



# NORWEGIAN USE OF WHALES: PAST, PRESENT AND FUTURE TRENDS

*Final Report*

For the World Society for the Protection of Animals (WSPA),  
Dyrebeskyttelsen Norge, and NOAH - for dyrs rettigheter.

April 2011

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### **Acknowledgements**

The study team would like to thank Claire Bass, Joanna Toole, Katherine George, Lasse Bruun (World Society for the Protection of Animals); Siri Martinsen (NOAH - for dyrs rettigheter); Tanya Schumacher (Dyrebeskyttelsen Norge).

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## Executive Summary.

This report by eftec (Economics for the Environment Consultancy Ltd.) examines the economics of the whaling industry in Norway. In particular the research explores data and trends in the number of whales killed, the value of meat landed, the costs of whaling, the demand for whale meat, and the range of public sector supports for the whaling industry.

Until the 1860s, Norwegian whaling was mainly restricted to whales hunted close to land. Through the development of the harpoon grenade and steam-powered whaling ships in the 1860s, modern whaling at sea developed. Norwegian whaling peaked in 1930/31 with catches of 25,269 whales in the Antarctic, representing 60% of the total Antarctic catch. This catch was halted in the mid-60s; since then, whaling has primarily targeted minke whales in Norwegian waters.

Prior to the adoption of the commercial whaling moratorium by the International Whaling Commission (IWC) in 1986, Norway killed approximately 2,000 minke whales per year. By the end of the 2010 whaling season, Norway had killed 9,569 minke whales commercially under objection to the moratorium. But recent years have seen declining catches, and in terms of all key variables - whales killed, the volume and the value of meat landed, the real price of landed meat, vessels taking part in the hunt, and employment - Norway's whaling industry is currently at a post-ban low-point. Catches are below 500 whales, landings around 600 tonnes, and fewer than 20 vessels take part in the annual hunt.

Low demand from consumers, and the ready availability of alternative products, restricts the prices that can be charged for whale meat, and limits the volumes that can be sold. This in turn impacts on the wholesalers and buyers, and ultimately on the whalers themselves. Minimum landing prices have been falling in real terms since the mid-1990s, and this, combined with the costs of whaling, mean that the returns for whalers are low. Efforts to expand the domestic market have not been successful, and in some recent years the hunt has been stopped early to prevent oversupply. There is no realistic prospect of major export markets for whale products. These economic facts make Norwegian whaling financially precarious.

The Norwegian whaling industry benefits from a wide range of public sector supports. The most important ones include the costs of whale counting and quota setting, the DNA testing programme, the information / public relations budget and the costs of participation in the North Atlantic Marine Mammal Commission (NAMMCO) and the IWC. In recent years these supports have totalled almost as much as the revenues for whaling, before costs. In addition, whalers benefit from fuel tax rebates and fishermen's tax allowance. There are also expenditures, in particular by the Norwegian Fishermen's Sales Organisation (Norges Råfisklag) and the Fishery and Aquaculture Research Fund (FHF), that are not public funds, but rather a transfer from fishing to whaling. The overall conclusion from considering whaling revenues, costs and public supports is that ongoing whaling costs Norway more than it brings in. A survey commissioned from Opinion AS for this report

found that Norwegians generally do not support public funding of the whaling industry.

Some proponents of whaling claim that, since whales consume fish, reducing whale populations through hunting should result in larger fish populations and more profitable fisheries. This argument has, however, been described by some of the world's leading fishery scientists as a simplistic conception of marine food webs that does not bear closer scrutiny. Furthermore, current Norwegian whaling levels are not thought to have a significant effect on the number of minke whales. Overall, although there is certainly scope for further research in this area, there is no basis for a conclusion that whale populations at current levels damage fishing interests, and no scientific justification for considering whaling as a means of 'culling' a pest species.

Research on the global whale watching market shows rapid growth over the past decades, and some future growth potential. Data on whale watching in Norway are not readily available, but revenues from the two main whale watching companies have held stable in real terms throughout the past decade, at around NOK 15 million (USD 2.5 million). This industry co-exists with whaling, and though there are possible negative interactions, there is little hard evidence for or against this. Further research is needed to explore these interactions and determine whether or not whaling acts to slow the growth of the Norwegian whale watching industry.

Taking all the above factors into account suggests both that whaling represents an economic loss for Norway, and that the Norwegian public does not support the use of public funds to support this declining industry. All in all, this report supports the observations - from within the whaling industry - that "whale hunting is in a downward spiral," that the 2010 season was "the worst season ever" and that "there is no doubt that the Norwegian whale hunting industry is struggling".

## 1. Introduction and methodology.

This report by eftec (Economics for the Environment Consultancy Ltd.) examines the economics of the whaling industry in Norway. Anecdotal information has suggested that commercial (and special permit / scientific) whaling operations would not be economically viable were it not for significant government financial support. One earlier published study also suggested that the whaling industry is struggling economically in both Norway and Japan.<sup>1</sup> That report concluded that whaling was heavily financially supported in both countries, and was financially marginal and probably dependent on these supports for survival at present.

This report undertakes further research to deepen the economic analysis specifically with reference to Norwegian use of whales. The World Society for the Protection of Animals (WSPA), Dyrebeskyttelsen Norge, and NOAH - for dyrs rettigheter commissioned eftec to further analyse the economics surrounding the whaling and whale watching industries including demand, running costs, direct and indirect governmental economic support and estimates of the current value of the industries. Desk-based research and literature review has been backed up with a representative survey of the Norwegian population.

Extensive effort has been taken to obtain data central to these calculations, including expenses in the whaling industry and governmental support which consists of diverse financial support mechanisms from various sources. All essential data were obtained, however some data expected to be available from official sources proved not to be, even on demand. When turning to the industry itself for data, some information could be obtained, but some sources also refused to give relevant information. Therefore, some assumptions were needed in the calculations. However, the data available are sufficiently robust to draw conclusions regarding the financial stability and efficiency of the whaling industry in Norway.

Results are presented in the report from a poll conducted for this study in June 2010, based on 1000 completed interviews, with results weighted to be representative of the Norwegian population.<sup>2</sup> In other places results are used from polls carried out in 2007 and 2009.<sup>3</sup> All three polls were carried out by Opinion AS, an independent Norwegian company specialising in public opinion surveys.

Wherever possible, financial figures in the report are expressed in real-terms NOK: real-terms meaning after conversion of the nominal amounts (from the original years) to the equivalent amounts at 2010 prices. This conversion is needed to take inflation into account: NOK 1 in 1993 was worth the equivalent of approximately NOK 2 in 2010 (see Figure 1.1). Correcting for inflation to express all amounts at 2010 prices means that amounts from different years can be compared accurately. In the text, figures are also reported in USD (\$) equivalents, using an approximate average exchange rate for the past year of NOK 6 to USD 1.<sup>4</sup>

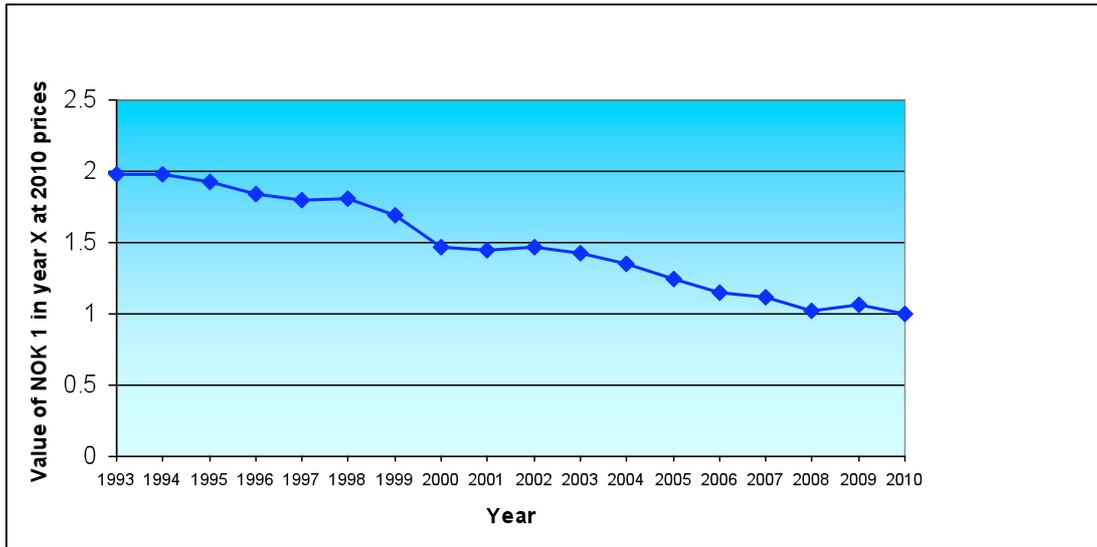


Figure 1.1 The real 2010 value of nominal NOK 1 in base years from 1993 to 2010

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**Notes for “Introduction and methodology.”**

<sup>1</sup> eftec 2009. Economics of subsidies to whaling. Report commissioned by the World Wide Fund for Nature (WWF) and the Whale and Dolphin Conservation Society (WDCS). Available from [http://assets.panda.org/downloads/econ\\_whaling\\_eftec\\_final.pdf](http://assets.panda.org/downloads/econ_whaling_eftec_final.pdf) [Accessed 07/03/11].

<sup>2</sup> Opinion AS 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo.

<sup>3</sup> Opinion AS 2009. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo; Opinion AS 2007. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo.

<sup>4</sup> <http://www.exchange-rates.org/history/NOK/USD/G/M> [Accessed 27/10/10]; in one case (IWC participation) UK pounds have been converted to NOK at a rate of 9 NOK to 1 GBP, <http://www.exchange-rates.org/history/GBP/NOK/G/M>

## 2. Historical context for Norwegian whaling.

*This chapter explains the main developments in Norwegian whaling since the advent of 'modern whaling' in the 1860s, including the period of Norwegian dominance of Antarctic whaling, the post-War development of hunting minke whales for meat in Norwegian waters, the International Whaling Commission (IWC) moratorium, and Norway's ongoing commercial whaling under objection to the moratorium.*

The last 150 years have seen a dramatic transformation of the whaling industry. Although several countries (the UK, Netherlands, Denmark, Germany and USA) engaged in large scale hunts at sea for several centuries before 1800, Norwegian whaling was nearly non-existent in comparison at that time. Until the 1860s, Norwegian whaling was mainly restricted to right whales and sperm whales, hunted close to land. 'Modern whaling' targeted the fin whales (blue, fin, sei, minke, humpback and Bryde whales) that are faster moving and sink when dead. This shift was made possible by the development of the harpoon grenade and steam-powered whaling ships in the 1860s.<sup>1</sup> Subsequent developments have been divided into three phases:<sup>2</sup>

- The first phase of modern whaling centred on the Finmark Hunt carried out from land stations in Northern Norway. This was stopped after 1904, due in part to pressure from local fishermen, leading to conservation of whales in Norwegian territorial waters off Nordland, Troms and Finnmark. The centre of the hunt then moved to Iceland, the Faroe Islands, Shetland, the Hebrides and Ireland, and western Norway from about 1915; hunts also existed in various other parts of the world.
- The second phase of modern whaling began with the development of major industrial whaling in the Southern Hemisphere in the early 1900s, with a catch in the Antarctic summer and in the tropics and temperate regions during winter. Again, this whaling was carried out from land stations.
- The third phase of modern whaling was the development of pelagic whaling, based on the use of factory ships, from 1925 onwards. These could operate for entire seasons independently of land bases, and this led to dramatic increases in catches. The largest catch was recorded in 1937/38 with over 46,000 whales, including 15,000 blue whales, 28,000 fin whales, and 2,000 humpback whales, resulting in oil production of 3.3 million barrels.<sup>3</sup> Norwegian whalers pioneered industrial whaling in the Antarctic, with catches peaking at 25,269 whales in 1930/31, representing 60% of the total Antarctic catch. A more usual catch through much of the 1930s-1950s was around 12-15,000 whales, except during the Second World War. But the Antarctic hunt collapsed from the mid-1960s, and the Norwegian whaling there stopped (see Figure 2.1).<sup>4</sup>

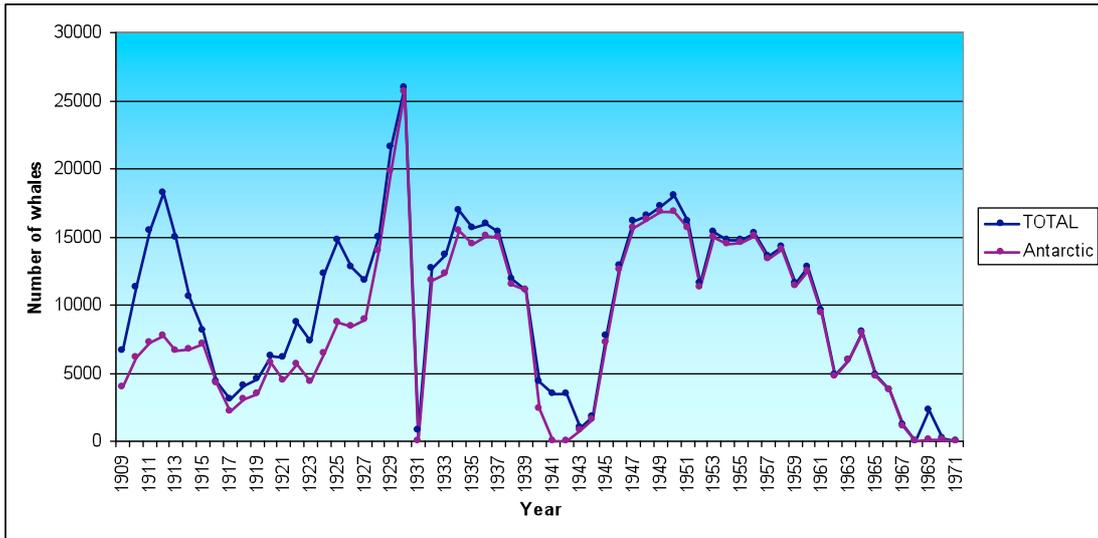


Figure 2.1: Norwegian pelagic whaling, excluding small whales off Norwegian coast, 1909-1971.<sup>5</sup>

Historically, the main demand for whale products was for oil made from their blubber, which was used for fuel and for a wide range of other purposes.<sup>6</sup> But this use has been superseded by petrochemicals and synthetic compounds and whale oil is now little used; hunting, where it continues, is for whale meat. After the Second World War, commercial whaling in Norwegian waters had a new focus on whaling for meat: whale meat was cheap, and in the 1950s and 1960s was seen as an attractive substitute to other meat.<sup>7</sup> The common minke whale, smaller than the right whale which had been preferred for oil production, was increasingly targeted, and is now the only species hunted in Norway.

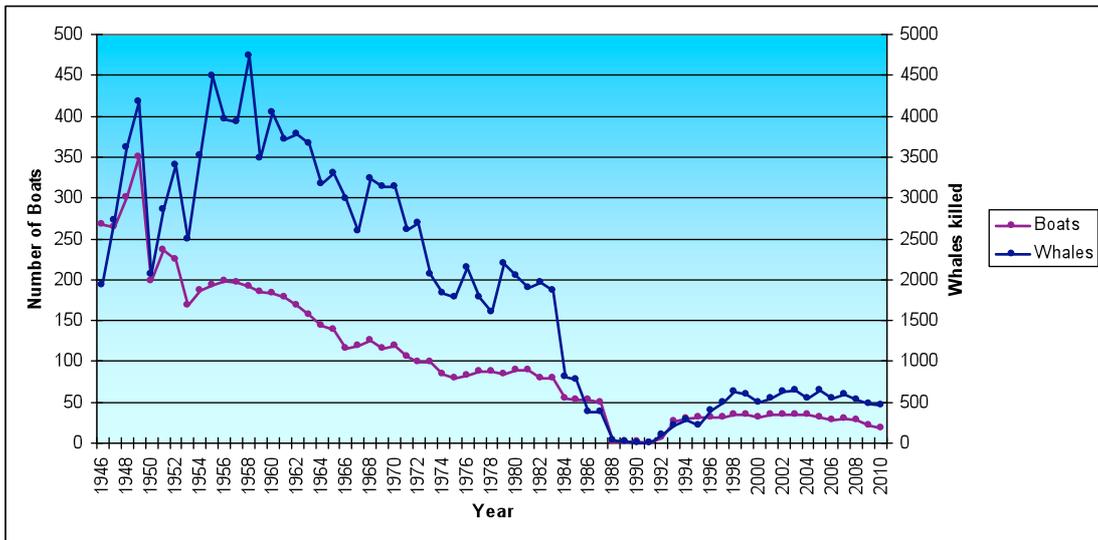


Figure 2.2: Norwegian small whale hunting: boats and whales, 1946-2010<sup>8</sup>

International competition for whale resources led in 1946 to the signing of the International Convention for the Regulation of Whaling (ICRW), subsequently establishing the IWC to regulate whaling and conserve whale stocks. In practice the IWC started out with only 15 members, all of which were whaling nations: it

had no provisions to detect and punish over-hunting and it paid scant attention both to the sustainability of whaling and to whether the methods used were humane.

In the context of its time, this lack of awareness of long-term consequences of over-harvesting was not unusual, but the results were disastrous for whales. Some species, such as blue and right whales, were hunted to near extinction, reduced to less than 5% of their original population abundance. Whaling had already contributed to the extinction of the Atlantic (sub-)population of gray whales.<sup>9</sup>

IWC membership has not been limited to whaling nations. In 1982, a growing conservation movement within the IWC (reflecting a growing anti-whaling movement in many parts of the world) secured a moratorium on commercial whaling. This zero catch limit came into effect in 1986, and applied to all 'great' whale species in all waters, with the exception of a small number of indigenous hunts allowed to continue for subsistence purposes.

In the late 1970s and early 1980s, prior to the adoption of the commercial whaling moratorium by the IWC in 1986 and the corresponding Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) ban on international commercial trade in whale products, Norway killed approximately 2,000 minke whales per year.<sup>10</sup>

Any IWC member state may opt out of any specific IWC regulation by lodging a formal objection to it within 90 days of the regulation coming into force. This means that countries that chose to lodge objections to the moratorium are allowed to ignore it, and continue whaling under 'official objection'. So, despite the moratorium, since 1986 more than 31,000 whales have been killed for commercial purposes.<sup>11</sup> In particular:

- **Norway** continued commercial whaling, having registered an official objection to the moratorium. Norway did initially follow the moratorium, introducing a temporary 5 year ban on whaling in 1987, but then began whaling again commercially in 1993. Between its resumption of commercial whaling under objection and the end of the 2010 whaling season, Norway has killed 9,569 minke whales under objection,<sup>12</sup> including 238 whales under special permit between 1992 and 1995.<sup>13</sup>
- **Japan** also continued to hunt whales under the section of the ICRW that allows whaling for scientific purposes ('special permit whaling'), but the meat is traded commercially. On 10 February 2011, Japan suspended scientific whaling, citing safety concerns associated with anti-whaling activists trying to disrupt the hunt, but it is not yet clear what Japan plans regarding future whaling.<sup>14</sup>
- **Iceland** continued a small special permit whaling programme, and killed some 60 whales a year until 1989, but then left the IWC in 1992. Iceland rejoined in 2002 with a legally disputed reservation against the moratorium, and has since engaged in both special permit and commercial whaling.

Although whaling has continued, the reduced level means that several populations of whales (including southern right whales, humpbacks in many areas, gray whales in the eastern North Pacific, and blue whales in both the eastern North Pacific and central North Atlantic) have begun to show signs of recovery. This has led to renewed calls from some whaling nations to lift restrictions on whaling. There have been numerous attempts since 1986 to overturn the moratorium, but these calls have been strongly resisted by other nations concerned with the conservation and welfare of whales.

Most recently, at the 2010 meeting of the IWC a proposition called the 'Chairs' Consensus Proposal' was widely publicised due to its proposal that would in effect lift the moratorium on whale hunting by reintroducing commercial whaling with quotas under IWC control.<sup>15</sup> This proposal drew a lot of public attention to the IWC and the annual meeting and several petitions, including one which featured over 200 marine scientists, were submitted to various contracting governments attending the annual meeting.<sup>16</sup> After two days of closed meetings it was declared that a decision on allowing commercial whaling would be postponed.<sup>17</sup>

***Summary: Until the 1860s, Norwegian whaling was mainly restricted to whales hunted close to land. Through the development of the harpoon grenade and steam-powered whaling ships in the 1860s, modern whaling at sea developed. Norwegian whaling peaked in 1930/31 with catches of 25,269 whales in the Antarctic, representing 60% of the total Antarctic catch. This catch was halted in the mid-60s; since then, whaling has primarily targeted minke whales in Norwegian waters. Prior to the adoption of the commercial whaling moratorium by the IWC in 1986, Norway killed approximately 2,000 minke whales per year. By the end of the 2010 whaling season, Norway had killed 9,569 minke whales commercially under objection to the moratorium and under special permit.***

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**Notes for “Historical context for Norwegian whaling.”**

<sup>1</sup> Bogen, H. 1933. Lines in the Norwegian whaling history (*Linjer i den norske hvalfangsts historie*). Oslo: Ashehougs & Co.

<sup>2</sup> Brunvoll, F. 1999. Whaling in the Antarctic, Statistics Norway, <http://www.ssb.no/vis/emner/00/aar2000/art-1999-01.html> [Accessed 08/03/11].

<sup>3</sup> *ibid.*

<sup>4</sup> Statistics Norway, [http://www.ssb.no/emner/historisk\\_statistikk/aarbok/ht-1005-405.html](http://www.ssb.no/emner/historisk_statistikk/aarbok/ht-1005-405.html) (last accessed 07/03/11).

<sup>5</sup> *ibid.*

<sup>6</sup> Pees, S. T. Whale Oil - Oil History. Petroleum History Institute. <http://www.petroleumhistory.org/OilHistory/pages/Whale/whale.html> [Accessed 07/03/11].

<sup>7</sup> Østli, J. 2006. Increasing the profitability of the whale market: Focus on whale meat (*Økt verdiskapning med kvalen som råstoff : Fokus på kvalkjøtt*), Fiskeriforskning.

<sup>8</sup> Statistics Norway [http://www.ssb.no/emner/historisk\\_statistikk/aarbok/tab-2000-09-06-05.html](http://www.ssb.no/emner/historisk_statistikk/aarbok/tab-2000-09-06-05.html) [Accessed 07/03/11]; Norwegian Fishermen’s Sales Organisation, Annual Reports (*Årsberetning*) 2000 - 2009; Nordlys, 10/09/10.

<sup>9</sup> Perrin, W.F., Würsig, B.G. and Thewissen J.G.M. 2009. Encyclopedia of marine mammals. Academic Press. p. 404. See also <http://www.petermaas.nl/extinct/speciesinfo/atlanticgreywhale.htm> [Accessed 07/03/11].

<sup>10</sup> Statistics Norway, Small Type Whaling 1939-1999 (Småhvalfangst 1939-1999). [http://www.ssb.no/emner/historisk\\_statistikk/aarbok/tab-2000-09-06-05.html](http://www.ssb.no/emner/historisk_statistikk/aarbok/tab-2000-09-06-05.html) [Accessed 07/03/11]

<sup>11</sup> For details, broken down by country, species and ‘type’ of catch (under objection, special permit or aboriginal subsistence), see IWC, Catch Limits & Catches Taken: <http://iwcoffice.org/conservation/catches.htm> [Accessed 07/03/11].

<sup>12</sup> International Whaling Commission, Catches taken under objection. [http://www.iwcoffice.org/conservation/table\\_objection.htm](http://www.iwcoffice.org/conservation/table_objection.htm) [Accessed 01/03/11]; and Personal communication by phone with The Directorate of Fisheries in 2009 and 2010.

<sup>13</sup> IWC, Catches taken: Under scientific permit, [http://www.iwcoffice.org/conservation/table\\_permit.htm](http://www.iwcoffice.org/conservation/table_permit.htm) [Accessed 07/03/11].

<sup>14</sup> BBC News, 2011. Japan halts whale hunt after chase by protestors. <http://www.bbc.co.uk/news/world-asia-pacific-12477398> [Accessed 08/03/11].

<sup>15</sup> IWC, Proposed consensus decision to improve the conservation of whales from the Chair and Vice-Chair of the Commission, Document for the 62nd Annual Meeting, June 2010. [http://iwcoffice.org/\\_documents/commission/IWC62docs/62-7rev.pdf](http://iwcoffice.org/_documents/commission/IWC62docs/62-7rev.pdf) [Accessed 07/03/11].

<sup>16</sup> Holt, S. and 211 others, Marine scientists petition to the IWC, 17 June 2010. [http://www.wdcs.org/submissions\\_bin/scientist\\_statement\\_20100617.pdf](http://www.wdcs.org/submissions_bin/scientist_statement_20100617.pdf) [Accessed 07/03/11].

<sup>17</sup> IWC, Chair’s Summary Report of the 62nd Annual Meeting, Agadir, Morocco, June 2010. [http://www.iwcoffice.org/\\_documents/commission/IWC62docs/IWC62\\_Chair%27s\\_Summary\\_Report%20FINAL.pdf](http://www.iwcoffice.org/_documents/commission/IWC62docs/IWC62_Chair%27s_Summary_Report%20FINAL.pdf) [Accessed 07/03/11].

### 3. Whaling in Norway today.

*This chapter describes the main features of present day whaling in Norway. It describes how the whaling is managed, whale quotas and the numbers of whales killed, and the number of boats and whalers employed.*

#### 3.1 Norwegian whaling management.

The county of Nordland is the centre of the whaling industry, and whaling takes place in the Norwegian zone of the North Sea, along the entire coast of North Norway, eastwards to the Barents sea and off Spitsbergen: see Figure 3.1. Some whales are also caught in the Arctic, off the coast of Jan Mayen.<sup>1</sup> Jan Mayen is an integral part of Norway (not a dependency with special status), but there was a dispute between Norway and Denmark over the 'ownership' of the fishing zones between the island and Greenland, settled in 1988 with Denmark retaining the greater area of sovereignty. Norway has not declared an Exclusive Economic Zone (EEZ) but rather a Fishery Zone, extending to 200 nautical miles around the island.<sup>2</sup>

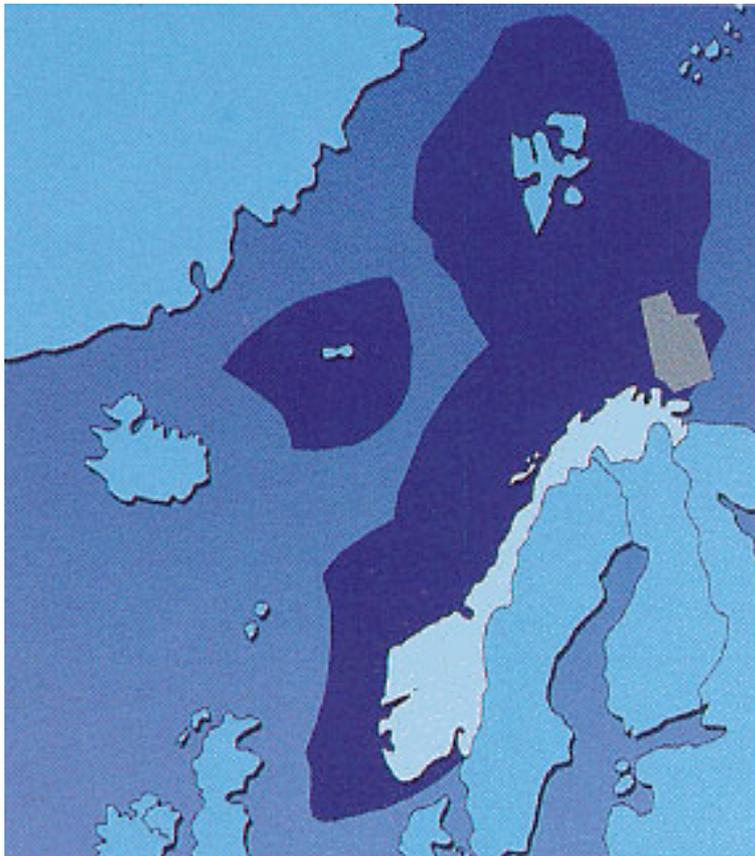


Figure 3.1: Norwegian whaling areas depicted in navy blue.<sup>3</sup>

The whale hunting season runs from the beginning of April to the end of August, with some extensions into September.<sup>4</sup> The hunt is carried out from small fishing boats which are approximately 20 metres long on average, which are rigged and equipped for minke whaling in the hunting season.<sup>5</sup> Each of the boats is armed with a harpoon gun mounted on the bow. The harpoon is equipped with an

exploding penthrite grenade (the only grenade permitted since the start of the whaling season in 2000).<sup>6</sup> Due to the small size of the vessels and need to operate and aim the harpoon, hunts tend only to be attempted in conditions of sea state 5 or less.

