SUBSISTENCE HARVEST OF BOWHEAD WHALES BY ALASKAN ESKIMOS DURING 2000

[1]Robert S. Suydam, [1]John C. George, [1]T.M. O'Hara and [2]Gay Sheffield
[1] Department of Wildlife Management, North Slope Borough, Box 69, Barrow, AK 99723 USA
[2] Alaska Department of Fish and Game, 1300 College Rd., Fairbanks, AK 99701 USA

ABSTRACT

A total of 47 bowhead whales was struck during the 2000 Alaskan subsistence hunt resulting in 35 animals landed. The efficiency (# landed/# struck) of the hunt was 74.5%, less than in 1999 (89%) but similar to the average efficiency over the past 10 years (75.9%). Twenty-one of the landed whales were female (60%) of which six were presumably mature (≥14.2 m in length). Two of the mature females were pregnant, one with a 38.2 cm fetus and the other with an approximately 60 cm fetus. Since 1980, 29% of the landed females ≥14.2 m in length (for which we have records) were pregnant.

INTRODUCTION

Harvesting of bowhead whales (*Balaena mysticetus*) provides for important subsistence needs of several northern and western Alaskan Eskimo communities. The Alaska Eskimo Whaling Commission (AEWC) locally manages the harvest through an agreement with the National Oceanic and Atmospheric Administration (NOAA). The level of allowable harvest is determined under a quota system in compliance with the International Whaling Commission (IWC 1980; Gambell 1982). The quota is based on the nutritional and cultural needs of Alaskan Eskimos as well as on estimates of the size and growth of the bowhead whale population (Donovan, 1982; Braund, 1992).

The subsistence hunt takes place in spring and fall as whales migrate between the Bering and Beaufort seas. These hunts are subjected to considerable environmental interference from weather (wind speed and direction, fog, and temperature), stability of landfast ice and sea ice concentration. The success of the hunt is highly affected by these factors and shows considerable variation by year.

Since 1981, the North Slope Borough Department of Wildlife Management has gathered basic data on landed whales in several communities and assisted the AEWC in compiling statistics on landed whales from outlying villages (Albert, 1988). The purposes of this paper are to: (1) document the number, location (village), and dates of landed, and struck-and-lost bowhead whales in 1999 in Alaska, (2) document the estimated fate of struck and lost bowhead whales, (3) present basic morphometric data and the sex composition of the harvest, and (4) examine the hunting efficiency of the harvest.

METHODS

Harvest data such as sex, length, dates, and fate of struck and lost whales for all whaling villages were obtained from the AEWC. Biologists recorded similar information for whales taken at Barrow and Kaktovik, and also collected specimens and detailed morphometric data.

RESULTS AND DISCUSSION

A total of 47 whales was struck during the 2000 hunt resulting in 35 animals landed. Fifteen of the landed whales were taken during the spring migration by hunters from five villages (Barrow, Point Hope, Savoonga, Wainwright, and Wales) and 20 were taken during fall migration by 3 villages (Barrow, Kaktovik, and Nuiqsut; Table 1). The total number of whales landed (n=35) in 2000 was comparable to the average number of whales landed (per year) over the last 10 years (mean = 38.7 whales). The efficiency (# landed/# struck) of the hunt was 74.5%. Hunting efficiency during 2000 was less than 1999 (89%, the most efficient year recorded to date), but very near the average efficiency during the past 10 years (76%). Of those whales that were struck but lost in 2000, five either died or had a poor chance of survival (based on

the hunting captain's assessment of survival), four had a fair chance of survival and the fate was unknown for the other three (Table 2.).

Fourteen (40%) of the 35 landed whales were males; the longest was 14.3 m and the shortest was 8.2 m. The longest female was 18.9 m in length (not measured by a biologist) and the shortest was 7.9 m. Six (29%) of the 21 females landed in 2000 were $\geq$ 14.2 m in length and possibly sexually mature. This length at sexual maturity (14.2 m) is based on a large sample of mature females (harvested from 1978-1993) analyzed by Tarpley and Hillmann (1999). Based on additional data from 1993 to present, however, the average length of the five smallest pregnant whales examined was 13.7 m. In 1999, a female was pregnant but only 12.6 m in length; this was the shortest animal harvested that was examined and determined to be pregnant (George et al. 2000). Only one other female harvested in 2000 was between 12.6 m and 14.2 m in length and it is yet unknown whether she was sexually mature. A few mature females (accompanied by calves), less than 14.2 m in length, have been seen during photogrammetry studies (see Koski *et al.*, 1993); the smallest female was only 12.2 m in length. This difference (between photogrammetry and examination of harvested whales) in estimated length at maturity may be based on the possibility that landed whales may stretch by as much as one meter while being hauled ashore or onto the sea ice (C. George and T. O'Hara, unpublished data). Of the mature females landed in 2000, two were pregnant (all at Barrow), one with a 38.2 cm fetus ("crown-rump" length) and the other was approximately 60cm in length. Since 1980, 29% of the landed females $\geq$14.2 m (for which we have records) were pregnant, although this is likely an underestimate as biologists and hunters alike could easily miss detecting a very small fetus.

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Table 1. Village, whale number, date, length and sex of bowhead whales landed by Alaskan Eskimos during the 2000 subsistence hunt.

