

## STRANDINGS AND FISHING GEAR ENTANGLEMENTS OF CETACEANS ON THE WEST COAST OF CANADA IN 1993

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### ABSTRACT

Fifty-seven records of eight species of cetaceans that stranded or collided with fishing gear in British Columbia (BC), Canada, in 1993 are presented. Although the number of incidents is greater than in any previous year, these records represent only a small proportion of the cetaceans stranding or caught in fishing gear in the province. A large number of these records (24) were associated with an unusual mortality event of porpoises (both Dall's, *Phocoenoides dalli*, and harbour, *Phocoena phocoena*) around southern Vancouver Island. Despite detailed necropsies on 17 of these animals and extensive laboratory analyses, no underlying cause for this event was found. A record of a live stranded common dolphin (*Delphinus delphis*) is only the second occurrence of this species in the province and possibly the northern-most record in the eastern North Pacific. Three animals were recorded colliding with commercial salmon (*Oncorhynchus* spp.) drift gillnets. Two harbour porpoise were killed, and a gray whale (*Eschrichtius robustus*) collided with a net but was unharmed. Other species recorded stranding during 1993 include killer whale (*Orcinus orca*), sperm whale (*Physeter macrocephalus*), Cuvier's beaked whale (*Ziphius cavirostris*), and minke whale (*Balaenoptera acutorostrata*).

### INTRODUCTION

Over the last 20 years, research on cetaceans in British Columbia (BC) has primarily focused on killer whales (*Orcinus orca*), with a few studies on gray whales (*Eschrichtius robustus*), and relatively little information has been gathered on the biology, ecology or conservation of other species of cetaceans. In 1987 a volunteer program, the Stranded Whale and Dolphin Program of BC (SWDP), was established to monitor and respond to strandings and incidental catches of whales, dolphins and porpoises in the province. The Program strives to ensure that the maximum amount of information is gathered from each stranded or incidentally caught animal, thereby contributing to an extensive database from which a wide variety of information may be derived, including: causes of mortality, seasonal and geographic distributions, relative abundance of different species, environmental contaminants, genetics, parasite loads, food habits and reproductive parameters.

This seventh annual report summarizes records collected through the SWDP of cetacean strandings and entanglements in fishing gear on the Canadian west coast during 1993. The objectives of this report are to: (i) summarize records obtained during 1993;

(ii) encourage further research use of this information; (iii) encourage reporting of future records; and (iv) briefly discuss records of particular interest and information on incidental mortality of cetaceans in BC derived through the SWDP.

## METHODS

Since 1987, researchers and the general public have been requested to report cetaceans that: (i) are found dead, either on shore or in the water; (ii) are live-stranded; or (iii) are caught incidentally during fishing operations (regardless of whether the animals are killed). Records of types (i) and (ii) are hereafter referred to as stranding records. To encourage the public to report both current and historical events, a province-wide toll-free number (1-800-665-5939) was set up for this purpose, as well as to collect information on cetacean sightings.

Information recorded from stranded and incidentally caught animals includes date and location of the incident, type of incident, and condition of the animal, as well as sex, standard length (American Society of Mammalogists, 1961), and weight where possible. When a carcass is not recovered, an attempt is made to have the animal marked for future identification, to avoid the possibility of duplicate records. As well, efforts are made to obtain photographs, which may allow for future matching of records.

Whenever feasible, complete necropsies are performed with a qualified veterinarian in attendance. External morphometrics and blubber thicknesses are recorded, and all animals are examined for signs of potential entanglement in fishing gear, as described by Hare and Mead (1987). Teeth are collected to estimate age, ovaries and the uterus are examined for signs of past or current pregnancies, mammary glands are examined for the presence of milk, and testes are examined histologically for the presence of sperm. Stomach contents and parasites are also collected and identified. Tissue samples from most animals are collected for histological and toxicological analysis by the BC Provincial Ministry of Agriculture, Fisheries and Food. Tissue samples are also collected for a tissue archive and for various other studies. In addition, skulls, teeth, and axial skeletons are collected for various educational or research collections.

## RESULTS AND DISCUSSION

In 1993, 57 incidents of stranded or incidentally entangled cetaceans were recorded, representing the largest number of known events in one year in BC. Details are presented in Table 1, with locations shown in Fig. 1. Since the SWDP began in 1987, the number of records reported each year has increased steadily, and far exceeds the numbers reported for any other year prior to 1987 (see references cited in Baird *et al.*, 1991; Guenther *et al.*, 1992, 1993). This increase likely reflects an increase in awareness and reporting of strandings and entanglements, rather than an increase in the number of incidents occurring annually. Since many records are reported by only one source and are often reported days, weeks or months after the event, it seems likely that many stranded animals that are found are not reported. As well, the large proportion of rocky, relatively inaccessible coastline, far from human population centres, and the short period for which stranded animals are recognizable on a beach, likely results in only a small proportion of stranded animals being found.