When a whale is spotted, the boat moves to the location where the whale is expected to surface for air. The whale is harpooned and in most cases the grenade detonates. The whale is then winched alongside the boat and is checked for signs of life.<sup>7</sup> With 20% of whales death does not occur immediately, and in these cases, or in cases where other signs of life are apparent, a rifle is used to fire shots to the whale's brain until death occurs.<sup>8</sup> The average time to death reported by the government in 2002 (last published data) was 2 minutes.<sup>9</sup> The carcass is winched on board the vessel for flensing<sup>i</sup> and the meat is refrigerated on board and brought to shore within three weeks (as per regulations) for processing and packaging. This previously applied to blubber as well, but this is no longer landed, as there is no market for it, and it is instead thrown overboard with the carcass.<sup>10</sup>

Norway's Ministry of Fisheries and Coastal Affairs (Fiskeri- og kystdepartementet) sets the annual quota for the minke whale hunt. This quota is based on an annual base quota, plus any unused quota from the previous year. The annual base quota is set for six year periods, drawing on advice from the Norwegian Institute of Marine Research.

The annual base quota is set according to the Revised Management Procedure (RMP). This was developed by the IWC's Scientific Committee and completed in 1993. Although the scientific aspects of the RMP were adopted by the IWC, its actual implementation was not agreed (because actually implementing the RMP would mean setting limits for commercial whaling). Norway supported the regulations, but made a reservation against the Commission only accepting the strictest level of protection ('tuning level' 0.72) as opposed to the Scientific Committee's alternative recommendation for a less conservative tuning level of 0.60. Norway's quotas since 2006 have been based on this latter safety margin, which yields considerably higher quotas and is the lowest safety margin that the Scientific Committee has advised to allow for the long term protection of the minke whale population.<sup>11</sup>

The RMP is based on computer simulations of whale stock dynamics, drawing on historical catch information and abundance estimates. It follows the IWC's management objectives which have been summarised as:<sup>12</sup>

- Catch limits should be as stable as possible;
- Catches should not be allowed on stocks below 54% of the estimated carrying capacity;<sup>ii</sup> and

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<sup>i</sup> Flensing is the removal of skin and blubber

<sup>ii</sup> The 'carrying capacity' is the population size of a species that can be sustained indefinitely by an environment and where birth and death rates are relatively equal. A population above its carrying

- The highest possible continuing yield should be obtained from the stock.

The RMP determines catch limits, details of stock boundaries, allocation of catches to small areas, what to do if many more of one or other sex are caught and when complete reviews of all available information should be carried out.

It is difficult to estimate populations of whales accurately, as they are frequently underwater and travel over large distances. The RMP uses the 'catch limit algorithm' which takes into account the uncertain nature of population estimates to generate catch limits believed to be under the maximum sustainable yield (MSY).<sup>13</sup>

The MSY is the theoretical maximum catch that can be taken from a population over an indefinite period without reducing the population size. It is widely used (though often with some adjustment for safety) in regulating wildlife, forests and in fisheries management. There are however several issues with the MSY and ecologists advise against indiscriminate use. These issues include, in particular:

- The MSY gives one number for the whole of the population and ignores population structure such as size or age classes and their differential rates of growth, survival and reproduction. In the RMP this is partially compensated for by its rules on what to do if many more of one or other sex are caught.
- The MSY treats the environment as unvarying. This assumption is incorrect for marine mammals which, the IWC's Scientific Committee agrees, are increasingly adversely impacted by pollution and climate change<sup>14</sup> and which themselves affect the marine environment.<sup>15</sup>

The RMP partly mitigates these issues by calculating a new MSY every five years.<sup>16</sup> Nevertheless the lack of solid evidence on population numbers and the effects of the whale hunt and the changing environment to the population bring some uncertainty to these estimates. One major problem with this general approach to quota setting is that the criterion of obtaining "the highest possible continuing yield" from the population fails to take into account crucial economic aspects of whaling - the costs, and the demand for the products - that are considered later in this report.

In Norway, separate quotas have been set for five management areas, partly to reflect separate populations of minke whales around the coast of Norway and around Jan Mayen. However recent DNA analysis suggests that there may in fact be only a single population. Since 2009 was the first year of a new six year period, a single quota of 885 animals was used for the North Sea and the coastal areas up to Svalbard and the Barents Sea without dividing it up into small management areas. The idea is that the catches can be balanced up towards the end of the six year period, if it turns out that catches in the different small areas are imbalanced.

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capacity will have a higher natural death than birth rate and a population below its carrying capacity will have a higher natural birth rate than death rate.

Also, it is anticipated that the new DNA evidence may allow for a reduced number of management areas in future.<sup>17</sup> This research is carried out by Norwegian government scientists and is not, at present, endorsed by the IWC Scientific Committee.

The actual quota for 2010 was 1286 minke whales, which included the shortfall of 401 animals from the 2009 quota; this was divided into 1016 whales in the eastern areas, with no distinction among management areas, and 270 whales around Jan Mayen.<sup>18</sup> However, the Minister of Fisheries and Coastal Affairs, Lisbeth Berg-Hansen from the Labour Party (Arbeiderpartiet), has stated that this has caused problems, with too many whales being taken from the area around Svalbard.<sup>19</sup> Therefore in 2011, while the total quota has been kept at 1286 whales, the Eastern area quota has been split, with a quota of 65 animals set specifically for the IWC-area ES (around Svalbard).<sup>20</sup> Whalers have reacted negatively to this.<sup>21</sup> Quotas for 1993-2011 are presented in Figure 3.2.

Since the 2007 season, all whaling vessels have to be fitted with an electronic monitoring system, the “Blue Box” system. This consists of a control and data logger box (the Blue Box) that monitors and logs data provided by an independent GPS and different sensors (deliverers) placed in certain areas and structures of the boat. These sensors detect when a whale is shot and taken on board. They include shock transducers mounted on each harpoon gun, detecting when a harpoon is fired, strain transducers that measure static and dynamic strains to vessel structures that occur when a whale is hauled on board and processed, and a heel sensor that detects a characteristic vessel heel movement when a whale is hauled in and across the deck.<sup>22</sup>

In addition, inspectors from the Norwegian Directorate of Fisheries (Fiskeridirektoratet) are conducting periodic and random checks of the hunting activities. In some years observers under the North Atlantic Marine Mammal Commission (NAMMCO) International Observation Scheme are present on board during the hunting season.<sup>23</sup>

The “Blue Box was introduced for economic reasons to save cost of inspectors”<sup>24</sup> and it must be noted that the ‘Blue Box’ is not a comparable replacement for a system of full inspection. One consequence, for example, is that Norway now has no adequate data for reporting the Time to Death (TTD) of harpooned whales. At the 2009 IWC meeting, the UK highlighted that Norway had ceased the collection of full welfare statistics in 2004, when it removed inspectors from vessels and introduced the ‘blue box,’ and continues to refer to welfare statistics from 2000-2002.<sup>25</sup> Anti-whaling / animal welfare groups have campaigned for a reinstatement of the full inspection system.

In 2009, inspectors from the Directorate of Fisheries carried out land based inspections. One vessel was reported to the police due to suspicion of infringement of the national and international ban on using cold harpoons. The Directorate of Fisheries excluded the vessel from the hunt in 2010 and the value of the assumed illegal catch was confiscated. This administrative action has been appealed to the Ministry of Fisheries and Coastal Affairs.<sup>26</sup> When the case came to court in 2011, it

became apparent that the whaler had actually reported his illegal use of ammunition through the log books to the Directorate of Fisheries. But this information was not noticed, until an inspector came aboard in 2009 for the routine check.<sup>27</sup> It is clear, therefore, that the Blue Box system is not in practice providing the same level of animal welfare control as the previous system of full inspection. In the court, Professor of veterinary medicine Egil Ole Øen said that he found it probable that a potential sentence of not guilty for the whaler would lead to stricter regulations of whaling, including a demand for reintroducing inspectors on board the whaling vessels.<sup>28</sup> The case was dismissed due to legal technicalities with the charges, and the fundamental matter of concern was not tested in court.<sup>29</sup> This ruling was then appealed and the case is still not finished.<sup>30</sup>

### 3.2 Volume of catches.

Following the implementation of the moratorium on commercial whaling in 1986, Norway continued to hunt whales in 1986 and 1987, before introducing a temporary five year ban; commercial whaling was then resumed in 1993.

Figure 3.2 shows the number of whales killed in Norway between 1992 and 2010. Numbers rose steadily between 1992 and 1998, and were then fairly stable for a period, roughly in the 550-650 range, but dropped below this in 2009 and 2010.

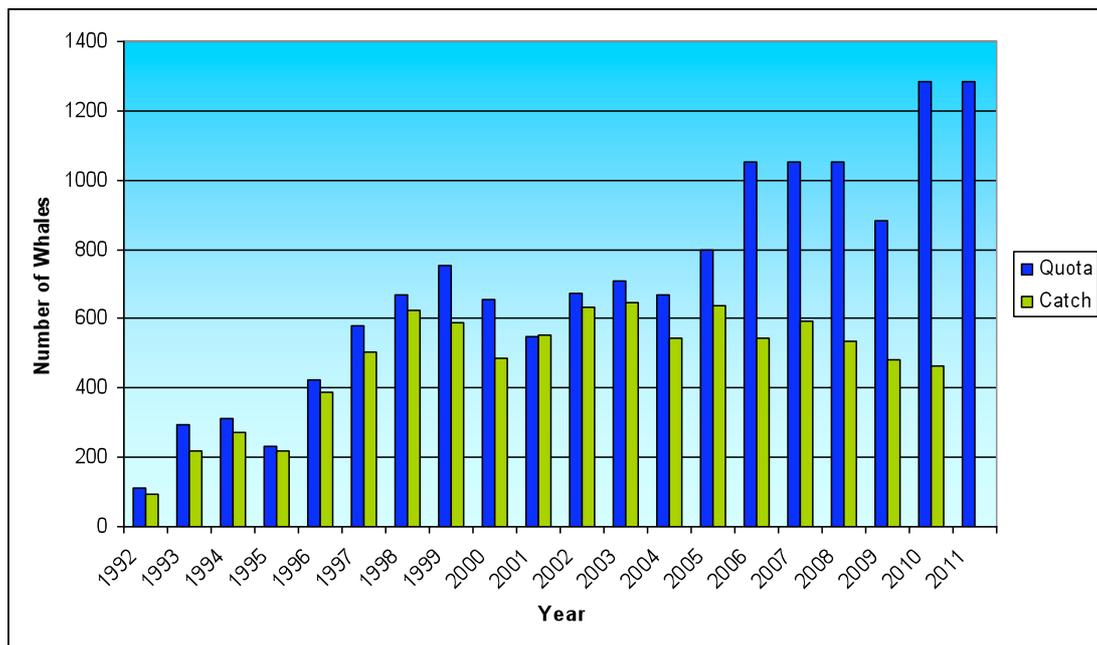


Figure 3.2: Quotas and whales killed between 1993 and 2010.<sup>31</sup>

Figure 3.2 shows that catches in recent years have consistently been well under quota. The fact that more whales could have been caught legally, but were not, implies that it would not have been profitable to do so, because demand was not sufficient to justify the hunting, processing and marketing costs.

This has been recognised by the Minister of Fisheries, who noted recently that “Generally the percentage of quota used has been around 80%, but during the last

years it has fallen to far beneath 60%. The reasons for this are many, but it suggests that the industry’s attempt to establish a good national market for the meat has not succeeded so far.”<sup>32</sup>

This argument is supported by repeated reports of ‘difficulties’ selling whale meat, and a series of associated restrictions implemented by the Norwegian Fishermen’s Sales Organisation (Norges Råfisklaget) - for example, a condition implemented in 2005 that, to the extent possible, whalers should avoid killing large animals.<sup>iii,33</sup> Restrictions in 2009 were tighter, stating that vessels under 20 meters can offload only 15 tonnes of whale meat for the entire season; larger vessels can offload 25 tonnes, with the initial line of the circular explaining that “Interest for buying whale and whale products is limited and can lead to problems with sales.”<sup>34</sup>

The amount of whale meat landed and traded in Norway is shown in Figure 3.3; this includes meat traded through the Norwegian Fishermen’s Sales Organisation and other landings. The most recent figure is for 2009 when 599 tonnes of whale meat were landed (474 tonnes or 79% through the Norwegian Fishermen’s Sales Organisation). This is the lowest volume of landed whale meat since 1996. Production peaked in 1998, at 912 tonnes of meat (754 tonnes or 83% through the Norwegian Fishermen’s Sales Organisation).

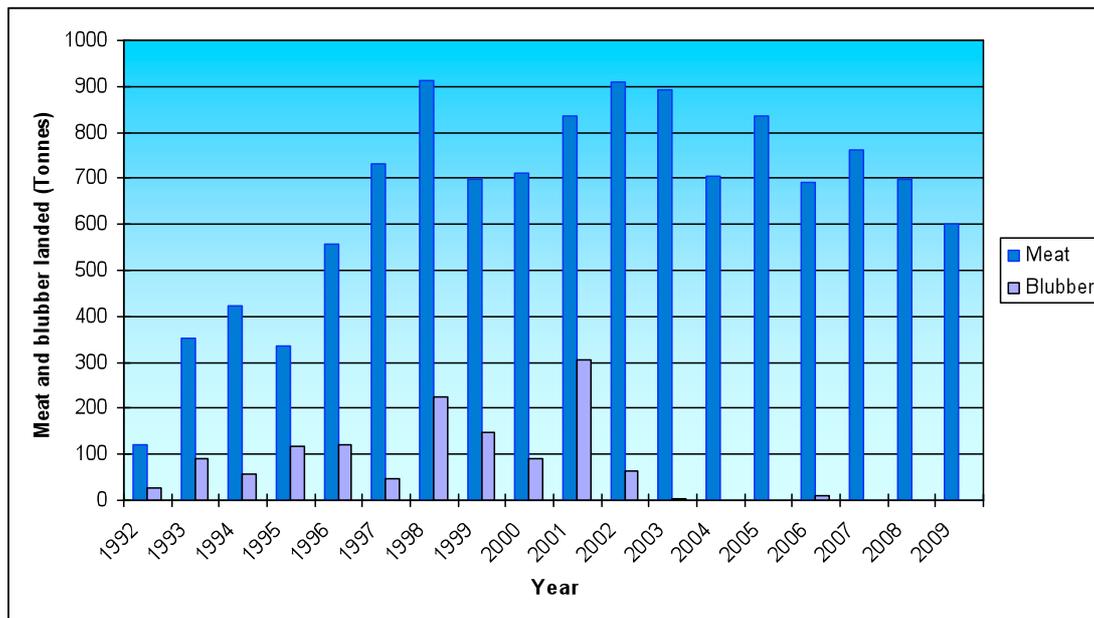


Figure 3.3: Volume of whale meat and blubber landed in Norway, 1992-2009.<sup>35</sup>

Blubber used to be landed, though at very little value. The Norwegian Fishermen’s Sales Organisation confirms that there is no market for whale blubber in Norway, and there are now no blubber storage facilities: the blubber is thrown overboard with the rest of the carcass. Blubber has in the past been bought with a hope for export to Japan, most recently in 2006, when 9 tonnes were purchased, but there

<sup>iii</sup> Note also that smaller animals give more meat relative to blubber, and since blubber has little value at present, whalers may prefer smaller animals.

was no export market and the blubber was partly used for animal food and partly destroyed.<sup>36</sup>

### 3.3 Vessels and employment.

The number of vessels taking part in the hunt, stable through the early 2000s, has been falling in recent years, from a post-moratorium peak of 35 in 2002, to just 18 in 2010<sup>37</sup> (Figure 3.4). Hild Ynnesdal, an adviser for the Directorate of Fisheries in Bergen, suggested that the most important reason for the low participation seems to be problems associated with selling whale meat (see section 4.4), but that additional reasons include good fishing opportunities (in effect making the alternative of fishing more attractive) as well as the impact of retirement, with younger fishers less likely to become involved in whaling.<sup>38</sup>

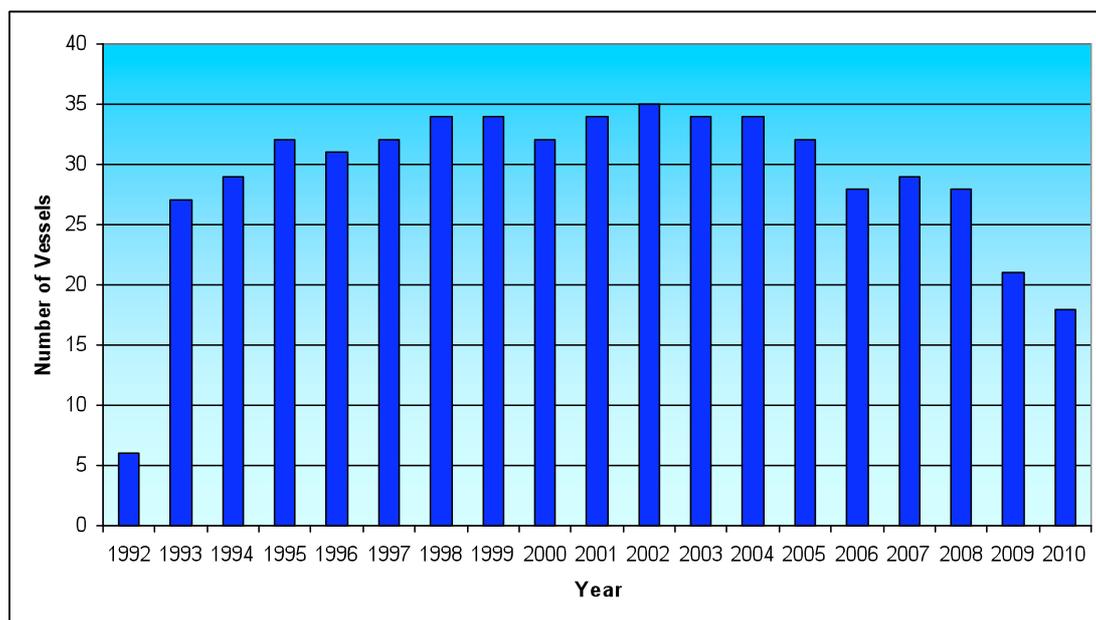


Figure 3.4: Number of vessels involved in whale hunting from 1992 - 2010.<sup>39</sup>

There appears to be no official statistics on the exact number of crew employed on whaling vessels from year to year. However it is known that the vessels used are small fishing boats, around 20 metres long on average, that have been rigged for whale hunting during the whaling season (and are generally used for fishing in other periods).<sup>40</sup> According to the Ministry of Fisheries and Coastal Affairs, the vessels have a crew of 4 to 8 people.<sup>41</sup> Very roughly, this could imply something in the order of 180 people taking part in whaling at some point in any given year through the late 1990s and early 2000s (based on approximately 30 vessels with approximately 6 crew each), and even fewer in recent years as fewer vessels have hunted (probably not much over 100 whalers in 2010). This small number can be considered in the context of 10,200 registered main-occupation fishermen, and 2,530 registered secondary-occupation fishermen, in Norway.<sup>42</sup>

This suggests that less than 1% of fishermen engaged in whaling in 2010, and it is also important to note that whaling is not the main source of income for these whalers. Both the vessels and their crews are primarily engaged in fishing for most

of the year; and the whaling vessels are not engaged in continuous whaling throughout the April-August whaling season. So the number of full-time equivalent jobs is much lower: an approximate estimate would be a quarter of the above figures, or around 25-45 full-time equivalent jobs, depending on the year. This conclusion matches with the official employment statistics,<sup>43</sup> which show that although whaling in the immediate post-war period employed 4-5,000, already by the end of the 1960s employment tailed off towards '0.0 thousand' in the statistics - in other words, fewer than 50 jobs; this has been the case for every year since 1969. Of course these estimates relate only to those directly involved in whaling, and not to jobs in land-based processing and sales. However the processing and sales companies do not report whale processing to be important for employment. On the contrary, they report it to be hard to find employees to do the job: "We struggle to find enough people for the meat cutting, it is the local school kids who save us", reports Ole Mindor Myklebust, manager of Myklebust Trading AS.<sup>44</sup> The overall picture is that the number of jobs dependent on whaling is small.

Similarly, the value of whale hunting is a tiny fraction of the total value of fisheries. In 2009 the gross revenues of whale hunting, that is the money that the whale hunters received from the buyers, before deducting the costs of whaling, was NOK 20.6 million (USD 3.4m).<sup>iv,45</sup> In comparison the total value of fisheries landings in 2009 was NOK 11,940 million (USD 1,990m) in the same period.<sup>v,46</sup> This means the gross income from whaling is only 0.18% of gross fisheries income.

***Summary: In terms of non-financial indicators - whales killed, meat landed, vessels taking part in the hunt, and employment - Norway's whaling industry is currently at a post-ban low-point. Catches are below 500 whales, landings around 600 tonnes, and fewer than 20 vessels take part in the annual hunt.***

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<sup>iv</sup> Nominal values have been converted to 2010 prices.

<sup>v</sup> Nominal values have been converted to 2010 prices.

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**Notes for “Whaling in Norway today.”**

<sup>1</sup> Facts about whales in Norwegian waters: Brochure published with support from the Ministry of Fisheries, the Ministry of Foreign Affairs and the North Atlantic Marine Mammal Commission (NAMMCO). 2000.

[http://www.regjeringen.no/nb/dep/fkd/dok/veiledninger\\_og\\_brosjyrer/2000/facts-about-whales-in-norwegian-waters.html?id=419222](http://www.regjeringen.no/nb/dep/fkd/dok/veiledninger_og_brosjyrer/2000/facts-about-whales-in-norwegian-waters.html?id=419222) [Accessed 18/03/11].

<sup>2</sup> Fisheries Protection Zone around Svalbard and the fisheries zone around Jan Mayen (*Fiskevernsonen ved Svalbard og fiskerisonen ved Jan Mayen*), Ministry of Fisheries and Coastal Affairs. 2005.

<http://www.regjeringen.no/nb/dep/fkd/tema/ressursforvaltning/fiskevernsonen-ved-svalbard-og-fiskeriso.html?id=445766>. [Accessed 15/02/11].

<sup>3</sup> Facts about whales in Norwegian waters: Brochure published with support from the Ministry of Fisheries, the Ministry of Foreign Affairs and the North Atlantic Marine Mammal Commission (NAMMCO). 2000.

<http://www.regjeringen.no/en/dep/fkd/Documents/Legal-handbooks-and-guidelines/2000/facts-about-whales-in-norwegian-waters/13.html?id=419235> [Accessed 18/03/11].

<sup>4</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 / St.meld. nr. 46 (2009-2009) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).

<sup>5</sup> *Ibid.*

<sup>6</sup> NAMMCO 2001. Report from the workshop on marine mammals: Weapons, ammunition and ballistics. <http://www.nammco.no/webcronize/images/Nammco/905.pdf> [Accessed 29/03/11].

<sup>7</sup> The adequacy of the IWC criteria for signs of life are debated by the scientific community: see WSPA 2004. *Troubled waters. A Review of the Welfare Implications of Modern Whaling Activities*. pp. 84-89.

<sup>8</sup> NAMMCO 1999. Report of the NAMMCO workshop on hunting methods.

<http://www.nammco.no/webcronize/images/Nammco/733.pdf> [Accessed 29/03/11].

<sup>9</sup> Ministry of Fisheries and Coastal Affairs, 2004. White Paper 27 / St.meld. nr. 27 (2003-2004) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).

<sup>10</sup> Personal communication by phone with Per Rolandsen, Norwegian Fishermen’s Sales Organisation, 28/01/11

<sup>11</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 / St.meld. nr. 46 (2009-2009), Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).

<sup>12</sup> IWC, Revised Management Procedure. <http://iwcoffice.org/conservation/rmp.htm> [Accessed 18/03/11].

<sup>13</sup> *Ibid.*

<sup>14</sup> Elliott, W. & Simmonds, M. 2007. Whales in hot water? The impact of a changing climate on whales, dolphins and porpoises: A call for action. WWF; WDCS

<sup>15</sup> Gerber, L.R., Morissette, L., Kaschner, K., & Pauly, D. 2009. Should whales be culled to increase fishery yield? *Science*, 323, 880-881.

<sup>16</sup> IWC, Revised Management Procedure. <http://iwcoffice.org/conservation/rmp.htm> [Accessed 18/03/11].

<sup>17</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 / St.meld. nr. 46 (2009-2009) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).

<sup>18</sup> Directorate of Fisheries. Regulation of minke whaling in 2010 (*Regulering av fangst av vågehval i 2010*).

<http://www.fiskeridir.no/content/download/18508/165338/version/1/file/vagehval2010-horing.pdf> [Accessed 18/03/11].

<sup>19</sup> Written questions from Harald T. Nesvik, The Progress Party (Fremskrittspartiet), to the Minister of Fisheries and Coastal Affairs, Document No. 15:565 (2010-2011), Answered 04/01/11. See <http://www.stortinget.no/no/Saker-og-publikasjoner/Sporsmal/Skriftlige-sporsmal-og-svar/Skriftlig-sporsmal/?qid=48788> [Accessed 08/03/11].

- <sup>20</sup> Consultation paper on the regulation of whaling of minke whales in 2011 (*Høringsnotat om regulering av fangst av vågehval i 2011*) Directorate of Fisheries, 02/02/11. <http://www.fiskeridir.no/content/download/22712/214521/version/1/file/hoering-regulering-av-hvalfangsten-2011.pdf> [Accessed 07/03/11].
- <sup>21</sup> Letter to the editor (*Åpent brev til Fiskeri - og kystdepartementet*), by whaler Jarle Andreassen, *Fiskeribladet Fiskaren* 11/02/11.
- <sup>22</sup> Electronic Monitoring of Norwegian Minke Whale, Dr. Egil Ole Øen <http://www.highnorth.no/Files/Whaling/Norway/el-mo-of.htm> [Accessed 28/03/11].
- <sup>23</sup> Norwegian Minke Whaling 2009. IWC/62/17. Ministry of Fisheries and Coastal Affairs, Norway. [http://iwcoffice.org/\\_documents/commission/IWC62docs/62-17.pdf](http://iwcoffice.org/_documents/commission/IWC62docs/62-17.pdf) [Accessed 28/03/11].
- <sup>24</sup> Good experience with electronic inspector (*God erfaring med elektronisk inspektor*). Directorate of Fisheries, <http://fiskeridir.no/fiske-og-fangst/aktuelt/2006/god-erfaring-med-elektronisk-inspektoer> [Accessed 15/02/11].
- <sup>25</sup> IWC, Report of the Working Group on Whale Killing Methods and Associated Welfare Issues, Madeira, 16 June 2009. [http://iwcoffice.org/\\_documents/meetings/madeira/Annex%20G%20-%20WKM%20and%20AWI.pdf](http://iwcoffice.org/_documents/meetings/madeira/Annex%20G%20-%20WKM%20and%20AWI.pdf) [Accessed 07/03/11].
- <sup>26</sup> Norwegian Minke Whaling 2009, IWC/62/17, Ministry of Fisheries and Coastal Affairs, Norway. [http://iwcoffice.org/\\_documents/commission/IWC62docs/62-17.pdf](http://iwcoffice.org/_documents/commission/IWC62docs/62-17.pdf) [Accessed 07/03/11].
- <sup>27</sup> *Fiskeribladet Fiskaren*, 05/01/11.
- <sup>28</sup> *Fiskeribladet Fiskaren*, 07/01/11.
- <sup>29</sup> Sentence, 10-145527MED-OFOT, Ofoten Tingrett, against Jan Bjørn Kristiansen, 28/01/11.
- <sup>30</sup> Personal communication by phone with district attorney in the Nordland municipality, 28/02/11.
- <sup>31</sup> Norwegian Fishermen's Sales Organisation. Annual Reports (*Årsberetning*) 2002 (table 43, p.55) and 2009 (table 58, p.57). Source for the 2010 catch figure is Per Rolandsen, sales consultant at the Norwegian Fishermen's Sales Organisation, quoted in *Nordlys*, 10/09/10; source for the 2011 quota is 'The regulatory scheme will continue' (*Vil videreføre regulerings opplegget*) <http://www.fiskeridir.no/fiske-og-fangst/hoeringer/2011/vil-viderefoere-reguleringsopplegget> [Accessed 07/03/11].
- <sup>32</sup> Speech by the Minister of Fisheries at the Norwegian Small-Type Whalers Association, released on <http://www.regjeringen.no> on 07/12/09.
- <sup>33</sup> Norwegian Fishermen's Sales Organisation. Annual Report (*Årsberetning*) 2005, p.11.
- <sup>34</sup> Rundskriv 2009. Regulation of Whaling 2009 (*Regulering av hvalfangst 2009*).
- <sup>35</sup> Norwegian Fishermen's Sales Organisation, Annual Reports (*Årsberetning*) 2002 (table 43, p.55) and 2009 (table 58, p.57).
- <sup>36</sup> Personal communication by phone with Per Rolandsen, Norwegian Fishermen's Sales Organisation, 28/01/11.
- <sup>37</sup> Norwegian Fishermen's Sales Organisation, Annual reports (*Årsberetning*) 2002 (table 43, p.55) and 2009 (table 58, p.57). Source for boats in 2010 is Per Rolandsen, sales consultant at the Norwegian Fishermen's Sales Organisation, quoted in *Nordlys*, 10/09/10.
- <sup>38</sup> *Fiskeribladet Fiskaren*, 12/04/10.
- <sup>39</sup> Norwegian Fishermen's Sales Organisation, Annual reports (*Årsberetning*) 2002 (table 43, p.55) and 2009 (table 58, p.57). Source for boats in 2010 is Per Rolandsen, sales consultant at the Norwegian Fishermen's Sales Organisation, quoted in *Nordlys*, 10/09/10.
- <sup>40</sup> Facts about whales in Norwegian waters: Brochure published with support from the Ministry of Fisheries, the Ministry of Foreign Affairs and the North Atlantic Marine Mammal Commission (NAMMCO), 02/08/00. [http://www.regjeringen.no/nb/dep/fkd/dok/veiledninger\\_og\\_brosjyrer/2000/facts-about-whales-in-norwegian-waters.html?id=419222](http://www.regjeringen.no/nb/dep/fkd/dok/veiledninger_og_brosjyrer/2000/facts-about-whales-in-norwegian-waters.html?id=419222) [Accessed 18/03/11].
- <sup>41</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 on Norwegian marine policy. St.meld. nr. 46 (2009-2009) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*), <http://www.regjeringen.no/nb/dep/fkd/dok/regpubl/stmeld/2008-2009/stmeld-nr-46-2009-2009-.html?id=566625> [Accessed 18/03/11].

