

Consideration of Proposals for Amendment
of Appendices I and II

COMMENTS FROM THE INTERNATIONAL WHALING COMMISSION
ON THE PROPOSAL CONCERNING THE NARWHAL

1. The Secretary to the International Whaling Commission is first reminding that at the 36th (1984) Annual Meeting of this Commission it was agreed "that the Secretariat should respond to requests for advice from CITES as it has done in the past, by sending CITES the relevant sections of recent Scientific Committee and sub-committee reports" (Chairman's Report of the 36th Meeting, para. 17.2).
2. He added that "the responsibility of the IWC for the management of small cetaceans, especially those in coastal waters, remains unresolved. The most recent substantive scientific discussions took place at the 31st (1980) and 32nd (1981) meetings, and can be best summarised by the following extract from the Report of the Scientific Committee for the 1981 meeting:

REP. INT. WHAL. COMM. 32. 1982

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10.1.3 Narwhal

There was no new information available that would allow assessment of status of stocks, estimation of replacement or other yields.

There is persuasive evidence for the existence of one main stock that winters in Davis Strait and summers in northern Greenland and the Lancaster Sound region, with possibly a very much smaller stock inhabiting northwestern Hudson Bay. Present takes from the main stock are thought to be on the order of 3-6% of the present population of up to 20,000.

The background for this position is contained in the 1980 and 1981 Reports of the Small Cetacean Sub-Committee". The relevant extracts are attached.

4.3 Narwhal

4.3.1 Definition of stocks

The sub-committee reviewed the four available documents on distribution and catch from 1974 to 1979 (SC/32/SM11; SC/32/O 16; SC/32/ProgReps Canada and Denmark). From an extensive review of the literature, Mitchell and Reeves (SC/32/O 16) provisionally concluded that one stock of narwhal exists in the Canadian Arctic, West Greenland and Northwest Greenland, as opposed to two as described in *Rep. int. Whal Commn* 30: 121. They pointed out that although it is well known that narwhals in summer concentrate in separate regions of eastern Arctic Canada and north Greenland, their winter distribution is poorly known, and animals from all parts of the summer range may mix in winter in an area of Davis Strait close to the border of the drift ice. Meldgaard and Kapel (SC/32/SM11) reported recent sightings of narwhals in the Melville Bay area and reviewed previous observations from the same area. They concluded that although the catch statistics for Umanavik District clearly demonstrate a northward migration in April-June and a southward migration in September-November, it is not clear whether all these animals migrate to and from the well known summering areas in Thule District (Vibe 1950, cited in SC/32/SM11), or if some of them spend the entire summer in Melville Bay. The sub-committee was not able to agree on the question of whether one or two stocks of narwhal exists along western Greenland and near eastern Canada. This question needs further investigation, and the sub-committee recommends that the involved nations conduct such field studies as are possible to help resolve this problem.

4.3.1 Life history parameters

No new information was presented on life history, *per se*. From data reported in SC/32/ProgRep Canada however, a 23% calf-to-adult and juvenile ratio was obtained from 108 narwhals landed out of a total of 115 (4 were lost) trapped in a *savssar*. Greater numbers of females than males were in this group, suggesting that, if the entrapment was not selective, sex segregation in high latitudes may occur at this time of year.

4.3.3 Catches

The available information on recent catches is presented in Table 2 and in SC/32/ProgRep Denmark. The actual take may be more than reported (SC/32/SM11; SC/32/ProgRep Canada and SC/32/ProgRep Denmark). A review of the history of narwhal catches prior to 1930 (SC/32/O 16) suggests that the take in Canada has always been large and between 1910 and 1930 may have been as high as 400 animals per year. This is greater than the estimated take for the same period in West Greenland of over 300 per year (SC/32/O 16). Data prior to 1910 are greatly fragmented, but some were summarized by the authors. No additional data were presented on struck and lost rates, but Mitchell and Reeves (SC/32/O 16) used a value of 2 in extrapolating to total takes from the literature between 1910-30.

4.3.4 MSY and status of stocks

No estimates of sustainable yield were available; however, evidence presented in SC/32/O 16 suggests that the population has sustained a consistently high take for several centuries. A minimum population size in 1910 was estimated at 11,000 (SC/32/O 16), but no conclusions were reached on the present size of the Canadian Arctic - West Greenland stocks(s). However, Sergeant (SC/31/SM6) reported a population estimate from the recent literature of 20,000 for narwhals in the Lancaster Sound area. Although the population has sustained a long history of commercial and subsistence hunting, the sub-committee reiterates its recommendation of 1979 that additional steps be taken to obtain data on life history, distribution, abundance and other information for assessment and management of the stocks.

Table 2

Available catch data for white whales and narwhals by area in Canada 1974-79
(From SC/32/ProgRep Canada and SC/32/O 16)

Year	White whales					Narwhals		
	Arctic		Hudson Bay		Totals	Eastern Arctic	Western Hudson Bay	Totals
	Eastern	Western	Eastern	Western				
1974	239	165	366	—	770	152	—	152
1975	140	184	529	101	954	264	7	271
1976	239	154	489	146	1,028	297	8	305
1977	286	148	534	191	1,159	200	8	208
1978	161	127	217	118	623	275	4	279
1979	200	144	1	105	450 ¹	289	30	319
Totals	1,265	922	2,136	661	4,984	1,477	57	1,534

¹ 1979 data incomplete.

