RESULTS OF CETACEAN OBSERVATIONS IN LASKEEK BAY, 1990-2003

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ABSTRACT

Sightings of whales in Laskeek Bay by members of the Laskeek Bay Conservation Society have been recorded annually since 1990. In order to assess seasonal trends and inter-year variation, we tabulated the number of days on which each species was recorded in each year, by 10-day periods. Results were then expressed as the percentage of days in each period when the species was recorded, based on the number of days when camp was active on each date. The most frequently recorded species were humpback whales, seen on 125 days, followed by harbour porpoises (87 days), killer whales (56 days) and Pacific white-sided dolphins (49 days). Gray and minke whales and Dall's porpoises were all seen on 10 or more days. Gray whales were seen mainly in April, while humpback whales were seen most frequently from 1 May – 10 June. Sightings of harbour porpoises and killer whales increased throughout the season, peaking in July. Only the humpback whale showed a significant change in annual numbers over the course of the study, becoming much more frequent after 1998 than earlier.

INTRODUCTION AND METHODS

All sightings of whales in Laskeek Bay have been recorded by the Limestone Island field crew since the start of the East Limestone Island field camp, in 1990. Dates of camp operations for the period are listed in Gaston (2004, this volume). Observations of whales were made from a lookout during timed sea-watches and also serendipitously, in the course of other work. Lookout watches were initiated in 1994 and were generally made for 1 h daily during fine weather, from a promontory on the southeast side of East Limestone Island.

Some whale sightings were made during surveys for seabirds conducted from an inflatable or aluminum boat on a fixed transect pattern twice monthly throughout the season. A few surveys each year (maximum 3) were made offshore into Hecate Strait, up to 7 km east of Reef Island, in May or early June. Records from these boat surveys are included with land-based sightings.

Because many whale sightings involved more than one animal, and because we could not distinguish whether the same individuals were seen more than once in the same day, we analysed the data in terms of "sighting-days" (days on which a given species was recorded, irrespective of numbers) as a percentage of the number of days in each 10 day period when the East Limestone Island camp was active. This method tends to minimize seasonal and inter-year variation and hence is rather conservative in detecting patterns and trends.

RESULTS

Gray Whale (*Eschrichtius robustus*)

Gray whales were an infrequent visitor to Laskeek Bay, only seen during 1.5% (N=1420) of days The maximum frequency occurred in March and there were no records after 10 June (Fig. 1) despite occupation in the camp for another month in most years.

Minke Whale (*Balaenoptera acutorostrata*)

Minke whales were seen on 2.2% of days. They occurred throughout the season, but with very few records in April (one sighting), and more frequent observations after 10 June (5% of days, Fig. 1). Since 1999, only three sightings have been recorded, suggesting that the species may have become rarer in Laskeek Bay.

Humpback Whale (*Megaptera novaengliae)*

This species was the most frequently recorded of all cetaceans, being seen on 8.8% of days. Records were most frequent during 1 May – 10 June, when humpbacks were seen on 15% (N=574) of days. There were no records in March and only one after 10 July (Fig. 1). This was the only species to show a significant change in the frequency of sightings over the period of the study, being much more frequent after 1998 than in the preceding years (Fig. 2). In addition to the increase in numbers of days on which humpbacks were sighted, the number of individuals seen each day has also been higher in recent years.

Fin Whale (*Balaenoptera physalus*)

There were three records of this species, but all coincided with periods when humpbacks were numerous. Reliable sightings of Fin Whales have been reported in Hecate Strait, but misidentifications are hard to completely rule out.

Killer Whale (*Orcinus orca*)

Killer whales were seen on 3.9% of days. They were rarely seen in March and April, when there were only five records, but appeared more frequently thereafter, with a peak in July, when they were seen on >10% (N=160) of days (Fig. 3).

Harbour Porpoise (*Phocoena phocoena*)

Harbour porpoises were seen on 6.1% of days. They were seen throughout the season, but sightings became more frequent later in the year, with a peak after 10 July, when they were recorded on 19% (N=57) of days (Fig. 4).