<sup>42</sup> Directorate of Fisheries 2010, Economic and biological key figures from Norwegian fisheries.

<sup>43</sup> Statistics Norway. Employed persons by industry. Employees and independent, 1930-2007. (*Sysselsatte personer etter næring. Lønnstakere og selvstendige. 1930-2007*) <http://www.ssb.no/magasinet/analyse/tab-2008-10-13-02.html> [Accessed 18/03/11].

<sup>44</sup> Romsdals Budstikke, 25/08/10.

<sup>45</sup> Norwegian Fishermen's Sales Organisation, Annual reports (Årsberetning) 2009, p.58.

<sup>46</sup> Directorate of Fisheries 2010, Economic and biological key figures from Norwegian fisheries, Table 2, page 22.

## 4. Economics of whaling in Norway.

*This chapter describes the economic aspects of whaling, including data on the costs of catching, processing and marketing whales, landing prices, demand and prices for whale products, and the potential of export markets.*

### 4.1 Costs of whaling.

There is very little official information available on the costs associated with the hunting and landing of whales, and even on request such information is not readily available from official bodies or the Norwegian Small-Type Whalers Association. Available details for the costs after first landing - i.e. the costs of processing and marketing - are presented in Section 4.3 below.

Fitting out a whaling vessel is expensive, with important costs for installing and checking the Blue Box equipment, fitting a harpoon and purchasing grenades, and running costs, in particular fuel. There are two recent press references to the cost of participating in the whale hunt. Early in 2011, a letter to the editor of the paper *Fiskeribladet Fiskaren* from a Tromsø whaler, Jarle Andreassen, stated that his initial expenses necessary to participate in the hunt were in the order of NOK 250,000 (USD 42,000) which included the grenades, the ammunition, fuel, provisions, preparation of the boat and all the applications, paperwork and permissions to participate in the hunt.<sup>1</sup> This total is similar to a 2009 reference to the cost of preparing a vessel for whaling being “around NOK 200,000” (about USD 35,000).<sup>2</sup>

Installing the Blue Box and associated sensors, and registration and authorisation that the equipment has been installed correctly, can presently only be done at one of three mechanical workshops authorised to carry out all this work. They are located in Tromsø, Ålesund and Lofoten, and whalers pay the full cost of these procedures.<sup>3</sup> According to one of the three firms, the installation of the Blue Box and control of sensors involves 2 hours of work at a cost of approximately NOK 1,400 (USD 233), or double this if the sensors need to be shifted (once every five years, or longer).<sup>4</sup> However, another firm which used to do this procedure confirmed in writing that the procedure cost NOK 13-15,000 (USD 2,167-2,500) on a boat already equipped for whaling, or, if installation of new equipment is required, approximately NOK 28,000 (USD 4,667) at the workshop, or NOK 36,000 (USD 6,000) if the mechanics have to go to the boat.<sup>5</sup> Hild Ynnesdal at the Directorate of Fisheries confirms that the variations in cost may be considerable, depending on the material of the boat and which other activities the boat is involved in. According to Ynnesdal, the Directorate does not know the prices, but believes today's prices to be nearer the first given estimate than the second.<sup>6</sup> However, in a recent media reference a whaler stated that the cost associated with Blue Box is NOK 25,000 (USD 4,200) every year.<sup>7</sup>

The cost of a harpoon grenade was approximately NOK 3,000 (USD 500) in 2010, including insurance and 'special' transport costs.<sup>8</sup>

Other than the Blue Box, harpoon and ammunition, the running costs of a whaling boat are generally about the same as for the other forms of fishery activities for the same period.<sup>9</sup> The running costs of a normal fishing boat vary, depending for example on the age, size and construction material of the boat.

Average maintenance costs are NOK 450,000 (USD 75,000) for conventional coastal fishing boats in the 15-20.9m class, rising to NOK 660,000 (USD 110,000) for boats in the 21-27.9m class.<sup>10</sup> Most whaling vessels fall in one or other of these classes. Whaling company reports also suggest a minimum of NOK 500,000 (USD 83,000) in machinery maintenance and depreciation costs each year.<sup>11</sup> It is also necessary to consider the costs of depreciation of the vessel and equipment: the averages for fishing vessels of the two size classes are NOK 231,000 (USD 38,500) and NOK 345,000 (USD 57,500).<sup>12</sup> There are also important costs for insurance of the vessel (NOK 114,000-165,000, or USD 19,000-27,500) and other insurances (NOK 61,000-108,000, or USD 10,000-18,000).<sup>13</sup>

However only a proportion of these costs should be attributed to whaling, since the boats engage in other activities outside the whaling season: counting the whaling season as approximately one third of the year, an approximate estimate for the maintenance, depreciation and insurance costs together would be NOK 400,000 (USD 67,000) per whaling season, on average.

According to Statoil, in May 2010 the list price for marine gas oil was NOK 7.57/litre (USD 1.26/litre) excluding VAT; at the end of January 2011, the list price was NOK 8.17 (USD 1.36).<sup>14</sup> These list prices are not fixed for all customers: different boat owners have different deals, depending for example on whether they collected the oil or had it delivered. Whalers can then claim a tax rebate of approximately NOK 1.50/litre (USD 0.25/litre).<sup>vi</sup>

There is evidence from interviews with whalers that the effects of these costs, and in particular the effects of increasing fuel prices, make whaling economically very marginal, and more expensive than regular fishing. Already in 2005, rising fuel prices were causing strain, with one whaler noting that going to Jan Mayen required a full tank costing NOK “several 100,000” (several tens of thousand USD).<sup>15</sup> There have been reports that the high cost dissuades whalers from taking the Jan Mayen quota.<sup>16</sup>

The available information can be used to derive very approximate estimates of the costs/kg of meat landed. The High North Alliance (Høge Nord Alliansen) reports survey data of 8 whaling boats that used 294,840 litres of diesel in the 2007 whaling season to produce a total of 461 tonnes of whale meat.<sup>17</sup> This works out at 0.64 litres/kg; based on the above fuel prices, this would suggest that fuel costs alone are around NOK 4.85/kg of whale meat (USD 0.81/kg), before the tax rebate, or NOK 3.88/kg (USD 0.65/kg) after the tax rebate. Fuel and ammunition are the major running costs for whaling boats, with one source suggesting that each

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<sup>vi</sup> The exact amount of tax is at present 146.6 øre, but when this is refunded there is a 2.1% compensation for interest, so the total is 149.7 øre.

accounts for 30-40% of the variable costs of whaling, not including labour.<sup>18</sup> Working backwards from the cost of fuel and ammunition gives very approximate costs/kg of whale meat:

- The after-tax-rebate fuel cost/kg of whale meat is NOK 3.88/kg (USD 0.65/kg), and if this is one third of costs, total costs would be around NOK 11.6/kg (USD 1.94/kg).
- If a harpoon grenade costs NOK 3,000 (USD 500) and a whale yields 1,300 kg of meat, this suggests approximately NOK 2.3/kg (USD 0.38/kg), and if this is one third of costs, total costs would be around NOK 6.9/kg (USD 1.30/kg).
- This gives a broad range of estimates. However, fuel prices today are somewhat higher than in 2007 when the 30-40% estimate was made; so fuel costs are likely to be a slightly higher proportion now, and ammunition correspondingly less. The estimates converge if fuel costs are assumed to be 50% and ammunition costs 30%, leading to approximately NOK 7.7/kg (USD 1.28/kg).
- Alternatively, considering the example cited above of NOK 250,000 (USD 42,000) for the costs of preparing a boat for whaling, and assuming 29 whales caught,<sup>19</sup> implies costs of NOK 8,620 (USD 1,440) per whale, or, assuming 1,300kg per whale, NOK 6.6/kg (USD 1.1/kg). But this is an underestimate since it does not take account of any refuelling or additional expenses during the season.
- These are clearly broad-brush estimates, but the balance of such evidence as is available suggests that an estimate for the variable cost of landing whale meat of NOK 7.7/kg (USD 1.28/kg) should be approximately correct.

This does not include the costs of wear and tear, depreciation on the boat, or remuneration for crew, which have to be considered separately. In keeping with the fishing industry, a system of crew shares ('Lott mannskap') is used, with the crew having a share of the catch value after deduction of specified costs, but the exact way in which crew are paid varies depending on the boat, its ownership structure and the location.<sup>20</sup> There are also pension costs (at 0.25% of catch value) and social costs, averaging from NOK 18,000 to 46,000 (USD 3,000 to 7,700) for the coastal vessels in the two size classes discussed above.<sup>21</sup>

To be conservative, we assume that the variable costs of whaling at approximately NOK 7.7/kg (USD 1.28/kg) of landed meat already include the pension and social costs, as well as food and other expenses. In addition we assume that the estimate of NOK 400,000 per whaling season for maintenance, depreciation and insurance covers the costs of fitting out a whaling vessel, although there are specific costs such as fitting and checking the Blue Box and sensors that do not apply to non-whaling vessels.

## 4.2 Landing prices of whale meat.

In Norway most whales (around 80%) are landed and sold via the Norwegian Fishermen's Sales Organisation.<sup>22</sup> The Norwegian Fishermen's Sales Organisation sets a minimum landing price for many species of fish (including for example cod, haddock, pollock, Greenland halibut, king crab, redfish, and monkfish) and also for whale meat. The minimum price has been around a nominal NOK 30 (USD 5)/kg for several years; actual prices paid by the Norwegian Fishermen's Sales Organisation can be higher, but in practice are generally very near this level.<sup>23</sup> Of course this means that the real value of the price is falling in line with inflation: the NOK 30 minimum price in 2001 is equivalent to over NOK 43 (USD 7.20) at today's prices.

Figure 4.1 sets out the actual average and minimum prices of whale meat, where data are available.

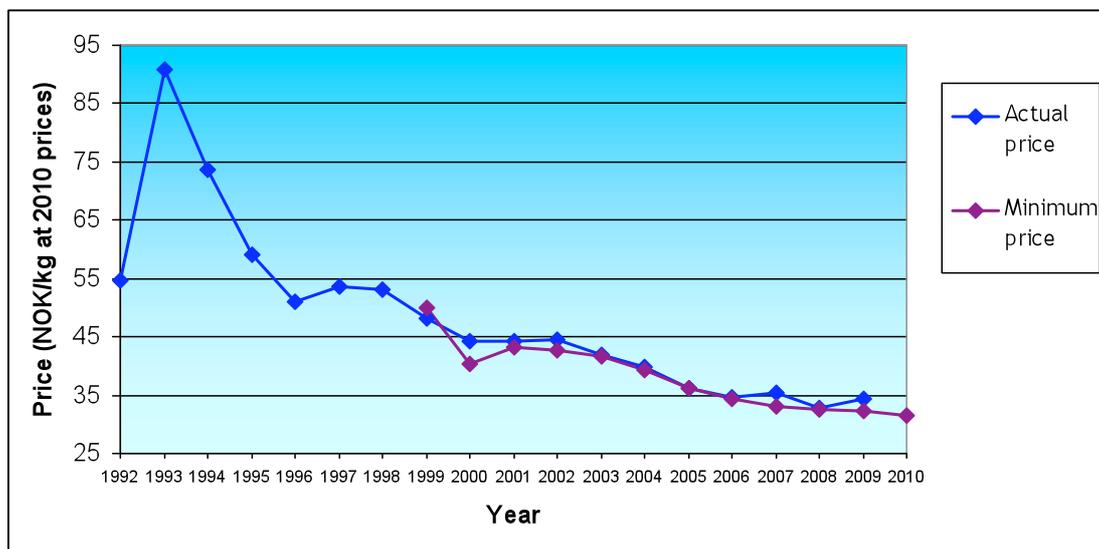


Figure 4.1 Actual and minimum set price of whale meat, 1992-2010 (NOK/kg at 2010 prices).<sup>vii,24</sup>

It is obvious that prices early in this series were relatively high, especially in 1993 and 1994. However these were the years immediately following Norway's temporary ban on whaling, and the volumes landed were lower (see Figure 3.3). Economic theory suggests that lower quantities supplied will tend to imply higher prices; and it is also possible that there may have been higher demand in these years due to the 'novelty' value and media attention on the resumption of whaling. The price fell sharply during these initial years, and has continued to fall in real terms ever since. Since the year 2000, the price has fallen by over 22%.

For a couple of years, the minimum price for whale meat has been set at different levels for different periods of the season. In 2008, it was set to NOK 32/kg (NOK 32.6/kg (USD 5.44) in 2010 prices) for the beginning of the season, falling to NOK

<sup>vii</sup> For comparison, USD 1 ≈ NOK 6; so NOK 33/kg ≈ USD 5.50/kg

30/kg (NOK 30.6/kg (USD 5.10) in 2010 prices) from 2 June; the aim of this was to stimulate an early start to the season.<sup>25</sup>

Figure 4.2 shows the total value of whales landed, expressed in 2010 prices. This shows a stronger decline than the quantity landed (Figure 3.3) because the prices are also falling, in real terms (Figure 4.1), with a particularly strong decline in recent years. This recent trend to lower volumes and lower real prices suggests that the market size is very limited.

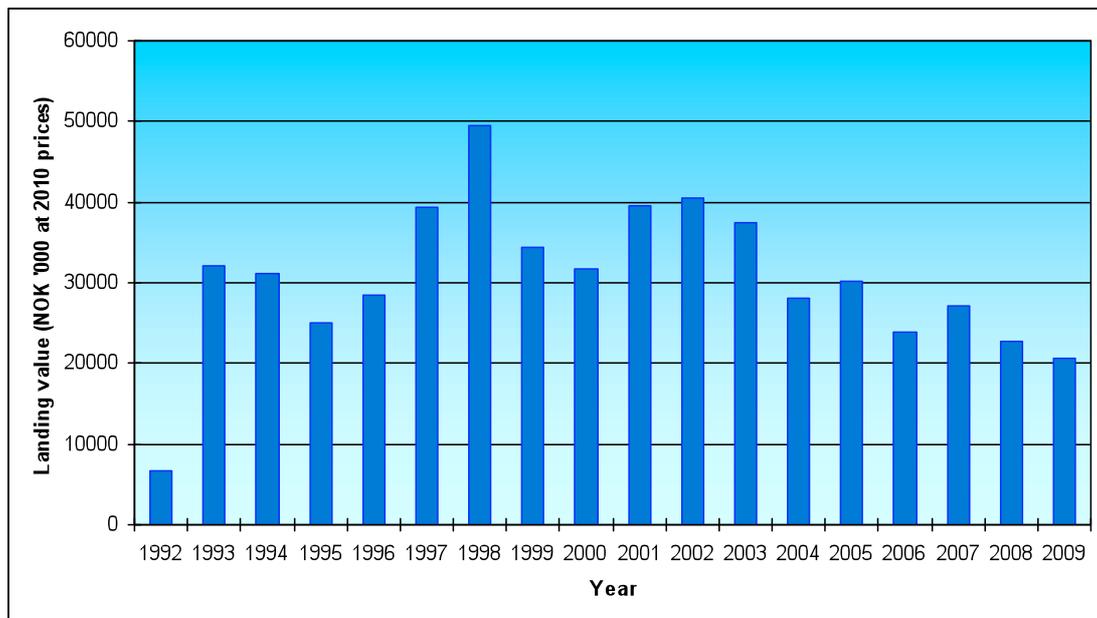


Figure 4.2: Total landing value of whale meat in Norway, 1992-2009<sup>26,viii</sup>

### 4.3 Processing and markets for products.

Whale meat in Norway is first sold to wholesalers, who then process the whale into different qualities of meat, with four main categories:<sup>27</sup>

- Whale beef (hvalbiff, biffkjøtt, about 48% of whale meat) which is sold fresh to consumers or frozen to caterers;
- Stewing chunks (småbiff, småkjøtt, about 32% of whale meat) which is sold fresh or frozen;
- Sausage meat (pølsekjøtt); and,
- Off-cuts that do not have any regular commercial use. About 15-20% of whale meat is unsuitable for use as hvalbiff or småbiff and falls into these last two categories.

White Paper no. 46 from the Ministry of Fisheries and Coastal Affairs<sup>28</sup> mentions that products from the seal and whale industries can be used as 'special products', which includes food for pets and feed for production animals and farmed fish,<sup>29</sup>

though whale products are not in fact used in fish food.<sup>30</sup> One of the main whale product traders, Myklebust Trading, mentions on their webpage<sup>31</sup> that whale meat products are used for beef, small beef, casserole beef, and dog food.

Blubber used to be landed at some value, but in recent years the Norwegian Fishermen's Sales Organisation guaranteed price has been just NOK 0.01/kg (well under USD 0.01/kg) and blubber is no longer landed.<sup>32</sup> There is no blubber market in Norway, and any potential value for blubber depends essentially on the export market. This remains highly uncertain, "based on changing signals and reports on possible exports of such products to the main market in Japan."<sup>33</sup> Some blubber was in fact sold in 2008, though only a small quantity of 238 kg, albeit at a rather high price of NOK 13.30/kg in 2010 prices (USD 2.22/kg).<sup>34</sup> One of the main barriers to the export of blubber is concern that it is often not fit for human consumption due to pollutant contamination: Hassauer et al. (2002), for example, report that daily limits for PCBs and DDT can be exceeded by consumption of only a few grams of minke whale blubber, with food limit values for PCBs exceeded by up to 90 times, and food limit values for DDT exceeded by 3 to 333 times.<sup>ix,35</sup>

Processed whale products are priced substantially higher than the landing price, reflecting processing, storing, transport and marketing costs as well as value added. Østli (2006) estimates different components of the processed cost of whale meat; the analysis can be reproduced for 2010 figures as follows:<sup>36</sup>

- The minimum price for whale meat landings is NOK 31.5 (USD 5.25) in 2010;
- 20% of landed meat is lost as off-cuts, with the remaining 80% composed of whale beef (48%) and stewing chunks (32%);
- Therefore the cost/kg of meat product is NOK 39.4/kg (USD 6.6/kg);<sup>x</sup>
- The labour cost of processing the meat is estimated at NOK 12.50/kg (USD 2.10/kg)<sup>xi</sup>;
- Making a total of NOK 52/kg (USD 8.67/kg) excluding VAT: note that this is only the price of unprocessed whale meat plus the labour cost of processing it, and does not cover other fixed (e.g. machinery, premises) or variable (e.g. packaging, light and heat) costs for the businesses.

The actual price for meat sold by the processors depends on whether it is sold fresh or frozen. There is also a further uncertain loss due to water loss, which Østli reports as in the range 4-10% depending on the meat quality at delivery.

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<sup>viii</sup> For comparison, USD 1 = NOK 6; so NOK 20 million = USD 3.3 million.

<sup>ix</sup> There are different reference limits depending on the organisation: WHO, EC and FDA limits are considered.

<sup>x</sup> Calculated as  $31.5/0.8 = 39.4$ .

<sup>xi</sup> Converted from Østli's figure of NOK10/kg with a deflator for 2005 of 1.25. We do not do this for Østli's estimate of the minimum landing price because we have the actual value for 2010, which is lower in real terms.

Østli also reports that wholesalers sell meat on to Oslo for NOK 80-94/kg (USD 13.50-15.50/kg)<sup>xii</sup> excluding VAT: this price has to cover the above meat and labour costs, and also shipping and packaging, and other fixed and variable costs for the processors.<sup>37</sup> The retail price at the fish counter is given as around NOK 150/kg (USD 25/kg) including VAT, or NOK 131/kg (USD 21.80/kg) excluding VAT, which in turn must cover the above costs plus the costs of retail.

Actual current prices are similar to those quoted in Østli's report:

- REMA supermarkets: price has been below NOK 50 for 400g (NOK 125/kg, USD 21.80/kg).<sup>38</sup>
- ICA supermarkets: for frozen whale beef, NOK 97.80 for 400g (NOK 244.50/kg, USD 40.75/kg) and NOK 186.70 for 800g packs (equivalent to NOK 233.38/kg, USD 38.90/kg). Fresh whale meat in season sells for NOK 143.30-168/kg (USD 23.88-28/kg).<sup>39</sup>
- Mail order from Lofoten: whale beef for NOK 95/kg (USD 15.80/kg), stewing chunks (småbiff) for NOK 60/kg (USD 10/kg), and stewing chunks (småkjøtt) for NOK 40/kg (USD 6.67/kg) - all fresh or frozen, not including delivery.<sup>40</sup>
- Home delivery: 400g packs for NOK 69 (NOK 172.50/kg, USD 28.75/kg).<sup>41</sup>

These prices all include VAT at the food rate (14%); removing this, the ex-VAT prices/kg of whale steak is broadly in the range NOK 100-150/kg (USD 17-25/kg).

In practice, for anything other than very occasional consumption, the price of whale meat is limited by the price of other substitute products. A Fishery and Aquaculture Research Fund (FHF, Fiskeri- og havbruksnæringens forskningsfond) study of whale meat sales found that, "Pricing is central. Whale beef cannot compete with beef steak in price." The study suggested that a price of under NOK 172/kg (USD 28.70/kg) in 2010 prices should be acceptable to consumers.<sup>42,xiii</sup>

For the most part, the prices for whale meat noted above are near or below this NOK 172/kg 'limit'. Prices for alternative meats are also around or below this level. For example:

- In ICA supermarkets, beef steak ('Matmesteren Entrecot') is on sale at NOK 169/kg (USD 28.16/kg) while frozen salmon fillets are NOK 170.80/kg (USD 28.47/kg). Minced meat is NOK 39.90 for 400g (NOK 99.75/kg, USD 16.62/kg).<sup>43</sup>
- In REMA 1000 supermarkets, beef steak is NOK 159.90/kg (USD 26.65/kg) for 'Nordfjord pepperbiff' and NOK 162,90/kg (USD 27.15/kg) for 'Gilde mørbrad'; frozen salmon fillets are NOK 47 for 600g (NOK 78.33/kg, USD 13.05/kg). Minced meat is NOK 29.30 for 500g (NOK 58.60/kg, USD 9.76/kg).<sup>44</sup>

<sup>xii</sup> These figures adjusted to 2010 prices with the same conversion factor as above.

<sup>xiii</sup> Price in original is NOK 150/kg, here converted to 2010 prices with the factor 1.148.

Østli (2006) explains that the modest size of the mark-up reflects low profits from each part of the distribution chain. Consideration of the prices and volumes set out above confirms that margins must be tight, and profitability low, throughout the supply chain. But the prices of alternative meats such as beef and salmon mean that retailers do not have scope to increase prices for whale meat.

#### 4.4 Demand for whale meat.

Whale meat is not widely consumed in Norway. The poll by Opinion AS (2010) showed that most Norwegians - more than 80% - have eaten whale meat, but fewer than 5% eat it often.<sup>45</sup> The majority of those who have eaten whale stated that it was “a long time ago”. A visualisation of this result can be seen in Figure 4.3. These results are backed up with similar results from the poll by Opinion AS (2009) where 19% had never eaten whale meat, 41% had tried it but did not eat it on a regular basis, 32% ate it once or twice a year, and 7% ate it more than once a month.

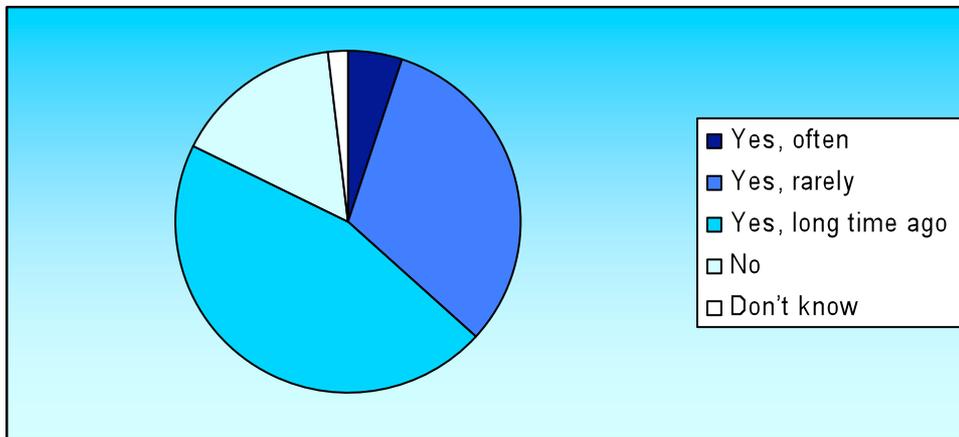


Figure 4.3: Responses to “Have you ever eaten whale meat?”<sup>46</sup>

According to the Opinion AS (2010) poll results, younger age groups are less likely to have tried whale meat than older age groups, and people living in northern Norway are more likely to have eaten whale meat than those living in other parts of Norway.

The overall result is that annual consumption per person is very low. One report states that consumption of whale meat in Norway had fallen to just 0.25kg per capita per year by 2000.<sup>xiv,47</sup> Still in 2010 the figures are similar, as noted by the Minister of Fisheries, who stated that an annual volume of between 700 and 1000 tonnes of meat for sale “equals 250g of meat, or one dinner, per inhabitant - in one year! Whale meat is therefore almost to be looked upon as a niche product.”<sup>48</sup>

<sup>xiv</sup> A quick analysis of this figure shows that it does not hold up to the entire population of Norway (4.5 million, 2000 census) as it would involve national consumption of 1125 tonnes of whale meat while Norway only landed 600 tonnes per year at the time. The most likely explanation is that the figures in this paragraph are approximate estimates based only on the adult population.

On the other hand, in the 2010 survey, few respondents stated categorically that they would not eat whale meat in the future (Figure 4.4) - the most common response being “probably, but not often”. Younger groups were least likely to state an intention to eat whale meat in the future.

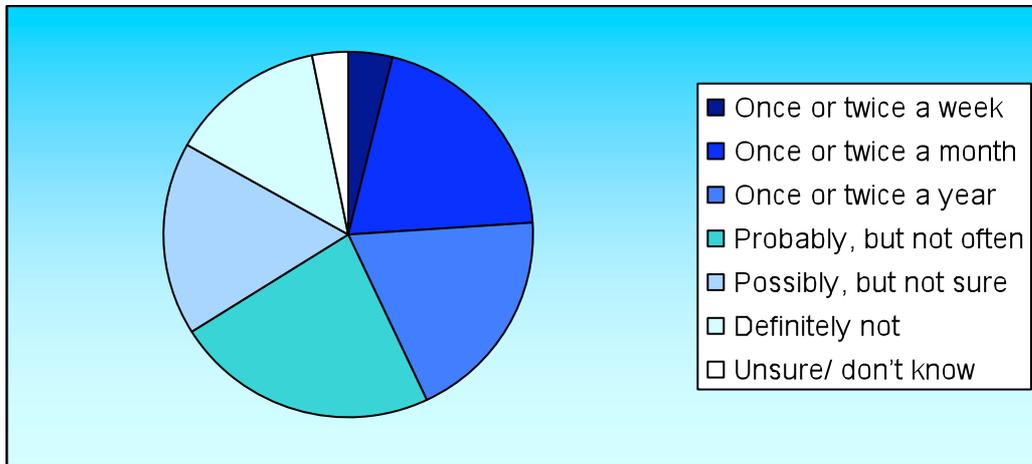


Figure 4.4: Responses to "Do you think you will eat whale meat in future?"<sup>49</sup>

The reasons given for positive responses to “Do you think you will eat whale meat in the future” centre around ideas of tradition (26%) and supporting whaling (20%), though a wide diversity of other responses were given (Figure 4.5).