Village	Whale	Date	Length (m)	Sex
Barrow	00B1	24 April	9.4	M
	00B2	25 May	14.5	F
	00B3	25 May[1]	14.6	F
	00B4	25 May	15.4	F
	00B5	30 May[2, 3]	18.9	F
	00B6	26 Sept[4]	12.7	M
	00B7	29 Sept	8.6	M
	00B8	29 Sept	8.9	F
	00B9	30 Sept	7.9	F
	00B10	30 Sept	9.4	F
	00B11	01 Oct[5]	13.8	M
	00B12	03 Oct	10.8	M
	00B13	06 Oct	9.4	M
	00B14	06 Oct	9.9	F
	00B15	08 Oct	8.9	F
	00B16	08 Oct	10.0	F
	00B17	08 Oct	9.5	M
	00B18	08 Oct	8.9	F
Kaktovik	00KK1	02 Sept	9.2	F
	00KK2	03 Sept	12.1	M
	00KK3	08 Sept	8.9	M
Nuiqsut	00N1	02 Sept	11.9	M
	00N2	07 Sept	8.2	F
	00N3	08 Sept	13.0	M
	00N4	09 Sept	8.5	F
Point Hope	00H1	17 April	8.4	F
	00H2	22 April	8.2	M
	00H3	04 June	14.3	M
Savoonga	00S1	15 April	13.7	F
Wainwright	00WW1	30 April	12.4	M
	00WW2	01 May	9.2	F
	00WW3	15 May	15.2	F
	00WW4	19 May	9.0	F
	00WW5	24 May	9.8	F
Wales	00W1	30 April	14.6	F

[1]Carried a 38.2 cm fetus.
[2]Carried ~60 cm fetus.
[3]Whale was struck on May 29 but not landed until May 30.
[4]Whale was struck on September 25 but not landed until September 26.
[5]Whale was struck on September 30 but not landed until October 1.

Table 2. Number of landed bowhead whales and estimated fates of struck and lost whales during the 2000 subsistence harvest by Alaska Eskimos[1].

Village	Landed	Struck & Lost	Total Struck	Estimated Fate[2]
Barrow	18	8	26	3u,2p,2d,f
Kaktovik	3	0	3	
Nuiqsut	4	0	4	
Point Hope	3	2	5	2f
Savoonga	1	0	1	
Wainwright	5	1	6	d
Wales	1	1	2	f
Totals	35	12	47	3u, 4f, 2p, 3d

[1] Data provided by the Alaska Eskimo Whaling Commission
[2] Whaling captain's estimated chance of survival: d=died, p=poor, u=unknown, f=fair.

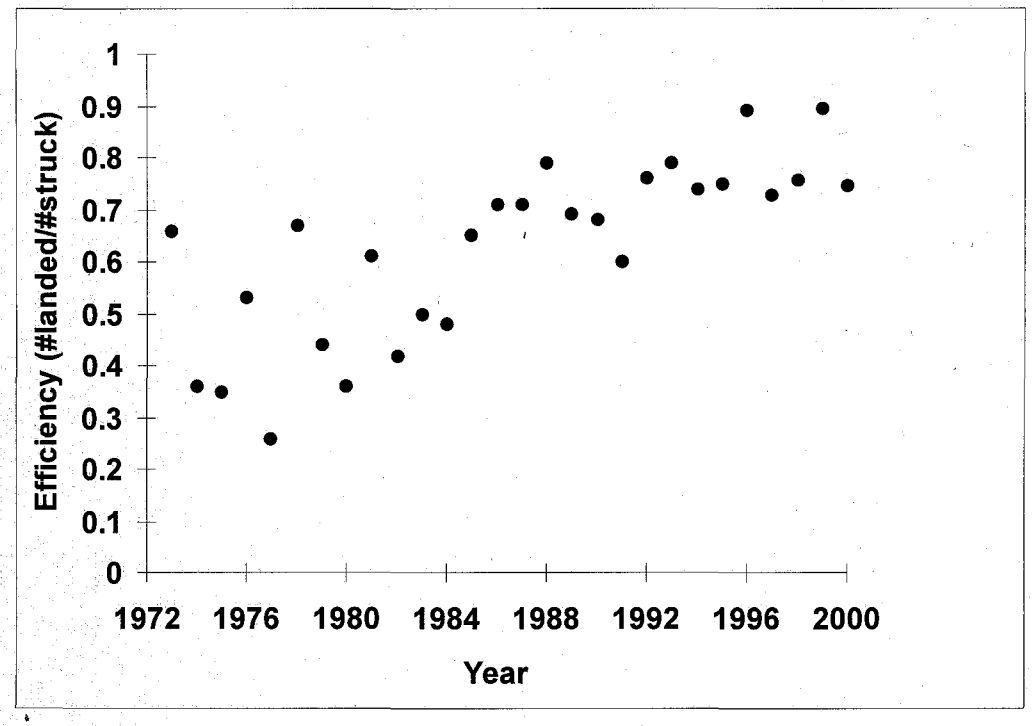

Figure 1. Efficiency (# landed/# struck) of the bowhead whale harvest by Alaskan Eskimos since 1973.