

# NUMBERS OF STELLER'S SEA LIONS USING HAUL-OUTS IN LASKEEK BAY DURING 1990-2003

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## ABSTRACT

Numbers of Steller's sea lions *Eumetopias jubatus* hauled out on regular haul-out sites in Laskeek Bay were counted irregularly during April – July during 1990-2003. Numbers generally showed no trend during April and May, when 200-900 animals were present on the Reef Island haul-out islets and 0-180 on the eastern tip of the Skedans Islands. Numbers generally declined in June and July, with the maximum numbers counted at both haul-outs combined not exceeding 550 animals. The Skedans Island haul-out, mainly a winter haul-out site, was rarely occupied after the end of May. A few animals branded at Forrester Island, Alaska were recorded in 1997 and 2000. Single male California sea lions *Zalophus californianus* were recorded at Reef Island occasionally from 1993 onwards. The 1993 record was the first for Haida Gwaii. Although variation among counts was considerable, we found no evidence of any change in overall numbers over the period of the study.

## INTRODUCTION

Steller's sea lions haul out regularly at two sites in Laskeek Bay: (1) rocks at the south-east corner of Reef Island and (2) the easternmost tip of East Skedans Island (Heise et al. 2003). The number of rocks used for hauling out at the Reef Island site varies from 1-5, but the most frequently used are those furthest from the main island. In addition, sea lions occasionally haul out on other small islets, including Cumshewa Rocks and Lost Islands. However, these latter are comparatively rarely used. Members of the Laskeek Bay Conservation Society have counted sea lions on these haul-outs at least once, and usually several times, each year since 1990. This paper analyses changes in numbers over the course of the spring and summer and assesses the likelihood of any change in numbers of animals using the area for hauling out over the past 14 years.

## METHODS

Counts were made at irregular intervals from late March to early July. At the Skedans haul-out, 66 counts were made, of which 29 counts were in April and 33 in May. It is likely that the site was inspected more frequently in June than the three records suggest, but that the haul out was unoccupied and hence the observation went unrecorded. At the Reef Island rocks, 58 counts were made, of which 4 were in March, 13 in April, 18 in May, 20 in June and 3 in July. At least one count was made annually at both sites.

Sea lions were counted through binoculars while drifting offshore from the haul-out islands in a small inflatable or aluminum boat. All sea lions hauled out on land were counted and an estimate was made of numbers in the water, for which an exact count was generally impossible. In some cases, where sea lions were piled densely together, an estimate had to be made of part of the haul-out. Counts were made without reference to time of day or state of tide. The boat was kept more than 100 m from the rocks to prevent

scaring animals into the water. In recent years, special attention was paid to checking for branded animals marked in Alaska and for California sea lions.

## RESULTS

Sea lions were present at the Reef Island haul-out on all occasions when the site was visited (Appendix 1). The minimum count was 159, on 1 July 1996, and the maximum count 888, on 10 April 2002. When all years were combined, numbers were generally highest in April and the first half of May, declining thereafter (Fig. 1). There was no evidence that counts were affected by time of day ( $R^2 = -0.02$ ,  $P = 0.9$ ). After date was taken into account, there was no significant trend with year, or significant inter-year variation (date,  $F_{1,43} = 7.90$ ,  $P = 0.007$ ; year,  $F_{13,43} = 1.50$ ,  $P = 0.16$ ).

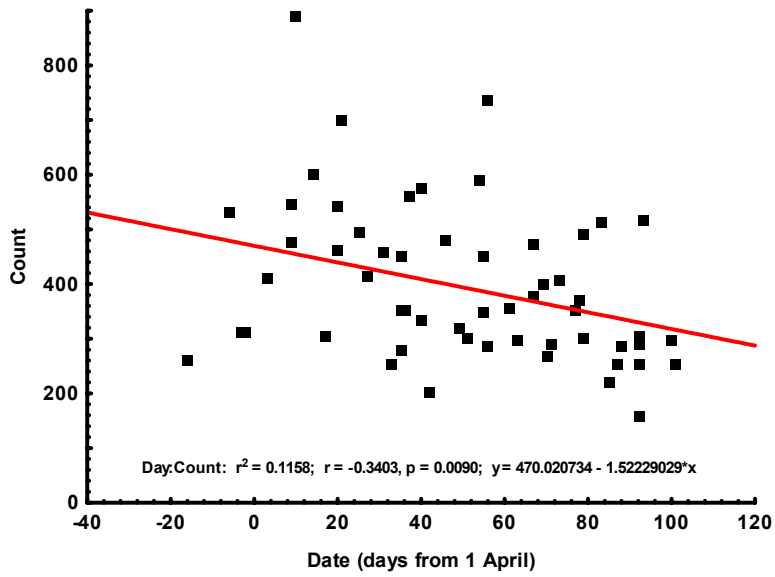
During the period up to 1997, there was a strong tendency for numbers counted at Reef Island to remain fairly stable during April and to decrease thereafter (Fig. 2,  $R^2 = 0.30$ ,  $F_{2,28} = 7.55$ ,  $P = 0.002$ ). However, from 1998, no such tendency was noticeable ( $F_{1,25} = 2.34$ ,  $P > 0.1$ ), although numbers in June still tended to be lower than in April-May.

