

Catalogue of Questions
on the public hearing of the
Committee for Consumer Protection, Food, and Agriculture
on the "Protection of Whales" on 10 March 2004. 8.00 a.m.

**Ausschuss für
Verbraucherschutz,
Ernährung und
Landwirtschaft**

**Ausschussdrucksache
15(10)360B englisch**

Answers by Lars Walloe – 20.02.2004

A. Function in the ecosystem

What function do whales have in the various ecosystems, such as the North Sea, the Baltic Sea, the Atlantic, or the Antarctic ?

Most whales are top predators, in the sense that they are usually not attacked by other predators. Some whales like right whales (black right whale and bowhead) and the blue whale feed exclusively on zooplankton. Others feed on krill and fish or squid. Some species of fish have important functions in the ecosystem, e.g. herring and capelin in the North Atlantic, since they are important for energy transfer between zooplankton and higher levels in the food web (e.g. cod). As far as we know today, no whale species have similar important functions in any ecosystem.

B. Whale stocks

1. What is known about the reproductive cycle of whales?

Very much is known about the reproductive cycle of many whale species, especially of all the large whales. Much of this knowledge was obtained already in the late 19th century and was published in German zoological journals at the time (e.g. Gustav A. Guldberg: Zur Biologie der nordatlantischen Finwalarten. Zoologische Jahrbücher, 1886 2:127-174). The female minke whale for instance is known to have a gestation period of about 9-10 months, is mating soon afterwards, is lactating for about 4 months, and the calf usually leaves the mother at weaning. Thus a well fed female minke whale can give birth every year. The fin whale in contrast has a gestation period of 12-13 months and a long lactation period. The calf accompanies the mother for many months, and the minimum interval between births is two years.

2. Is there at present (or will there be in future) reliable, scientifically based knowledge about the situation of the individual whale stocks?

For some whale species and stocks the knowledge is rather good. This is certainly the case for North Atlantic minke whales, but the knowledge is also good for most other minke whale stocks, for many fin whale stocks, for some Brydes whale stocks, and for some stocks of other whale species.

3. To what extent have the stocks of the great whales recovered world-wide since the decision to end whaling 18 years ago?

Since whales are slowly reproducing species, not much can have happened since 1987. However, not all species have ever been hunted far down (e.g. most (all?) stocks of minke whales), and some stocks of depleted whales have been protected for decades. Blue whales in the North Atlantic and in the North Pacific, humpback whales in the North Atlantic and right whales in the Southern hemisphere are now increasing by about 8 % per year.

4. At the present time, are all whale species equally endangered, or are certain whale species not endangered, and which are these?

Many species are not endangered at all (minke whales, pilot whales, gray whales, many dolphin species including killer whales). This is probably also the case for fin whales, sei whales, Brydes whales and sperm whales, although the information is less good than for the former species.

5. (a) Which whale species are still threatened with extinction, despite the moratorium on whaling?

*I doubt that any **species** of whales are threatened with extinction, but there are certainly stocks of some depleted species that are threatened with extinction, e.g. North Atlantic black right whale and North Atlantic Greenland whale (bowhead), the Okhotsk Sea (North Pacific) bowhead whale and Western North Pacific gray whale. A few species of dolphins and porpoises are threatened with extinction.*

5. (sic) (b) In your opinion is there one or more whale stocks which now or in the future would allow utilisation?

Yes, many, e.g. all the species listed in the answer to question B4 and in addition the B-C-B stock of bowhead whales in the North Pacific and humpback whales in the North Atlantic.

6. How large is the population of the Western Pacific grey whale and is this threatened by measures for the exploitation of oil and gas reserves?

There is no good abundance estimate, probably a few hundreds. All kinds of changes in the environment may push the population to extinction.

7. According to *Science* (July 2003), populations of the humpback and fin whales have fallen over the past 150 years to one tenth of their former level:

there used to be 240 000 humpback whales and 360 000 fin whales; the International Whaling Commission (IWC) estimates that today there are 20 000 and 40 000 animals respectively. On recovery to 54% of the old stocks, whaling should be possible once again. According to an IWC decision, this would require a ten-year moratorium, according to *Science* it will require 70 years. How do you assess the period needed for stocks to recover?