3.3 Narwhal

3.3.1 Distribution, migration, identity of stocks and abundance

No new documents were available on distribution or stock identity. There is persuasive evidence for existence of one main stock in the Canadian Arctic, West Greenland and North Greenland (Mitchell and Reeves, 1981). Finley and Brodie reported, however, that there are frequent catches from northwestern Hudson Bay and that wintering animals may be found in eastern Hudson Strait. These two groups may belong to a smaller, separate stock that summers in northern and western Hudson Bay and winters in Hudson Strait as described for white whales (SC/33/SM9).

Kapel and Finley reported that aerial surveys were carried out in March-April 1981 in southern Baffin Bay - northern Davis Strait as well as in the Hudson Strait - southern Hudson Bay area, and that results are expected to be presented at next year's meeting. Narwhals were found widely distributed in cracks and holes in the pack-ice throughout Baffin Bay - Davis Strait.

Reported catches in recent years are presented in Table 4.

3.3.2 Catches

The actual take is probably more than reported. Although Canadian regulations require all landed narwhals, male and female, to be tagged, harvest statistics do not include lost or abandoned carcasses or unreported animals (SC/33/ProgRep Canada). In addition, kills of females are not likely to be reported (tagged), in order to reserve available tag quotas for tusked males (SC/33/SM10).

3.3.3 Hunting loss rates

In 1980 the sub-committee cited an estimate of loss rate of 50% (Mitchell and Reeves, 1981). Additional information presented in SC/33/SM10 indicates that loss rates can be variable, depending on the type of hunt and ice conditions. For example, in 1978 an ice ridge afforded hunters an elevation providing a good firing angle for inflicting fatal injuries (and high losses) at the ice edge hunt for narwhals. In 1979 there was no similar vantage point, and there appeared to be few losses, although many narwhals received superficial wounds. Such circumstances explain the high rate (23-42%) of scarring found on the landed catch of narwhals from northern Baffin Island.

3.3.4 Status

No new information was available concerning status.

3.3.5 Age determination and vital rates

New data on ageing presented by Hay (1980) indicated that based on length-frequency analysis, three layers may be deposited in dentine and mandibular bone in the first two or three years of life. If accumulation rates of corpora albicantia based on annual ovulation rate are correct, adult females may deposit one layer per year. The workshop did not resolve the question of annual deposit of one or two layers (Hay, 1980).

Finley and Miller (SC/33/SM10) found that males were about 390 cm long (with 100 cm tusks) and females about 340 cm long at sexual maturity. Hay (1980) reported similar values, with dentinal-layer counts of 17 for males and approximately 12 for females. Estimates of age at first reproduction will depend on the rate at which dentinal layers are actually accumulated.

Accurate estimates of pregnancy rate, birth rate, calving ratio and natural mortality were not available, and there are very few data on population structure. Seven of 18 mature females examined by Finley and Miller (SC/33/SM10) were pregnant, a similar ratio to that found by Hay. In a group of narwhals trapped in a *savssar*, there were 25 calves for 50 adult females (SC/32/ProgRep Canada). The representativeness of the sample is questioned because the group contained few adult males, and the degree to which females and calves segregate or concentrate is unknown. If it is assumed that adult males escaped from the *savssar* and that the original sex ratio was 1:1, then the proportion of calves would have been 19.2% of total.

3.3.5 Net reproductive rate and sustainable yield

As is the case for the white whale (discussed above), there were no data or analyses available to the sub-committee that would allow estimation of natural mortality rate. Therefore estimation of net reproductive rate and replacement and sustainable yields is not possible. The same problems and comments discussed above for the white whale apply here for the narwhal, including the inadvisability of using the 5% figure promulgated by Sergeant (1981) for use for the narwhal (by analogy with the white whale).

As discussed above, the very long history of substantial catches and the present estimates of abundance suggest that the narwhal population is not in a crisis situation such as are the three heavily depleted white whale stocks, and present takes may be smaller than replacement yields. However, in view of the fact that recent data indicate that narwhal takes on the coast of Greenland and those in the Canadian High Arctic are probably from the same stock (IWC, 1980, 1981), research should be continued to more accurately and completely document the take and to collect survey data and comprehensive biological data and specimens that will allow more precise estimation of the size and composition of the population than is possible with existing data.

Table 4

Available catch data for narwhals in Canada and Greenland 1976-80.
 (From SC/33/ProgReps Canada, Denmark, SC/32/ProgRep Denmark, SC/30/ProgReps 29, 30, 32 and 33)

Year	Canada		Greenland		Totals
	Western Hudson Bay	N.E. Canadian Arctic	Reported catch	Estimated catch	(Canada and Greenland est.)
1976	8	297	106	110 ¹	415
1977	8	200	232	350	558
1978	4	275	503	650	929
1979	30	289	289	350	669
1980	25+	325	185	350	700-
Totals	75+	1,386	1,315	1,810	3,271+

¹ Exclusive of Thule and East Greenland.