unreadable	Timbered Is.	6/22/02	M	8		Y	Y	
F5K	Sea Lion Island	6/30/02	M	8		Y	Y	
F677unreadable	Sea Lion Rocks - FC	6/6/02	F	7		Y	N	
F677unreadable	Sea Lion Rocks - FC	6/8/02	F	7		Y	N	
F677unreadable	Sea Lion Rocks - FC	6/22/02	F	7		Y	N	

Appendix II. Continued

Brand Number	Resight Location	Date	Sex	Age (yr)	Assoc'n	Photo	Indep	New 2002
F72rainbow unreadable	Northeast Rock-FC	6/6/02	M	7		Y	FP	
F72rainbow unreadable	Northeast Rock-FC	6/8/02	M	7		Y	Y	
F72rainbow unreadable	Northeast Rock-FC	6/22/02	M	7		Y	Y	
FM5	Hazy Is.	6/20/02				Y	Y	

Appendix III. Steller sea lions branded as pups at Forrester Island complex (“F” brands) and Hazy Islands (“H” brands) during 2001 and resighted from 6 June to 2 July 2002. Brand number, resight location (FC = Forrester Island complex), resight date, association (assoc’n; WF = with female, S = suckling), whether a photograph was taken (Y = yes, N = no), and if brand was read independently (indep) by two or more observers in the field (Y = yes, N = no, BT = brand and tag both read independently, FP = determined from photo, MB = misread brand).

Brand Number	Resight Location	Date	Assoc’n	Photo	Indep
F1000	Yasha I.	6/30/02		Y	Y
F1006	Yasha I.	6/22/02		Y	Y
F1007	Sunset Is.	6/21/02		N	Y
F1007	Sunset Is.	6/22/02		Y	Y
F1013	Timbered Is.	6/21/02		Y	Y
F1019	Warrior Rock, B.C.	6/14/02		Y	Y
F1023	Biali Rocks	6/26/02	S	Y	FP
F1024	Easterly Is.	6/15/02		Y	BT
F1025	North Danger Is., B.C.	6/13/02		Y	Y
F1026	Reef Is., B.C.	6/12/02	WF	Y	Y
F1029	Cape Addington	6/9/02		Y	Y
F1032	SW Brothers	6/19/02		Y	FP
F1032	SW Brothers	6/20/02		N	Y
F1032	Sunset Is.	7/2/02		Y	Y
F1033	White Sisters	6/27/02		Y	Y
F1033	White Sisters	6/30/02		Y	Y
F1034	Hazy Is.	6/19/02	WF	Y	Y
F1035	Cape Addington	6/21/02		Y	Y
F1036	Hazy Is.	6/19/02	S	Y	Y
F1042	Biali Rocks	6/26/02		Y	FP
F1051	SW Brothers	6/19/02		N	N
F1053	SW Brothers	6/19/02	WF	N	Y
F1054	Sunset Is.	6/17/02		Y	BT
F1054	SW Brothers	6/20/02		Y	N
F1054	Sunset Is.	7/2/02		Y	Y
F1055	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1055	North Rocks - FC	6/22/02		Y	FP
F1056	Cape Addington	6/9/02		Y	Y
F1056	Cape Addington	6/21/02		Y	Y
F1057	Joseph Rocks, BC	6/10/02		Y	FP
F1059	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1063	SW Brothers	6/19/02		N	Y
F1063	SW Brothers	7/2/02	WF	Poor	Y
F1067	Sunset Is.	7/2/02		Y	Y
F1069	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1075	Yasha Is.	6/18/02	S	Y	Y