The problem is that very few whale biologists accept the number in the Science paper at face value. These biologists claim that either the mutation frequency assumed by the authors must be wrong or the depletion took place much earlier, e.g. at the end of the last ice age. My own response to this article can be found as an attachment to this questionnaire.

8. Which whale species are native in the North Sea and the Baltic Sea, how have their stocks developed over the past ten years (separately for North and Baltic Seas), by what if anything are the whales threatened, and what protective measures are required to preserve the stocks?

Whale species native to the North Sea:

The North Sea is a shelf sea, wide open to the North Atlantic. A range of whale species enters the North Sea temporarily to feed. These include the Atlantic white-sided dolphin, the white-beaked dolphin, the killer whale and the minke whale. There is no evidence of decline in these species. The harbour porpoise and the bottlenose dolphin are supposed to have resident populations in the North Sea. The only known resident population of bottlenose dolphin in the North Sea is in the Moray Firth where 130 dolphins reside. The Moray Firth is heavily utilised for shipping routes and there are indications of decline in this dolphin population. The most abundant cetacean in the North Sea is the harbour porpoise. In 1994 the abundance in the North Sea (excluding the Celtic shelf and inner Danish waters) was estimated to 300 000. The population structure of North Sea porpoises is not well described, but the occurrence of sub-populations is likely. There are evidences for changes in distribution of North Sea harbour porpoises. They are now rare in the southwestern waters (off The Netherlands and Belgium and in the English Channel), where they formerly were reported to be abundant. Changes in distribution may have been caused by depletion or shifts in local prey populations, or habitat degradation (e.g. disturbance by ship traffic). Further, a population decline causing shrinking range of North Sea porpoises cannot be excluded. However, there is no evidence for a decline, historical or recent, in the total abundance of porpoises in the North Sea. Only a few North Sea fisheries are monitored for porpoise bycatches, but the total bycatch is assumed to be in the low thousands. Bycatches at this level may have conservation significance, in particular if bycatches are concentrated on sub-population structures. In addition any bycatch of marine mammals have animal welfare implications. Therefore, an attempt should be made to reduce the

relatively high level of bycatches in the North Sea. The use of pingers is suggested as an effective measure to mitigate bycatches of cetaceans. One type of pingers operates as alarms that make the cetacean aware of nets. However, there are risks of habituation and evolving a “dinner bell” effect. The other type of pingers is acoustic deterrent devices (the sound prevents the animals from approaching the nets). With the current fishing effort in the North Sea, this type of pingers may represent a significant noise pollution and may displace porpoises from important feeding grounds. The bycatch of porpoises is fishing effort related. The most effective and sound measure to reduce (but it does not eliminate) bycatches of porpoises is therefore to rebuild the North Sea fish stocks. Increase in fish abundance will increase the fish catch per unit effort, and hence reduce the required fishing effort per kg fish landed.

Whale species native in the Baltic Sea:

The Baltic Sea is a recent marine basin formed by post-glacial processes. There is no cetacean species that has evolved within the relatively young Baltic Sea. However, if “native” is defined as “has occurred continuously over a very long period” (e.g. 100s of generations), the harbour porpoise meets this criterion. Historically, the harbour porpoises were harvested at several sites in the southern and western parts of the Baltic. This is best documented in Denmark where catch statistics are known for an about 400 years period. In order to sustain this harvest over hundreds of years, the porpoises must have been abundant. In the twentieth century, the harvest declined, probably because the demands for blubber declined. However, a decline in abundance as the primary cause for reduction in landings, cannot be excluded. In addition to harvest, rapid formation of sea ice over large areas is supposed to have taken its toll from the Baltic porpoise population in former times. The biggest decline in porpoise abundance seems to have occurred after about 1950, when there was little or no direct harvest. During this period Baltic seals experienced depression in reproductive ability caused by toxic manmade substances released into the environment (e.g. PCBs). Marine mammals are exposed to contaminants through their diet, and we may assume that the diets of seals and porpoises in the Baltic overlap. Therefore, it cannot be excluded that pollution has been an important cause for the decline of Baltic porpoises during the second half of the twentieth century. There seems to be evidence (molecular genetics and morphometric) for two porpoise populations in the Baltic. A shipboard survey in 1994 revealed an abundance of 36000 porpoises in Kattegat-Øresund, and 5850 porpoises in the Belt Seas and inner Danish waters. These areas constitute only a small geographic area implying a relatively high abundance of porpoises. Two aerial surveys in 1995 covered the western Baltic and the Kiel and Mecklenburg Bights resulting in abundance estimates of 600 and 800, respectively. These estimates were based on very few sightings; hence they have very wide confidence limits. Further to the east, porpoises are sighted only occasionally. There is no information available on

