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Live-Capture Fisheries for Cetaceans in USA and Canadian Waters, 1973–1982

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ABSTRACT

Live-capture fisheries for cetaceans in waters off the United States and Canada are reviewed by period and by geographic area. Records are more complete for the USA after 1 January 1973, when permits for live-capture became a legal requirement under the Marine Mammal Protection Act, but there is substantial published documentation for catches made before 1973 as well. For Canada, where many fewer species are involved, there is no regular system of listing catches, but a licensing system has been in operation for the capture of killer whales (*Orcinus orca*) since 1965, white whales (*Delphinapterus leucas*) since 1962, narwhals (*Monodon monoceros*) since 1971, and all other cetaceans since July 1982.

Prior to 1973, individuals of at least 28 cetacean species were maintained alive in the USA or Canada for display, research, or education. Nineteen species were live-captured in territorial waters of these two countries; nine more species were removed from beaches where they had live-stranded or from fishing gear in which they had been caught unintentionally; and at least seven species were imported. Between 1 January 1973 and 31 December 1982, twelve species were live-captured, six more species were removed from beaches or fishing gear, and one species was imported. In addition to supplying domestic needs, North American and Hawaiian stocks have supplied institutions abroad, principally with bottlenose dolphins (*Tursiops truncatus*) from the southeastern USA and Hawaii, white whales from the St Lawrence River and Hudson Bay, spinner dolphins (*Stenella longirostris*) from Hawaii, short-finned pilot whales (*Globicephala macrorhynchus*) and Pacific white-sided dolphins (*Lagenorhynchus obliquidens*) from southern California, and killer whales from Washington State and British Columbia. About 65% of the animals captured since 1973 have been females (US data only).

INTRODUCTION

The earliest reference to cetaceans in captivity in North America appears to be that of Wyman (1863). He described a 10 ft male white whale (*Delphinapterus leucas*) which had been caught in the St Lawrence River and apparently shipped to New York City, where it had been under the care of the showman P. T. Barnum for nearly two years before its death in *ca* 1863. According to Wyman, the white whale had, for a time, shared a tank with a dolphin (probably *Tursiops truncatus*). Additional white whales were live-captured in the St Lawrence for delivery to cities in eastern North America and western Europe during the late nineteenth and early twentieth centuries (Lee, 1878; Mather, 1899; True, 1909). Some of these animals survived shipment over long distances, even though the only safeguards against drying and dehydration were to pour buckets of water on them periodically and to place moist seaweed in the bottoms of shipping crates.

In 1913 several bottlenose dolphins (*Tursiops truncatus*), transported alive from the 'porpoise' fishery at Cape Hatteras, North Carolina, were introduced at the New York Aquarium (Townsend, 1914).

Today, both white whales and bottlenose dolphins from Canada and the United States, respectively, are well-known attractions in public display facilities throughout North America and Europe. Duffield, Cornell, and Asper (1984) reported that as of 1 August 1979 there were 297 bottlenose dolphins (278 Atlantic and 19 Pacific) and 19 white whales alive in public zoos and aquariums in the USA and Canada. As of summer 1971, approximately 50 bottlenose dolphins and two killer whales (*Orcinus orca*)—all presumably imported from North America—were on display at 15 exhibits in the UK, and expansion of facilities was anticipated (Adams, Burton and Sitwell, 1972).

The United States Congress passed the Marine Mammal Protection Act (MMPA) (Public Law 92–522) on 21 October 1972. This act declared a moratorium on the 'taking and importation' of all marine mammals except by federal permit. One class of permit is 'for purposes of scientific research and for public display.' Applications for such permits are to be reviewed by the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals and may be subjected to a public hearing process before being resolved, in the case of cetaceans, by the Secretary of Commerce. Since the MMPA took effect, the live-capture fishery in the United States has continued to operate, but with substantially improved documentation of the catch than existed before 1973. Additional regulations governing the transport, care and handling of captive marine mammals were published by the US Department of Agriculture in 1979 (Goff, 1979). These supplemented or replaced permit conditions.