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
F1077	SW Brothers	6/19/02		Y	FP
F1078	Easterly Is.	6/15/02		Y	N
F1078	SW Brothers	6/20/02		N	N
F1081	SW Brothers	7/2/02	S	Y	Y
F1084	White Sisters	6/30/02		Y	BT
F1090	Cape Ommaney	6/18/02	S	Y	Y
F1095	Reef Is., B.C.	6/12/02		Y	Y
F1097	Sunset Is.	7/2/02		Y	Y
F1098	White Sisters	6/27/02	WF	Y	Y
F1098	White Sisters	6/30/02		Y	Y
F1099	White Sisters	6/27/02		Y	Y
F1099	White Sisters	6/30/02		Y	BT
F1100	Biali Rocks	6/26/02		Y	Y
F1104	Cape Addington	6/21/02		Y	Y
F1106	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1107	SW Brothers	6/19/02		N	N
F1108	Cape Ommaney	6/18/02		Y	Y
F1109	Hazy Is.	6/20/02		Y	Y
F1111	Easterly Is.	6/15/02		Y	BT
F1121	Joseph Rocks, BC	6/10/02		Y	N
F1128	White Sisters	6/27/02	S	Y	Y
F1128	White Sisters	6/30/02		Y	Y
F1129	Hazy Is.	6/19/02		Y	Y
F1129	Hazy Is.	6/20/02		Y	Y
F1132	Grindall Is.	6/15/02		Y	Y
F1135	Biali Rocks	6/26/02		Y	Y
F1136	White Sisters	6/27/02		Y	Y
F1136	White Sisters	6/30/02		Y	N
F1140	White Sisters	6/27/02		Y	Y
F1140	White Sisters	6/30/02		Y	Y
F1141	Yasha Is.	6/18/02		Y	BT
F1141	Yasha Is.	6/22/02		Y	Y
F1147	Cape Addington	6/21/02		Y	Y
F1149	Cape Addington	6/9/02		Y	Y
F1149	Cape Addington	6/21/02		Y	Y
F1150	Hazy Is.	6/19/02		Y	Y
F1150	Hazy Is.	6/20/02		N	N
F1151	White Sisters	6/27/02		Y	Y
F1151	White Sisters	6/30/02		Y	Y
F1156	Reef Is., B.C.	6/12/02	WF	Y	Y
F1159	West Rock (Dixon Entrance)	6/14/02		N	Y

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
F1163	Sea Lion Island	6/30/02	WF	Y	Y
F1164	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1165	Yasha Is.	6/18/02		Y	Y
F1170	Inian Is.	6/28/02		Y	Y
F1173	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1174	Sunset Is.	6/17/02		Y	Y
F1174	SW Brothers	6/20/02		Y	Y
F1176	East Rock - FC	6/6/02	S	Y	Y
F1176	North Rocks - FC	6/8/02	WF	Y	Y
F1176	East Rock - FC	6/22/02	S	Y	Y
F1179	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1186	Cape Ommaney	6/18/02		Y	Y
F1190	SW Brothers	6/19/02		N	N
F1190	SW Brothers	6/20/02		Y	Y
F1190	SW Brothers	7/2/02		Y	Y
F1192	Yasha Is.	6/18/02		Y	Y
F1192	Yasha Is.	6/22/02		Y	Y
F1194	Yasha Is.	7/1/02	WF	Y	Y
F1196	Timbered Is.	6/21/02		N	N
F1198	SW Brothers	6/17/02		Y	Y
F1211	Warrior Rock, B.C.	6/14/02	S	Y	Y
F1211	Sunset Is.	6/17/02		N	N
F1212	East Rock - FC	6/6/02		Y	Y
F1221	SW Brothers	7/2/02		Y	Y
F1229	Warrior Rock, B.C.	6/14/02		Y	Y
F1230	SW Brothers	6/18/02		Y	Y
F1230	SW Brothers	6/19/02		N	N
F1230	SW Brothers	6/20/02	WF	Y	Y
F1230	SW Brothers	7/2/02		Y	Y
F1231	Sunset Is.	6/17/02		Y	Y
F1231	SW Brothers	7/2/02		Y	Y
F1232	Easterly Is.	6/15/02		Y	Y
F1233	Yasha Is.	7/1/02		Y	Y
F1236	Easterly Is.	6/15/02		Y	Y
F1238	West Rock (Dixon Entrance)	6/14/02	S	Y	Y
F1240	Cape Addington	6/21/02	S	Y	Y
F1241	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1245	SW Brothers	6/18/02		Y	Y
F1245	SW Brothers	6/19/02		N	N
F1245	SW Brothers	6/20/02		Y	N
F1246	Biali Rocks	6/26/02		Y	Y