recent trends in abundance. Bycatches in fishing gear (e.g. salmon drift nets) are regarded as the most important cause of porpoise mortality in the Baltic. In Swedish fisheries about 5 porpoises were caught per year in the early 1990s, and about the same level of bycatch are reported from Polish and German fisheries. These bycatches may prevent recovery of the small Baltic population. However, mean levels of PCBs are reported to be up to 250% higher in Baltic porpoises than in corresponding samples from the Kattegat and Skagerrak. Therefore, even with zero bycatches, there is no guarantee that the population will recover. An important protective measure may therefore be to improve the environmental quality of the south-western Baltic Sea.

9. To what extent and for which species are regional measures appropriate to make whale stocks safe, and which species can only be protected by global measures?

The stocks threatened with extinction mentioned in the answer to question 5(a), may perhaps be saved by strong regional measures (limitations in ship traffic, fisheries etc.). No species need global measures (except catch quotas and careful monitoring).

10. What influence have the increases in the whale population in recent years had on the stocks of commercially-exploited fish species?

The abundant whale species have a fairly strong influence on these fish stocks (in the North Atlantic minke whales and probably fin whales and the two dolphin species mentioned above, on the stocks of herring, capelin and cod), but since recent increases probably are small, the influence of the increases is probably not so great.

C. Threats and protective measures

1. What does the term "Walschutz" (= whale protection) mean?

To me the term has no special meaning, except that all wild mammalian species should be monitored and be subject to some protective measures, if necessary.

2. What (level of) extraction of whales by whaling, extraction along with other catches, or other threats, measured on the stock levels, is expected to lead to a threat of stocks, according to current knowledge?

This question is impossible to answer in general terms. The answer will depend on species and the level of natural mortality (which is dependent on geographical area). For minke whales in the Northeast Atlantic, there are good evidence that annual catches up to 2000 animals were sustainable in the period

1963 – 1983. There is no reason to believe that similar (or higher) catches would not be sustainable today.

3. By what - apart from whaling - are whales above all threatened by in your opinion?

Entanglement in fishing gears and, in some local coastal areas, pollution.

4. What is known about the potential hazards for whales due to environmental damage (e.g. marine pollution, oil tanker spills, dumping of chemicals)?

We have some knowledge, but more is known about effects on seals, and the effects on whales are assumed to be similar.

5. What effects do climate change and temperature changes in the oceans have on the whales (e.g. on the supplies of food)?

We don't know, but many marine animals may perhaps (slowly) be able to change their habitat, while terrestrial animals may face more serious problems.

6. Are whales threatened globally by shipping and in particular by high-speed ferries?

No, I don't think so, but the few right whales off the US New England states are certainly threatened by large ships to and from harbours (New York, Boston).

7.a) What is known about the threats to whales posed by military activities at sea, and in what parts of the world do such threats arise?

Very little is known

b) How do you assess the evidence that low-frequency active sonar systems (< 240 dB), which affect approx. 75% of the oceans, can cause the whales' ear drums to burst? Is there evidence that underwater noise affects the communication of whales?

I don't think the evidence for damage to the acoustic system of whales is very strong at present, but I am open for the possibility that such evidence will appear in the future. I don't think there is any evidence that underwater noise affects the communication of whales.

8. What is known about the threats to whales posed by the exploitation of underwater mineral reserves?

Nothing

9. What is known about the possible detrimental effects for native small whales from the construction of off-shore wind power generators?

Nothing

10. In late 2002, 20% fewer beluga whales were counted off the coast of Greenland than 40 or 50 years ago. Are there protection strategies for the beluga?