Of the 57 records in 1993, eight species were positively identified. These include 20 harbour porpoises (*Phocoena phocoena*), 20 Dall's porpoises (*Phocoenoides dalli*), 1

gray whale, 1 killer whale, 1 common dolphin (*Delphinus delphis*), 1 sperm whale (*Physeter macrocephalus*), 1 Cuvier's beaked whale (*Ziphius cavirostris*), and 2 minke whales (*Balaenoptera acutorostrata*). In addition, 10 animals were not positively identified to species, although 8 of these animals were likely porpoises.

There appears to have been a small-scale die-off of porpoises around southern Vancouver Island in the spring of 1993. Between 7 April and 10 June 1993, a total of 24 porpoises, both Dall's and harbour, were found along a 49 km stretch of populated coastline. This event was the second such die-off of cetaceans recorded in the Province, with the first seen in 1992 on the north shore of Graham Island (Guenther et al., 1993). Readers are referred to the report by Baird et al. (1994) for details of sightings of porpoises during that period, effort and trends in stranding numbers, and toxicology results. No underlying cause for this event was found, despite detailed necropsies on 17 animals and extensive laboratory analyses (Baird et al., 1994).

In February, a common dolphin was found live stranded on Mayne Island in the southern Gulf Islands. While there is one published report of a sighting record of this species in the province (Cowan, 1987), that record was a misprint (I. Cowan, pers. comm.). The stranding record from 1993 thus represents only the second occurrence of this species in the province (Guiguet, 1954), and appears to be the northernmost record of this species in the eastern North Pacific (cf., Gaskin, 1992).

One harbour porpoise was caught in a Canadian commercial drift gillnet fishery for salmon (*Oncorhynchus* spp.). Another harbour porpoise had signs of entanglement in a monofilament gillnet fishery, and was near the U.S./Canadian border within a day of a U.S. opening of a salmon gillnet fishery. The only other confirmed fishing gear collision in 1993 was of a gray whale which swam through a salmon gillnet, but which did not entangle.

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Table 1.

Cetacean "strandings" and incidental catches from 1993. (VI = Vancouver Island). All records are of single individuals.