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
F1250	Cape Addington	6/21/02		Y	Y
F1254	West Rock (Dixon Entrance)	6/14/02		Y	Y
F1255	Sunset Is.	6/22/02		N	N
F1255	SW Brothers	7/2/02		Y	MB
F1256	Yasha Is.	6/18/02		Y	Y
F1256	Yasha Is.	7/1/02		Y	Y
F1261	Reef I., B.C.	6/12/02		Y	Y
F1262	Cape Horn Rocks - FC	6/8/02	WF	Y	Y
F1265	Yasha Is.	6/18/02		Y	MB
F1270	East Rock - FC	6/6/02		N	Y
F1270	Cape Horn Rocks - FC	6/8/02		Y	Y
F1270	Cape Horn Rocks - FC	6/22/02		Y	Y
F1277	Sea Lion Island	6/30/02		Y	Y
F1284	Easterly Is.	6/15/02		Y	Y
F128unsure0	SW Brothers	6/20/02		N	N
F120unsure8	West Rock (Dixon Entrance)	6/14/02		Y	FP
H4	White Sisters	6/27/02		Y	Y
H5	SW Brothers	6/19/02		N	Y
H5	Sunset Is.	6/21/02		Y	Y
H5	Sunset Is.	6/22/02		N	Y
H5	Sunset Is.	7/2/02		Y	Y
H6	Yasha Is.	7/1/02		Y	FP
H8	Sunset Is.	6/21/02		Y	N
H8	Sunset Is.	7/2/02		Y	Y
H9	S. Marble Is.	6/28/02		Y	Y
H11	Hazy Is.	6/19/02		Y	Y
H11	Hazy Is.	6/20/02		N	N
H12	Sunset Is.	6/17/02		Y	Y
H12	SW Brothers	6/20/02		Y	Y
H12	Sunset Is.	6/21/02		Y	Y
H12	Sunset Is.	6/22/02		N	Y
H16	Sunset Is.	6/21/02	S	Y	Y
H16	Sunset Is.	7/2/02		Y	Y
H19	Biali Rocks	6/26/02		Y	Y
H20	SW Brothers	6/19/02		Y	Y
H20	SW Brothers	6/20/02		Y	Y
H26	Sunset Is.	6/17/02	S	Y	Y
H26	SW Brothers	6/19/02		N	N

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
H26	SW Brothers	6/20/02		N	Y
H29	Yasha Is.	6/18/02		Y	FP
H31	Timbered Is.	6/21/02		Y	Y
H32	Yasha Is.	7/1/02		Y	Y
H33	S. Marble Is.	6/28/02		N	Y
H35	S. Marble Is.	6/28/02		Y	Y
H40	Cape Ommaney	6/18/02		Y	Y
H43	Sunset Is.	6/21/02		Y	FP
H43	Sunset Is.	6/22/02		Y	Y
H44	Sunset Is.	6/22/02		Y	Y
H44	Sunset Is.	7/2/02		Y	Y
H45	SW Brothers	6/19/02		Y	FP
H45	SW Brothers	6/20/02		N	Y
H45	Sunset Is.	6/22/02		N	Y
H45	Sunset Is.	7/2/02		Y	Y
H46	Biali Rocks	6/26/02	WF	N	Y
H47	SW Brothers	6/20/02		N	N
H49	Easterly Island	6/15/02		Y	Y
H49	SW Brothers	6/20/02		Y	Y
H50	Cape Addington	6/9/02		Y	Y
H50	Cape Addington	6/21/02		Y	Y
H52	Sunset Is.	6/22/02		Y	Y
H53	Easterly Is.	6/15/02	S	Y	Y
H54	Sunset Is.	6/17/02		Y	Y
H54	Sunset Is.	6/21/02		Y	Y
H54	Sunset Is.	6/22/02		N	Y
H58	Sunset Is.	6/21/02		N	N
H59	SW Brothers	6/19/02		Y	Y
H59	Sunset Is.	6/22/02		Y	Y
H60	SW Brothers	6/18/02		Y	Y
H60	SW Brothers	6/19/02		N	Y
H60	SW Brothers	6/20/02		Y	Y
H61	Sunset Is.	6/22/02		N	Y
H62	Timbered Is.	6/21/02		N	Y
H65	Sunset Is.	6/22/02		Y	Y
H65	Sunset Is.	7/2/02		Y	Y
H68	Sunset Is.	6/21/02		Y	Y
H68	Sunset Is.	6/22/02		Y	Y
H68	Sunset Is.	7/2/02		Y	Y
H69	SW Brothers	6/19/02		N	N