Reasons for not planning to eat whale in the future (Figure 4.6) centre on preference for other meats (42%) or actively disliking whale meat (21%); 57% gave at least one of these responses (and 6% cited both). In contrast, only 10% of respondents who plan to consume whale meat gave preference for whale over other meats as a reason.

Price rationales also feature in a minor role, with 14% of those who do not plan to eat whale stating that whale meat is ‘too expensive’; of those who do plan to eat whale, only 5% stated ‘good price’ as a reason.

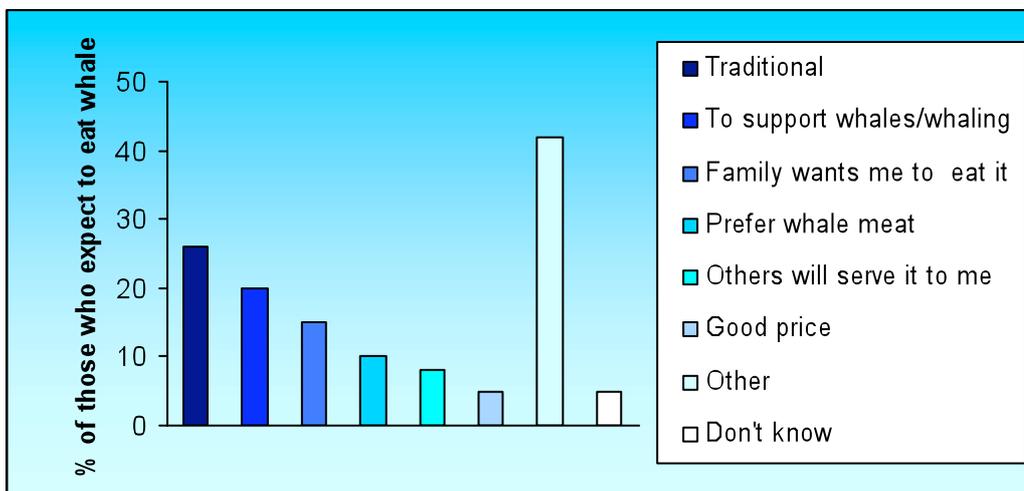


Figure 4.5: Reasons given for anticipating future consumption of whale meat

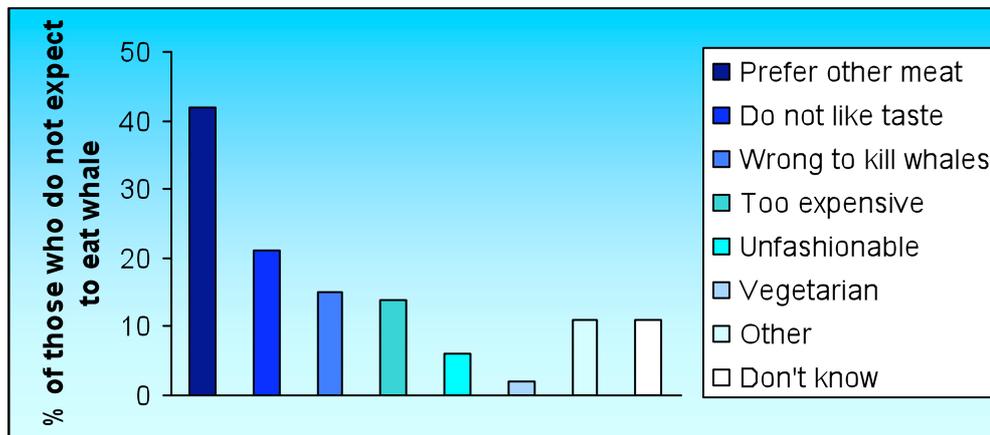


Figure 4.6: Reasons given for not planning to eat whale meat in future

Research commissioned by the FHF found that whale meat was considered old-fashioned and “political”. The study concluded that “whale meat needed a new image”, for example through improved packaging and information on preparing whale meat in more modern ways.<sup>50</sup> One way the industry has tried to achieve this is through the Marketing Council for Whale (Markedsrådet for hval), a committee established for whale meat promotion, and funded via an advertising fee charged to the industry. Its website, <http://www.hvalbiff.no>, gives recipes for whale meat, information promoting whale meat and so on. In 2006, it funded a “whale-mobile” to promote whale meat on a tour of over 40 Norwegian towns and cities, offering free samples of whale meat and recipe ideas. In 2009 the whale mobile became the “salmon and whale grill-mobile”.<sup>51</sup> The mobile did not operate at all in 2010, and it is not yet known whether or not it will operate again in the future.<sup>52</sup>

Low demand from consumers is directly experienced by retailers. One supermarket chain, REMA, has recently stated<sup>53</sup> that they have sold whale meat for several years, but in quite small quantities: between 30 and 40 tonnes per year. Although price has been below NOK 50/400g (NOK 125/kg, USD 21.80/kg), this has not been a sales success and the supermarket has decided to remove whale meat from their central assortment from June 2010.

NorgesGruppen is an umbrella corporation for a number of Norway's leading supermarket chains. They have stated<sup>54</sup> that whale meat is a very small commodity, “hardly sold anywhere.” In 2010, NorgesGruppen expects to sell a total of 25 tonnes of whale meat. Supermarkets may stock 2-3 products, all frozen, but this is optional and there are only a few supermarkets where there is sufficient demand for whale for them to stock the products. The total volume of this is so small a part of frozen fish products for the NorgesGruppen that it “can not be counted as either percent or per thousand.”

The ICA supermarket chain has stated that they buy whale meat to meet demand conditions, and in 2010 have sold about 1,700kg of frozen whale and about 1,900kg of fresh whale.<sup>55</sup> This is a slight decrease from last year for frozen whale.

Buyers and wholesalers are hit by low demand. Åge Eriksen, owner and manager of Hopen Fisk AS, one of Norway's largest purchasers/ buyers of whale, stated to ABC News in August 2009 that "I think that the entire whale market could disappear."<sup>56</sup> He has also stated that "overall, we are talking about small volumes and little money. It is not particularly economical, and it is not profitable to continue."<sup>57</sup> Another company managed by Åge Eriksen, Hopen Fisk & Sild AS, declared bankruptcy in 2008, and all of the property and activities were taken over by Hopen Fisk AS and Eiendommen Hopen AS.<sup>58</sup>

Another major buyer, Ellingsen Seafood in Skrova, is scaling down production of whale meat. In past years Ellingsen has taken up to 30% of whales hunted. In 2005 the company launched several new whale meat products, including the 'Lofotburger' (half minke whale and half pork), aiming to market whale to a new generation of consumers.<sup>59</sup> Subsequently, in March 2008, the Chairman, Ulf Ellingsen, expressed his fears that the hunt would "slowly but surely dry up", stating that "Whale hunting is in a downward spiral"<sup>60</sup> and announcing that it was considering stopping sales of whale meat, since "profitability is too little and it is difficult to get hold of employees for the short season. The industry is now at a crossroads and for us, salmon (farmed) is more important than whale".<sup>61,62</sup>

The Norwegian Fishermen's Sales Organisation reported that 10 buyers were operating in their area in 2008, purchasing quantities of between 5 and 106 tonnes of whale meat: buyers that previously had purchased about 200 tonnes of whale meat a year reduced the quantity of their purchases to 100 tonnes or less.<sup>63</sup> The Norwegian Fishermen's Sales Organisation explains that sales were difficult due to the fact that there were fewer buyers, and reduced purchases; buyers had no desire to only "purchase for storage". The 2009 annual report does not give figures for the number of buyers. In 2010 there were 9 processors of whale meat in Norwegian Fishermen's Sales Organisation's district. This figure includes both those that buy and process whale meat and the hunters that process their own catch. There were 3 processors outside of Norwegian Fishermen's Sales Organisation's district - 1 in Sunnmøre og Romsdal Fiskesalslag and 2 in Vest-Norges Fiskesalslag.<sup>64</sup>

The lack of demand from buyers and wholesalers impacts on whalers, as recognised by Per Rolandsen of the Norwegian Fishermen's Sales Organisation, noting that "the buyers are fewer than before, and those that are buying, buy less. Therefore earnings are low because of the difficulty trading the whale meat."<sup>65</sup>

Demand conditions have led to additional steps to even out the supply of whale meat through the season, and to prevent excess supply. Having noted that the majority of whale meat was coming in late in the season, and was difficult to sell off in large quantities, in 2006 and 2008 (but not 2007) they decided to encourage early-season hunting by offering higher minimum prices in the beginning of the season. On 31 March 2008, Circular nr. 8/2008 was issued to whale hunters and registered buyers. It dealt with the regulation of whale hunting for 2008 and stated that "interest in the purchase of whale and whale products is limited and can lead to problems with the turnover of caught whales" and that "large catches are difficult to turn over".

In 2008 and 2009, the Norwegian Fishermen's Sales Organisation decided to suspend the hunt early: in 2008, whaling was stopped because of "limited capacity to receive" whale meat;<sup>66</sup> while in 2009, the hunt was stopped from 23 June, due to low demand, "when the industry's procurement needs were filled up."<sup>67</sup> The low demand was manifested in substantially reduced quantities taken by the largest buyers and producers: for example, buyers in Skrova, in the past responsible for considerable production, only produced a few tonnes in 2009.<sup>68</sup>

There is an apparent trend for more whalers to act as their own buyers and wholesalers, ostensibly to get round landing restrictions. The early hunt closures do not apply to boats processing their own catch, but these boats remain subject to the laws of supply and demand. There was further catch after the closures, but this was "limited".<sup>69</sup> In fact, the large majority of whales are still going through the Norwegian Fishermen's Sales Organisation: in 2009, of 599 tonnes of whale meat landed, 474 tonnes (79%) were traded through the organisation.<sup>70</sup>

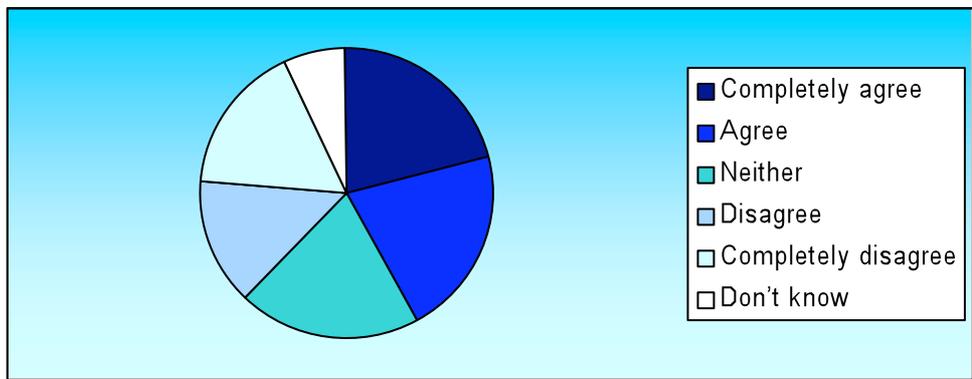
Taking all the above evidence, there does not seem to be any realistic prospect of realising significantly increased revenues from whale meat in Norway, unless new customers can be secured (for example by greater international exports, see section 4.5) or new product development.

**Box 1: Economic implications of animal welfare issues in whale hunting**

During the “Working Group on Whale Killing Methods and Associated Welfare Issues” at the sixty-first annual meeting of the IWC (Madeira, 2009) Norway reiterated that instantaneous death rates (IDR) for harpooned whales increased steadily from about 17% at the beginning of the 1980s to at least 80% in 2000. In any case, an IDR of 80% still leaves 20% of whales that the Norwegian government’s own figures suggest do not die immediately, and thus risk taking up to 90 minutes to die after being harpooned. (Ministry of Fisheries and Coastal Affairs Norway (2009) WKM8 Norwegian Minke Whaling 2008)

To explore Norwegian public attitudes towards this, the Opinion AS (2009) poll informed respondents that “Norwegian authorities report that 80% of whales caught during Norwegian whale hunting die instantly. 20% do not die instantly. Do you agree or disagree that it is acceptable that it can take from several minutes to over an hour for these whales to die?” 50% of people did not agree that this was acceptable, including 34% of people who felt that it was strongly unacceptable. Only 21% of people felt that this was acceptable, with 23% neutral and 7% ‘don’t know’. This question was followed with “Do you agree or disagree that Norway should start phasing out commercial whaling, with regard to animal welfare aspects of the hunts?”, where 34% of people agreed, 40% disagreed and 20% did not know.

Consideration of Norwegian public attitudes to the animal welfare aspects of hunts was also included in the Opinion AS (2010) survey. Respondents were asked for their attitude towards the statement “Whaling should not be allowed if some whales suffer at the time of death”. This question aims to contrast the issue (‘some whales suffer’) with one possible consequence of facing up to that issue (‘whaling should not be allowed’). Results (Figure 4.7) show that 42% completely agree or agree, while only 31% disagree or completely disagree. Women and those under 30 are more likely to agree than men and those over 30. Fewer in North Norway tend to agree than in other areas.



**Figure 4.7: "Whaling should not be allowed if some whales suffer at the time of death"**

Considering these poll questions together suggests that animal welfare impacts of whaling seem to be important for a large proportion of the Norwegian public. This is an issue which may not have affected sales of whale meat in the past but due to growing awareness and concern over animal welfare generally may affect sales now and increasingly so in the future. It should also be noted that anti-whaling campaigns and organisations in Norway act to raise awareness about the welfare issues associated with whaling and therefore have the potential to further influence the Norwegian public in this regard. There are many other examples where animal welfare concerns have reduced the popularity of certain products - battery eggs and fur products, for example. The population seems to be roughly evenly balanced on the question of whether or not animal welfare concerns should entail the end of commercial whaling, though with quite a large proportion of neutral/don't know views. If younger people maintain their existing views as they grow older, the balance will gradually shift towards favouring the end of whaling on animal welfare grounds over the coming years.

## 4.5 Exports.

Although the domestic market for whale products is limited in Norway, expanding the export market could potentially enhance the commercial viability of Norwegian whaling. CITES has banned international commercial trade in the products of whale species that are protected from commercial whaling by the IWC. However the three commercial whaling nations have reservations to the CITES ban, enabling them to trade with each other, or with non-parties to CITES like the Faroe Islands. The whaling nations' multiple challenges to the CITES ban (1997, 2000, 2002, 2005) have been unsuccessful and it seems unlikely that it will be lifted while the IWC moratorium remains in place. Their options for securing new export markets are therefore limited, for the time being at least.

In 2002, Norway resumed exports of whale meat and blubber to Iceland. The trade, between the Norwegian whaling company Myklebust Trading AS and Icelandic importer Jon Gunnarsson, was limited. In the end, two shipments of Norwegian meat were exported to Iceland in July and October of 2002. The first export was a shipment of 7.634 tonnes of whale meat valued at NOK 672,000 (USD 112,000) at 2010 prices (NOK 60/kg (USD 14.67/kg)). The second shipment was for 16.971 tonnes, valued at NOK 747,000 (USD 125,000) at 2010 prices (NOK 44/kg (USD 7.34/kg)). Again, concerns over toxin levels in the Norwegian products were raised, and as Iceland itself resumed scientific whaling in 2003, and subsequently commercial whaling, exports to Iceland from Norway did not continue.<sup>71</sup>

Exports of whale meat from Norway to the Faroe Islands have also occurred in several years: 39 tonnes in 2002, 10.6 tonnes in 2003, 5.6 tonnes in 2008, 1.9 tonnes in 2009 and 1 tonne in 2010.<sup>72</sup>

There was a highly publicised export of Norwegian whale meat to Japan in 2008, with a total shipment of 5.6 tonnes.<sup>73</sup> However this was rejected following inspection by Japan, because it did not satisfy the Japanese standards for whale meat for raw consumption.<sup>74</sup> There are differences in the acceptable meat quality between countries, with Japan having stricter standards than Norway: the bacterial count in the meat has been too high for Japanese authority demands.<sup>75</sup>

Although this provides some evidence for the existence of potential export markets, it must be noted that these are rather small quantities in the context of total Norwegian whaling. In the parliamentary debate on the White Paper no. 46 from the Ministry of Fisheries and Coastal Affairs<sup>76</sup>, Lillian Hansen, The Labour Party (Arbeiderpartiet) recognised that "The market situation for whale and seal products is challenging, but it must also be said that the demand for such products is limited. Concerning whale meat, Norway and Japan are the only markets of significance."<sup>77</sup> With reference to the hopes of a lucrative Japanese market, the High North Alliance notes that "Significant resources have therefore been put into gaining access, but so far without success."<sup>78</sup> And although in the past Norway exported a large quantity of whale products to Japan, there is now no evidence for any likely high-volume export market for whaling products, to Japan or anywhere

else. The analysis of Japanese demand conditions presented in *eftec* (2009) suggests that there must be serious doubt concerning any potential export market to Japan: there is not enough demand for whale meat in Japan to absorb Japan's annual special permit whale kill, let alone to provide export markets for Norwegian whaling. Indeed, in October 2006, when Iceland announced a whale hunt, with speculation of possible exports to Japan, the Japanese Ambassador to Iceland, Ms. Fumiko Saiga, said that Japan was uninterested in the meat, citing the current surplus of whale meat on the Japanese market.<sup>79</sup>

The above assessment demonstrates that exports have been very minor in recent years, and suggests that there is no realistic prospect of major exports of whale meat. For Norway, the Minister of Fisheries and Coastal Affairs, Lisbeth Berg-Hansen (Arbeiderpartiet) recognises that "The home market is and will always be the most important market."<sup>80</sup>

#### **4.6 Conclusions on economics of whaling in Norway.**

Drawing on the above analysis, it is possible to derive an approximate picture of the economic situation for a 'representative' whaling boat. In the 2010 season, there were 18 boats that killed 464 whales and landed 632 tonnes of meat: an average of 35 tonnes per boat. In 2009, 21 boats killed 484 whales and landed 599 tonnes of meat: an average of 28.5 tonnes per boat. From 2001-2010, the average annual landings have been 26.3 tonnes per whaling boat participating in the hunt. The trend to higher catches per boat is a result of the declining number of boats.

For an approximate calculation, based on the average landings from 2009 and 2010, consider a boat landing 31.75 tonnes of whale meat in a year. Such a boat would have:

- Gross income of NOK 1 million (USD 0.167m), based on a minimum price of NOK 31.5/kg (USD 5.3/kg).
- Income of NOK 755,000 (USD 126,000) after variable costs of NOK 7.7/kg (USD 1.28/kg)
- Net income of NOK 355,000 (USD 59,500) after a conservative allowance of NOK 400,000 (USD 67,000) for the outfitting, maintenance and depreciation costs attributable to a whaling season.

If there are six men on the boat, this works out to NOK 59,500 (USD 9,900) each on average as the return from the whaling season. This is not a great deal of money in the context of average salaries for fishermen. In 2008, a normal annual salary for a fisherman was between NOK 459,000 to 510,000 (USD 76,500-85,000), falling in 2009 to 317,000 to 371,000 (USD 53,000-62,000).<sup>xv,81</sup> So an 'average' whaler might expect to get less than a fifth of an average fisherman's annual income from a season of whaling.

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<sup>xv</sup> Nominal figures have been adjusted to 2010 prices.

An alternative approach is to consider the average annual turnover of fishing vessels, which is NOK 3.9 million (USD 0.65m) for conventional coastal fishing boats in the 15-20.9m class, rising to NOK 7.5 million (USD 1.25m) for boats in the 21-27.9m class<sup>82</sup> In 2009, 21 boats achieved a turnover from whaling of NOK 20.6 million (USD 3.4m), an average of just NOK 0.98 million (USD 0.16m). In 2010, the average was around NOK 1.1 million (USD 0.18m) per boat. Of course there is variation across boats regarding the number of whales killed, but it is clear from these averages that whaling is providing a small proportion (approximately a fifth or less) of the revenue ‘requirements’ of the boats.

These figures are very approximate, but there is supporting evidence from the industry that profitability is very low. The Ministry of Fisheries and Coastal Affairs has noted that “Profitability is somewhat low. This is related to an increase in wages and fuel costs and competition with other meat products.”<sup>83</sup> In 2008, ship owner Andreas Hansen stated “There is terribly little economic gain from the hunt. People simply don’t believe how little we are left, both in terms of the hunting itself and in terms of the production”<sup>84</sup>

***Summary: Low demand from consumers, and availability of alternative products, restricts the prices that can be charged for whale meat, and limits the volumes that can be sold. This in turn impacts on the wholesalers and buyers, and ultimately on the whalers themselves. Minimum landing prices have been falling in real terms since the mid-1990s, and this, combined with the costs of whaling, mean that the returns for whalers are low. Efforts to expand the domestic market have not been successful, and in some recent years the hunt has been stopped early to prevent oversupply. There is no realistic prospect of major export markets for whale products. These economic facts make Norwegian whaling financially precarious, as is admitted by politicians and industry representatives.***

**Notes for “Economics of whaling in Norway.”**

- <sup>1</sup> Letter to the Editor (*Åpent brev til Fiskeri - og kystdepartementet*) by whaler Jarle Andreassen, *Fiskeribladet Fiskaren* 11/02/11.
- <sup>2</sup> Important local culture (*Viktig lokalkultur*), *Nordvestnytt*, 03/04/09.
- <sup>3</sup> Personal communication by phone with Hild Ynnestad, Directorate of Fisheries, 4/11/10.
- <sup>4</sup> Personal communication by phone with Navy Lofoten AS, 27/01/11.
- <sup>5</sup> Personal communication by email with Otto Iversen, MJ Hansen, 28/01/11.
- <sup>6</sup> Personal communication by phone with Hild Ynnesdal, Directorate of Fisheries, 25/02/11.
- <sup>7</sup> Quote by whaler Bjørn Andersen at “Reinebuen”, *Fiskeribladet Fiskaren*, 25/02/11
- <sup>8</sup> Personal communication by phone with Mindor Myklebust (whaler), 18/11/10;  
Sentence, 10-145527MED-OFOT, Ofoten Tingrett, against Jan Bjørn Kristiansen, 28/01/11.
- <sup>9</sup> Personal communication by phone with Mindor Myklebust (whaler), 18/11/10.
- <sup>10</sup> Directorate of Fisheries, January 2011 “Profitability survey on the Norwegian fishing fleet 2009”, tables G12 p.72 and G13 p.73, adjusted to 2010 prices;  
and personal communication by phone with Anita Steineide, Directorate of Fisheries, 25/02/11.
- <sup>11</sup> Accounts 2006-2009, for Urefangst AS, Kato AS and Nystrand AS, from Brønnøysund Register, [www.brreg.no](http://www.brreg.no).
- <sup>12</sup> Directorate of Fisheries, 2011. Profitability survey on the Norwegian fishing fleet 2009, tables G12 p.72 and G13 p.73, adjusted to 2010 prices.
- <sup>13</sup> Directorate of Fisheries, 2011. Profitability survey on the Norwegian fishing fleet 2009, tables G12 p.72 and G13 p.73, adjusted to 2010 prices.
- <sup>14</sup> Personal communication by phone with Statoil company, 27/01/11.
- <sup>15</sup> Whaling around Jan Mayen (Dyr hvalfangst ved Jan Mayen), *NRK*, 14/07/05  
<http://fil.nrk.no/nyheter/distrikt/nordland/1.97489> [Accessed 28/03/11].
- <sup>16</sup> *Vesterålen*, 07/07/08.
- <sup>17</sup> Høge Nord Alliansen, 2008. Investigation of greenhouse gases from whale meat (*Undersøkelse om klimagassutslipp fra hvalkjøtt*) High North Alliance,  
<http://www.hna.no/norsk/> [Accessed 18/02/11].
- <sup>18</sup> Høge Nord Alliansen, 2008. Investigation of greenhouse gases from whale meat (*Undersøkelse om klimagassutslipp fra hvalkjøtt*) High North Alliance,  
<http://www.hna.no/norsk/> [Accessed 18/02/11].
- <sup>19</sup> Personal communication by phone with Jarle Andreassen, Småhaug Senior, 28/02/11.
- <sup>20</sup> Directorate of Fisheries, January 2011 “Profitability survey on the Norwegian fishing fleet 2009”, p94.
- <sup>21</sup> Directorate of Fisheries, January 2011 “Profitability survey on the Norwegian fishing fleet 2009”, p94.
- <sup>22</sup> Norwegian Fishermen’s Sales Organisation, Annual Reports (*Årsberetning*), 2000 - 2009.
- <sup>23</sup> Norwegian Fishermen’s Sales Organisation, Annual Reports (*Årsberetning*), 2000 - 2009.
- <sup>24</sup> Norwegian Fishermen’s Sales Organisation, Annual Reports (*Årsberetning*) 2002 (table 43, p. 55) and 2009 (table 58, p.57).
- <sup>25</sup> Press release from the Norwegian Fisherman’s Sales Organisation, 26/03/08.
- <sup>26</sup> Norwegian Fishermen’s Sales Organisation, Annual Reports (*Årsberetning*) 2002 (table 43, p.55) and 2009 (table 58, p.57). Source for 2010 figure is personal communication with the Norwegian Fishermen’s Sales Organisation.
- <sup>27</sup> Østli, J. 2006. Increasing the profitability of the whale market: Focus on whale meat (*Økt verdiskapning med kvalen som råstoff : Fokus på kvalkjøtt*), Fiskeriforskning.
- <sup>28</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 / St.meld. nr. 46 (2009-2009) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).
- <sup>29</sup> Ministry of Fisheries and Coastal Affairs, 2004. White Paper 27 / St.meld. nr. 27 (2003-2004), Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).  
<http://www.regjeringen.no/nb/dep/fkd/dok/regpubl/stmeld/20032004/Stmeld-nr-27-2003-2004-/5.html?id=404117>.

- <sup>30</sup> Answers to questions about the composition of fish feed (*Svar på spørsmål om sammensetning av fiskefôr*). Letter from Mette Kristin Lorenzen, Norwegian Food Safety Authority, 20/03/09.
- <sup>31</sup> Products (*Produkter*), Myklebust Trading website, <http://www.hvalprodukter.no/> [Accessed 5/11/10].
- <sup>32</sup> Personal communication by phone with Per Rolandsen, Norwegian Fishermen's Sales Organisation, 28/01/11.
- <sup>33</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2004 (*Årsberetning 2004*).
- <sup>34</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2008 (*Årsberetning 2008*).
- <sup>35</sup> Hassauer, M, Oltmans, J and Schneider, K. 2002. Evaluation of Contaminants in Meat and Blubber of Minke Whales. Independent report to Greenpeace Deutschland e.v., Forschungs- und Beratungsinstitut Gefahrstoffe GmbH, Freiburg.
- <sup>36</sup> Østli, J. 2006. Increasing the profitability of the whale market: Focus on whale meat (*Økt verdiskapning med kvalen som råstoff : Fokus på kvalkjøtt*), Fiskeriforskning.
- <sup>37</sup> Østli, J. 2006. Increasing the profitability of the whale market: Focus on whale meat (*Økt verdiskapning med kvalen som råstoff : Fokus på kvalkjøtt*), Fiskeriforskning.
- <sup>38</sup> Personal communication by email with Christoffer Elseth, REMA 1000 Norge AS, 26/05/10.
- <sup>39</sup> Personal communication by email with Kristina Kollerud, ICA Norge AS, 21/09/10.
- <sup>40</sup> E-commerce orders from Olavsens AS (*Netthandel - Bestillinger fra Olavsens AS*) [www.olavsens.com/butikk.htm](http://www.olavsens.com/butikk.htm) [Accessed 15/02/11].
- <sup>41</sup> Den Norske Isbilien - Hvalbiff [www.isbilien.no/?id=56&title=hvalbiff](http://www.isbilien.no/?id=56&title=hvalbiff) [Accessed 06/08/10]. The Isbilien company offers smaller sized 400 gram single packet servings at the equivalent of 1 kilo for 172.50 NOK (USD 27.87).
- <sup>42</sup> Svein Nybo Consulting Firm, 2006. The sale of whale products for human consumption (*Omsetning av hvalprodukter til konsum*), a report for the Fisheries and Aquaculture Research Fund (FHF), p6.
- <sup>43</sup> Personal communication by phone with Kristina Kollerud, ICA Norge AS, 25/02/11.
- <sup>44</sup> Personal communication by phone with REMA 1000 Ensjø, 25/02/11.
- <sup>45</sup> Opinion AS, 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*) Oslo, June 2010.
- <sup>46</sup> Opinion AS, 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*) Oslo, June 2010.
- <sup>47</sup> Østli, J. 1999, Whale meat in the Norwegian Market - Status and proposed measures (*Hvalkjøtt i det norske marked Status og forslag til tiltak*).
- <sup>48</sup> Speech by the Minister of Fisheries at the Norwegian Small-Type Whalers Association, released on [www.regjeringen.no](http://www.regjeringen.no) 07/12/09.
- <sup>49</sup> Opinion AS (2010) *Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*. (Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen) Oslo, June 2010
- <sup>50</sup> Østli, J. 1999, Whale meat in the Norwegian Market - Status and proposed measures (*Hvalkjøtt i det norske marked Status og forslag til tiltak*).
- <sup>51</sup> (The Dilemma of Choice (*Valgets Kval*), [www.hvalbiff.no](http://www.hvalbiff.no) [Accessed 28/03/11].
- <sup>52</sup> Personal communication Norwegian Fishermen's Sales Organisation, 01/12/10
- <sup>53</sup> Personal communication by email with Christoffer Elseth, REMA 1000 Norge AS, 26/05/10.
- <sup>54</sup> Personal communication by email with Tormod Sandstø, Information Advisor for NorgesGruppen, 04/11/10.
- <sup>55</sup> Personal communication by email with Kristina Kollerud, ICA Norge AS, 21/09/10.
- <sup>56</sup> *Hvalfangst tjener ingen*, ABC Nyheter, 10/04/10, <http://www.abcnyheter.no/norge/100414/hvalfangst-tjener-ingen> - but comments to ABC News were made in August 2009. [Accessed 28/03/11].
- <sup>57</sup> Awful whaling (*Elendig hvalfangst*), ABC Nyheter, 27/08/09 <http://www.abcnyheter.no/nyheter/090827/elendig-hvalfangst> [Accessed 18/02/11].
- <sup>58</sup> Hopen Fisk & Sild bankruptcy (*Hopen Fisk & Sild konkurs*), Lofotposten, 09/10/08, [http://www.lofotposten.no/lokale\\_nyheter/article3840665.ece](http://www.lofotposten.no/lokale_nyheter/article3840665.ece), <http://www.hopenfisk.no/> [Accessed 28/03/11].
- <sup>59</sup> "Whale burgers raise a fuss", *Aftenposten*, 28/07/05.
- <sup>60</sup> Comments to *FiskeribladetFiskaren*, 13/03/08.
- <sup>61</sup> Comments to *NRK Nordland*, 03/04/08.