| RECORD NUMBER | DATE             | SPECIES               | LOCATION                           | COMMENTS                                      |
|---------------|------------------|-----------------------|------------------------------------|---|
| SWDP93-01     | 15 January 1993  | sperm whale           | White Pt, Graham I                 | C,D,2,u                                       |
| SWDP93-02     | 2 February 1993  | common dolphin        | Horton Bay, Mayne I                | B,1,2,4,5-10,13-17,m,203cm,MMRG               |
| SWDP93-03     | 23 February 1993 | harbour porpoise      | off Edward King I                  | C,1,2,4,5,8-10,13-17,m,114.3cm,BMS            |
| SWDP93-04     | 21 March 1993    | harbour porpoise?     | S side Tlell River, Graham I       | C,D,u   |
| SWDP93-05     | 10 April 1993    | Dall's porpoise       | McMicking Pt, Victoria, VI         | C,1,2,4,5,7-10,13-17,19,m,139.8cm,BMS         |
| SWDP93-06     | 22 April 1993    | harbour porpoise      | 250 m W Holland Pt, Victoria, VI   | C,1,2,4,5,7-10,13-17,19,f,133.6cm,P           |
| SWDP93-07     | 25 April 1993    | harbour porpoise      | McMicking Pt, Victoria, VI         | C,1,2,4,5,7-10,13-17,19,f,125.0cm,WSS         |
| SWDP93-08     | 26 April 1993    | Dall's porpoise       | Church Pt, VI                      | C,1,2,4,5,7-10,13-15,17,m,159.5cm,RBCM        |
| SWDP93-09     | 28 April 1993    | harbour porpoise      | Ten Mile Pt, Victoria, VI          | C,1,2,3,5,7-10,13-17,m,146.2cm,SoM            |
| SWDP93-10     | 4 May 1993       | Dall's porpoise       | 300 m W Clover Pt, Victoria, VI    | C,1,2,4,5,7-10,13-17,m,160.4cm,SM             |
| SWDP93-11     | 10 May 1993      | harbour porpoise      | N tip William Hd, VI               | C,1,2,4,5,7-10,13-17,m,130.2cm,SM             |
| SWDP93-12     | 1 May 1993       | gray whale?           | -46 km WSW Tofino, VI              | C,D,u   |
| SWDP93-13     | 11 May 1993      | harbour porpoise      | 150 m SSE Clover Pt, Victoria, VI  | C,1,2,4,5,7-10,13-17,m,124.0cm,RBCM           |
| SWDP93-14     | 14 May 1993      | Dall's porpoise       | 350 m W Finlayson Pt, Victoria, VI | C,1,2,4,5,7-10,13-17,f,174.1cm,UVIC           |
| SWDP93-15     | 14 May 1993      | Dall's porpoise       | E side Ross Bay, Victoria, VI      | C,1,2,4,5,7-10,13-17,f,179.4cm,NBM,fetus,MMRG |
| SWDP93-16     | 16 May 1993      | harbour porpoise      | W side Harling Pt, Victoria, VI    | C,1,4,RBCM                                    |
| SWDP93-17     | 17 May 1993      | Dall's porpoise       | S Crekye Pt, VI                    | C,1,2,4,5,7-10,13-17,m,162.4cm,MCM            |
| SWDP93-18     | 17 May 1993      | Cuvier's beaked whale | N Gregoire Pt, VI                  | C,D,1,2,4,10,13,15,17,f,approx.590cm,MMRG     |
| SWDP93-19     | 18 May 1993      | unidentified porpoise | mouth of Pedder Bay, VI            | C,D,u   |
| SWDP93-20     | 19 May 1993      | harbour porpoise      | Caffrey Pt, Becher Bay, VI         | C,4,u,MMRG                                    |
| SWDP93-21     | 24 May 1993      | harbour porpoise?     | Brother's I                        | C,1,2,4,7-10,13-17,f,113.5cm,RBCM             |
| SWDP93-22     | 26 May 1993      | harbour porpoise      | Beechy Head, VI                    | C,1,2,4,7-10,13-17,f,125.1cm,UMAL             |
| SWDP93-23     | 26 May 1993      | Dall's porpoise       | Albert Head, VI                    | C,1,2,4,7-10,13-17,f,147.2cm,P                |
| SWDP93-24     | 26 May 1993      | harbour porpoise      | McNeill Bay, VI                    | C,1,2,4,7-10,13-17,m,RBCM                     |
| SWDP93-25     | 27 May 1993      | Dall's porpoise       | 1 km E Tugwell Creek, VI           | C,1,2,3,7-10,13-17,f,151.8cm,UVIC             |
| SWDP93-26     | 3-5 May 1993     | harbour porpoise?     | William Hd, VI                     | C,D,u   |
| SWDP93-27     | 24 May 1993      | Dall's porpoise       | Sandcut Beach, VI                  | C,D,u   |
| SWDP93-28     | 7 May 1993       | harbour porpoise?     | 1 km W Hoskyn Pt, Becher Bay, VI   | C,D,u   |
| SWDP93-29     | 29 May 1993      | Dall's porpoise       | 9 km S Jordan River, VI            | C,D,u   |
| SWDP93-30     | 7 June 1993      | harbour porpoise      | 2 km W Otter Pt, VI                | C,1,2,4,5,9,10,13,15-17,f,171.2cm,?,fetus,m   |
| SWDP93-31     | 2 June 1993      | killer whale          | NE end Manley I                    | C,1,2,4,5,10,13,17,m,678cm,P                  |
| SWDP93-32     | 4-5 July 1993    | harbour porpoise      | S end Keeha Bay, VI                | C,1,4,17,u,86.4cm,RBCM                        |
| SWDP93-33     | 6 July 1993      | Dall's porpoise?      | 7 km E Tow Hill, Graham I          | C,D,20,u                                      |
| SWDP93-34     | 8 July 1993      | Dall's porpoise?      | 11 km E Tow Hill, Graham I         | C,10,17,20,u                                  |
| SWDP93-35     | 13 July 1993     | Dall's porpoise       | Tow Hill, Graham I                 | C,1,2,4,5,8,9,10,13-17,?,?                    |
| SWDP93-36     | 17 July 1993     | Dall's porpoise       | Tsusiat Falls, VI                  | B,2,u   |
| SWDP93-37     | 16 July 1993     | Dall's porpoise       | 4 km E Tow Hill, Graham I          | C,10,17,20,u                                  |
| SWDP93-38     | 17 July 1993     | Dall's porpoise       | 7 km E Tow Hill, Graham I          | C,10,17,20,u                                  |
| SWDP93-39     | 21 July 1993     | Dall's porpoise?      | 1 km E Tow Hill, Graham I          | C,? (B? 20 July '93)                          |
| SWDP93-40     | 6 July 1993      | Dall's porpoise       | Yakun Point, Graham I              | C,20,?  |