Unlike the Reef Island haul-out, the Skedans haul-out was not always occupied when visited (Appendix 2). However, visits when no animals were seen were not generally recorded, so we can only infer that many visits made in June, when the Skedans Islands were monitored regularly for breeding Black Oystercatchers *Haematopus bachmanni*, yielded no sightings. Numbers recorded were highest in April, with a maximum count of 173 on 10 April 2002. Thereafter, numbers diminished sharply and the highest count after May was 12, on 18 June 1998 (Fig. 3).

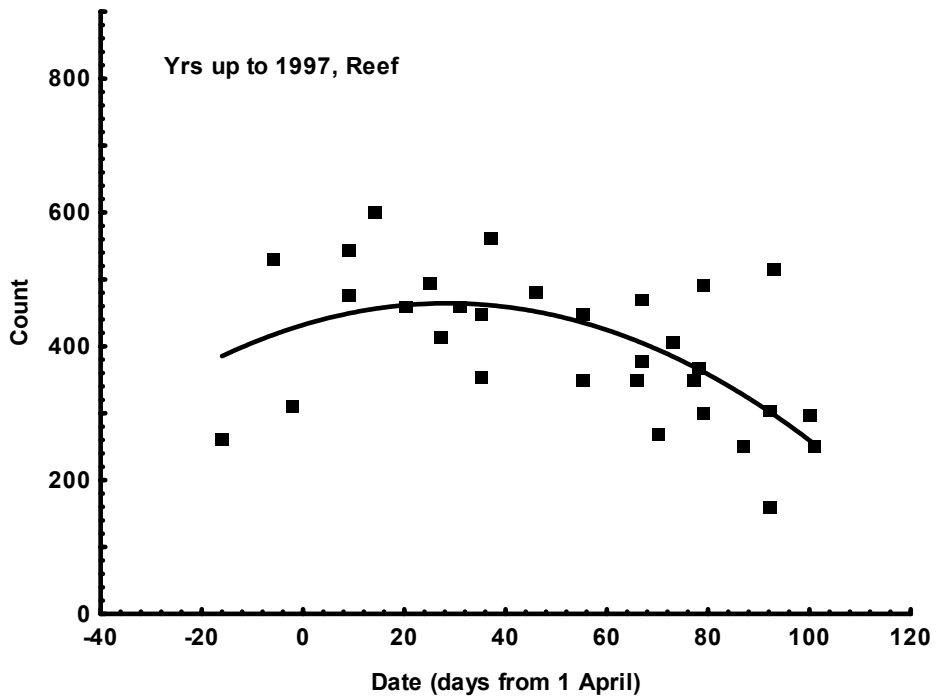
At Skedans, counts in April were lower in 1997-99 than in other years, with the highest count being 61 (Fig. 4,  $R^2 = 0.40$ ,  $F_{2,27} = 10.80$ ,  $P < 0.001$ ). This pattern did not show up in May counts, which showed only a small and insignificant decline with year.

Combining trends with date for all years and both sites, suggests an average of approximately 580 animals present in early May, of which 500 were on Reef Island rocks and 80 on Skedans, falling to 420 by the end of May, and 360 by the end of June, all of them at Reef Island rocks. There is no compelling evidence for any trend in overall numbers, although the Skedans haul-out seems to have been less used during 1997-1999 than before, or since.