- <sup>62</sup> Downscaling whale purchase (*Trapper ned hvalkjøp*) *Fiskeribladet Fiskaren*, 13/03/08 and Nobody wants whale meat (*Ingen vil ha hvalkjøtt*) *NRK* 02/04/08.
- <sup>63</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2008 (*Årsberetning 2008*) pages 31, 57.
- <sup>64</sup> Personal communication with Norwegian Fishermen's Sales Organisation, 01/12/10.
- <sup>65</sup> *Fiskeribladet Fiskaren*, 23/07/10.
- <sup>66</sup> *Lofotposten* 19/06/08.
- <sup>67</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2009 (*Årsberetning 2009*), Table 58, p.57.
- <sup>68</sup> *Fiskeribladet Fiskaren*, 29/06/09.
- <sup>69</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2009 (*Årsberetning 2009*), Table 58, p.57.
- <sup>70</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2009 (*Årsberetning 2009*), Table 58, p.57
- <sup>71</sup> Norskt hrefnukjöt á leið til Íslands, Bjaerens Besta, 15/07/02;  
Oljost hvaener eda hvort nyja hrefnukjotid faest a Isafirdi, Bjaerens Besta, 22/8/03;  
*Miklu minna kvikasilfur I islensku hrenfukjot i en thvi norska*, Bjaerens Besta, 16/10/03
- <sup>72</sup> Personal communication by email with Øystein Størkersen, Directorate of Nature Management, 27/01/11.
- <sup>73</sup> Personal communication via email, Sunniva Aagaard, Directorate of Nature Management, 27/01/11 and 01/04/11.
- <sup>74</sup> Speech by the Minister of Fisheries at the Norwegian Small-Type Whalers Association, released on [www.regjeringen.no](http://www.regjeringen.no) 07/12/09
- <sup>75</sup> "Fishery and Aquaculture Industry Research Fund (FHF) Project number 900488, "Analysis of microbiological quality of whale meat", 2010, [http://www.fiskerifond.no/index.php?current\\_page=prosjekter&subpage=&detail=1&id=1081&gid=4](http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=&detail=1&id=1081&gid=4) [Accessed 05/11/10].
- <sup>76</sup> Ministry of Fisheries and Coastal Affairs, 2009. St.meld. nr. 46 (2009-2009) Norwegian marine policy (*Norsk sjøpattedyrpolitikk*).
- <sup>77</sup> Parliament - Meeting Tuesday 9 March 2010. (*Stortinget - Møte tirsdag den 9. mars 2010 kl. 10*) <http://www.stortinget.no/no/Saker-og-publikasjoner/Publikasjoner/Referater/Stortinget/2009-2010/100309/> [Accessed 28/03/11].
- <sup>78</sup> Frøvik and Jusnes, 2006 Risk analysis seal and whale (*Risikoanalyse sel og hval*), FHF project no. 221034, , Høge Nord Alliansen
- <sup>79</sup> *Morgunbladid*, 10/25/06.
- <sup>80</sup> Speech by the Minister of Fisheries and Coastal Affairs at the Norwegian Small-Type Whalers Association, released on [www.regjeringen.no](http://www.regjeringen.no) 07/12/09
- <sup>81</sup> Fishers salary loss of 30 percent (*Fiskerne 30 prosent ned i lønn*), *Fiskeribladet Fiskaren* 17/03/2009, <http://fiskeribladetfiskaren.no/default.asp?side=101&lesmer=11814> [Accessed 10/03/2011].
- <sup>82</sup> Directorate of Fisheries, 2011. Profitability survey on the Norwegian fishing fleet 2009, tables G12 p.72 and G13 p.73, adjusted to 2010 prices.
- <sup>83</sup> Ministry of Fisheries and Coastal Affairs, 2009. White Paper 46 / St.meld. nr. 46 (2009-2009) Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*).
- <sup>84</sup> *Bladet Vesterålen*, 07/05/08.

## 5. Public sector economic support to whaling.

*This chapter presents data on public sector support to the Norwegian whaling industry. Financial supports distort markets, and can result in inefficient outcomes and in some cases harvests that exceed demand. Whaling in Norway, and also sealing and fishing, receive a wide range of government supports. Levels of support provided directly and indirectly to the whaling industry through various channels are assessed, and it is concluded that the total level of public support is similar in scale to the revenues derived from whaling.*

Fisheries in many countries, including the EU, have been heavily subsidised, leading in many cases to overcapacity in fishing fleets, overfishing, and declining fish stocks.<sup>1</sup> In Norway, supports to fishing generally have been very high in the past - over NOK 1 billion (USD 0.17 billion) per year during the early 1980s (in nominal terms: these supports represent over double this figure in 2010 prices) - but have fallen to much lower levels, under NOK 100 million (USD 17 million) in recent years.<sup>2</sup> But in fact the definition of 'support' is debatable. This chapter examines the full range of public sector expenditures that are incurred primarily because of the whaling industry.

### 5.1 Direct supports and expenditures for the whaling industry.

Norwegian authorities and politicians view whaling as a non-subsidised activity,<sup>3</sup> in contrast to sealing, which is viewed as a state funded activity, receiving direct support including subsidies for maintaining the ships, a sum for each animal killed and sales-dependent subsidies.<sup>4</sup> But although whaling does not enjoy equivalent levels of direct state support, there are a range of costs directly related to the continuation of whaling that are paid directly or indirectly by government funding.

**Price support:** A comprehensive review of Norwegian fisheries subsidies from 1990 to 2002 stated that price support (*pristilskudd*) for fisheries had, from 1994 onwards, effectively been ruled out for all but the sealing industry.<sup>5</sup>

However, in 2003, some of the larger whaling vessels operating off Svalbard were given price supports.<sup>6</sup> The boats found that they were having to lay-over for a longer than normal period of time without being able to off-load their meat, as coastal vessels had already sold their catch and glutted the market. In this case, the minimum guaranteed price (*minstepriser*) of NOK 29.25/kg (equivalent to NOK 41.70/kg (USD 6.95/kg) in 2010 prices), was dispensed with for these boats, and their meat was sold for NOK 25/kg (or NOK 35.64/kg (USD 5.94/kg) at 2010 prices) in order to be able to move the meat into storage. Subsequently, the whalers were able to obtain a rebate of NOK 2.25/kg (or NOK 3.21/kg (USD 0.53/kg) at 2010 prices) from the government price regulating fund.

**DNA register:** Norway keeps a DNA register of all minke whales caught. This commenced in 1997 with the stated intention to ensure "safety and control" for exporting minke whale products.<sup>7</sup> It is clearly a whaling-related cost, and an

additional purpose stated was the need to demonstrate that meat sold on the market had been legally hunted<sup>8</sup>

From 2001 to 2004, a total of NOK 7.7 million was budgeted to cover the costs of the minke whale DNA register<sup>9</sup> (equivalent to approximately NOK 11 million (USD 1.83m) at 2010 prices). In 2006, NOK 1.149 million<sup>10</sup> (or NOK 1.32m (USD 0.22m) at 2010 prices), while in 2007, NOK 1.596 million (or NOK 1.79m (USD 0.3m) at 2010 prices) was listed in the budget.<sup>11</sup> The costs for 2008, 2009 and 2010 are not shown separately in the budgets.<sup>12</sup> This is because in 2008 the Institute of Marine Research took over the responsibility for the DNA-register, so the costs are now included in the general funds for the IMR, in chapter 1020 post 01 of the budget, and can no longer be individually identified; but they remain of a similar order to previous years.<sup>13</sup> In Table 1 below, an estimate of NOK 1.5 million (USD 0.25m) is made for these years.

**Blubber disposal:** Hundreds of tonnes of landed whale blubber have had to be disposed of due to several problems with selling blubber - among them lack of demand and toxin levels.<sup>14</sup> Reported expenditure on blubber disposal includes NOK 2.75 million in 1999,<sup>15</sup> and NOK 4 million in 2002,<sup>16</sup> and equivalent to NOK 4.67m (USD 780,000) and NOK 5.8m (USD 980,000) respectively in 2010 prices. The payment in 2002 was for destruction of approximately 900 tonnes of blubber from the years 1996-2001, at a cost of NOK 6.44/kg in 2010 prices (USD 1.07/kg).<sup>17</sup>

In 2007, following representations from buyers, the Norwegian Seafood Federation (FHL, Fiskeri- og havbruksnæringens landsforening) and the Norwegian Fishermen's Sales Organisation, the Department of Fisheries and Coastal Affairs set aside NOK 500,000 (equivalent to NOK 574,000 or USD 95,700 in 2010 prices) in order to get rid of the blubber from the recent year's whale hunting. This was stated to involve approximately 300 tonnes of blubber.<sup>18</sup>

**Inspection costs:** From 1993 to 2006, inspectors, generally practising veterinarians, were required on all whaling vessels during a hunt. The costs of the 100% monitoring programme were about NOK 6 million per year,<sup>19</sup> which is approximately equivalent to NOK 7.5m (USD 1.25m) in 2010 prices. According to Øen (2005) "The annual cost for the inspection scheme has been far too high for the vessels to be paid from the income from the harvest, and has been paid by the government."

Largely as a result of this high cost, by the 2007 season, all whaling vessels were fitted with an Electronic Trip Recorder or 'Blue Box' (see below) which the government claimed replaced the need for inspectors. Spot checks by inspectors are still carried out, with the Directorate of Fisheries indicating that inspectors are "placed randomly on board vessels for short or long periods" and that they "continually evaluate the need to place inspectors randomly on board the vessels".<sup>20</sup> The actual effort put into this checking seems to be very modest: in 2007, there were periodically inspectors on board two boats; in 2008 on one boat; and in 2009 some random checking of log books for boats in harbour. Overall, minke whale hunt inspections cost approximately 0.11 full-time equivalent working years each year.<sup>21</sup> Based on the average salary cost for the Fisheries Directorate, this represents a cost of NOK 55,800 (USD 9,300) at 2010 prices.<sup>22</sup>

**Electronic Trip Recorder ('Blue Box'):** An electronic Trip Recorder system was developed to replace the 100% inspection system. Since the Blue Boxes became mandatory in 2007, the costs of installation and operation have been borne by whaling vessels.<sup>23</sup> The costs are modest compared to the full inspection system, and whalers recognise the advantages: "With a 'Blue Box' on board we no longer need to administrate the pick-up and delivery of inspectors. The former inspector scheme also led to high costs for both the public and fishing vessels."<sup>24</sup>

The government provided NOK 900,000 to the development project, from 2001 to 2005,<sup>25</sup> equivalent to approximately NOK 1.25 million (USD 210,000) at 2010 prices. Costs relating to the installation and use of the 'Blue Box' are supposed to be covered by the whalers themselves,<sup>26</sup> but it is the responsibility of the Directorate of Fisheries to analyse the information stored on the information cards. "The results should be held together with the hunting logbooks and the hunting reports that are sent to the Norwegian Fishermen's Sales Organisation throughout the hunting season. These results can then be used to evaluate any need for action/sanctions against the participants. The analysis should be done immediately after the season ends."<sup>27</sup> Costs associated with this collection and analysis are not directly available, however the Fisheries Directorate estimates an annual time cost of 0.46 full-time equivalent working years for the Blue Box data analysis;<sup>28</sup> based on the average salary cost for the Fisheries Directorate, as described above, this represents a cost of NOK 233,000 (USD 38,300) at 2010 prices.<sup>29</sup>

**Support for marketing and investment:** The Norwegian Fishermen's Sales Organisation uses a levy on whale meat, paid by whalers and buyers, to fund marketing activities. It has also regularly added further support, including NOK 200,000 for "other marketing activities for whale meat" in both 2004 and 2005,<sup>30</sup> and NOK 150,000 for "measures for strengthening the value chain for whale meat"<sup>31</sup> in 2006. In 2010 prices, these supports total NOK 692,000 (USD 115,000). This is not public money, but is a transfer from the whole fishing sector to whaling.

The FHF (Fiskeri- og havbruksnæringens forskningsfond) also spends money on promoting whale products. The FHF derives income from a levy of 0.3% on all exported fish and fish products.<sup>32</sup> This is not directly public money, but since there are almost no exports of whale products, this also represents a transfer from fisheries funds to whaling. For example, at the Seafood Festival on 11-13 June 2010 in Oslo, funding supported whale meat leaflets, tastings and serving of a stir-fry. The total budget for the project was NOK 59,000 (USD 9,800), of which the FHF contributed NOK 25,000 (USD 4,200) while the Norwegian Small-Type Whalers' Organisation (Norges Småkvalfangerlag) contributed NOK 34,000 (USD 5,700).<sup>33</sup> Similar funding was provided for the profiling of whale meat at the Sea Food Festivals 2009 (NOK 46,500), 2008 (NOK 20,000) and 2007 (NOK 5000 for whale and seal), totalling (in 2010 prices) NOK 75,000 or USD 12,500 over those three years.<sup>34</sup>

In 2008, Myklebust Trading was given NOK 20,000 (NOK 20,400 (USD 3,400) in 2010 prices) from FHF with the aim "to establish contacts with potential cooperation partners within processing and production of "fast food" dishes from whale. Mainly firms in Sør - Trønderlag and Indre Østland were contacted."<sup>35</sup>

In addition - and although the industry says too little is done<sup>36</sup> - public money is used for promoting whale meat. The state-owned company Innovation Norway<sup>xvi</sup> (Innovasjon Norge) has given funds to marketing projects.<sup>37</sup> These include for profiling of whale products (NOK 550,000 (USD 91,000) granted through Innovation Norway to an unspecified recipient in 2010), and for profiling of herring, whale, shrimps and by products (NOK 320,000 (USD 53,000) granted to Sea Food Festival/Day of the Coast in Oslo, 2010, with NOK 83,000 (USD 13,800) being for whale). In 2007, Innovation Norway gave a grant of NOK 100,000 (or at 2010 prices, NOK 112,000 (USD 18,700)) to the Lofothval company in Moskenes, and NOK 240,000 (NOK 269,000 (USD 44,900) at 2010 prices) to whale meat buyer Gunnar Klo.

In 2011 NOK 40 million (USD 6.7m) are allocated over the state budget to Innovation Norway, for them to carry out activities for “Marint Verdiskapingsprogram” (Programme for Creating Marine Values), and considerable sums have also been allocated to the programme in earlier years. In the 2011 allocation letter, the Ministry specifically mentions promotion of whale products as one of the activities this fund shall cover: “Industry parties who offer minke whale meat have for many years experienced reduced sales, and thus reduced hunting of minke whales. The Ministry of Fisheries and Coastal Affairs sees the “Marint Verdiskapingsprogram” as a useful tool for a market oriented long term effort to get a profitable sale of minke whale products: “We ask Innovation Norway to follow up activities that are already ongoing, with the aim of establishing committed cooperation between parties in the value chain in order to ensure a stable supply of consumer oriented minke whale products to the market.”<sup>38</sup> On request Innovation Norway states that NOK 1.0-2.5 million (USD 0.17-0.42m) will be used on marketing activities relating to whaling, but in some years up to NOK 4-5 million (USD 0.67-0.83m) have been used, and if applications for projects involving cooperation with industry to introduce whale meat into one of the four big supermarket chains are received, money above the usual budget would be available.<sup>39</sup>

Local municipal grants have also been made: Lødingen granted NOK 153,000 (NOK 218,000, USD 36,300, at 2010 prices) to the Asbjørn Selsbane AS company in 2003, for developing further improvements in the distribution of whale meat. This was noted in 2005 as being “in full operation” with 3 employees, and the total budget for realization was NOK 394,440 (NOK 490,000, USD 82,000 at 2010 prices).<sup>40</sup>

Whale meat is also promoted by the private sector via “Arctic Menu” (Arktisk Meny), a project designed to promote “knowledge and awareness” of local and traditional ingredients. The project is funded by the North Norwegian Association of Travel Companies and the Regional Council of North Norway. Around 30 businesses, restaurants and hotels, pay membership fees to participate.<sup>41</sup>

**Support for scientific research, including field research for quota setting:**  
Various research costs, and notably the costs of research underpinning quota

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<sup>xvi</sup> A state-owned company with offices throughout Norway and in over 30 countries worldwide, employing over 700 people, and aiming to promote Norwegian industry and business.

setting, are incurred on behalf of whaling and sealing industries. It should be recognised that the employment of scientists and use of research infrastructure for providing research and advice on whaling is a significant opportunity cost, since these highly qualified and productive individuals and assets could be otherwise employed, for example dealing with other pressing research needs.

The Research Council of Norway (Norges Forskningsråd), a Norwegian government agency, supports research aiming to “increase the economic output from capture fisheries in a sustainable manner.”<sup>42</sup> The council has supported several projects related to whaling, for example work on DNA profiling and statistical methods.

Between 1995 and 2001 MARRES (‘Marin Ressursforvaltning’, Marine Resource Management) was a research programme managed by the Research Council of Norway. For each year in this period the part of the programme called ‘Sea Mammals’ received the highest funds, in total amounting to NOK 36.6 million (USD 6.1 million), of which NOK 24 million (USD 4 million), or NOK 4 million per year (USD 0.67 million per year) were allocated to the minke whale counting programme. The whale counting programme is described in the final report of the programme as important for “opening up for international acceptance for Norwegian whaling”. Several of the research projects, and particularly the counting programme, were carried out by the Institute of Marine Research.<sup>43</sup>

In the last five years, the Research Council of Norway reports having funded five whale-related projects. Two of them relate to threatened bowhead whales and are not connected to the whaling industry.<sup>44</sup> The remaining three are:<sup>45</sup>

- Nr. 169046: “Relative population estimates and simulation calculations for North Atlantic minke whale.”<sup>46</sup> NOK 1.3 million (USD 0.22m) from 2005-2008, to the Norwegian Computing Centre (Norsk Regnesentral); this is approximately NOK 1.47 million (USD 0.24m) in 2010 prices. The money comes straight from the Ministry of Fisheries and appears in the state budget. This project was aimed at estimating the effect of sea mammals on fisheries, as further commented on in chapter 6 of this report.
- Nr. 178712, “Individual based statistical methods for DNA-profiles with application to management of marine resources”.<sup>47</sup> University of Bergen, 2007-2010. The total value is NOK 2.75 million (USD 0.46 million), approximately equivalent to NOK 2.89 million (USD 0.48m) in 2010 prices.
- Nr. 111043, “Counting programme for estimating the abundance of minke whale in the North Atlantic”, Institute of Marine Research (IMR, Havforskningsinstituttet) (Nils Øen), 1996-2015.<sup>48</sup> This programme receives NOK 4 million (USD 0.67 million) per year, given straight from the Ministry of Fisheries to this project, channelled through the Research Council (for the first years, this was part of the MARRES funding noted above). This means that it appears on the state budget post to the Research Council and not the post to the IMR.

Whaling-related research is also carried out by the Institute of Marine Research (IMR) with funds from its own budget. The IMR has a staff of over 500 and annual government funding in the region of NOK 600 million (USD 100 million).<sup>49</sup> In addition, the Ministry spends approximately NOK 180 million (USD 30 million) per year on research vessels managed by IMR.<sup>50</sup>

It is very difficult to determine what part of this corresponds to whaling research, but certain costs are known. The annual cost of whale counting is approximately NOK 8 million (USD 1.3 million)<sup>51</sup>. This is composed of the NOK 4 million (USD 0.67 million) channelled through the Research Council of Norway (as noted above), and an additional NOK 4 million (USD 0.67 million) coming from the state budget of the Ministry of Fisheries and Coastal Affairs via the general funds paid to the IMR.<sup>52</sup> Approximately 1/6 of the total marine area is covered each year, and the methodology is based on minke whales: the whale count is primarily required for whale hunting and quota setting, although other species are also counted. The DNA-analysis cost mentioned earlier are also to be found in the budget of IMR, and estimated to be approximately NOK 1.5 million (USD 0.25m).<sup>53</sup>

The activity of IMR is divided into 12 programme areas, with different research groups and different headings in the state budget. The whale counting and DNA-register is the responsibility of the Marine mammals research group of IMR, which also conducts research “to develop methodology for, and to routinely update, the basis for provision of advice regarding the management of seals and whales [...], concentrating on species that are harvested or that are important links in marine ecosystem.”<sup>54</sup> This research section employs 18 researchers and receives a total of NOK 30 million (USD 5 million) yearly, including the above sums.<sup>55</sup> There are also whaling components in other research programmes, though it is difficult to determine exactly what parts of the Havforskningssinstituttet budget relate to whaling. One programme closely connected with the whaling industry is “Forskingsprogram økosystem og bestandsdynamikk” (Research on ecosystem and population dynamics) that received a total of NOK 314 million (USD 52.3 million) for the years 2007-2009.<sup>56</sup> Other programmes include several with the title “Forskings- og rådgivningsprogram” (Research and Counselling Programme), for the Barents Sea, the Norwegian Sea, the North Sea, and the coastal zone: these are likely to have some whaling component or relevance, and together they received NOK 948 million (USD 158 million) for the years 2007-2009.<sup>57</sup> The activity of the Marine mammals research group at IMR is mainly directed towards giving advice to the authorities concerning the commercially hunted species, but also conservation-related work if these species are endangered (e.g. hooded seals).<sup>58</sup>

The total for these programmes is over NOK 1260 million (USD 210 million) for the three years cited, or NOK 420 million (USD 70 million) per year. It is not clear how much of this can be ascribed directly to the whaling industry, but even a small proportion would represent a substantial part of whaling revenues.

Both Innovation Norway and the FHF are also involved in funding whaling related research. In 2004, the Standing Committee on Business and Industry (Næringskomiteen) recommended that Innovation Norway and FHF be allocated

(presumably from public funds) NOK 3.2 million ( $\approx$ NOK 4.3m (USD 720,000) at 2010 prices) to set in place a series of projects designed to undertake research and development into the prospect of developing new products and marketing mechanisms for the sealing and whaling industries. The FHF's annual budget shows that there has been a consistent nominal sum of NOK 1 million per year dedicated to marine mammal-related programmes since 2004. In a description of the proposed budget for 2009 to 2011, this trend continues. Broadly speaking, this is about 5% of the value of whale meat landings.<sup>59</sup>

FHF-funded research projects for whale product development include,<sup>60</sup> for example, "Resource Management: Realising seal and whale blubber's commercial potential" (NOK 530,000 in 2005, equivalent to NOK 660,000 (USD 110,000) at 2010 prices) and "Increasing the value of whales as a primary product", mainly focused on whale meat and the Norwegian market, (NOK 185,000 in 2005, equivalent to NOK 230,500 (USD 38,400) at 2010 prices). In 2007/8, NOK 70,000 in 2007/8 (NOK 75,000 (USD 12,500) in 2010 prices) were given towards development of a project for testing whether whale blubber has any effect on skin diseases and whether it has a skin softening effect. In 2010, NOK 52,000 (USD 8,670) was given for "Analysing microbiological quality of whale meat", targeting the future export of whale meat to Japan, where problems have arisen due to high bacterial counts levels in the meat. The total budget of NOK 104,000 (USD 17,300) was completed by FHL (NOK 6,000 / USD 1,000), Norwegian Fishermen's Sales Organisation (NOK 32,000 / USD 5,300), Sunnmøre Fishermen's Association (NOK 800 / USD 133) and Norwegian Small-Type Whalers Association (NOK 6,000 / USD 1,000).<sup>61</sup>

Innovation Norway has also funded research into product development, for example via a NOK 1.4 million (NOK 1.57m (USD 262,000) in 2010 prices) grant to the National Institute for Nutrition and Seafood Research (NIFES) in 2007 for clinical trial of whale oils.<sup>62</sup>

NIFES itself is 40% state funded, receiving in the order of NOK 140 million (USD 23.3 million) per year, and thus additional government money goes into whaling related research through their own budget.<sup>63</sup> In particular, research has been carried out into the safety and toxin levels of sea mammal oils, and the potential health effects of marine mammal blubber and meat. The research on seal and whale oils especially will have impact for either product and can therefore be seen as a common research effort to benefit both the sealing and whaling industries. NIFES reports publishing 10 scientific articles and having 3 doctoral degrees performed on the issue of marine mammal oils and meat in the period 2006-2010. They suggest that some 100,000s of NOK (tens of thousands of USD) have been received for this in external funds, and that the money spent including working resources are considerably more, but are not able to give an estimated number of costs.<sup>64</sup>

Nofima is another research body receiving state funding for food research related to the fisheries sector, where the state owns over 50% of the shares.<sup>65</sup> Nofima was set up in 2008 and reports not to have been involved in research on marine mammal products, except for one study from June 2010 to December 2011 on the health benefits of whale oil.<sup>66</sup> This study has a budget of NOK 89,000 (USD 14,800)

but Nofima reports that more marine animal oil research will probably not be done in the future.<sup>67</sup>

**North Atlantic Marine Mammal Commission (NAMMCO):** NAMMCO was formed in 1992 by the Faroe Islands, Greenland, Iceland and Norway, to perform administrative obligations these countries felt that the IWC had failed to observe.<sup>68</sup> NAMMCO carries out research on marine mammals and their role in the ecosystem and develops management procedures for the animals they say are part of their marine resources.<sup>69</sup> Participation in NAMMCO is very closely linked to the continuation of whaling in Norway. The costs of Norwegian participation in NAMMCO have averaged NOK 2.1 million (USD 347,000) in 2010 prices, per year, from 2002-2010.<sup>70</sup>

**International Whaling Commission (IWC):** Norway invests significant resources on its participation in the IWC. The direct costs of participation at IWC meetings are not separately listed in the budgets for the Ministry of Fisheries, nor the Ministry of Foreign Affairs (MFA, Utenriksdepartement). But Norway's contributions to the IWC are listed in the IWC financial statements, and are in the order of NOK 600,000 (USD 100,000) per year.<sup>71</sup> This does not include the costs of civil service time and resources spent on preparation and attendance: NOK 32,700 (USD 5,450) was budgeted for the participation of one member from the Norwegian Fisherman's Association at IWC62 in 2010.<sup>72</sup> If this sum is taken as an estimate of the expenditure for a single IWC participant, then the ten Norwegian participants<sup>73</sup> would have cost approximately NOK 327,000 (USD 54,500). Norway's participation at the IWC is primarily aimed at promoting whaling and defending the Norwegian position, and so these sums can be considered as a form of support to whaling. If whaling in Norway no longer took place, the government may still choose to participate in the IWC, but these expenses would then not be linked to promotion of whaling activities, but rather to the conservation work the IWC performs. Norway already participates in such work to a certain extent and there is potential to participate even more.

**Public relations expenditures:** the Norwegian government has spent large amounts of money "to inform the outside world of Norwegian resource management, and in particular whaling and sealing".<sup>74</sup> From 1992 to 2010, over NOK 60 million (at 2010 prices; USD 10 million) was allocated to these activities,<sup>75</sup> (see Figure 5.1), an average of NOK 3.18 million (USD 530,000) per year. Spending in recent years has been rather lower but still substantial: the budget for 2011 is NOK 1.44 million (USD 233,000)<sup>76</sup>, and it should be noted that actual spending for the previous years has tended to exceed the budget.