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
H70	SW Brothers	6/18/02		Y	Y
H70	SW Brothers	6/19/02	S	N	Y
H70	SW Brothers	6/20/02	WF	N	Y
H72	SW Brothers	6/19/02		N	N
H72	SW Brothers	6/20/02		N	Y
H73	White Sisters	6/27/02	S	N	Y
H73	White Sisters	6/30/02	WF	N	Y
H75	Biali Rocks	6/26/02		N	Y
H78	White Sisters	6/27/02	S	Y	MB
H79	Sunset Is.	6/17/02		Y	Y
H79	Yasha Is.	7/1/02		Y	Y
H86	Sunset Is.	6/21/02		Y	MB
H86	Sunset Is.	7/2/02		Y	N
H88	SW Brothers	7/2/02		Y	Y
H89	Sunset Is.	6/17/02		Y	Y
H89	Sea Lion Rock	6/18/02		Y	FP
H90	SW Brothers	6/20/02		Y	FP
H90	Sunset Is.	6/22/02		Y	Y
H90	SW Brothers	7/2/02		Y	Y
H92	Hazy Is.	6/19/02	S	Y	Y
H92	Hazy Is.	6/20/02		N	Y
H93	Inian Is.	6/28/02		Y	MB
H94	S. Marble Is.	6/28/02		Y	Y
H96	SW Brothers	6/20/02	WF	Y	Y
H97	Sunset Is.	6/21/02		Y	Y
H97	Sunset Is.	7/2/02		Y	Y
H109	Cape Ommaney	6/18/02		Y	Y
H111	Grindall Is.	6/15/02		Y	Y
H112	Sunset Is.	6/17/02		Y	Y
H112	Sunset Is.	6/21/02		Y	Y
H117	White Sisters	6/27/02		Y	Y
H122	West Rock (Dixon Entrance)	6/14/02		Y	Y
H127	Sunset Is.	6/17/02		Y	Y
H127	Sunset Is.	6/21/02		Y	Y
H127	Sunset Is.	6/22/02		Y	Y
H128	Sunset Is.	6/21/02		N	N
H128	Sunset Is.	6/22/02		Y	Y
H128	Sunset Is.	7/2/02		Y	Y
H129	SW Brothers	6/19/02		Y	Y
H129	SW Brothers	6/20/02		N	Y

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
H129	Sunset Is.	6/21/02		N	Y
H129	Sunset Is.	6/22/02		N	Y
H129	SW Brothers	7/2/02		N	Y
H131	SW Brothers	6/17/02		Y	Y
H131	SW Brothers	6/20/02		Y	FP
H134	Hazy Is.	6/20/02		Y	Y
H136	S. Marble Is.	6/28/02		N	Y
H137	SW Brothers	6/20/02		Y	Y
H137	Sunset Is.	6/22/02		Y	FP
H137	SW Brothers	7/2/02		Y	Y
H142	SW Brothers	7/2/02	S	Y	Y
H149	White Sisters	6/27/02		Y	Y
H151	Timbered Is.	6/21/02	S	Y	Y
H153	White Sisters	6/27/02	S	Y	Y
H153	White Sisters	6/30/02	S	N	Y
H157	SW Brothers	6/20/02	WF	Y	Y
H157	SW Brothers	7/2/02		Y	Y
H163	Biali Rocks	6/26/02	S	Y	Y
H164	White Sisters	6/27/02		Y	Y
H164	White Sisters	6/30/02		Y	Y
H165	White Sisters	6/27/02	S	Y	Y
H165	White Sisters	6/30/02		Y	Y
H168	Timbered Is.	6/21/02		Y	Y
H171	SW Brothers	6/20/02		N	N
H174	Sunset Is.	6/21/02		N	N
H174	Sunset Is.	6/22/02		N	Y
H182	Hazy Is.	6/20/02	WF	Y	Y
H183	SW Brothers	6/20/02		N	Y
H183	Sunset Is.	6/22/02		Y	Y
H183	SW Brothers	7/2/02		Y	MB
H185	SW Brothers	7/2/02		Y	Y
H186	Hazy Is.	6/19/02		Y	Y
H186	Hazy Is.	6/20/02	WF	Y	FP
H187	SW Brothers	6/20/02		Y	Y
H187	Sunset Is.	6/22/02		Y	Y
H187	SW Brothers	7/2/02		Y	Y
H188	SW Brothers	6/20/02		N	N
H191	Hazy Is.	6/19/02		Y	Y
H191	Hazy Is.	6/20/02	WF	N	Y
H193	SW Brothers	6/20/02		N	N

Appendix III. Continued.