Table 1 continued

|           |                   |                  |                                |  |
|-----------|-------------------|------------------|--------------------------------|--|
| SWDP93-41 | 15 August 1993    | harbour porpoise | 1 km N N end of Goose Spit, VI | C, 1, 2, 4, 5, 7-10, 13-17, m, 94.2cm, RBCM                |
| SWDP93-42 | 31 July 1993      | Dall's porpoise  | Nalau I                        | C, D, 1, 2, u, 125cm                                       |
| SWDP93-43 | 1 August 1993     | harbour porpoise | N side Hecate I                | C, 1, 2, 4, 5, 7-10, 13-17, m, 90.2cm, MMRG                |
| SWDP93-44 | end July 1993     | harbour porpoise | Hycacinthe Bay, Quadra I       | C, 1, 4, 5, 8, 9, u, ?                                     |
| SWDP93-45 | 18-19 August 1993 | Dall's porpoise  | Nimkish River, VI              | C, ? SIC   |
| SWDP93-46 | 23 August 1993    | harbour porpoise | Tsawwassen                     | A (US drift gillnet?), 1, 2, 4, 7-10, 13-17, m, 119.2, BCP |
| SWDP93-47 | 28 August 1993    | harbour porpoise | Halfmoon Bay                   | B, 1, 8, 9, 10, m, 94cm                                    |
| SWDP93-48 | 27 August 1993    | minke whale      | 18 km W Cape Caution           | C, 1, 2, 4, 7-10, 13, 15, 17, f, 829.0cm, SIC              |
| SWDP93-49 | 26 August 1993    | Dall's porpoise  | W Craycroft I                  | B, 1, 4, 8, 9, 10, 13, 17, f, 101cm, RBCM                  |
| SWDP93-50 | 8 August 1993     | gray whale       | Smith Inlet                    | E (salmon drift gillnet), u                                |
| SWDP93-51 | 28 August 1993    | harbour porpoise | White Rock                     | C, 1, 2, 4, 5, 7-10, 13-17, m, 131.3cm, P                  |
| SWDP93-52 | 31 August 1993    | harbour porpoise | Sabine Channel                 | A (salmon drift gillnet), 1, 2, 4, 5, 7-10, 13-17, ?       |
| SWDP93-53 | 31 August 1993    | Dall's porpoise  | .6 km NW Saxe Pt, VI           | C, 1, 2, 4, 5, 7-10, 13-17, f, 104.0cm, UVIC               |
| SWDP93-54 | 6 September 1993  | harbour porpoise | East Point, Saturna I          | C, 1, 2, 4, 7-10, 13-17, f, 98cm, RBCM                     |
| SWDP93-55 | 7 September 1993  | Dall's porpoise  | Ahous Pt, Vargas I             | C, 1, 2, 9, 10, f, 197cm, fetus, CBP                       |
| SWDP93-56 | 7 June 1993       | minke whale?     | Nagas Pt, Moresby I            | C, D, u  |
| SWDP93-57 | 29 August 1993    | minke whale      | N end Goose Island             | C, D, 1, u   |

## Notes to Table 1.

<sup>1</sup>Consecutive record numbers are given as each record is received, therefore records are not in chronological order.

<sup>2</sup>Date shown is earliest date reported. Many records were also reported from later dates.

<sup>3</sup>If species identification is not positive, indicated with "?".

<sup>4</sup>Location noted is last known location. In some cases, animals were seen floating on one day, with later reports of what we believe is the same animal washed up nearby.

<sup>5</sup>Comments: A, incidental catch, died; B, live stranded, died; C, found dead; D, not recovered; E, incidental catch, released alive or trailing gear; F, live stranded, returned to water alive. 1. measurements; 2. photographs; 3. radiographs; 4. skeleton and/or baleen, whole/partially collected; 5. aging of teeth; 6. blood tests/cultures; 7. histology samples; 8. gross post mortem examination; 9. heavy metal analysis; 10. organochlorine analysis; 11. dioxin analysis; 12. duplicate tissue samples in Ottawa; 13. duplicate tissue samples in Victoria; 14. parasitology examination; 15. stomach content analysis; 16. reproduction studies; 17. genetic analysis; 18. plaster cast replica of whole/part animal; 19. educational use (anatomy labs, class displays etc); 20. carcass removed from beach to prevent duplicate reporting. Sex: f = female, m = male, u = unknown. Length shown in known. Location of skeletal materials listed at end (BCP = B.C. Parks; BMS = Bamfield Marine Station; CBP = Clayoquot Biosphere Project; MCM = Malaspina College Museum; MMRG = Marine Mammal Research Group; NBM = New Brunswick Museum; P = private collection, details available from MMRG; RBCM = Royal British Columbia Museum; SIC = Stubb's Island Charters; SM = Sidney Museum; SoM = Sooke Museum; PBS = Pacific Biological Station; UMAL = University of Manitoba Anthropology Laboratory; UVic = University of Victoria; VPA = Vancouver Public Aquarium; WCVM = Western College of Veterinary Medicine; WSS = Wellington Secondary School, Nanaimo). ? = specimen not yet worked up, details to be determined.