These funds are listed in chapter 1050, post 79, "Information on marine resources" of the Ministry of Fisheries budgets. This budget post is intended "to promote increased knowledge, understanding and acceptance of sustainable management of living marine resources, including sea mammals."<sup>77</sup> The work described includes "to make scientific data and knowledge about Norwegian resource management available for authorities and the public", "to avoid boycotts and legislation against Norwegian marine resource management" and "cooperation with organisations that

share Norway’s view on sustainable use of natural resources”. In practice, this means that the funding is primarily aimed at “promoting understanding and acceptance for sealing and whaling,”<sup>78</sup> and in particular can be seen as a form of defensive advertising against possible impacts on tourism and trade resulting from ongoing Norwegian sealing and whaling. The 2009-10 budget specifically highlights the objective of creating a “counter-weight” to arguments from protection NGOs, and gives the EU ban on seal products as an example of resulting policies “based more on feelings than on scientific arguments”.

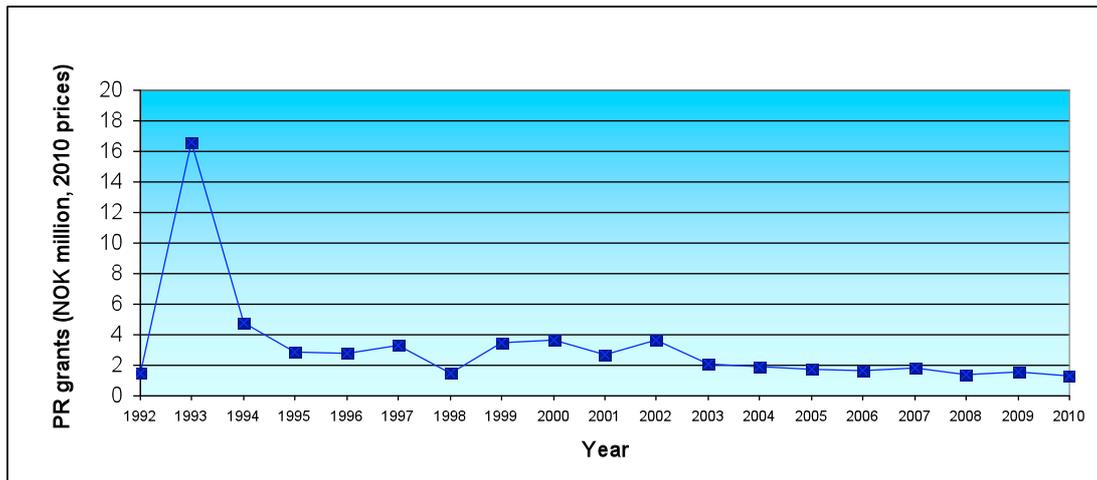


Figure 5.1: Government grants for work on promoting Norwegian resource management.<sup>xvii,79</sup>

The budget is used to fund third parties and to lobby support for the Norwegian position, for example, at a CITES meeting in 2000 to which Norway presented a proposal to remove minke whales from the list of species for which international trade is banned. Several lobbying organisations, both foreign and Norwegian (including the European Bureau of Conservation and Development, the International Wildlife Management Consortium, the African Resources Trust and the High North Alliance)<sup>80</sup> received funds to help lobby for the Norwegian position on whaling. Notably the High North Alliance was founded as an organisation to counteract the influence of animal welfare and environmental protection NGOs, and has been sustained mainly by state funding, as well as receiving additional funds for specific projects, for example writing a report on the influence and strategies of “protectionist NGOs” as a FHF project in 2006.<sup>81</sup> Recipients of funds in recent years include, for example, individual expert advisers (Egil Øen and Lars Walløe), the High North Alliance, European Bureau for Conservation and Development, the World Conservation Trust, the website [www.fisheries.no](http://www.fisheries.no), and the costs of sending Norwegian Fishermen's Association (Norges Fiskarlag) delegates to IWC and CITES meetings, and Norwegian participation in OECD (Organisation for Economic Co-operation and Development) and IUCN (International Union for Conservation of Nature) workshops.

<sup>xvii</sup> For comparison, USD 1 ≈ NOK 6; so NOK 2 million ≈ USD 0.33 million

Although most of the visible state funding of whaling related activities will come from the budget of the Ministry of Fisheries and Coastal Affairs, the Ministry of Foreign Affairs (MFA) has also been considerably involved in promoting Norwegian marine mammal policy. Public relations expenditures are therefore also drawn from this budget. The budget of MFA includes a yearly IWC-specific expense under chapter 116, post 70, which was NOK 589,000 (USD 98,000) in 2011, with the statement that “Norway will continue its efforts to get the Commission to function as the management body it is supposed to be”.<sup>82</sup> Another budget post which is likely to cover expenses related to marine mammal policy is chapter 115, “Culture, Promotion of Norway and Information” which includes the focus area “Norway’s reputation” and receives approximately NOK 100 million (USD 16.7 million) each year.<sup>83</sup> This will naturally cover a wide range of areas where Norway aims to “promote its political and economic interests” - marine mammal policy will only be a small part of this, but when international efforts have been made to promote sealing and whaling policies, MFA has traditionally been involved, and this remains the case today. Recently, when challenged by a Conservative Party (Høyre) representative to take action to increase the markets of seal and whale products, Minister of Foreign Affairs Jonas Gahr Støre stated “I already have taken the lead; because we meet conservation interests that have a pretty twisted view about what responsible harvesting of marine resources means. [...] But here we fight against big powerful consumer interests that manage to create a picture that a whale is a whale, so that opposition to Japanese whaling off the coasts of Japan affects exports of the good, healthy and important products that minke whale meat offers. This we must continue to work on and do something about.”<sup>84</sup> On request MFA have not been able to give an estimated amount of how much of their budget will actually be allocated to such activities as Støre refers to, but reports that their foreign offices will conduct information work towards specific target audiences.<sup>85</sup>

**Total value of direct supports:** taking only the known supports as detailed above, it is possible to derive an overall picture of the level of costs to Norwegian taxpayers: see Table 1. This table only covers figures that can be stated with reasonable confidence, and blanks do not mean the level of support was zero, but that it is not known. In some cases lump sums have been distributed evenly over several years.<sup>xviii</sup> Some of these categories also include an element that could be ascribed to the Norwegian sealing industry: this applies in particular to the Ministry of Fisheries information budget and to NAMMCO. However the several categories listed at the end of the table, for which total values are not known, will more than compensate for this. Therefore the numerical totals in the table are conservative estimates. The table shows that in 2010, the Norwegian whaling industry was supported by public expenditures totalling at least NOK 15 million (USD 2.5 million), and probably considerably more.

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<sup>xviii</sup> For example, if the data available state a known cost of NOK 1 million for a four-year project, this would be represented as NOK 250,000 for each year.

**Table 1: Known supports to the whaling industry (NOK million, in 2010 prices).<sup>86</sup>**

Category	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Min. Fish. info budget	3.49	3.66	2.73	3.62	2.07	1.90	1.75	1.67	1.79	1.41	1.55	1.28
NAMMCO				2.28	2.26	2.21	1.99	1.91	1.96	1.93	2.11	2.01
IWC				0.70	0.65	0.58	0.54	0.52	0.51	0.50	0.50	0.50
IMR whale counting			4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Res. council whale count	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Res. council projects							0.37	0.37	1.09	1.09	0.72	0.72
Innovation Norway									2.14			0.63
DNA testing			2.60	4.55	3.99	0.00	0.81	1.32	1.79	1.50	1.50	1.50
Inspection	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	0.06	0.06	0.06	0.06
Blue box			0.25	0.25	0.25	0.25	0.25		0.23	0.23	0.23	0.23
<b>Totals</b>	<b>14.99</b>	<b>15.16</b>	<b>21.08</b>	<b>26.90</b>	<b>24.72</b>	<b>20.45</b>	<b>21.20</b>	<b>21.29</b>	<b>17.57</b>	<b>14.72</b>	<b>14.68</b>	<b>14.93</b>

Other supports for which total values are not known include:

IMR whaling-related research, other than whale counting	NOK several million per year.
IWC attendance	Likely around NOK 0.3 million per year.
Innovation Norway supports for whale marketing and research	NOK 1-2.5 million per year, can be as much as 4-5 million.
Ministry of Foreign Affairs	Could be NOK several million per year.
Tax breaks and exemptions	Significant indirect supports, discussed in the next section of the report.
FHF research	Around 1 million per year for marine mammals: not all public funded, but a transfer from the fishing industry.
Norwegian Fishermen's Sales Organisation	Marketing expenditures that are not public money, but are a transfer from the fishing industry.

## 5.2 Tax exemptions that apply to whaling.

**Fuel tax exemptions:** The Norwegian fishing fleet is exempt from the basic tax on mineral fuel and also from the tax on carbon dioxide. The exemption operates via a reimbursement scheme that allows vessels that fish in Norwegian waters to apply for rebates in line with the national fixed fuel tax amount they paid when fuelling. Norway is not the only nation that supports fuel costs for its fishing fleet, but it has one of the highest fuel support rates in the world.<sup>87</sup> The rate for reimbursement

corresponds to the actual fuel tax: for 2009 the reimbursement was 144 øre (24 US¢) per litre, composed of a basic tax of 87 øre (14.5 US¢) plus carbon dioxide tax of 57 øre (9.5 US¢), and for 2010 this rose to 146.6 øre (24.4 US¢) per litre, from a basic tax of 88.6 øre (14.8 US¢) plus carbon dioxide tax of 58 øre (9.7 US¢).<sup>88</sup> The reimbursement is further supplemented by a 2.1% compensation for interest, although a claim for repayment can be made 12 times per year.<sup>89</sup>

In addition, instead of paying NOK 15/kg of NO<sub>x</sub> in the form of a tax, fishing firms pay NOK 4 into a fund, the "NO<sub>x</sub> Fund", which then allocates financial support to individual firms for emission reducing measures. Similar funds operate for other industries. The EFTA Surveillance Authority has reported that this is a "green subsidy" and may be implemented for a period of 3 years.<sup>90</sup>

**Fishermen's allowance:** Norwegian fishermen benefit from a special tax allowance, "fiskerfradraget" (the fishermen's allowance). Professional fishermen can deduct up to 30% of their income, up to a total amount of NOK 150,000. This maximum amount has been raised substantially over the last three years. The 2008 revised budget included an increase from NOK 80,000 to NOK 115,000 (an increase of 43.75%) while in 2009 the threshold was further increased to 150,000 (a further 30.4% rise).<sup>91</sup> The level of Fishermen's allowance for 2010 was proposed to be the same as in 2009.<sup>92</sup> The Norwegian Ministry of Finance has estimated that the total subsidy provided to the fishing industry by way of this measure amounted to NOK 284 million (USD 47.3 million) for the year 2009.<sup>93</sup>

**Tax exemption from employer's tax:** Boat owners benefit from a tax exemption on employer's tax. This is normally 14 % of the total gross salary of an employee, paid to the state. One form of salary to fishermen, called 'hyre', is exempt from this tax, and this also applies to whaling.<sup>94</sup> The employer's tax is instead said to be paid by a levy of 2.9 % on the products sold.<sup>95</sup>

### 5.3 Attitudes to supports.

While whaling in Norway has in the past benefited from substantial direct, whaling-specific support, many of these sources of funds are currently much reduced from their mid-1990s levels. In fact this may go some way towards explaining the observed reduction in the number of vessels taking part in the hunt (see section 3.3).

But although there are now few direct subsidies to whaling, there remain many other forms of support, as outlined above. The whaling industry has recently asked for direct support. Steinar Jonassen, the manager of Nordland Fylkes Fiskarlag, has asked the Minister of Fisheries and Coastal Affairs to grant money to the whaling industry for help with marketing, stating that "It is the industry alone that finances the marketing that exists today, but it is totally inadequate. Too little is done. There are not enough resources to market this in a proper manner".<sup>96</sup>

It is not strictly accurate to claim that the industry alone supports these costs, as highlighted above. In any case, Minister Lisbeth Berg-Hansen responds that the whaling industry should itself take care of the product and product development,<sup>97</sup>

although Jonassen has expressed fear that the industry may not survive without public support: “I fear that the industry will slowly but surely die out”.

The public view in Norway seems, by and large, to coincide with that of the Minister, though with a large level of indifference or uncertainty. Two statements were used in the Opinion AS (2010) survey to elicit attitudes towards economic aspects of whaling. The first (Figure 5.2) showed quite weak support for the idea that whaling is economically important for Norway.

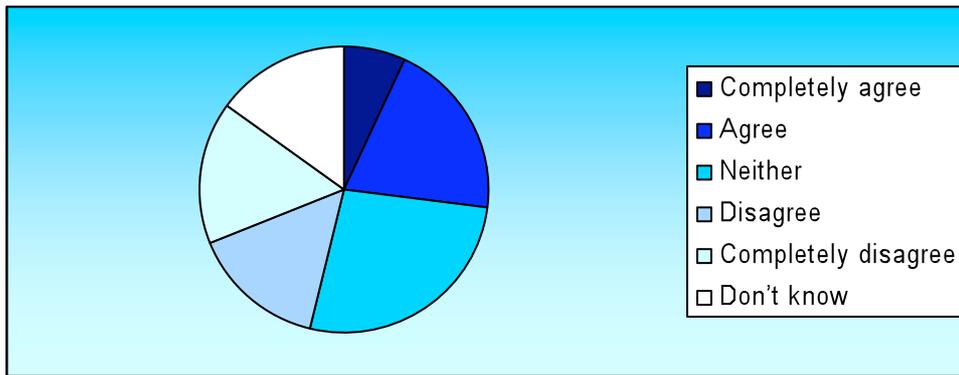


Figure 5.2: “Whaling is an economically important industry for Norway”<sup>98</sup>

More in North Norway than West Norway and East Norway (including Oslo) agree with this statement; in fact this probably reflects views about the local importance of whaling for specific communities, rather than any strong opinion about the national economic importance of whaling. As noted above, whaling represents only a tiny fraction of the value and employment of the fisheries sector.

In contrast, there was disagreement with the statement “Whaling should be subsidized by the government” (Figure 5.3). Only 19% support subsidies, while 41% think that whaling should not be subsidized; 28% neither agreed nor disagreed, while 12% responded ‘don’t know’. Again, people in North Norway are more likely to agree than others; and younger people are less likely to agree.

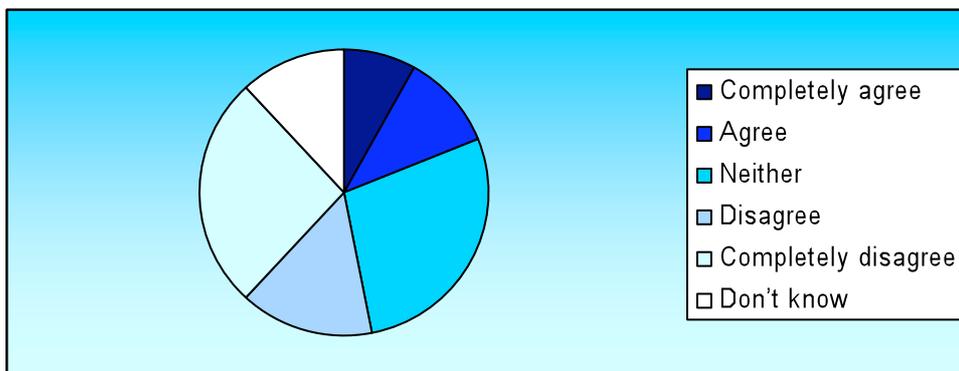


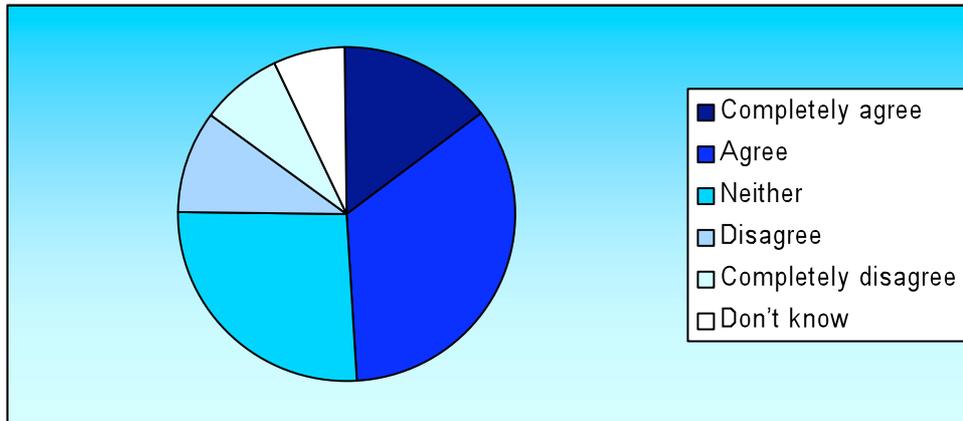
Figure 5.3: “Whaling should be subsidized by the government”<sup>99</sup>

**Summary:** *The Norwegian whaling industry benefits from a wide range of public sector supports. The most important ones include the costs of whale counting and quota setting, the DNA testing programme, the information /*

*public relations budget and the costs of participation in NAMMCO and the IWC. In recent years these supports have totalled approximately the same as the revenues for whaling, before costs. In addition, whalers benefit from fuel tax rebates and fishermen's tax allowance. There are also expenditures, in particular by the Norwegian Fishermen's Sales Organisation and the FHF, that are not public funds, but rather a transfer from fishing to whaling. Several efforts have been aimed at increasing profitability through developing new products and new markets - without success. Whereas the whaling industry has voiced requests for more direct subsidies, the support for this in the Norwegian public is low (19%). The overall conclusion from considering whaling revenues, costs and public supports is that ongoing whaling can be seen to cost Norway more than it brings in.*

**Box 2: Norwegian whaling and international politics**

Many in the Norwegian population recognise that whaling is a problematic issue for Norway on the international stage, with negative impacts on the reputation of the country in many parts of the world. Respondents were much more likely to agree or completely agree (49%) than to disagree or completely disagree (18%) with the statement “Whaling gives Norway a bad reputation” (Figure 5.4).



**Figure 5.4: “Whaling gives Norway a bad reputation”**

In the parliamentary debate for the White Paper 46, Minister of Fisheries and Coastal Affairs Lisbeth Berg-Hansen recognised that Norwegian marine mammal policy is subjected to some strong criticism from single countries. However the Minister stated at the same time that potential political cost to Norway from continuation of whaling were not taken into account by the government: “The government’s attitude on this is clear: As long as there is a scientific basis for sustainably harvesting a population, other political concerns shall not keep us from doing it.”

High North Alliance (2006) argues in their analysis “Risikoanalyse sel og hval” (FHF project no. 221034) that “the hunting nations themselves must make it visible that opposition may cause costs.” They argue in fact for political leverage to make other countries support whaling positions, suggesting that “costs can be imposed on opposition countries, for example in international arenas where seal and whale issues are negotiated, and seals and whales may be brought into other contexts where negotiations are made.” They give examples of the World Trade Organisation (WTO), fishery negotiations with other countries, IWC and CITES. The rationale is that “the influence of conservation organisations can be reduced by applying costs to opposition countries. Likewise we may see situations where the hunting nations give the opposition countries “income” if they reduce their opposition, and thus reduce the negative influence of the conservation organisations.” However, in recognition of the economic unimportance of whaling, they also add the strategic note “this must be done carefully and thoughtfully because economically, seals and whales are quite insignificant, and could therefore just as well end up being negotiated away.” In essence, the High North Alliance position is one that has at its heart the belief that whaling must be encouraged and protected, irrespective of costs. This attitude is echoed by the Minister of Fisheries and Coastal Affairs. If, however, one starts from a neutral perspective, it seems likely that the political costs to Norway, as well as the economic costs, may both be more significant than the possible gain from continuing whaling.

**Notes for “Public sector economic support to whaling.”**

- <sup>1</sup> See for example ‘Subsidies in Fisheries’, <http://www.fao.org/fishery/topic/13333/en> [Accessed 09/03/11], and publications listed there.
- <sup>2</sup> Economic and biological key figures from Norwegian fisheries, Department of Statistics, Directorate of Fisheries, 2010.
- <sup>3</sup> Parliamentary debate on the White Paper 46, 09/03/10.  
<http://www.stortinget.no/no/Saker-og-publikasjoner/Publikasjoner/Referater/Stortinget/2009-2010/100309/> [Accessed 09/03/11].
- <sup>4</sup> Ministry of Fisheries and Coastal Affairs, 2004. St.meld. nr. 27 (2003-2004), Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*)
- <sup>5</sup> Hermansen, O. and Flaaten, O. 2004. Government financial transfers to the fish harvesting, processing and aquaculture industries Norway 1990 - 2002, NORUT Samfunnsforskning AS Rapport nr SF 09 / 2004. p5.  
[http://www.norut.no/narvik\\_en/content/download/468503/1036187/version/4/file/SF09-2004.pdf](http://www.norut.no/narvik_en/content/download/468503/1036187/version/4/file/SF09-2004.pdf) [Accessed 30.03.11].
- <sup>6</sup> Norwegian Fishermen’s Sales Organisation Annual Report 2003 (*Årsberetning 2003*), p. 52
- <sup>7</sup> Norwegian contribution to the OECD Committee for Fisheries project Fisheries Subsidies and Sustainable Development, <http://www.oecd.org/dataoecd/5/45/35535218.pdf> [Accessed 05/05/09].
- <sup>8</sup> Senior researcher and geneticist Kevin Glover at the Marine Research Institute, quoted in “Kvalane flyttar på seg”, Bergens Tidende Magasin, 22/01/11
- <sup>9</sup> Ministry of Fisheries and Coastal Affairs, 2003. *St.prp. nr. 1 (2003-2004)* Introduction to programme area 16 Fisheries and Aquaculture Management, chap 1050 Various Fisheries
- <sup>10</sup> Ministry of Fisheries and Coastal Affairs, 2007. *St.prp. nr. 1 (2007-2008)* Introduction to programme area 16 Fisheries and Aquaculture Management, chap 1050 Various Fisheries, p 120
- <sup>11</sup> Ministry of Fisheries and Coastal Affairs, 2008. *St.prp. nr. 1 (2008-2009)* Introduction to programme area 16 Fisheries and Aquaculture Management, chap 1050 Various Fisheries, p.126
- <sup>12</sup> Ministry of Fisheries and Coastal Affairs, 2008. *St.prp. nr. 1 (2008-2009) and (2009-2010)*
- <sup>13</sup> Personal communication by email with Guri Hjallen Eriksen, Ministry of Fisheries and Coastal Affairs, 24/11/10.
- <sup>14</sup> Core Competence AB, 2006. Overview of whale blubber and whale oil (*Oversikt over hvalspekk og hvalolje*). FHF report.
- <sup>15</sup> Ministry of Fisheries and Coastal Affairs, 2004. St.meld. nr. 27 (2003-2004) 3.8.1 Products and National Trade, Norwegian Marine Policy (Produkter og nasjonal handel, *Norsk sjøpattedyrpolitikk*)
- <sup>16</sup> Toxic food for dogs (*Gir giftig mat til hunder*), NRK, 08/05/03;  
Useless whale blubber (*Ubrukelig hvalspekk*), NRK, 05/05/03.
- <sup>17</sup> Written parliamentary Question nr. 963, delivered 25.04.07 by MP Lodve Solholm, answered 02/05/07 by Minister of Fisheries and Coastal Affairs, Helga Pedersen in Dokument nr. 15:6 - 2006-2007, Spørsmål til skriftlig besvarelse med svar, [www.stortinget.no](http://www.stortinget.no).
- <sup>18</sup> Written parliamentary Question nr. 963, delivered 25.04.07 by MP Lodve Solholm, answered 02/05/07 by Minister of Fisheries and Coastal Affairs, Helga Pedersen in Dokument nr. 15:6 - 2006-2007, Spørsmål til skriftlig besvarelse med svar, [www.stortinget.no](http://www.stortinget.no).
- <sup>19</sup> Øen, Egil. 2005. *Electronic monitoring of minke whaling*. Fact sheet for the High North Alliance.
- <sup>20</sup> Marine Mammal Advisory Council. January 2009 Case 2/2009
- <sup>21</sup> Personal communication by email with Hild Ynnesdal, Directorate of Fisheries, 11/11/10.
- <sup>22</sup> From NOK 218,990,000 in salaries total budget, and 458 working years: Årsrapport 2009, Directorate of Fisheries.

- <sup>23</sup> Ministry of Fisheries and Coastal Affairs, 2007. Regulations on the use of trip recorders for electronic monitoring of whale hunting (*Forskrift om bruk av ferdskriver for elektronisk overvåking av fangst av hval*), 14/03/07, <http://www.fiskeridir.no/fiske-og-fangst/j-meldinger/gjeldende-j-meldinger/j-60-2007> [Accessed 18/02/11]
- <sup>24</sup> Nils Jørgen Nilsen on the whaling ship 'Nystrand', cited in <http://fiskeridir.no/fiske-og-fangst/aktuelt/2006/god-erfaring-med-elektronisk-inspektoer>. [Accessed 30.03.11].
- <sup>25</sup> Øen, Egil. 2005. *Electronic monitoring of minke whaling*. Fact sheet for the High North Alliance; and *Ressurs og havavdelingen 2000-2006*. Fisheries and Coastal Department Faktaark, p. 169.
- <sup>26</sup> J-60-2007Forskrift om bruk av ferdskriver for elektronisk overvåking av fangst av hval, para 10.
- <sup>27</sup> Marine Mammal Advisory Council. January 2009 Case 2/2009.
- <sup>28</sup> Personal communication by email with Hild Ynnesdal, Directorate of Fisheries, 11/11/10
- <sup>29</sup> Directorate of Fisheries, 2009. Årsrapport 2009. From NOK 218,990,000 in salaries total budget, and 458 working years.
- <sup>30</sup> Norwegian Fishermen's Sales Organisation. Annual Report (*Årsberetning*), op.cit.; Ostli, J. 2006. October value of whale as a raw materia (*Okt verdiskapning med kvalen som råstoff*), FHF rapport 2/2006, January 2006.
- <sup>31</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2006 (*Årsberetning 2006*), p.56 and p.59.
- <sup>32</sup> About FHF (*Om FHF*) [http://www.fiskerifond.no/index.php?current\\_page=about](http://www.fiskerifond.no/index.php?current_page=about) [Accessed 09/03/11].
- <sup>33</sup> Seafood Festival today in Oslo 2010: Profiling of whale meat (*Sjømatfestivalen/Kystens dag i Oslo 2010: Profilerings av hvalkjøtt*) [http://www.fiskerifond.no/index.php?current\\_page=prosjekter&subpage=&detail=1&id=1098&gid=4](http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=&detail=1&id=1098&gid=4) [Accessed 09/03/11].
- <sup>34</sup> New Projects (*Nye prosjekter*) [http://www.fiskerifond.no/index.php?current\\_page=prosjekter](http://www.fiskerifond.no/index.php?current_page=prosjekter) [Accessed 09/03/11].
- <sup>35</sup> New Projects (*Nye prosjekter*) [http://www.fiskerifond.no/index.php?current\\_page=prosjekter](http://www.fiskerifond.no/index.php?current_page=prosjekter) [Accessed 09/03/11].
- <sup>36</sup> Support to sell whale meat (*Vil ha støtte til å selge hvalkjøtt*), <http://nrk.no/nyheter/distrikt/nordland/1.7070050> [Accessed 09/03/11]. Whaling does not get a penny (*Hvalfangstnæringa får ikke ei krone*), <http://www.nrk.no/nyheter/distrikt/nordland/1.7070252>, [Accessed 09/03/11].
- <sup>37</sup> Personal communication by email with Emil B Jensen, Innovation Norway, Department of Agriculture and Marine (*avd. landbruk og marin*), 20/09/10.
- <sup>38</sup> State Budget 2011, letter of assignment Innovation Norway (*Statsbudsjettet 2011, oppdragsbrev Innovasjon Norge*), Ministry of Fisheries and Coastal Affairs, <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed 22/12/10].
- <sup>39</sup> Personal communication by phone with Emil B Jessen, Innovation Norway, 28/02/11.
- <sup>40</sup> Protocol for meeting, Municipality Board (*Komunestyremøte*) 03/03/05, Lødingen Kommune; Protocol for meeting, Presidency Meeting (*Formannskapsmøte*) 03/03/05, Lødingen Kommune.
- <sup>41</sup> Arctic menu (*Arktisk Meny*) <http://www.arktiskmeny.no> [Accessed 09/03/11].
- <sup>42</sup> Norwegian contribution to the OECD Committee for Fisheries project Fisheries Subsidies and Sustainable Development, <http://www.oecd.org/dataoecd/5/45/35535218.pdf> [Accessed 05/05/09]; see <http://www.forskningssradet.no> for a list of whaling-related research projects [Accessed 09/03/11].
- <sup>43</sup> Norwegian Fishermen's Sales Organisation, Annual Report 2003 (*Årsberetning 2003*), p.52.
- <sup>44</sup> Final Report: Marine Resource (*Sluttrapport Marin Ressursforvaltning*), Programstyret, Norwegian Research Council, 2000.
- <sup>45</sup> Personal communication by email with Marius Omland, Research Council of Norway, 25/01/11.
- <sup>45</sup> Amounts of money from personal communication by phone with Nina Hedlund, Research Council of Norway, 31/01/11