Pacific White-sided Dolphin (*Lagenorhynchus obliquidens*)

Pacific white-sided dolphins were recorded on 3.5% of days. They were not seen in March, but recorded thereafter throughout the season (Fig. 4). Although this species may occur in large groups (> 100, Heise et al. 2003) most records in Laskeek Bay were of groups of <10 animals.

Dall's Porpoise (*Phocoenoides dalli*)

This was the least frequent cetacean in Laskeek Bay, being seen on only 0.7% of days. All ten sightings of the species occurred in May and June (Fig. 4).

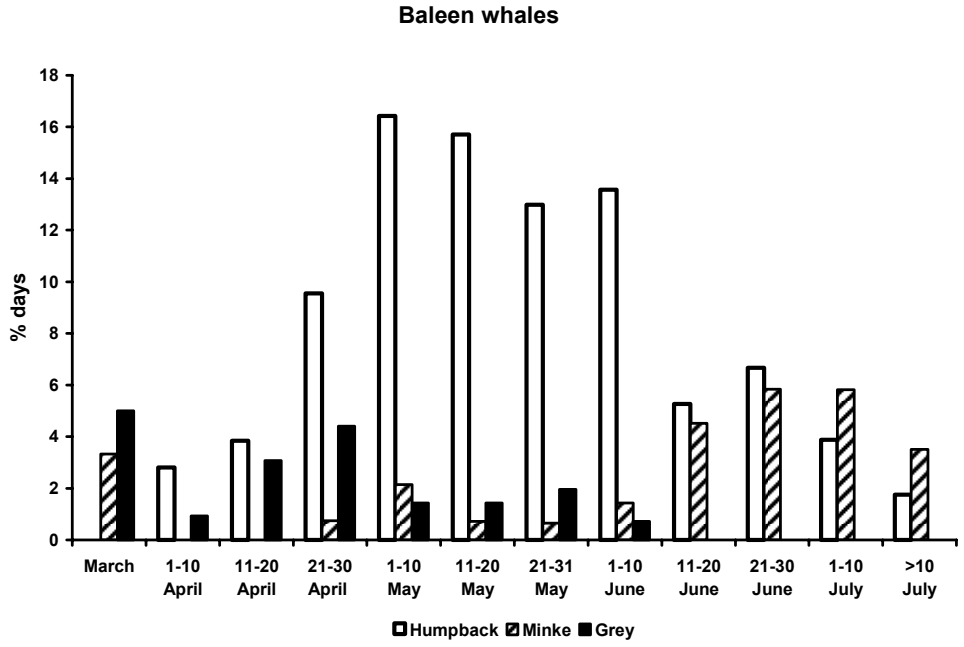

Fig 1
Records of baleen whales in Laskeek Bay during 1990-2003, in relation to time of year