Management in Canada has been pursued on a species basis. The Beluga Protection Regulations were made by Order in Council P.C. 1962–678 of 12 May 1962 (SOR/62–172, *Canada Gazette Part II*, Vol. 96, No. 10, 23 May 1962). These required that a license be held by anyone other than northern residents and Royal Canadian Mounted Police officers who would 'hunt or kill' white whales in Canadian waters north of 60°N or in Hudson Bay and its tidal tributaries. These regulations have been amended several times, becoming more explicit about the meaning of 'hunt' ('to chase, shoot at, harpoon, take, kill, or attempt to take or kill belugas') and about where they apply (the St Lawrence River system being added in 1979). The Narwhal Protection Regulations, under which the Minister of Fisheries 'may grant licenses for the capture of narwhals [*Monodon monoceros*] for exhibition or for scientific purposes,' were made by Order in Council P.C. 1971–120 of 26 January 1971. Since the mid-1960s, federal permits have been required in British Columbia to net killer whales, but no catch quotas have been set (Bigg and Wolman, 1975). Permits for the live-capture of killer whales

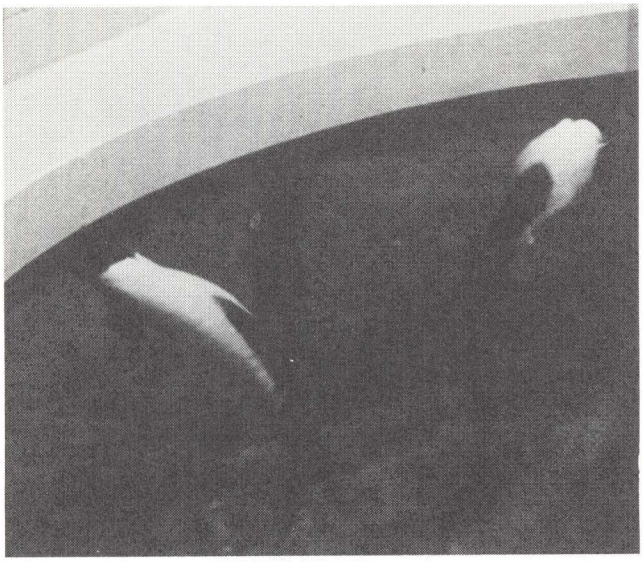

Fig. 3. Among cetaceans imported into the United States were these *Cephalorhynchus commersonii,* confiscated *en route* from Argentina to Japan, December 1978, and transferred to Mystic Marinelife Aquarium, Mystic, Connecticut (photo by J. G. Mead, US National Museum).

bredanensis) retrieved from a Hawaiian beach in 1976 had survived for more than six years as of 1 January 1983 (see below). Although we do not know details, a bottlenose dolphin reportedly taken from a beach on the Florida Panhandle in 1965 lived at the Gulfarium until 1978 (NMFS, unpubl. data).

SYSTEMATIC REVIEW

Gray whale, *Eschrichtius robustus*

Two calves have been captured in the breeding lagoons off western Baja California and taken to holding facilities in southern California (Fig. 4). The limited experience with this species indicates that calves can adapt to captive conditions, but their size and daily food consumption create obvious problems for long-term maintenance (Evans, 1974).

Minke whale, *Balaenoptera acutorostrata*

An unsuccessful attempt was made to bring a newborn calf into captivity in southern California during the late 1950s (Norris and Prescott, 1961). The animal had been lassoed by the tail and hoisted aboard a research vessel as it swam aimlessly near Catalina Island. This is the only such attempt in North American waters of which we are aware.

Narwhal, *Monodon monoceros*

Efforts were made by the New York Aquarium and the Vancouver Public Aquarium to bring this Arctic species into captivity, but with little success (Newman, 1970a). An orphaned calf taken at Grise Fiord lived several weeks at the New York Aquarium in 1969 (Anon., 1969a and b), and six specimens—a young male from Grise Fiord plus two adult females and three calves from Koluktoo Bay—were transported to the Vancouver Public Aquarium in 1970 (Newman, 1970b, 1971). One of these animals survived for four months.

White whale or beluga, *Delphinapterus leucas*

All white whales that have been live-captured and maintained in captivity have been taken in Alaska, the St