- <sup>46</sup> Relative population estimates and simulation calculations for northeast Atlantic minke whales (*Relative bestandsestimater og simuleringberegninger for nordøstatlantisk vågehval*) Project no. 169046, Research Council of Norway, <http://www.forskningsradet.no/servlet/Satellite?c=Prosjekt&cid=1193731605392&pagenam e=ForskningsradetNorsk/Hovedsidemal&p=1181730334233> [Accessed 31/01/11]
- <sup>47</sup> Project no. 178712, Research Council of Norway, not available online.
- <sup>48</sup> Counting programme for calculating the abundance of minke whales in the northeast Atlantic Ocean (*Telleprogram for beregning av tallrikhet av vågehval i det nordøstlige Atlanterhavet*), Project no. 111043, Research Council of Norway, <http://www.forskningsradet.no/servlet/Satellite?c=Prosjekt&cid=1193731511307&lang=no& pagenam e=ForskningsradetNorsk%2FHovedsidemal> [Accessed 31/01/11]
- <sup>49</sup> Chapter 1020 in the Ministry of Fisheries budgets.
- <sup>50</sup> Chapter 1021 in the Ministry of Fisheries budgets; converted to 2010 prices.
- <sup>51</sup> Personal communication by email with Tore Haug, Insititute of Marine Research, 28/10/10 and 09/03/11
- <sup>52</sup> Personal communication by email with Tore Haug, Insititute of Marine Research, 28/10/10 and 09/03/11
- <sup>53</sup> Personal communication by email with Tore Haug, Insititute of Marine Research, 28/10/10 and 09/03/11
- <sup>54</sup> Institute of Marine Research (*Havforskningsinstituttet*), <http://www.imr.no/forskning/faggrupper/sjopattedyr/en> [Accessed 31/01/11].
- <sup>55</sup> Personal communication by email with Tore Haug, Insititute of Marine Research , 28.10.10 and 09.03.11.
- <sup>56</sup> Proposition to the parliament (*Proposisjon til Stortinget (forslag til stortingsvedtak)*) [http://www.statsbudsjettet.no/upload/Statsbudsjett\\_2011/dokumenter/pdf/fkd/fkd.pdf](http://www.statsbudsjettet.no/upload/Statsbudsjett_2011/dokumenter/pdf/fkd/fkd.pdf), at 2010 prices. [Accessed 30.03.11].
- <sup>57</sup> Proposition to the parliament (*Proposisjon til Stortinget (forslag til stortingsvedtak)*) [http://www.statsbudsjettet.no/upload/Statsbudsjett\\_2011/dokumenter/pdf/fkd/fkd.pdf](http://www.statsbudsjettet.no/upload/Statsbudsjett_2011/dokumenter/pdf/fkd/fkd.pdf), at 2010 prices. [Accessed 30.03.11].
- <sup>58</sup> Personal communication by email with Tore Haug, Insititute of Marine Research, 28/10/10 and 09/03/11
- <sup>59</sup> Although FHF funding derives from a levy on exports, there are negligible exports of whale products so this can be considered a subsidy to whaling.
- <sup>60</sup> Project details from FHF project data base at [http://www.fiskerifond.no/index.php?current\\_page=prosjekter](http://www.fiskerifond.no/index.php?current_page=prosjekter) on dates 04/04/09-16/04/09.
- <sup>61</sup> Analysis of the microbiological quality of whale meat (*Analyse av mikrobiologisk kvalitet i hvalkjøtt*) [http://www.fiskerifond.no/index.php?current\\_page=prosjekter&subpage=&detail=1&id=1081&gid=4](http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=&detail=1&id=1081&gid=4) [Accessed 05/11/10].
- <sup>62</sup> Personal communication by email with Emil B Jensen, Innovasjon Norge, Department of Agriculture and Marine (*avd. landbruk og marin*), 20/09/10
- <sup>63</sup> Accounts from 2009, National institute of Nutrition and Seafood Research (*Regnskapstall fra 2009, Nasjonalt institutt for ernærings- og sjømatforskning*), [http://www.nifes.no/index.php?page\\_id=302&article\\_id=3284](http://www.nifes.no/index.php?page_id=302&article_id=3284); State Budget 2011, Award letter to the National Institute of Nutrition and Seafood Research (*Statsbudsjettet 2011, tildelingsbrev til Nasjonalt institutt for ernærings- og sjømatforskning*), Ministry of Fisheries and Coastal Affairs [Accessed 21/12/10]
- <sup>64</sup> Personal communication by email Livar Frøyland, NIFES, 10/03/11, 13/03/11 and 18/03/11.
- <sup>65</sup> Nofima Shareholding Information page <http://www.nofima.no/en/about-nofima/shareholding> [Accessed 28/02/11].
- <sup>66</sup> Personal communication by email with Wilhelm Andreas Solheim, Nofima, 28/02/11; <http://www.nofima.no/marin/prosjekt/helseeffekter-ved-kaldpresset-hvalolje> [Accessed 09/03/11].

- <sup>67</sup> Personal communication by phone with Bente Johansen, economy consultant, Nofima, 10/03/11.
- <sup>68</sup> Norwegian Ministry of Fisheries and Coastal Affairs, 2008. Norwegian whaling - based on a balanced ecosystem.
- <sup>69</sup> NAMMCO 1992. AGREEMENT on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic, <http://www.nammco.no/webcronize/images/Nammco/659.pdf> [Accessed 09/03/11].
- <sup>70</sup> Ministry of Fisheries and Coastal Affairs, 2002. Bill to Parliament for the budget year 2002/2003, Ch. 1001, item70, participation in international organizations (*Proposisjon til Stortinget for budsjettåret 2002/2003, Kap. 1001, post 70, Deltagelse i internasjonale organisasjoner*); and similar budget documents for years up to 2009/2010
- <sup>71</sup> IWC Financial Statements <http://iwcoffice.org/documents/commission/IWC58docs/58-5.pdf> and <http://iwcoffice.org/documents/commission/IWC62docs/62-5rev.pdf> [Accessed 30.03.11].
- <sup>72</sup> Personal communication by email with Guri Hjallen Eriksen, Advisor for the Marine Resources and Coastal Division, Department of Fisheries and Coastal Affairs, 24/11/10.
- <sup>73</sup> IWC/62/3 DRAFT, Delegates and Observers Attending the 62nd Annual Meeting REVISED DRAFT (as of 10.00am 24 June 2010).
- <sup>74</sup> Ministry of Fisheries and Coastal Affairs, St. meld. nr.27 (2003-2004), Norwegian marine mammal policy (*Norsk sjøpattedyrpolitikk*), chapter 7.1.2
- <sup>75</sup> St. meld. nr.27 (2003-2004), op.cit.;
- Ministry of Fisheries and Coastal Affairs, Introduction to programme area 16 Fisheries and Aquaculture Management (*Innledning til programområde 16 Fiskeri-, havbruks- og kystforvaltning*), St.prp. nr. 1 (2006-2007);
- Parliamentary Question from MP Jan Simonsen and answer from Minister of Fisheries Svein Ludvigsen, 01/12/2004, <http://www.stortinget.no/no/Saker-og-publikasjoner/Publikasjoner/Referater/Stortinget/2004-2005/041201/ordinarsporretime/8/> [Accessed 30.03.11]; Ministry of Fisheries and Coastal Affairs, St.prp. nr. 1 (2007-2008) and St.prp. nr. 1 (2008-2009) Kap. 1050 Diverse Fiskerformål.
- <sup>76</sup> Personal communication by email with Guri Hjallen Eriksen, Ministry of Fisheries and Coastal Affairs, 24/11/10
- <sup>77</sup> Ministry of Fisheries and Coastal Affairs, 2008. St.prp. nr. 1 (2008-2009) and (2009-2010).
- <sup>78</sup> Personal communication by email with Guri Hjallen Eriksen, Ministry of Fisheries and Coastal Affairs, 16/03/10 and 25/03/10.
- <sup>79</sup> Ministry of Fisheries and Coastal Affairs, 2007. *St.prp. nr. 1 (2007-2008)* Introduction to programme area 16 Fisheries and Aquaculture Management, chap 1050 Various Fisheries, pg 79.
- <sup>80</sup> Ellingsen, P. 2000. Millions spent on whaling bribes (*Brukte millioner til hval-smoring*). *Dagbladet*, 24/05/00.
- <sup>81</sup> Frøvik and Jusnes, 2006. Risk analysis seal and whale (*Risikoanalyse sel og hval*), FHF project no. 221034, Høge Nord Alliansen.
- <sup>82</sup> Ministry of Foreign Affairs. Prop. 1S (2010-2011) Proposition to the Parliament for fiscal year 2011 (*Proposisjon til Stortinget for budsjettåret 2011*), chapter 116, post 70.
- <sup>83</sup> Ministry of Foreign Affairs. Prop. 1S (2010-2011) Proposition to the Parliament for fiscal year 2011 (*Proposisjon til Stortinget for budsjettåret 2011*), chapter 115.
- <sup>84</sup> Animal rights have a twisted image of whaling (*Dyrevernere har et forskrudd bilde av hvalfangsten*), NRK, 05/10/10, <http://www.nrk.no/nyheter/1.7322105> [Accessed 30.03.11].
- <sup>85</sup> Personal communication by email with Einar Tallaksen, MFA, 01/03/11.
- <sup>86</sup> References for each line in the table can be found within section 5.1 of this report, in the detail under each heading of support type.
- <sup>87</sup> Album, G. 2008. Skimming the cream: Norway fuel tax subsidies. *Samudra*, August 2008.
- <sup>88</sup> Announcements (*Kunngjøringer*) - Garantikassen for Fiskere <http://www.garantikassen.no/no/kunngjoringer/> [Accessed 11/12/10].
- <sup>89</sup> *ibid.*

<sup>90</sup> EFTA Surveillance Authority Decision of 16 July 2008.

<http://www.nho.no/getfile.php/filer%20og%20vedlegg/ESAs%20vedtak%282%29.pdf>

[Accessed 30.03.11].

<sup>91</sup> Tax scheme 2009 - Amendments: 14 - Increasing fishing allowance and relax the 130-day rule (*Skatte- og avgiftsopplegget 2009 - lovendringer: 14 - Øke fiskerfradraget og lempe på 130-dagersregelen*) <http://www.regjeringen.no/nb/dep/fin/dok/regpubl/otprp/2008-2009/otprp-nr-1-2008-2009-/14.html?id=529127> [Accessed 30.03.11].

<sup>92</sup> Prop. 1 S (2009-2010) Proposition to the Parliament for fiscal year 2010, Tax and tariff decisions (*Proposisjon til Stortinget (forslag til stortingsvedtak), for budsjettåret 2010, Skatte-, avgifts- og tollvedtak*), Ministry of Finance

<sup>93</sup> Tax scheme 2009 - Amendments: 14 - Increasing fishing allowance and relax the 130-day rule (*Skatte- og avgiftsopplegget 2009 - lovendringer: 14 - Øke fiskerfradraget og lempe på 130-dagersregelen*) <http://www.regjeringen.no/nb/dep/fin/dok/regpubl/otprp/2008-2009/otprp-nr-1-2008-2009-/14.html?id=529127> [Accessed 30.03.11].

<sup>94</sup> Employer - tax liability and the basis (*Arbeidsgiveravgift - avgiftsplikt og grunnlag*), 7.6 Fishing and hunting (*Fiske og fangst*) Tax Administration

(*Skatteetaten*), <http://www.skatteetaten.no/no/Bibliotek/Publikasjoner/Handboker/Lignings-ABC1/Kapitler/A/?mainchapter=142785#x142785> [Accessed 30.03.11].

<sup>95</sup> Ministry of Finance. Proposals for parliamentary resolution on product fee to the national insurance scheme for the fisheries, whaling, seal hunting industry for 2011. (*Forslag til stortingsvedtak om produktavgift til folketrygden for fiskeri-, hval- og selfangstnæringen for 2011*), <http://www.statsbudsjettet.no/Statsbudsjettet-2011/Dokumenter/html/Prop-1-LS/48450/> [Accessed 30.03.11].

<sup>96</sup> Haarvik, K and Pettersen, BM. 2010. Want support to sell whale meat (*Vil ha støtte til å selge hvalkjøtt*), NRK, <http://nrk.no/nyheter/distrikt/nordland/1.7070050> [Accessed 30.03.11]; Høyem, A. and Pettersen, BM. 2010. Whaling does not get a penny (*Hvalfangstnæringa får ikke ei krone*), NRK,

<http://www.nrk.no/nyheter/distrikt/nordland/1.7070252> [Accessed 30.03.11].

<sup>97</sup> Karlsen, Torbjørn O. 2010. Do not get money (*Får ikke penger*), Banett,

<http://www.banett.no/article348142.ece> [Accessed 30.03.11].

<sup>98</sup> Opinion AS 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo, June 2010.

<sup>99</sup> Opinion AS 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo, June 2010.

## 6. Whaling and fisheries interactions.

*This chapter examines the evidence behind one common argument put forward in favour of whaling: that ‘whales eat our fish’. This proposition is used to argue the case for whaling as a cull to protect fish stocks. This argument has, however, been described by some of the world’s leading fishery scientists as a simplistic conception of marine food webs that does not bear closer scrutiny.*

Essentially, the ‘whales eat our fish’ argument suggests that, since whales consume fish, reducing whale populations should result in higher fish populations, and therefore more profitable fisheries. Norwegian fishing is a major industry, with a total income of NOK 5,500 million (USD 920m)<sup>xix</sup> in 2009; so if it were the case that whaling reduces pressure on Norwegian fish stocks, the economic value of this could be significant. This argument is, however, oversimplified.

For Norway, the proponents of whaling have argued that minke whales are unusually abundant due to a reduction in competition for krill stocks from the exploitation of larger whale species in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Some argue further that the abundance of minke whales results in direct competition with humans for marine food resources, meaning reduced fish stocks and harvests, and also holds back the recovery of the larger whale species such as the blue whale.<sup>1</sup>

Other studies show that there is no evidence that marine mammals pose any competition to fisheries or that reducing the number of marine mammals will increase the amount of food available to humans.<sup>2</sup> Some studies even suggest that as whales are an integral part of the marine ecosystem, removing them would negatively affect the number of fish available to commercial fisheries.<sup>xx</sup>

One of the world’s leading fishery scientists, Professor Daniel Pauly, Director of the Fisheries Center at the University of British Columbia, has carried out years of research into the decline of fish stocks under the Sea Around Us project.<sup>3</sup> He and colleagues have highlighted that:<sup>4</sup>

- Much of the food eaten by whales is not directly consumed by humans (notably deep sea squid and krill, though krill is used for feed in fish farms);
- The locations where whales and humans catch fish only overlap to a small degree; and
- The ‘whales eat our fish’ argument is based on a simplistic conception of marine food webs that does not bear closer scrutiny.

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<sup>xix</sup> Nominal values have been converted to 2010 prices.

<sup>xx</sup> This is modelled in tropical marine ecosystems by Gerber et al., 2009. No studies could be found on this in the north Atlantic, supporting the point or not, however the mechanisms by which it could happen can be seen from the bullet points on the next page.

The arguments lead to the general conclusion that whales are not a significant reason for diminished global fish stocks. However, these arguments do not all apply with full weight to the case of minke whales around Norway. Studies in the Barents and Norwegian Seas have shown that the diet of minke whales is variable over space and time, with krill the main prey in northern areas, and herring or capelin taken elsewhere, though predation depends on abundance, with fish such as cod taken when herring and capelin are scarce.<sup>5</sup>

So in Norway minke whales do consume some fish that humans target, in waters where humans catch fish. But the third line of argument above still holds. Swartz and Pauly (2008) expand on this, noting the historical record: the further back in time one goes, the higher the fish biomass *and* the higher the number of marine mammals.<sup>6</sup> This indicates that large mammal populations are compatible with high fish biomasses. Fish stocks are now depleted because of over fishing, not predation by whales.

Even where competition for fish is likely, the simple surplus-yield model behind the ‘whales eat our fish’ argument is oversimplified. In particular, the concept of ‘beneficial predation’ notes that there is intense competition among predators.<sup>7</sup> In marine ecosystems, there are usually many competing predators, including large squids and seabirds, and also other fish, including some cannibalism where adult fish feed on the young of the same species. There are two main aspects to this argument:

- The main predators of marine fish are other fish, not marine mammals.<sup>8</sup> Therefore any possible ‘gain’ in the population of prey species from reduction in one predatory species (e.g. minke whales) is likely to be eaten by other marine predators, rather than caught in fisheries.
- Secondly, whales consume many prey species, so they are also feeding on the competitors and some other predators of their prey. In such situations the removal of top predators such as minke whales may not lead to an increase in the biomass of prey species, but rather a decline due to the intensification of predation from other predators now less controlled by the top predator. Reduced beneficial predation has been proposed as one reason for a stagnation in global demersal fish landings since the 1970s.<sup>9</sup>

Schwarz and Pauly (2008) conclude that, in the absence of sufficiently detailed and calibrated models of marine ecosystems, gross estimates of the total amount of fish consumed by whales give no information about any net gain in fish catches that might result from reducing whale numbers.<sup>10</sup>

This is important, because the ‘whales eat our fish’ argument is often used to support whaling. It forms the backbone of a recent Icelandic study which argued that increases in populations of fish arising due to whaling would allow extra quotas for the fishing industry of 2,200 tonnes of cod, 4,900 tonnes of haddock and 13,800 tonnes of capelin.<sup>11</sup> These figures have been widely disputed, for example by Hilmar Malmquist, curator of the Natural History Museum of Kopavogur, who argues that “The report is badly written and lacks scientific credibility. It is highly

pro-whaling and biased towards interests in the fishing and whaling sector.”<sup>12</sup> In particular, the fisheries assumptions rely on the type of simplistic model discussed above.

For the Norwegian case, the White Paper no. 27 from the Ministry of Fisheries and Coastal Affairs sets out theories on the possible extra fish that could be taken in addition to what is taken today if there were fewer whales and seals.<sup>13</sup> Aldrin and Schweder (2005) assess these mathematical models used to predict the fisheries consequences of whaling, and conclude that the majority of prediction models used were “unrealistic compared to historical data” and could not give reliable results.<sup>14</sup> Corkeron (2008) reviews this and other evidence, concluding that “the best available scientific evidence provides no justification for marine mammal culls as a primary component of an ecosystem-based approach to managing the fisheries of the Barents Sea.”<sup>15</sup>

In any case, White Paper 27 also admits that today’s hunting level is assumed not to have a considerable “population managing effect,”<sup>xxi</sup> and admits that this means that “the economic viability in other fisheries will not be changed significantly as a consequence of stopping the hunts.”<sup>16</sup>

***Summary: Some proponents of whaling claim that as whales consume fish, reducing whale populations through hunting should result in larger fish populations and more profitable fisheries. This argument has, however, been described by some the world’s leading fishery scientists as a simplistic conception of marine food webs that does not bear closer scrutiny. Furthermore, current Norwegian whaling levels are not thought to be significantly reducing minke whale populations. Overall, although there is certainly scope for further research in this area, there is no firm basis for a conclusion that whale populations at current levels damage fishing interests, and no scientific justification for considering whaling as a means of ‘culling’ a pest species.***

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<sup>xxi</sup> .That is, it does not significantly reduce the population of minke whales.

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**Notes for “Whaling and fisheries interactions.”**

<sup>1</sup> Institute of Cetacean Research, 2006. Why whale research? <http://www.icrwhale.org/04-B-jen.pdf> [Accessed 09/03/2011]

<sup>2</sup> Kaschner, K. & Pauly, D. 2004. Competition between marine mammals and fisheries: food for thought. Washington, D.C.: The Humane Society of the United States;  
Young, J.W. 2000. Do large whales have an impact on commercial fishing in the South Pacific Ocean? *Journal of International Wildlife Law & Policy*, 3(3): 253-275;  
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<sup>3</sup> Sea Around Us Project <http://www.seaaroundus.org/> [Accessed 09/03/11].

<sup>4</sup> Kaschner, K. & Pauly, D. 2004. Competition between marine mammals and fisheries: food for thought. Washington, D.C.: The Humane Society of the United States

<sup>5</sup> Lindstrøm, U., Haug, T., and Røttingen, I. 2002. Predation on herring, *Clupea harengus*, by minke whales, *Balaenoptera acutorostrata*, in the Barents Sea. *ICES Journal of Marine Science*, 59: 58-70;

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<sup>6</sup> Swartz, W. & Pauly, D. 2008 Who's Eating all the fish? The Food Security Rationale for Culling Cetaceans, Report to Humane Society International.

<sup>7</sup> Yodzis, P. 2001. Must top predators be culled for the sake of fisheries? *Trends in Ecology & Evolution* 16(2): 78-84.

<sup>8</sup> Trites, A.W., Christensen, V. & Pauly, D. 1997. Competition between fisheries and marine mammals for prey and primary production in the Pacific Ocean, *Journal of North West Atlantic Fishery Science*, 22:173-187;

Corkeron, P. 2008. Iceland, whaling and ecosystem-based fishery management, WDCS.

<sup>9</sup> Caddy, J.F. & Rodhouse, P.G. 1998. Cephalopod and groundfish landings: evidence for ecological change in global fisheries? *Reviews in Fish Biology and Fisheries* 8: 431-444

<sup>10</sup> Swartz, W. & Pauly, D. 2008. Who's Eating all the fish? The Food Security Rationale for Culling Cetaceans, Report to Humane Society International.

<sup>11</sup> Hagfræðistofnun Háskóla Íslands, 2010. Macroeconomic effects of whaling, Report (*Þjóðhagsleg áhrif hvalveiða*, Skýrsla) nr. C10:02.

<sup>12</sup> Veal, Lowana, 16-4-2010. Whaling profitable but bad for Iceland's image, Inter Press Services News Agency.

<sup>13</sup> Ministry of Fisheries and Coastal Affairs, 2004. White Paper 27 / St.meld. nr. 27 (2003-2004), Norwegian Marine policy (*Norsk sjøpattedyrpolitikk*). <http://www.regjeringen.no/nb/dep/fkd/dok/regpubl/stmeld/20032004/Stmeld-nr-27-2003-2004-/5.html?id=404117>.

<sup>14</sup> Aldrin, M. & Schweder, T. 2005. Scenario C - Final (*Scenario C-sluttrapport*). Unpublished report, Norsk Regnesentral. p12. <http://publications.nr.no/SAMBA1305.pdf>

<sup>15</sup> Corkeron, P. 2008. Marine mammals' influence on ecosystem processes affecting fisheries in the Barents Sea is trivial *Biol. Lett.* 5(2):204-206

<sup>16</sup> Ministry of Fisheries and Coastal Affairs, 2004. White Paper 27 / St.meld. nr. 27 (2003-2004), Norwegian Marine Policy (*Norsk sjøpattedyrpolitikk*), Chapter 4. Alternative models of management (*Kap. 4 Alternative modeller for forvaltning*).

<http://www.regjeringen.no/nb/dep/fkd/dok/regpubl/stmeld/20032004/stmeld-nr-27-2003-2004-/4.html?id=404106> [Accessed 28/03/11]

## 7. Whale watching in Norway.

*This chapter briefly examines the whale watching industry in Norway, noting the economic benefits and future prospects for the industry, and commenting on interactions between whale watching and whaling.*

### 7.1 Overview of whale watching in Norway.

Whale watching tours in Norway are located in the north-west of Norway. The two main whale watching companies are located in Andenes and Stø. Smaller operators, that do whale watching mainly as a sideline activity, are located in Tysfjord, Narvik, Svolvær and, slightly further north in Tromsø.<sup>1</sup>

Tours target a number of different species and offer different ways for tourists to watch whales. Generally, tours are via boat and consist of round trips lasting approximately four to five hours from coastal ports, although some operators offer longer trips over a period of a few days that include fishing, nature and cultural cruises.<sup>2</sup> Arctic Whale Tours and Hvalsafari (Whale Safaris) are the largest operations engaging primarily in whale safaris off the coast of Vesterålen during the summer, watching minke whales, sperm whales, humpbacks, pilot whales and other species.

The smaller operators organise killer whale (orca) safaris which are generally late Autumn/ early Winter. For these companies, whale watching is one among many activities, including bird watching, seal watching, general boat trips and fishing trips. The relative levels of different activities in any particular year can vary, depending on whale locations and sightings.

### 7.2 Whale watching benefits to Norway.

The two largest whale watching companies are Hvalsafari and Arctic Whale Tours. Research for this report found that for Arctic Whale Tours the number of tourists taking whale watching tours has been rising steadily, from 2,750 in 2006 to 3,890 in 2009. Most tourists are German or Dutch (about 50%) with less than 10% from Norway. The price for an adult ticket is NOK 795, or about USD 132.<sup>3</sup> Turnover in 2008 was NOK 1.94 million (equivalent to NOK 1.98m (USD 0.33m) in 2010 prices).<sup>4</sup>

Hvalsafari is a bigger operation, with turnover of NOK 11 million in 2008 (equivalent to NOK 11.22m (USD 1.87m) in 2010 prices).<sup>5</sup> Prices in 2011 are NOK 830 (USD 138) for adults and NOK 530 (USD 88) for children over 5, and include a whale watching trip, refreshments on the boat, museum tour, visit to the HisNaKul centre and visitor certificate.<sup>6</sup> There is also a shop, restaurant, bar and camp site. The number of tourists varies: 16,000 in 2009, 13,500 in 2010, which is about average.<sup>7</sup>

Considering only these two larger companies that focus on trips to watch the larger whales, approximately 17,500 tourists at around NOK 700 (USD 117) per ticket represents NOK 12.3 million (USD 2.0m) per year, which can be compared with NOK 20.5 million (USD 3.4m) for whale meat landings in 2009. Figure 7.1 shows the

comparison of landing values of whale meat and turnover for only the two main whale watching companies, in 2010 equivalent prices. The whaling values show a strong downward trend, while the whale watching values are steady.

These calculations and the graph do not take into account the revenues of the other whale watching operations focusing on orcas. Furthermore, the direct expenditure on whale watching trips represents only part of the total benefit: the majority of whale watchers will also spend on overnight stays, meals and transport, bringing significant additional benefits to local economies, and to the national economy, since most whale watchers travel to Norway from overseas. Some of this is represented in the figures, since some of the Hvalsafari turnover is from shop, restaurant, and camping, and the ticket price covers the museum entrance. A report by Economists at Large suggests that in 2008 indirect expenditures were around 1.5 times larger than direct expenditures.<sup>8</sup> Similarly, the calculations do not take into account the value added in the whale meat supply chain beyond the initial landing value. And they do not cover the costs of the different operations.

So this is only a primary indicator of direct revenue, not an assessment of total net value to the Norwegian economy, but in simple direct turnover terms, whale watching in Norway is approximately two-thirds the size of whaling.

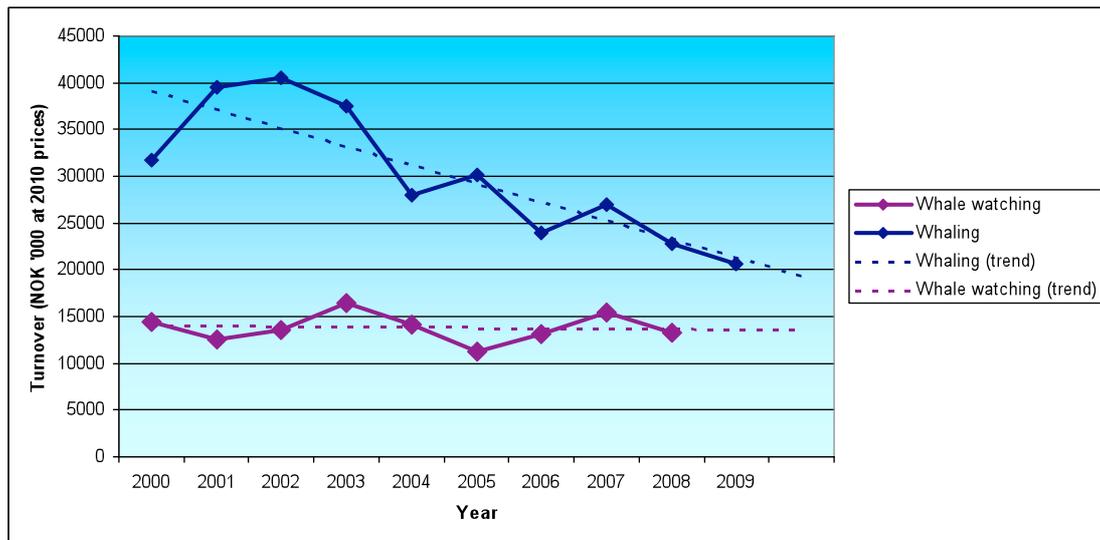


Figure 7.1: Comparison of revenues from whaling and from the two main whale watching companies.<sup>xxii</sup>

The number of whale watchers worldwide has grown rapidly, from 4 million in 1991 to 5.4 million in 1994 , 9 million in 1998 and 13 million in 2008.<sup>9</sup> A recent analysis suggests that further growth in global whale watching is possible, with the industry having the potential to provide USD 2.5 billion in annual revenue, and support about 19,000 jobs around the world.<sup>10</sup> The results are broken down by region not by country, so it is not possible to derive specific figures for Norway, but there is

<sup>xxii</sup> For comparison, USD 1 ≈ NOK 6; so NOK 20 million ≈ USD 3.3 million; NOK 15 million ≈ USD 2.5 million.

general support for the idea that whale watching is a growing market in which Norway could take an important part.