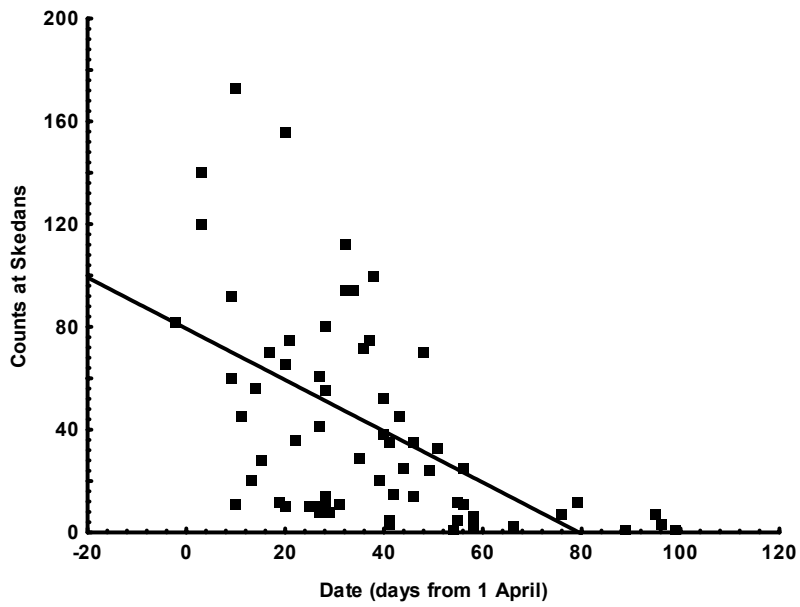
Two sightings of 3 and 2 sea lions were made at Cumshewa Rocks in May and June 1998 and 9 animals were hauled out at Low Island on 15 April 2000. Single male California sea lions *Zalophus californianus* were observed at the Reef Island haul-out on several dates in 1993-1996 and once in 1999. The 1993 sighting was the first record for Haida Gwaii (Heise et al. 2003). Branded animals were seen in 1997 (F220, F512 and F996) and 2000 (F1229 and F2015). These were branded on Forrester Island, Alaska.



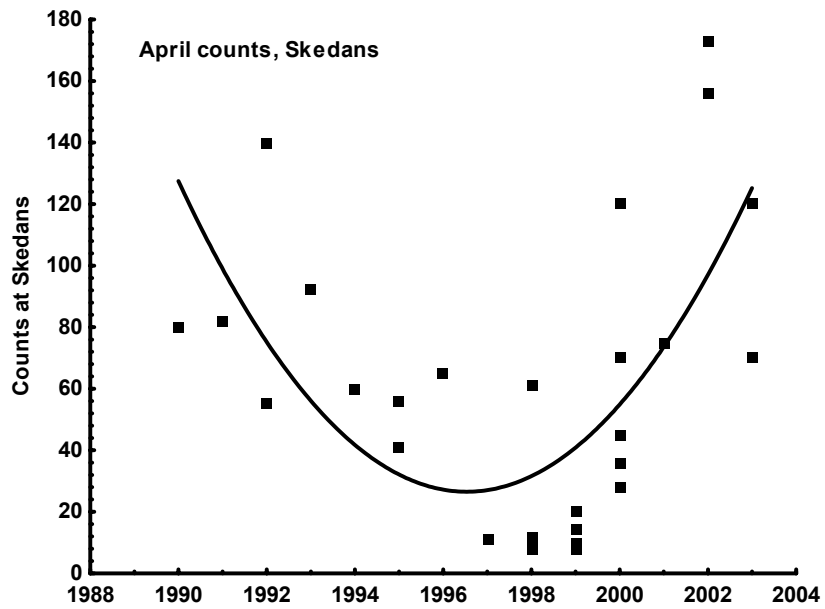
**Fig 1**  
Counts on the Reef Island haul-out in relation to time of year



**Fig. 2**  
Counts at Reef Island haul-out in relation to time of year, for years up to 1997



**Fig 3**  
Counts at Skedans haul-out in relation to time of year



**Figure 4**  
April counts at the Skedans haul-out from 1990-2003

## DISCUSSION

Steller's sea lions do not give birth on the Laskeek Bay haul-outs and small pups are seldom seen. Consequently, this aggregation appears to be solely a social phenomenon. Moreover, large bulls are not always spaced out on the haul-out, but several may be in close proximity, suggesting that rivalry associated with breeding is absent. Haul-out sites can be divided into year-round haul-outs and winter haul-outs. The Skedans haul-out, is clearly a winter site, as most animals have deserted it by the end of May. Reef Island rocks are a year-round haul-out.

It is not obvious why the Reef Island rocks are so consistently used, as there are many other isolated rocks in the Laskeek Bay area. The fact that sea lions were found hauling out at two other sites in Laskeek Bay demonstrates that their behaviour can be somewhat flexible. However, these temporary haul-outs seem to be of only short duration. Both Cumshewa Rocks and Low Island were visited several times each year to survey Black Oystercatchers, but sea lions were recorded at each of those sites in only one year.