Yes, NAMMCO and JCNB have given advice on catch limits and other protective measures. The government of Greenland has not yet implemented these.

11. What methods would you recommend to avoid the unintentional catching of porpoises and dolphins (in fishing nets) in the North Sea and Baltic Sea?

The only effective measure to avoid unintentional catches of marine mammals is to prevent the use of the types of fishing gear that catch the marine mammals. From a conservation point of view, the bycatches should not exceed sustainable levels. This can be achieved by complete closure of a fishery, prohibiting certain gear types (e.g. large mesh drift nets), gear modifications (including the use of pingers), and season and area closures. All these measures do have economic implications for the fishermen. Further, except for prohibiting gear types and complete closure of fisheries, these measures are not absolute effective. However, maintaining abundant fish stocks is a neglected measure that has positive economic implication. This will reduce the required fishing effort per unit landed fish, and therefore reduce the bycatch of marine mammals per unit landed fish.

12. a) To what extent are restrictions necessary on fishing in the Baltic Sea (coastal fishing) in order to protect porpoise populations there?

Reduction of bycatches will contribute to the protection of the Baltic Sea porpoises. However, zero bycatch may not be sufficient for the recovery of Baltic porpoises due to the high contaminant burden and poor health status of these porpoises. Reduction of bycatches may be achieved by several measures, where closure of fisheries and prohibiting certain gear types may be the most effective.

b) In this context, how do you judge the proposals for a regulation of the European Council to establish measures against whale encapturement in fishing (COM [2003],451 final)?

The European Council regulation (COM [2003] 451) contains two operative measures to reduce bycatch. The restriction and subsequent prohibition of salmon drift nets will be an important measure to reduce bycatches of porpoises in the Baltic. The proposal to limit sets lengths of drift nets to maximum 2.5 km, is in line with the UN Resolution 46/215 on large scale drift nets operative in other areas. Large mesh drift nets have been prohibited in other coastal areas (e.g. since 1988 in Norway). This measure will have significant economic effects on those fishermen currently involved, but the economic implications were considered by the European Council in preparation of this regulation. The other operative measure (to make the use of pingers compulsory) is less effective to reduce porpoise bycatches, and is associated with a range of disadvantages such as extra costs for fishermen, risk of pinger malfunction, risk of porpoise habituation and development of a “dinner-bell” effect, risk of displacing harbour porpoises from important feeding grounds, etc.

13. How do you evaluate the draft proposal of the EU Commission presented in July 2003 for the protection of "small whales" and the suitability and the practicality of the measures proposed there for the protection of "small whales" which envisage the following:

- a) a complete ban on drift-net fishing in the Baltic Sea beginning 1 Jan 2007 and a prior limitation on the length of drift-nets.
- b) the obligatory use of acoustic warners (pingers) in net fishing in EU waters.
- c) the documentation of encapturements by independent observers on board the ships.

a) The drift nets set for salmon were regarded as the most important cause of bycatch mortality in Baltic porpoises. A limitation of net length and a complete ban from 1 January 2007 will therefore significantly reduce the bycatches of Baltic porpoises. With regard to bycatch reduction, this measure has sufficient suitability and practicality.

b) The use of pingers is proposed for net fisheries in EU, but this measure is associated with a range of disadvantages such as extra cost for fishermen, risk of pinger malfunction, risk of porpoise habituation and development of a “dinner-bell effect”, risk of displacing harbour porpoises from important feeding grounds, etc. However, the use of pingers has proven to reduce bycatch of porpoises (at least initially) in other areas. The use of pingers requires a programme to monitor its effectiveness.

c) The proposal to monitor bycatches of whales by independent observers onboard fishing vessels is costly, and it does not directly reduce bycatches. However, an observer programme may reveal new information on the nature of

marine mammal bycatches, and can subsequently lead to modification of fishing operations, gear types, season and area regulations, and may therefore indirectly contribute towards reduction of bycatches. An observer programme may also contribute towards prevention of quota violations, illegal dumping of fish etc.

D. Scientific whaling and research

1. How do you assess the so-called scientific whaling of Japan and Iceland?

Some of it is scientifically justified.