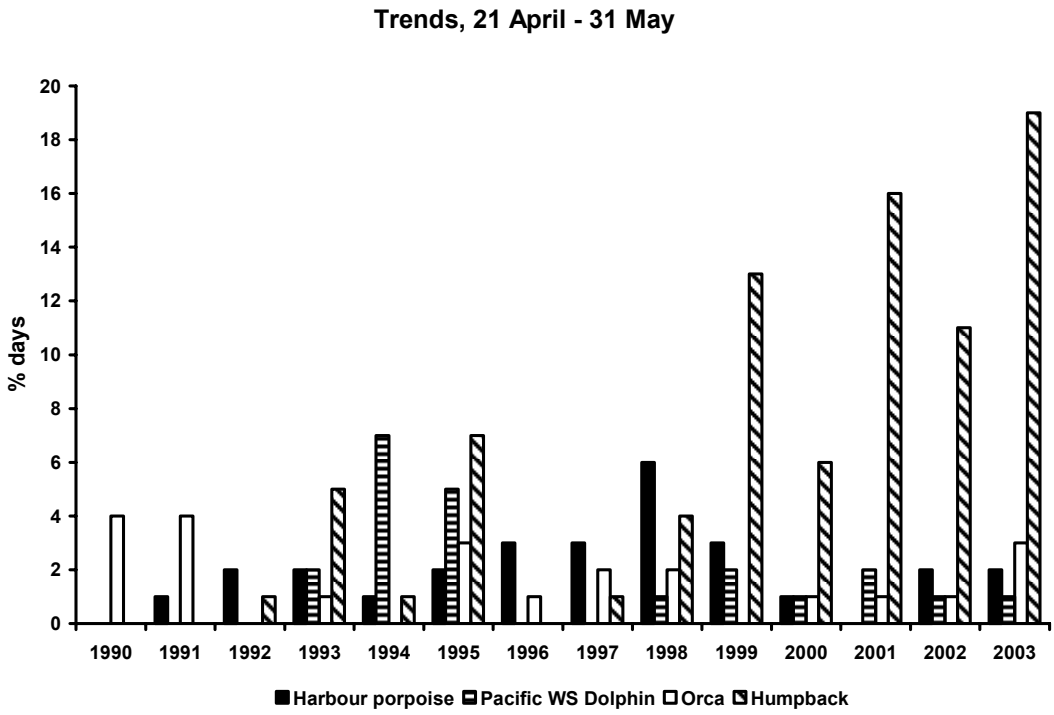

Fig. 2
Proportion of days on which species were sighted during 21 April – 31 May of 1990-2003