Brand Number	Resight Location	Date	Assoc'n	Photo	Indep
H201	SW Brothers	6/17/02		Y	Y
H201	SW Brothers	6/18/02		Y	Y
H201	SW Brothers	6/19/02	S	Y	Y
H201	SW Brothers	6/20/02	S	N	Y
H201	Sunset Is.	6/22/02		Y	Y
H201	SW Brothers	7/2/02		Y	Y
H202	Yasha Is.	6/18/02		Y	Y
H202	Yasha Is.	6/22/02		N	N
H203	SW Brothers	6/17/02		Y	Y
H203	Sunset Is.	6/21/02		Y	Y
H203	Sunset Is.	6/22/02		N	Y
H204	Hazy Is.	6/19/02		Y	Y
H204	Hazy Is.	6/20/02		Y	Y
H208	Timbered Is.	6/21/02		N	Y
H211	SW Brothers	6/20/02		N	N
H211	Sunset Is.	6/22/02		Y	Y
H15unsure	Inian Is.	6/28/02		Y	Y
H98unsure	Biali Rocks	6/26/02		Y	FP
H179unsure	Hazy Is.	6/19/02		Y	Y

Appendix IV. Steller sea lions branded as pups or juveniles at haulouts and rookeries in Southeast Alaska during May and August 2001 and resighted from 6 June to 2 July 2002. Brand number, resight location, resight date, sex (F = female, M = male), estimated age (yr), photograph taken (Y = yes, N = no), and if brand was read independently (indep) by two or more observers in the field (Y = yes, N = no, FP = determined from photo, MB = misread brand).

Brand Number	Resight Location	Date	Sex	Age (yr)	Photo	Indep
=168	SW Brothers	6/19/02	M	2	Y	Y
=168	SW Brothers	6/20/02	M	2	Y	Y
=169	SW Brothers	6/19/02	M	2	N	FP
=169	SW Brothers	6/20/02	M	2	Y	Y
=169	Yasha Is.	6/22/02	M	2	Y	Y
=169	SW Brothers	7/2/02	M	2	Y	Y
=170	SW Brothers	6/18/02	M	2	N	Y
=170	SW Brothers	6/20/02	M	2	N	N
=170	SW Brothers	7/2/02	M	2	Y	Y
=171	Sunset Is.	6/17/02	M	2	Y	Y
=171	Sunset Is.	7/2/02	M	2	Y	Y
=172	SW Brothers	7/2/02	M	2	Y	Y
=173	Sunset Is.	6/21/02	M	2	Y	N
=173	SW Brothers	7/2/02	M	2	Y	Y
=174	Sunset Is.	6/21/02	M	2	N	N
=174	Sunset Is.	6/22/02	M	2	N	Y
=175	SW Brothers	7/2/02	M	2	N	N
=176	SW Brothers	6/20/02	F	2	N	N
=176	SW Brothers	6/22/02	F	2	Y	Y
=176	SW Brothers	7/2/02	F	2	Y	Y
=177	SW Brothers	6/17/02	M	2	Y	Y
=177	SW Brothers	6/19/02	M	2	Y	Y
=178	SW Brothers	6/18/02	M	2	Y	Y
=178	SW Brothers	6/19/02	M	2	N	Y
=178	Sunset Is.	6/22/02	M	2	Y	N
=179	SW Brothers	6/19/02	M	3	N	Y
=179	SW Brothers	6/20/02	M	3	Y	Y
=179	Sunset Is.	6/22/02	M	3	Y	Y
=180	SW Brothers	6/19/02	M	2	Y	Y
=180	SW Brothers	6/20/02	M	2	Y	Y
=180	SW Brothers	7/2/02	M	2	Y	Y
=181	Sunset Is.	6/17/02	F	2	Y	Y
=181	SW Brothers	6/19/02	F	2	Y	Y
=181	Sunset Is.	6/17/02	F	2	Y	Y
=184	Sea Lion Rocks	6/18/02	M	4	Y	FP
=186	Hazy Is.	6/20/02	F	2	Y	Y

Appendix IV. Continued.