2. What aims do Iceland and Norway have in resuming scientific whaling?

There seems to be a misunderstanding behind this question. The legal basis for the Norwegian whaling is two "reservations" to changes in the Schedule of the Whaling Convention (ICRW). Thus, the Norwegian whaling is ordinary (commercial) whaling, not "scientific whaling" (Article 8 of the Convention). The aim of the current Icelandic whaling is to get information about the feeding ecology of minke whales in waters around Iceland.

3. Do you think it is possible that scientific whaling could also serve as a cover for commercial whaling?

The Norwegian whaling does not need a cover. It is commercial whaling.

4. Which whale species are investigated and what proportions of populations are to be caught?

In Iceland: currently only minke whales. In Japan: minke whales, Brydes whales, sei whales and sperm whales.

5. What data is to be acquired by scientific whaling?

The most important information is data on stomach content. In addition for some species and areas information on age of the whale and its reproductive history (age at sexual maturity, number of previous pregnancies) may be important.

6. Could the findings gained as a result of scientific whaling not be made just as well using whale captures by indigenous populations, by studying discovered carcasses, and by using animals caught in fishing nets?

No!

7. To what extent does scientific whaling represent competition for commercial fishing?

I am not sure I understand the question, but if I understand it, there is no competition.

8. Are the current research programmes appropriate for the existing deficits in knowledge?

Probably not – but that depends on how you specify deficits in knowledge. Other species should perhaps be taken in addition to the current scientific catch.

E. Utilisation

1. What arguments are there in favour of excluding whales from the ethically-based right of humans to use renewable raw materials in a sustainable fashion?

I see no such reason.

2. How do you assess "whale watching" as a form of using whales?

Yes, but not in the sense the term "whaling" is used in the Whaling Convention: "- to establish a system of international regulation for the whale fisheries - - hunting of whales".

3. Do you find it justifiable to eat whale-meat in view of the high levels of contaminants it contains?

Yes, meat from most minke whales does not contain high levels of contaminants. The mercury content is e.g. lower than in many fish species that are commonly eaten (tuna, many fresh water species). The same low level is found in other species of baleen whales.

F. International agreements, indigenous whaling, establishment of protection areas

1. Does the draft "Revised Management Scheme" (RMS) in its current form offer sufficient security for the whale populations, in your opinion?

Yes, more than sufficient protection.

2. Does the on-going dispute about RMS represent a threat to the continued existence of the IWC? Are the individual points of disagreement based on sound science or are they politically motivated?

Yes, the dispute represents a threat to IWC, and the disagreements are clearly politically motivated.

3. How safe or unsafe is the Revised Management Scheme?

This question can not be answered since no RMS is agreed.

4. Does the German government act in good faith in the practical application of the international agreements for the regulation of whaling?

No, in my opinion the German government does not act in good faith.

5. In what order of magnitude are whales caught annually in traditional subsistence whale hunting by the Alaskan and Greenland Eskimos and the Chukchi in Siberia for their own use, and what proportion of the whale populations is this?

For the whale stocks exploited by the Greenland Inuits (Eskimos) we don't have any good abundance estimates, but the hunt is likely to be sustainable, since it has been going on for a very long time. For the bowheads hunted by Alaskan Inuits and the gray whales hunted in Siberia the annual take is approximately 0.5% of the population.

6. In your opinion, should the so-called subsistence whaling for indigenous peoples continue in its present form and extent?

Yes, I see no reason why it should not

7. Is there evidence that Greenland is not observing the quota levels for indigenous whale hunting?

I know no such evidence.

8. How large is the extent of illegal whale captures (e.g. by Japan and Korea) estimated to be?

For Japan, close to zero; for Korea, I don't know, but probably small. In both countries products from whales caught in fishing gears may be sold on the market.

9. In your opinion, should there be further protected reserves for whales, and if so, where?

No, and I don't see that the current whale "sanctuaries" serve any useful purpose.

10. What priorities do you see for the Conservation Committee formed by the so-called Berlin Initiative?

I see no important priorities, except perhaps to work politically for better conservation measures for the really threatened stocks of depleted whale and dolphin species, e.g. bowheads and gray whales in the western Pacific, right whales in the North Atlantic, the three species of river dolphins and the vaquita.