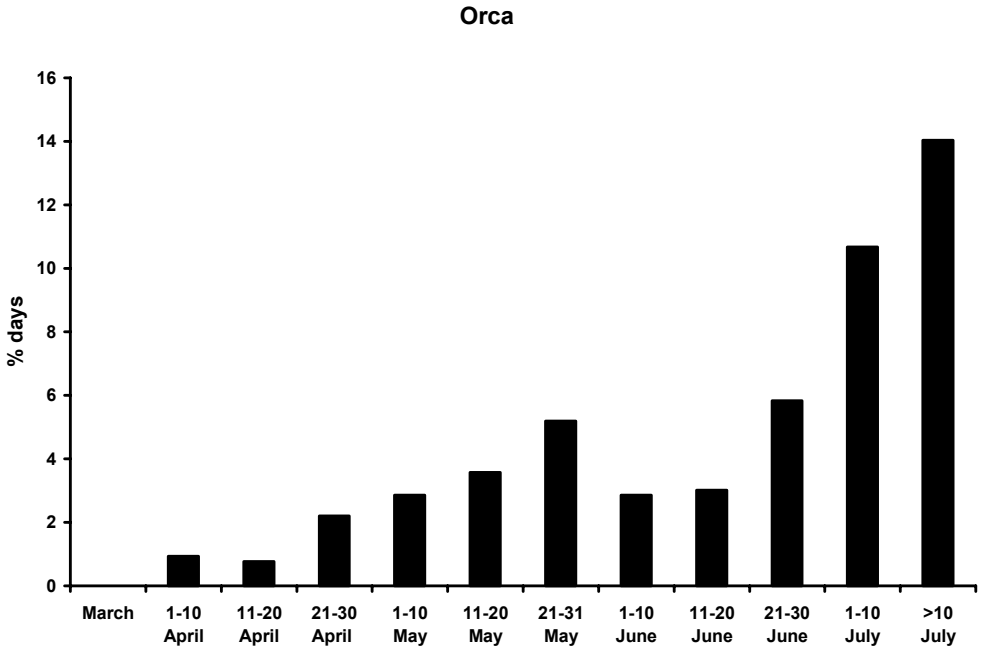

Fig. 3
Frequency of killer whale sightings in relation to time of year

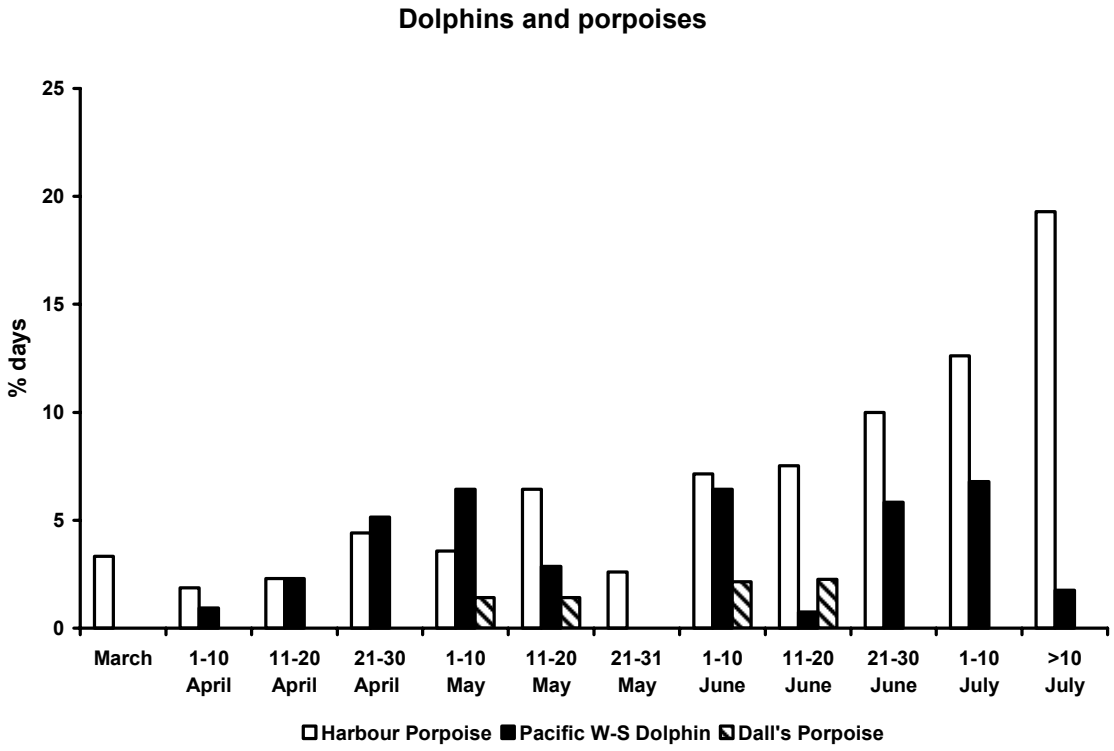

Fig. 4
Frequency of sightings of harbour porpoise, Pacific white-sided dolphin and Dall's porpoise in relation to time of year

DISCUSSION

Sightings of whales in Laskeek Bay were generally more frequent from May onwards than during April. Apart from the strong movement of humpback whales through the area in May and early June, sightings of killer whales, minke whales and harbour porpoises all increased in frequency during the season. Only the Gray whale, an infrequent visitor to Laskeek Bay, was most often seen in the first half of the field season. This period coincides with the peak migration of Gray whales from Baja California to Alaska (Pike and MacAskie 1969).

Humpback whales seen in Laskeek Bay appeared to be passing though Hecate Strait, en route from wintering grounds in Hawaii to summering areas off Alaska (Calambokidas et al. 2001). Probably many more passed through the area than were actually seen, because many sightings were made on infrequent trips offshore into Hecate Strait. The proportion of animals passing through Hecate Strait that enter Laskeek Bay and hence come within sight of East Limestone Island, is probably fairly small. The abrupt increase in sightings of humpback whales after 1998 was the most striking change over the period considered. The abrupt increase in 1999 coincided with a change in the state of the Pacific Decadal Oscillation, from a warm phase during the 1980s and 1990s, to a cooler phase after 1997 (http://jisao.washington.edu/pdo/PDO.latest).