Brand Number	Resight Location	Date	Sex	Age (yr)	Photo	Indep
=188	SW Brothers	6/20/02	M	2	Y	Y
=188	SW Brothers	7/2/02	M	2	Y	Y
=189	Sunset Is.	6/17/02	M	2	Y	Y
=189	Sunset Is.	6/21/02	M	2	Y	Y
=189	Sunset Is.	7/2/02	M	2	Y	Y
=191	Yasha Is.	6/18/02	F	3	Y	FP
=191	Yasha Is.	6/22/02	F	3	N	Y
=191	Yasha Is.	7/1/02	F	3	Y	Y
=192	SW Brothers	6/19/02	M	2	N	Y
=192	SW Brothers	6/20/02	M	2	Y	Y
=192	SW Brothers	7/2/02	M	2	Y	Y
=193	SW Brothers	6/20/02	M	3	Y	Y
=194	SW Brothers	7/2/02	F	2	Y	Y
=201	SW Brothers	6/19/02	F	2	N	Y
=202	Yasha Is.	6/18/02	M	2	Y	Y
=209 ^a	Graves Rocks	6/28/02	F	1	Y	Y
=210	White Sisters	6/27/02	M	3	Y	Y
=212	White Sisters	6/27/02	M	1	Y	Y
=212	White Sisters	6/30/02	M	1	Y	Y
=214	White Sisters	6/27/02	F	3	Y	Y
=214	White Sisters	6/30/02	F	3	Y	Y
=215	Biali Rocks	6/27/02	M	2	Y	FP
=220	White Sisters	6/30/02	M	1	Y	Y
=222	White Sisters	6/27/02	F	2	Y	Y
=224	White Sisters	6/26/02	F	2	Y	Y
=225	Biali Rocks	6/26/02	M	2	Y	FP
=232	SW Brothers	6/19/02	M	2	N	Y
=232	Sunset Is.	6/21/02	M	2	Y	Y
=235	Sunset Is.	6/17/02	M	2	Y	Y
=235	SW Brothers	6/19/02	M	2	Y	Y
=239	SW Brothers	6/17/02	M	2	Y	Y
=239	SW Brothers	6/19/02	M	2	Y	Y
=243	SW Brothers	6/19/02	M	2	N	N
=245	Sunset Is.	6/17/02	F	2	Y	Y
=245	SW Brothers	6/19/02	F	2	Y	Y
=245	Sunset Is.	6/21/02	F	2	Y	N
=245	SW Brothers	6/22/02	F	2	Y	N
=245	Sunset Is.	7/2/02	F	2	Y	N
=203unsure	Sunset Is.	7/2/02	M		Y	FP

^aObserved with a female

Appendix V. Steller sea lions branded as pups in 2000 (at Sugarloaf (X) and Marmot (T) islands) and 2001 (at Fish Island (E) and Seal Rocks (J)) and resighted in Southeast Alaska from 6 June to 2 July 2002. Brand number, resight location, resight date, estimated age (yr), photograph taken (Y = yes, N = no), if brand was read independently (indep) by two or more observers in the field (Y = yes, N = no, FP = determined from photo), and if (and where) in Southeast Alaska branded animal was observed in June-July 2001 (N = not seen).

Brand Number	Resight Location	Date	Age (yr)	Photo	Indep	Seen in 2001
E2	SW Brothers	6/20/02	1	N	Y	N
J41	White Sisters	6/27/02	1	Y	Y	N
J41	White Sisters	6/30/02	1	Y	Y	N
J47 ^a	Graves Rocks	6/28/02	1	Y	Y	N
J48	Graves Rocks	6/28/02	1	Y	Y	N
T1	Graves Rocks	6/28/02	2	Y	FP	N
T22	Yasha Is.	7/1/02	2	Y	FP	N
T23	Graves Rocks	6/28/02	2	Y	Y	Graves Rocks
T27	Graves Rocks	6/28/02	2	Y	Y	White Sisters
T33	Graves Rocks	6/28/02	2	Y	Y	Graves Rocks
T60	White Sisters	6/27/02	2	Y	N	White Sisters
X144	Graves Rocks	6/28/02	2	Y	Y	Graves Rocks
X42	Graves Rocks	6/28/02	2	Y	Y	Graves Rocks

^a Observed suckling