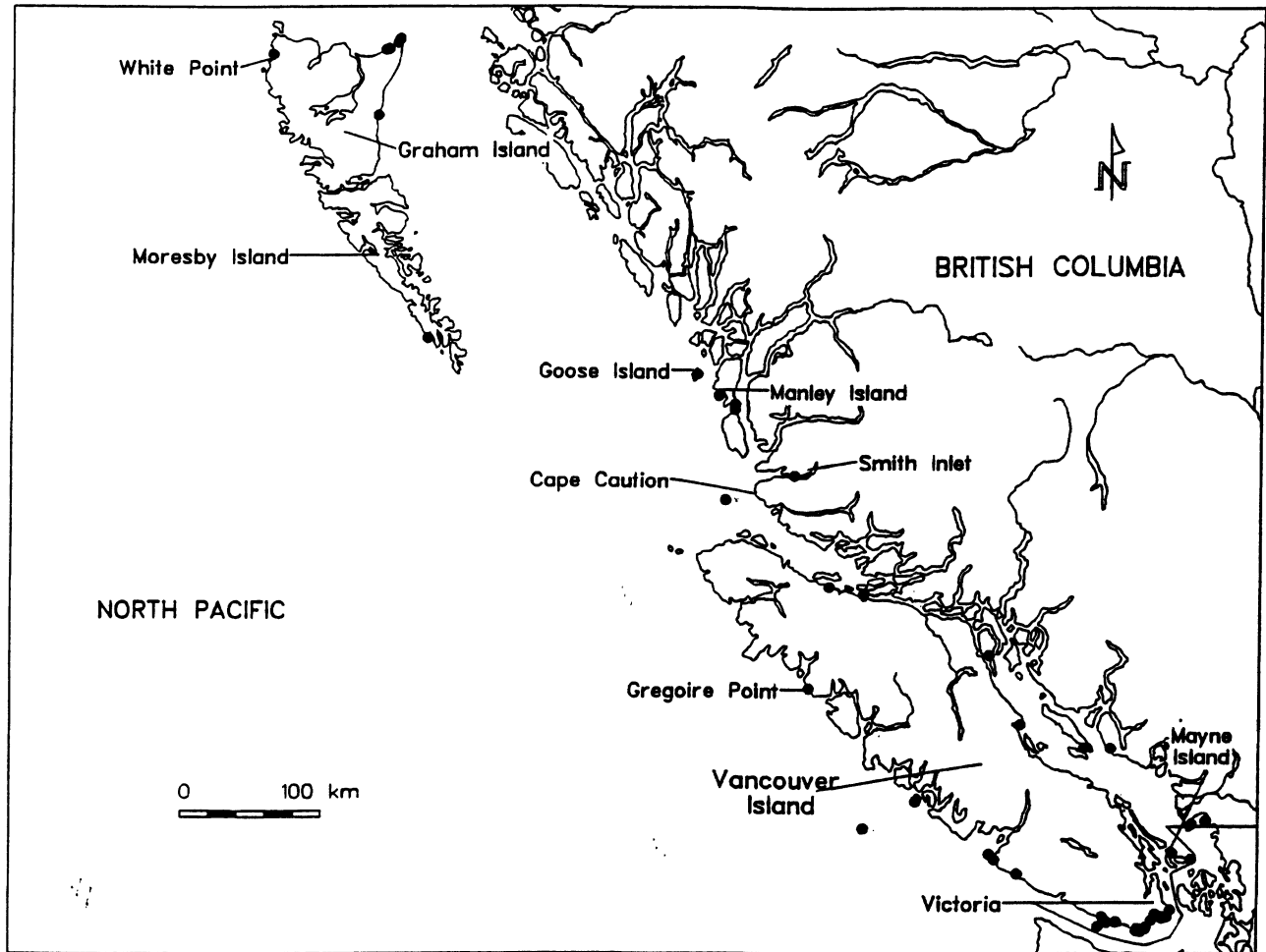


Figure 1. Geographic distribution of stranding and entanglement records.