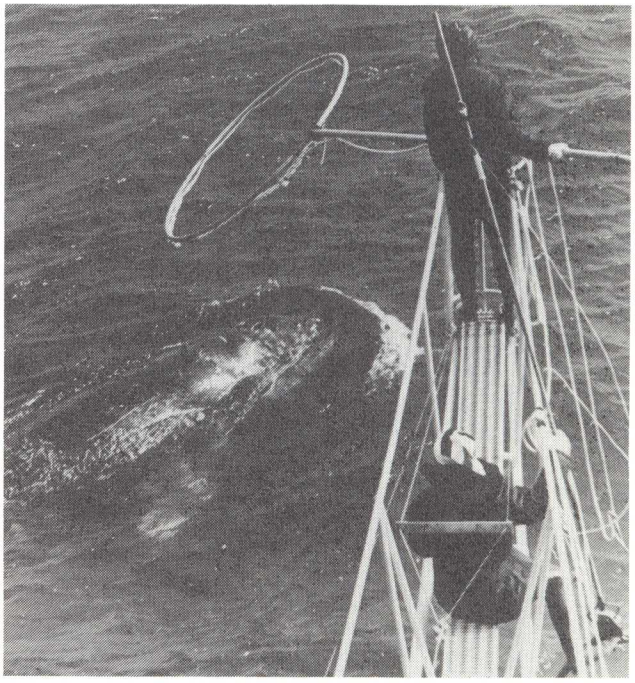

Fig. 4. The breakaway hoop used to capture 2 young gray whales, *Eschrichtius robustus,* off Baja California. (Photo courtesy of Sea World, Inc.).

Lawrence River (and Gulf), or Hudson Bay, as far as we know. The history of the white whale live-capture fishery dates to the early 1860s. Although there is a miscellaneous body of literature referring to white whales in captivity, there has been no comprehensive attempt to summarize available information and to estimate the total numbers taken live for captive maintenance. We have tabulated known live-capture records in Appendix 1 but have no illusions about this being a complete list. Referring to two aquariums in New York, one on Broadway and the other at Coney Island, Mather (1899) stated:

> At both places we had many white whales at different times, for the management would keep whales penned up on the St Lawrence River to replace those which died, and would never show more than two at a time . . . . It would never do to have the public know that they were common during the summer in the St Lawrence, and when one was getting weak another would be sent down, and the public supposed that the same pair was on exhibition all the time.

In any assessment of the true impact of live-capture activities, it would be necessary to account for such animals held in reserve (also see Lee, 1878) as well as those which died in temporary holding facilities (Heyland and Hay, 1976) or *en route* to their final destination.

Prior to the late 1950s most white whales were taken in the St Lawrence River, mainly at Ile-aux-Coudres (Appendix 1). The proximity of suitable transportation and the existence of a white whale weir fishery dating to the early 1700s (see Reeves and Mitchell, in press) made this area a natural source of supply. Between 1958 and 1970 whales were caught at various sites, but since the early 1970s virtually all live-captured white whales have come from the Churchill and Seal Rivers in western Hudson Bay (Gewalt, 1970; Anon., 1979) (see Fig. 5).

Rough-toothed dolphin, *Steno bredanensis*

This species has only been taken and maintained in Hawaii (Pryor, 1975; Shallenberger, 1981). At least 23 have been taken since 1963; of these, five escaped or were released