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Appendix 1
Days on which whale species were recorded by the East Limestone Island field camp

Year	11-20 Mar	21-31 Mar	1-10 Apr	11-20 Apr	21-30 Apr	1-10 May	11-20 May	21-31 May	1-10 Jun	11-20 Jun	21-30 Jun	1-10 Jul	11-20 Jul	21-31 Jul	Total
Gray whale															
1990															0
1991															0
1992															0
1993					1		1	2	1						5
1994			1												1
1995		1					1								2
1996		1		1	1										3
1997					1	1									2
1998															0
1999				2	2										4
2000						1		1							2
2001															0
2002				1											1
2003		1			1										2
Total	0	3	1	4	6	2	2	3	1	0	0	0	0	0	22
Humpback whale															
1990															0
1991															0
1992									1						1
1993						2	2		1	1					6
1994						0	0		1						1
1995					3	5			2	1					11
1996											1				1
1997									1						1
1998						1	2	1							4
1999					2	2	4	3	4	1					16
2000			2		2	2	2	1	1	2	1	1			14
2001				2	2	3	2	7	4	2	1	1		1	25
2002				1		1	3	5	2		5	2			19
2003			1	2	4	7	7	3	2						26
Total	0	0	3	5	13	23	22	20	19	7	8	4	0	1	125

Year	11-20 Mar.	21-31 Mar.	1-10 April	11-20 April	21-30 April	1-10 May	11-20 May	21-31 May	1-10 June	11-20 June	21-30 June	1-10 July	11-20 July	21-31 July	Total
Minke whale															
1990															0
1991															0
1992	1										1				2
1993						1			1	4	2	1	1		10
1994						1				2	1				4
1995													1		1
1996						1						3			4
1997	1						1		1		2				5
1998					1			1							2
1999															0
2000											1				1
2001												2			2
2002															0
2003															0
Total	2	0	0	0	1	3	1	1	2	6	7	6	2	0	31
Killer whale															
1990							1	2	1	1					5
1991							1	1	2						4
1992															0
1993						1					1	2	2		6
1994					1							1	2		4
1995				1			1	1	1		1	3	2		10
1996					1	1					2	2			6
1997						1	1			1		1	1		5
1998								2							2
1999					1						1				2
2000						1									1
2001										1		1	1		3
2002			1				1					1			3
2003								2		1	2				5
Total	0	0	1	1	3	4	5	8	4	4	7	11	8	0	56

Year	11-20 Mar.	21-31 Mar.	1-10 April	11-20 April	21-30 April	1-10 May	11-20 May	21-31 May	1-10 June	11-20 June	21-30 June	1-10 July	11-20 Jul	>20 Jul	Total
Harbour porpoise															
1990															0
1991							1								1
1992							1	1							2
1993								1	1	1	2	2	1		8
1994					1				1	1	1	2	3		9
1995					1	1	1			1	2	5			11
1996		1				2	1					2			6
1997		1	1				3				2		1		8
1998					1		2	1	3	2	1				10
1999					1				3				1		5
2000			1	1					1	1	1				5
2001											2	1	4	1	8
2002				2	2	1		1		4		1			11
2003						1			1		1				3
Total	0	2	2	3	6	5	9	4	10	10	12	13	10	1	87
Pacific white-sided dolphin															
1990															0
1991															0
1992															0
1993					1	2					2	2			7
1994					3	5	1		1			3			13
1995						1	1		3	1	2	1			9
1996												1			1
1997															0
1998									1						1
1999				1	1				2		2				6
2000						1									1
2001				1	2		1		1					1	6
2002				1			1				1				3
2003			1						1						2
Total	0	0	1	3	7	9	4	0	9	1	7	7	0	1	49

Year	11-20 Mar.	21-31 Mar.	1-10 April	11-20 April	21-30 April	1-10 May	11-20 May	21-31 May	1-10 June	11-20 June	21-30 June	1-10 July	11-20 Jul	>20 Jul	Total
Dall's porpoise															
1990															0
1991															0
1992															0
1993						1			1	1					3
1994							1								1
1995															0
1996															0
1997									2	1					3
1998															0
1999															0
2000															0
2001															0
2002						1	1			1					3
2003															0
Total	0	0	0	0	0	2	2	0	3	3	0	0	0	0	10