Whales before whaling in the North Atlantic

Roman and Palumbi have used neutral genetic variation in samples from humpback, fin and minke whales to estimate the “historical whale populations” of these species in the North Atlantic, and present numbers that, at least for humpbacks and fins, are substantially higher than previous estimates of pre-whaling abundances based on catch records (25 July, p. 508). This methodologically interesting article is, however, to a large extent degraded by incorrect and misleading information about the catch history and about the present-day population estimates.

The introductory paragraph begins with a quotation from 1635, and claims that the three species were intensively hunted “in the centuries that followed”. This is grossly misleading. Commercial whaling before the middle of the 19th century was conducted with hand held harpoons from open boats, and was focused on the right, greenland (bowhead) and (later) sperm whales, since they floated when killed. Species such as fin and blue were actively avoided for safety reasons, because of their speed and power (they could pull boats under). Commercial whaling of fin and minke whales was not possible before the development of modern whaling techniques, which included the use of steam-driven whaling vessels, a harpoon fired from a cannon mounted in the bow of the boat, a line, fastened to the harpoon, which made it possible to prevent the sinking of a dead whale, and, for the large species, a grenade, attached to the harpoon, which exploded inside the whale (1). The development of these techniques took place in the late 1860-ies by the Norwegian sealer Svend Foyn. Foyn obtained a patent in 1872, and for ten years he had in effect a world monopoly on whaling of fin and blue whales, which he used from land stations in northern Norway. The catch records suggest that he mostly took blue whales in this period, but also a low number of other species, including fin and humpback whales. From 1883 the number of whaling stations increased substantially, including one in Iceland, and around the turn of the century stations were established on all shores of the North Atlantic and in the Caribbean. Blue, fin, humpback, sei and sperm whales were hunted. All stations in Norway were closed by parliamentary decision in 1904 (because of presumed negative interaction with fisheries), and most of the other stations were closed by 1920. Fin whales were taken in the North Atlantic after that time, but under very transparent and controlled conditions from a small number of land stations and factory ships. For fin whaling we are thus talking about a period of 20 to 30 years, not “centuries” as claimed by Roman and Palumbi. To me, it is inconceivable that catches of more than 300 000 fins were “intentionally underreported” in such a short period in the recent past, with nobody telling about it, and without any indications from oil market statistics, and especially since whaling was not regulated at that time, and thus there was no incentive for false reports. My conclusion is that if the genetical methods employed by Roman and Palumbi and the necessary assumptions about mutation rates etc can be defended, the dramatic reduction in abundance of fin whales must have taken place earlier, and caused not by whaling, but by environmental changes.

Minke whales were not hunted commercially at all before about 1930. Roman and Palumbi estimate that the “historical population size” was 265 000 in the North Atlantic. I don’t find this number unreasonable. However, they claim that the current abundance is 149 000 minke whales, with a reference to the IWC database. This number is the sum of results from Norwegian, Icelandic and Faeroese sighting surveys which cover about two thirds of the relevant areas in the North Atlantic. (The IWC database has a caveat indicating that not all areas are covered.) The areas not covered include the east coast of Maine and Canada, most of

the Davis Strait, areas west of the British Isles and northern France, and part of Russian waters in the Barents Sea. In all these areas we know that minke whales are abundant, both because catches have been taken there, mainly in the 1950-ies, and because of recent observations. It is obvious that 149 000 is a considerable underestimate of the true minke whale abundance in the total North Atlantic.

I find it highly surprising that Roman and Palumbi and partly also Lubick in her commentary (25 July, p. 451) indicate important implications for management of whale stocks without having consulted the published literature, neither on catch history nor on current abundance numbers, and especially since the current political debate about commercial whaling mainly is about the catching of minke whales. According to Roman and Palumbi's genetic estimates this species is likely to have an abundance in the North Atlantic above 75 % of its "historical" level.

Lars Walløe
Department of Physiology,
University of Oslo,
POBox 1103 Blindern
0317 Oslo, Norway

(1) J.N. Tønnessen and A.O. Johnsen: The History of Modern Whaling, Hurst, London, 1982.