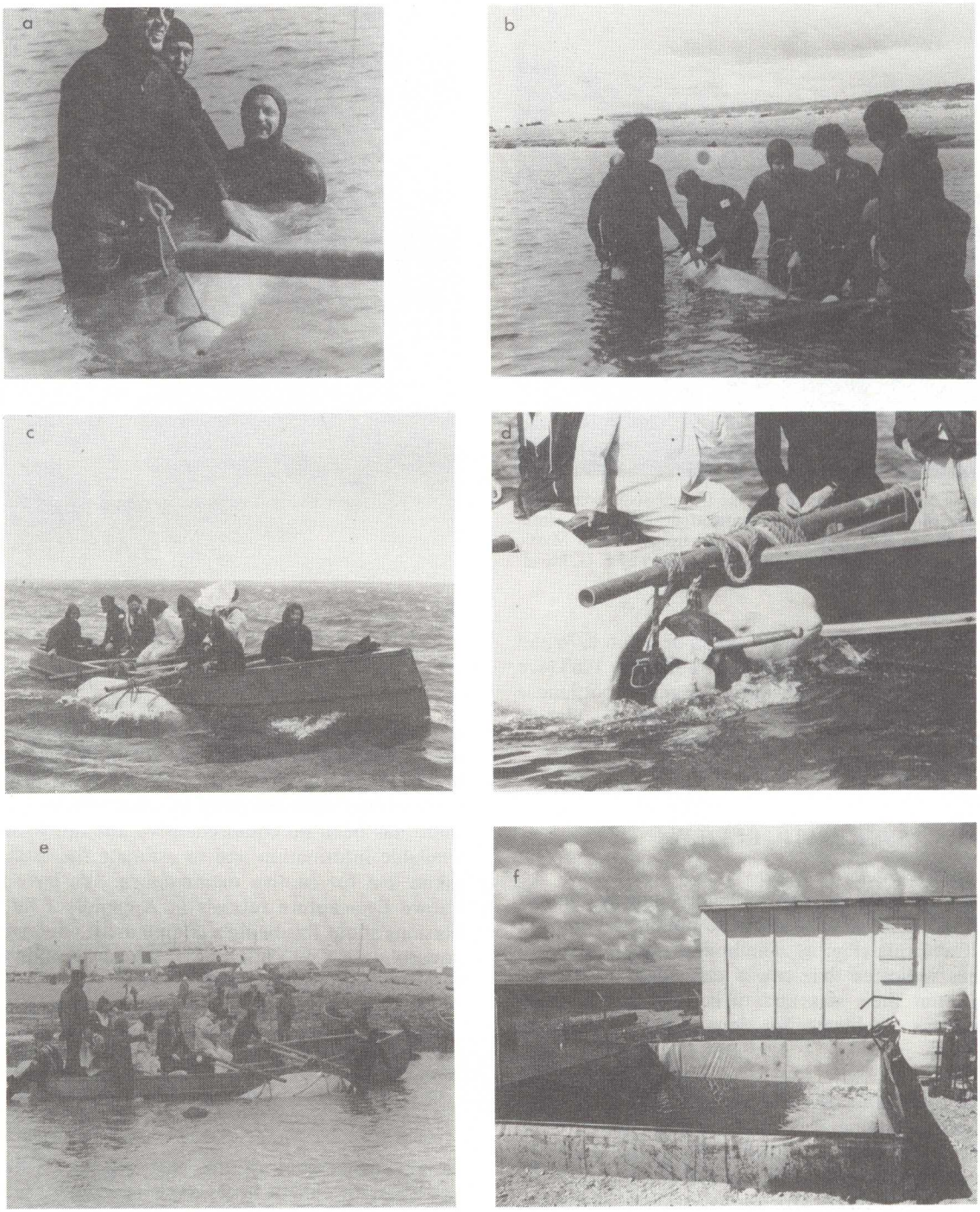

Fig. 5. Most white whales live-captured since the late 1960s have been taken from the Churchill River, Manitoba. They are captured by a diver with a hand-held lasso (a), loaded into a stretcher (b), transported across the river (c and d) to facilities on the southeast shore (e) where they are held in temporary pools (f) until transport to final destinations (photos July 1970, courtesy NOSC).

(Shallenberger, 1981, Tables 6, 7). Since 1973, Sea Life Park has had four specimens, two of which were released within less than a week of capture, one of which died after about five months, and one of which was recovered after stranding in 1976 (Fig. 2). The last of these remained alive and in 'good' health as of 31 December 1982.

Melon-headed whale, *Peponocephala electra*

The first recorded live-captures in US waters were in 1978, when two females were taken in Pokai Bay, Hawaii, for Sea Life Park (see Fig. 2) (Shallenberger, 1981, referred to *three* captive females at Sea Life Park). 'In captivity they can be quite aggressive and must be handled carefully' (Shallenberger, 1981, p. 47). One individual survived for nearly 17 months.

Pygmy killer whale, *Feresa attenuata*

Three specimens have been live-captured and held for short periods at Sea Life Park, Hawaii (Shallenberger, 1981) (see Fig. 2). They proved aggressive and did not adapt well (Pryor *et al.*, 1965; Pryor, 1975). A specimen recovered live from a Florida beach was taken to the Wometco Miami Seaquarium but died shortly after arrival (Caldwell and Caldwell, 1975).

False killer whale, *Pseudorca crassidens*
These animals have been uncommon in captivity in North America. In the past, they were caught and maintained in southern California (Norris and Prescott, 1961; Brown *et al.*, 1966) and Hawaii (Brown *et al.*, 1966; Pryor, 1975). According to Shallenberger (1981), at least ten false killer whales were live-captured off Hawaii between 1963 and 1981. A male was taken off Hawaii in 1976 (see Fig. 2); it died after somewhat more than two years.