The lack of change in numbers at of animals counted at Reef Island over the period of the study is surprising in view of the fact that the population of British Columbia is thought to be increasing by 3% annually (Olesiuk et al. 1993, Heise et al. 2003). The very low numbers of se lions recorded at Skedans during 1997 and 1998 coincided with a very strong El Niño/Southern Oscillation event that brought high seas surface temperatures to the waters around Haida Gwaii and led to reduced breeding success for seabirds in Laskeek Bay (Gaston and Smith 2001).

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**Appendix 1**  
**Details of haul-out counts made at the Reef Island islets**

<b>Year</b>	<b>Date</b>	<b>Time</b>	<b>Count</b>
1990	06-Jun		350
1990	16-Jun		350
1991	29-Mar		310
1992	15-Mar		260
1992	05-May		450
1992	25-May		450
1992	09-May		544
1993	25-May	830	348
1993	26-Jun		252
1993	01-Jul		305
1993	10-Jul		251
1993	12-Jun		405
1994	09-Apr		475
1994	25-Apr		495
1994	05-May	755	353
1994	16-May	1420	479
1994	06-Jun		471
1994	09-Jul		269
1995	14-Apr		600
1995	27-Apr	1049	414
1995	07-May	1220	560
1995	06-Jun		377
1995	18-Jun		490
1995	02-Jul		517
1996	25-Mar		530
1996	20-Apr		460
1996	01-May		459
1996	17-Jun		368
1996	01-Jul		159
1997	18-Jun	1300	300
1997	09-Jul	1332	298
1998	10-May	705	574
1998	26-May	750	735
1998	31-May	850	355
1998	27-Jun	700	285
1999	03-May	1525	253
1999	08-Jun	1545	399
1999	22-Jun	1641	511
2000	03-Apr		410
2000	17-Apr		303
2000	24-Jun	1700	220
2001	28-Mar	1400	310
2001	21-Apr	930	700
2001	21-May	1115	300

<b>Year</b>	<b>Date</b>	<b>Time</b>	<b>Count</b>
2002	10-Apr	1555	888
2002	20-Apr	1127	542
2002	12-May	1315	200
2002	24-May	1300	590
2002	01-Jul	2000	288
2003	03-Apr	1400	410
2003	17-Apr	1000	303
2003	05-May	930	279
2003	10-May	830	332
2003	19-May	800	319
2003	26-May	730	285
2003	02-Jun	1410	297
2003	10-Jun		288
2003	01-Jul	830	254

**Appendix 2**  
**Details of the haul-out counts made at Skedans Islands**

<b>Year</b>	<b>Date</b>	<b>Time</b>	<b>Count</b>
1990	28-Apr		80
1991	29-Mar		82
1991	18-May		70
1992	03-Apr		140
1992	28-Apr		55
1992	28-May		6
1992	28-Jun		1
1993	09-Apr		92
1993	02-May	1200	94
1993	11-May		35
1993	25-May		12
1993	28-May	1025	2
1994	09-Apr		60
1994	04-May	1800	94
1994	16-May	1330	35
1995	14-Apr	1355	56
1995	27-Apr	1520	41
1995	07.May-95	1519	75
1996	20-Apr		65
1996	08-May		100
1996	04-Jul		3
1996	07-Jul		1
1997	10-Apr	1305	11
1997	13-May	1115	45
1997	14-May	1500	25
1997	15-Jun	1245	7

<b>Year</b>	<b>Date</b>	<b>Time</b>	<b>Count</b>
1998	18-Apr		12
1998	19-Apr	1414	12
1998	20-Apr	911	10
1998	26-Apr	1225	10
1998	27-Apr	920	61
1998	28-Apr	1059	11
1998	29-Apr	1155	8
1998	06-May	916	72
1998	10-May	810	38
1998	19-May	900	24
1998	26-May	905	11
1999	13-Apr	1755	20
1999	25-Apr	1645	10
1999	27-Apr	1345	8
1999	28-Apr	1530	14
1999	02-May	1130	112
1999	11-May	1547	5
1999	16-May	1657	14
1999	25-May	1600	5
1999	05-Jun	1610	2
1999	04-Jul	1550	7
2000	03-Apr		120
2000	11-Apr	1450	45
2000	15-Apr	1530	28
2000	17-Apr		70
2000	22-Apr	1340	36
2000	11-May	1450	3
2001	21-Apr	1100	75
2001	01-May	1000	11
2001	21-May	1200	33
2002	10-Apr	1550	173
2002	20-Apr	1215	156
2002	12-May	1421	15
2002	24-May	1520	1
2003	03-Apr	1320	120
2003	17-Apr	1200	70
2003	05-May	1146	29
2003	09-May	1445	20
2003	10-May	1010	52
2003	26-May	830	25