Killer whale, *Orcinus orca*
The fishery for this valuable display animal has centered on inshore regions of northwest Washington and southwest British Columbia (Bigg and Wolman, 1975). Although there is some disagreement about exactly how many were permanently removed from the wild between 1962 and 1973 (see Asper and Cornell, 1977), the total through March 1976 appears to have been about 66. Bigg and Wolman's (1975) data indicate that approximately as many females as males were taken (28 and 30, respectively, in an incomplete sample).

Because of public pressure against original excesses in the fishery, much less live-capture activity has occurred in Washington and British Columbia since 1972. Hoyt (1981, Appendix 6) made a useful accounting of killer whales taken by live-capture worldwide from 1961 to 1980. Only three whales are listed as having been taken in US waters since March 1973. One of these was 'stranded and/or attempting to strand' at Ocean City, Washington (Asper and Cornell, 1977). The other two were part of six captured off Olympia, Washington; all six were released alive.

In August 1973, four killer whales were live-captured in Pedder Bay, British Columbia (Asper and Cornell, 1977; Hoyt, 1981). One of these was radiotagged and released 2½ months later; the other three later died. Two more individuals from a group of seven caught in Pedder Bay in August 1975 were retained. One died in captivity; the other was alive at Marineland of Ontario as of September 1980 (Hoyt, 1981, Appendix 6). Thus, a total of six killer whales were permanently removed from the wild by the North American live-capture fishery between 1973 and 1980.

As is evident from Hoyt's table, marine parks in North America and elsewhere have increasingly come to depend on Iceland to supply killer whales for display and research. NMFS records indicate that ten killer whales have been imported from Iceland into the US between 1976 and 1981 (Table 3).

Long-finned pilot whale, *Globicephala melaena*
Two stranded specimens have been taken from east coast beaches and placed in holding tanks for short periods since 1973. Prior to 1973 'several' animals were live-captured off New England (R. L. Brownell, pers. comm.).

Short-finned pilot whale, *Globicephala macrorhynchus*
This has long been a popular display animal (Gilmore, 1962; Brown *et al.*, 1966; Norris, 1974; Walker, 1975). Twenty individuals were taken in Hawaiian waters between 1963 and 1972 (Shallenberger, 1981), but all collecting activities since 1973 have taken place off southern California (see Fig. 6). Of 17 individuals taken, ten (59%) were females.

Fig. 6. Pilot whales are live-captured by means of a breakaway hoop net on a long-handle deployed from a 'swordfish plank' manoeuvered over the surfacing whale (photo off San Clemente Island, California, April 1974 by S. Leatherwood).

White-beaked dolphin, *Lagenorhynchus albirostris*
This species had not been maintained in captivity until March 1983, when five females were netted off Newfoundland and taken to the Mystic Marinelife Aquarium in Mystic, Connecticut.

Atlantic white-sided dolphin, *Lagenorhynchus acutus*
There has been no direct live-capture of this species. However, several specimens salvaged from beaches where they had stranded have been held for short periods at the New England Aquarium in Boston.

Pacific white-sided dolphin, *Lagenorhynchus obliquidens*
This species adapts relatively well to captivity and is readily available off the California coast (Brown and Norris, 1956; Norris and Prescott, 1961; Brown *et al.*, 1966; Walker, 1975; Leatherwood and Walker, 1982). Of the 28 Pacific white-sided dolphins caught from 1973 to 1982, all but three were taken in the Southern California Bight, principally near San Diego. The other three were taken in the vicinity of Santa Cruz, California. Females comprised 71% of the total catch.

Atlantic bottlenose dolphin, *Tursiops truncatus*
In terms of the number of animals removed from the wild in North American waters, the bottlenose dolphin is by far the most important and frequently caught cetacean. In an earlier review paper (Leatherwood and Reeves, 1982, Table 18.6), we listed known catches of bottlenose dolphins in Florida between 1967 and 1973, using data from the Florida Department of Natural Resources. We also listed the number of bottlenose dolphins taken under MMPA permits between 1 January 1973 and 30 December 1979, with their average and total monetary values, by year (Leatherwood and Reeves, 1982, Table 18.7), and we estimated takes in Florida prior to 1967 and all other areas of North America from 1938 through 1980 (Leatherwood and Reeves, 1982, Table 18.8). Our estimate of more than 1,500 as the total number of bottlenose dolphins removed from the wild off the US, Mexico and the Bahamas before 20 March 1980 was considered conservative. (Note that the total of catches listed in Table 18.8, 1,324–1,361, is 254