There have been some government supports available to whale watching activities. Innovation Norway gave NOK 800,000 (approximately NOK 900,000 (USD 150,000) in 2010 prices) towards the purchase of a boat by Hvalsafari in 2007.<sup>11</sup> Arctic Whale Tours received NOK 60,000 towards buying a boat from a county fund (BYKS - Bø and Øksnes kommune). But in general, the whale watching industry does not benefit from the wide range of government support given to the whaling industry, as discussed in section 5 above.<sup>12</sup>

### 7.3 Whale watching expectations.

In the survey commissioned for this report, rather few respondents had actually taken part in whale watching - 6% had gone once, 1% more than once.<sup>13</sup> However, most (53%) expressed the intention to go in future. Only 29% said they would not, with another 18% saying that they were not sure. Older respondents were most likely to give a negative response. Overall the results suggest high potential demand for whale watching from the domestic sector.

A range of reasons for planning to go whale watching were given, with most (79%) stressing the wildlife watching angle, while 40% cited enjoyment of boats trips, seaside and outdoor activities generally (Figure 7.2).

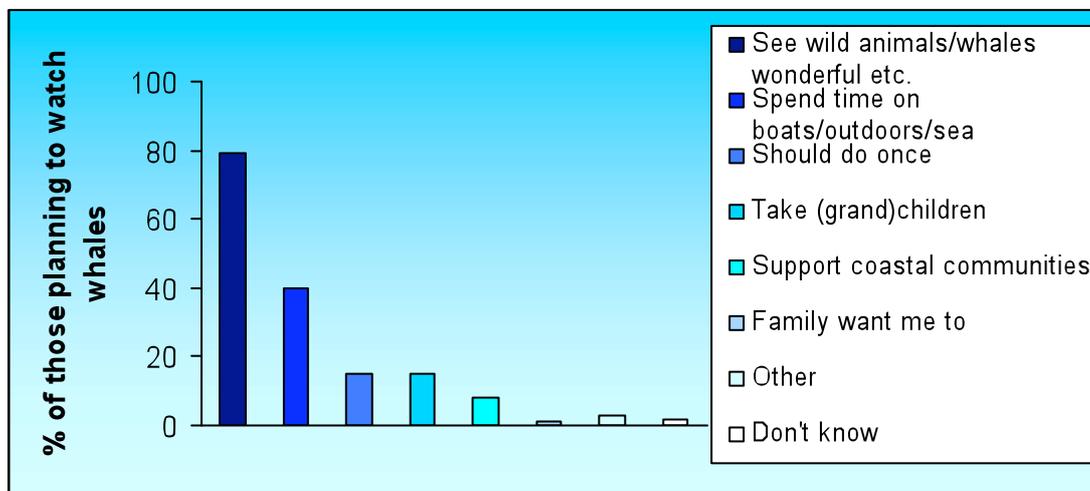


Figure 7.2: Reasons for intending to go whale watching<sup>14</sup>

Reasons for not planning to go whale watching were dominated by lack of interest (65%) and having “better things to do with my time” (18%). Expense (9%) and distance (6%) were also cited, while 8% noted the risk that they might witness a hunt.

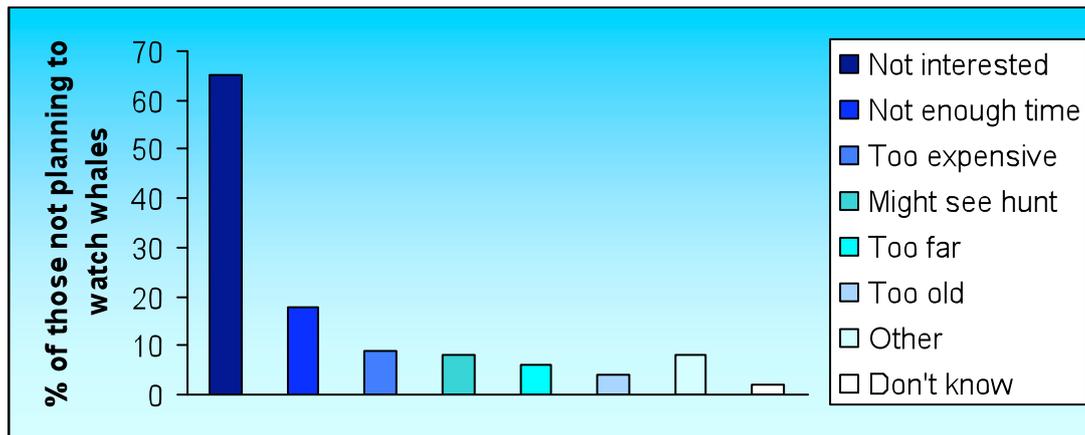


Figure 7.3: Reasons for not intending to go whale watching<sup>15</sup>

#### 7.4 Whaling and whale watching interactions.

Supporters of whaling claim that there is no direct conflict between whaling and whale watching, in part because the majority of species involved in whale watching are not hunted. Nevertheless, although the most obvious potential conflict between the two industries is direct reduction of the minke whale population available for watching, there are other important factors to consider. These include impacts of hunting on the behaviour of whales, through selectively killing whales most likely to approach or tolerate boats, through surviving whales learning to avoid boats, or simply through temporarily scaring whales away from an area. There may also be impacts arising through the behaviour and preferences of whale watchers and tourists, if the risk of witnessing a hunt, or simply knowing that whales are hunted in Norway, leads whale watchers or tourists to avoid certain areas, or to prefer whale watching in other countries.

Minke whales are fast swimmers and can easily avoid whaling boats. In the hunt a stealthy and calm approach (usually no faster than 2-5 knots) is used to get close to the whale, moving slowly towards the position where hunters expect the whale will surface to take its next breath. Minke whales are often shot when they approach the boat.<sup>16</sup> But the whale watching industry is also dependent on whales that are inquisitive, or at least do not shy away from boats.

More research is needed in this area, but it seems that the whaling method used in Norway would be likely to target selectively whales that are comfortable with approaching boats. Over time, this could result in a reduction in the willingness of whales to stay near boats, through the direct hunting of the most inquisitive animals, and through any learning by inquisitive whales that witness hunts. There is some evidence for this interaction from the Icelandic Whale Watch Association, which reported in 2007 that the number of minke whales being spotted by their vessels in whale watch areas had dropped significantly since whaling resumed in 2003.<sup>17</sup>

Less obviously, but no less importantly, whale hunting could significantly impact on the willingness of whale watchers to visit a particular country or location. There is

no direct evidence of this for Norway, but evidence from the Dominican Republic supports the hypothesis that the stance of a particular country towards whaling significantly influences that country's appeal to whale watchers.<sup>18</sup> In another survey, more than 91% of whale watching tourists surveyed in Scotland stated that they would not go whale watching in a country that hunted whales commercially.<sup>19</sup>

There have also been well-publicised cases, from both Norway and Japan, of direct tourism-whaling conflict where whales have been shot in front of whale watching boats.<sup>xxiii,20</sup> The risk of this event may well influence some potential whale watchers to select alternative areas. In the survey commissioned for this research, of the 29% of respondents who stated no intention to participate in whale watching in future, 8% cited "might see a hunt" as a reason for not wanting to go whale watching. This result pertains to the Norwegian population, and one might expect that international tourists, from countries where whaling has not been considered acceptable for many years, and motivated to travel to watch whales and other wildlife, would be more concerned about this possibility. The potential importance of this impact can be gauged from the report on the Norwegian incident, which notes "Around 80 tourists had paid to go out on a whale watching boat from Andenes".<sup>21</sup> At an average price of NOK 700 (USD 117) per tourist (see section 7.2) the revenue from this trip would be approximately NOK 56,000 (USD 9,300). In comparison, the revenue from shooting a single whale is approximately NOK 42,000 (USD 7,000), before costs.

To date, the evidence on interactions between whaling and whale watching is largely conjectural and anecdotal, and researchers have highlighted a pressing need for further research in this area.<sup>22</sup> At present, these two similarly-sized industries co-exist in Norway, and further research is needed to assess the full extent of interactions between them, and in particular to determine whether or not the existence of whaling in Norway results in a significant brake to expansion of the whale watching industry.

***Summary: Research on the global whale watching market shows rapid growth over the past decades, and some future growth potential. Data on whale watching in Norway are not readily available, but revenues from the two main whale watching companies have held stable in real terms throughout the past decade, at around NOK 15 million (USD 2.5 million). Although the percentage of Norwegians who have been whale watching is low, the potential interest in this activity seems to be promising. From other countries there is some evidence of conflict between the industries of whaling and whale watching. In Norway these industries co-exist. Further research is needed to explore these interactions and determine whether or not whaling acts to slow the growth of the Norwegian whale watching industry.***

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<sup>xxiii</sup> "Eager Norwegian whalers didn't do much to boost the image of their country's tourism industry this week, when they gunned down a whale before the eyes of tourists out on a whale-watching expedition." For reference, see endnote.

**Notes for “Whale watching in Norway.”**

<sup>1</sup> O’Connor, S., Campbell, R., Cortez, H., & Knowles, T. 2009. Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits. Report for the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

<sup>2</sup> *Ibid.*

<sup>3</sup> Personal communication by phone with Marten Biel, Arctic Whale Tours, on 07/06/2010.

<sup>4</sup> From their accounts, published in 2010, Annual Reports for Fiscal Year 2008 (*Årsregnskap for regnskapsåret 2008*).

<sup>5</sup> From their accounts, published in 2010, Annual Reports for Fiscal Year 2008 (*Årsregnskap for regnskapsåret 2008*).

<sup>6</sup> Hvalsafari - Prices and departures (*Priser og avganger*)

<http://www.whalesafari.no/default-page.asp?main=3> [Accessed 08/03/11].

<sup>7</sup> Personal communication by phone with Hvalsafari on 02/12/2010.

<sup>8</sup> O’Connor, S., Campbell, R., Cortez, H., & Knowles, T. 2009. Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits. Report for the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

<sup>9</sup> Hoyt, E. 2001. Whale Watching 2001: Worldwide Tourism Numbers, Expenditures, and Expanding Socioeconomic Benefits, International Fund for Animal Welfare, Yarmouth Port, MA, USA, pp158;

O’Connor, S., Campbell, R., Cortez, H., & Knowles, T. 2009. Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits. Report for the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

<sup>10</sup> Cisneros-Montemayor, A.M., Sumaila, U.R., Kaschner, K., & Pauly, D. 2010. The global potential for whale watching. *Marine Policy*, 34, 1273-1278.

<sup>11</sup> Personal communication by phone with Marten Biel, Arctic Whale Tours, on 07/06/2010

<sup>12</sup> Personal communication by phone with Orca Tysfjord on 03/12/2010.

<sup>13</sup> Opinion AS, 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen.*) Oslo, June 2010.

<sup>14</sup> *ibid.*

<sup>15</sup> *ibid*

<sup>16</sup> Knudsen, S. K. 2004. Assessment of insensibility and death in hunted whales. Whale Killing Methods and Associated Welfare Issues Workshop, IWC58.

<sup>17</sup> Fewer minke whales in whale watch areas. Iceland Review. 02/09/2007.

<sup>18</sup> Parsons, E.C.M. & Draheim, M. 2009. A reason not to support whaling - a tourism impact case study from the Dominican Republic. *Current Issues in Tourism*, 12 (4): 397-403.

Available from <http://www.informaworld.com/smpp/content-db=all-content=a912420360> [Accessed 08/03/11]

<sup>19</sup> Parsons, E.C.M. and Rawles, C. 2003. The Resumption of Whaling by Iceland and the Potential Negative Impact in the Icelandic Whale-watching Market. *Current Issues in Tourism* 6(5):444-448.

<https://www.amherst.edu/media/view/107611/original/Parsons%2Band%2BRawles.pdf> [Accessed 08.03.11]

<sup>20</sup> Berglund, N. Whale shot in front of tourists, *Aftenposten*, 04/07/2006

<http://www.aftenposten.no/english/local/article1376980.ece> [Accessed 08/03/11];

see also <http://www.aftenposten.no/nyheter/iriks/article1376901.ece> [Accessed 08/03/11].

Anon, “Whale-Watching Tourists Watch In Horror As Whaling Ship Harpoons & Kills Whale”, *Japan Probe*, 25/08/2007. <http://www.japanprobe.com/2007/08/25/whale-watching-tourists-watch-in-horror-as-whaling-ship-harpoons-kills-whale/> [Accessed 08/03/11].

<sup>21</sup> Berglund, N. Whale shot in front of tourists, *Aftenposten*, 04/07/2006

<http://www.aftenposten.no/english/local/article1376980.ece> [Accessed 08/03/11];

see also <http://www.aftenposten.no/nyheter/iriks/article1376901.ece> [Accessed 08/03/11].

<sup>22</sup> Higham, J.E.S. and Lusseau, D. 2007. Urgent Need for Empirical Research into Whaling and Whale Watching. *Conservation Biology* 21(2):554-558.

## 8. Conclusions.

The above analysis presents a picture of a whaling industry in serious decline. The reasons for this are primarily economic. Most fundamentally, demand for the product is low, and achievable prices for whale meat are limited by the easy availability of alternative meats. The costs of whaling are too high, compared to achievable prices. There is now relatively little in the way of *direct* financial support to individual whalers, although there are important supports in the form of tax rebates and exemptions. Whalers are not able to sell enough product at high enough prices to make much profit: alternative activities (notably fishing) are more attractive, so fewer boats are participating in the hunt, and catches in recent years have been well below quota levels.

There is still a large range of public sector expenditures for whaling-related purposes. Figure 8.1 presents the totals for known supports under the following categories: whale counting expenditures, the costs of the DNA register, costs of inspection and of the development of the Blue Box, costs of blubber disposal, contributions to NAMMCO and the IWC, and some whale related expenditures by the Norwegian Research Council and Innovation Norway. Figures are presented for 1999-2009, the years for which adequate data are available, but even so the support figures are not complete. And there are other supports not included here - in particular, the various tax breaks outlined in section 5.2, for which the rates are known but not the total amounts.

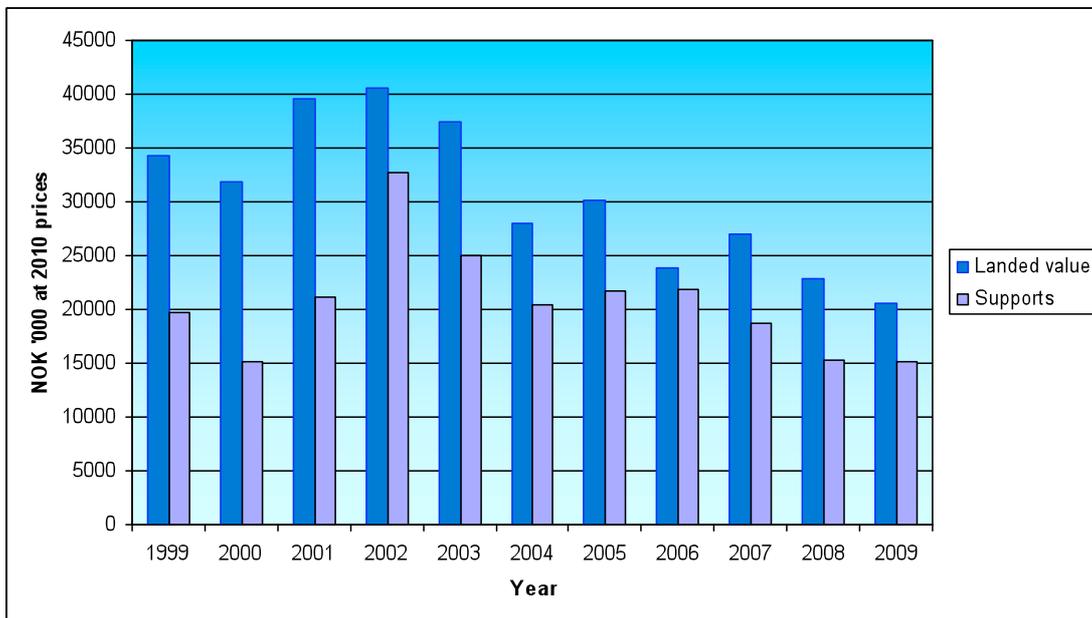


Figure 8.1: Comparison of whale landings values (before costs) and known supports to whaling, 1999-2009.<sup>1</sup>

On the same graph, the landed values of whale meat are shown for comparison. Note that these are gross landed values, before any deduction for the costs of whaling. It is clear that the known supports alone account for a large proportion of the total before-costs landings values for whale meat. Factoring in the costs of

whaling, and the additional supports and tax breaks that are not included in these calculations, it is clear that the net economic impact for Norway must be negative.

The decline of the Norwegian whaling industry is widely recognised, and the High North Alliance (2006) sets out a 34-point list of steps aiming to revitalise both the whaling and sealing industries.<sup>2</sup> They recognise the fundamental importance of the economic arguments, noting that “Sealing and whaling were economically viable enterprises. They were based on commercial principles and created economic value. The profitability was determined by supply and demand,” but that “The industries grew economically non-viable”. They state “What is important is economic viability. This must be the basis for which our course of action is chosen. We must always think supply and demand.”<sup>3</sup>

But demand is weak, and few people eat whale meat on a regular basis. The survey carried out for this report presents an overall picture of occasional or novelty consumption rather than demand as a staple food. Younger people are least likely to say they will eat whale in future, and there is the implication that demand will fall even further as the current population ages.<sup>4</sup>

By contrast, there seems to be good growth potential in the whale watching industry, with over half the population stating an intention to engage in this activity in future. Growth from international tourists may also be expected, though there are no firm figures on projections for Norway.

Economically, the total economic impacts from these tourists should be comfortably greater than the value of whaling: the *direct* revenues from whale watching are already around two-thirds of the level of revenues from whaling, and the *indirect* expenditures on food, accommodation and transport will be worth substantially more. The low profitability in whaling and the whale meat supply chain suggests that even a relatively modest negative impact on whale-related tourism - from fear of seeing a hunt, or from the general negative impact on Norway’s international image - would make continued whaling an even bigger economic loss maker for Norway.

The Opinion AS (2010) survey overall shows that while Norwegians generally support the idea that whaling has some traditional aspects, there is also recognition that it has negative impacts on Norway’s reputation. There is concern about the animal welfare implications of hunting whales. The tension between these opposing views does not translate directly to a strong view that whaling should be stopped, although a sizeable minority do hold this view, with many others neutral on the question.

Without support, the whaling industry is unlikely to be profitable and would further decline. But for the majority of the Norwegian population, this may not necessarily be seen as a problem. Certainly, the traditional role of whaling is acknowledged; but the negative aspects of whaling - animal welfare and damage to international image - are also widely recognised. However there is a strong view that whaling should not be supported with public funds. There are clearly strongly pro-whaling and strongly anti-whaling groups in Norwegian society, but it seems

there is also a large group who consider that, while whaling should not be banned, neither should it be supported by tax payers' money.

There is a clear age dynamic that sees younger groups, especially under 30s, more likely to support broadly 'anti-whaling' arguments, and less likely to support 'pro-whaling' arguments. If these people maintain similar views as they age, this would imply that the balance will turn firmly towards 'anti-whaling' by the middle of the 21<sup>st</sup> century.

Taking all factors of the analysis into account, this report supports the observations - from within the Norwegian whaling industry - that "whale hunting is in a downward spiral,"<sup>5</sup> that the 2010 season was "the worst season ever"<sup>6</sup> and that "there is no doubt that the Norwegian whale hunting industry is struggling".<sup>7</sup> Whaling represents an economic loss for Norway, and the Norwegian public does not support the use of public funds to support this declining industry.

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**Notes for the Conclusions.**

<sup>1</sup> For sources of data, see section 4.2 for the landings values, and section 5.1 for the direct support.

<sup>2</sup> Frøvik, R. and Jusnes, L. 2006. Risk analysis seal and whale (*Risikoanalyse sel og hval*) Høge Nord Alliansen, FHF project no. 221034. Available from [http://www.fiskerifond.no/files/projects/attach/risikoanalyse\\_final.doc](http://www.fiskerifond.no/files/projects/attach/risikoanalyse_final.doc) [Accessed 08/03/2011]

<sup>3</sup> *ibid.*, p48.

<sup>4</sup> Opinion AS, 2010. Attitudes to whaling: omnibus conducted for Dyrebeskyttelsen (*Holdninger til hvalfangst, Omnibus gjennomført for Dyrebeskyttelsen*). Oslo, June 2010.

<sup>5</sup> Ulf Ellingsen, chairman of Ellingsen Seafood, cited in “Whale industry in decline” *FiskeribladetFiskaren* 13/03/2008, <http://fiskeribladetfiskaren.no/?side=101&lesmer=6574>, [Accessed 08/03/11]

<sup>6</sup> Sales consultant Per Rolandsen at Norwegian Fishermen’s Sales Organisation, *Nordlys*, 10/09/10

<sup>7</sup> Lise Mangseth, Norwegian Fishermen’s Sales Association marketing director for fish and leader of the Marketing Advisory Board for whale meat, *FiskeribladerFiskaren*, 07/04/08.

## **Annex: Overview of bodies receiving and giving funding to whaling related activities**

### **Ministry of Fisheries and Coastal Affairs (Fiskeri- og kystdepartementet)**

The Ministry of Fisheries and Coastal Affairs has responsibility for the fisheries and aquaculture industries, seafood safety and fish health and welfare, harbours, and infrastructures for sea transport and emergency preparedness for pollution incidents.<sup>1</sup> Most public sector support to whaling has been allocated over the budget of this ministry, both indirectly through research bodies, funds and organisations, and directly to projects.

### **Ministry of Foreign Affairs (Utenriksdepartementet)**

The Ministry of Foreign Affairs has responsibility for Norway's trade policy. This ministry has allocated funds and financed efforts towards encouraging trade in marine mammal products, and Ministers of Foreign Affairs have been actively promoting both whaling and sealing. Some public sector support to whaling may therefore also be allocated over this budget. However, whereas recent funding of sealing activities is documented,<sup>2</sup> it has not been possible to obtain an exact figure of any recent funding to promotion of whaling from this ministry.

### **Directorate of Fisheries (Fiskeridirektoratet)**

The Directorate of Fisheries is the management and control agency under the Ministry of Fisheries and Coastal Affairs. Their vision is stated as to "promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment".<sup>3</sup> The directorate is financed with state funding over chapter 1030. In 2011 the total amount of state funding is 346 820 000 NOK.<sup>4</sup> The whaling related costs on the directorates budget covers random inspection, Blue Box analysis costs - costs such as participation from representatives from the directorate (i.e. IWC and NAMMCO should also be expected to be covered over this budget). In addition the directorate is delegated the responsibility to allocate the funding given over chapters 1023 (post 50 and 72), 1050 and 1001 to other bodies.

### **Institute of Marine Research (IMR) (Havforskningsinstituttet)**

The Institute of Marine Research is Norway's largest centre of marine science. The Institute formulates its task as "to provide advice to Norwegian authorities on aquaculture and the ecosystems of the Barents Sea, the Norwegian Sea, the North Sea and the Norwegian coastal zone". The Institute also states that "about 50% of our activities are financed by the Ministry of Fisheries and Coastal Affairs".<sup>5</sup> These funds are allocated over chapter 1020 and 1021. In 2011 the total amount of state funding for general funds over chapter 1020 is 605 700 000 NOK.<sup>6</sup> The whaling related costs used from the budget of IMR consist of whale counting, DNA-register-costs and research projects under the Marine mammals research group. The objective of the Marine mammals research group is "to continue to develop

methodology for, and to routinely update, the basis for provision of advice regarding the management of seals and whales (...), concentrating on species that are harvested or that are important links in marine ecosystem."<sup>7</sup>

#### **The National Institute of Nutrition and Seafood Research (NIFES) (Nasjonalt institutt for ernærings- og sjømatforskning)**

NIFES is a "research institute with administrative duties, linked to the Ministry of Fisheries and Coastal affairs. The institute gives scientific advice to the government and food authorities concerning health and safety aspects of seafood from both wild catch and farmed".<sup>8</sup> NIFES receives state funding over chapter 1022; in 2011 NIFES received NOK 142,200,000.<sup>9</sup> The Ministry of Fisheries and Coastal Affairs allocates 40% of NIFES funds.<sup>10</sup> Whaling related research has included research on health effects of marine mammal oils.

#### **The Research Council of Norway (Norges Forskningsråd)**

The Research Council is Norway's official body for the development and implementation of national research strategy. The Council is responsible for "enhancing Norway's knowledge base and for promoting basic and applied research and innovation in order to help meet research needs within society".<sup>11</sup> The Research Council receives state funding over chapter 1023, post 50; it received NOK 338,060,000 in 2011.<sup>12</sup> The Research Council is funding projects related to whaling by allocating funds to research institutions already receiving state funding from the Ministry of Fisheries and Coastal Affairs, as well as to institutions which do not receive any other funding.

#### **Innovation Norway (Innovasjon Norge)**

Innovation Norway is a state owned company which "promotes nationwide industrial development profitable to both the business economy and Norway's national economy, and helps release the potential of different districts and regions by contributing towards innovation, internationalisation and promotion".<sup>13</sup> Innovation Norway receives state funding over chapter 2415. In 2010 Innovation Norway received NOK 1,479,881,000, including NOK 75,000,000 to "Marint Verdiskapingsprogram" (Program for creating marine values).<sup>14</sup> In 2011 this amount was reduced to a total of 40,000,000 to "Marint Verdiskapingsprogram". Innovation Norway has allocated funds related to whaling both to private enterprises and to research bodies; whaling is specifically mentioned in "Marint Verdiskapingsprogram".<sup>15</sup>

#### **Nofima**

Nofima is a "business oriented research group working in research and development for the aquaculture, fisheries and food industry in Norway. Nofima, in cooperation with business actors and their professional organisations, provides research and solutions at an international level which will give a competitive edge throughout the value chain".<sup>16</sup> The Ministry of Fisheries and Coastal Affairs owns 56.8% of Nofima,<sup>17</sup> and the group receives state funding over chapter 1023, post 72 of 70;

Nofima received NOK 760,000 in 2011.<sup>18</sup> Nofima reports not to have been involved in research activities related to marine mammal products.

#### **The Fishery and Aquaculture Industry Research Fund (FHF) (Fiskeri- og havbruksnæringsens Forskningsfond)**

The Fishery and Aquaculture Industry Research Fund is an official management body under the Ministry of Fisheries and Coastal Affairs. It is a funding scheme for industrial research and development work within fisheries and aquaculture, and is based on a levy of 0.3% on all exported fish and fish products. The funds are used for industrial R&D work for the benefit of all or part of the industry, and are distributed in the form of grants for research programmes and private projects. The Fishery and Aquaculture Industry Research Fund reports to the Norwegian Ministry of Fisheries and Coastal Affairs through annual reports.<sup>19</sup> The Fishery and Aquaculture Industry Research Fund is seen as the main body responsible for promoting innovation in marine mammal products.<sup>20</sup>

#### **High North Alliance (Høge Nord Alliansen)**

The High North Alliance was set up in 1990 to "defend fishermen and whale and seal hunters rights".<sup>21</sup> The initiators behind the organisation were different Northern municipals and the Small-Type Whalers Association in Nordland.<sup>22</sup> The organisations activities have been mainly concentrated on the promotion of whaling, but also sealing.<sup>23</sup> The High North Alliance has been mostly sustained by state funding, over chapter 1050, post 79 in the Ministry of Fisheries and Coastal Affairs budget.<sup>24</sup> No further funding has been given to the Alliance since 2009 and it has ceased its activities.<sup>25</sup>

#### **The Fishing Vessel Owners Union (Fiskebåtrederes Forbund)**

The Fishing Vessel Owners Union is an interest and employer organisation for the fishing fleet.<sup>26</sup> The Union has been involved in the promotion of whaling through membership of the High North Alliance.<sup>27</sup>

#### **Norwegian Fishermen's Association (Norges Fiskarlag)**

The Norwegian Fishermen's Association is an interest organisation for Norwegian fishermen. A quarter of the delegates present at the annual meeting are from The Fishing Vessel Owners Union.<sup>28</sup> The Association promotes whaling, and has on occasions received funds to participate in the IWC delegation.<sup>29</sup>

#### **The Norwegian Fishermen's Sales Organisation (Norges Råfisklag)**

The Norwegian Fishermen's Sales Organisation "aims at safeguarding fishermen's incomes and contributing to a sustainable and profitable growth in the Norwegian fishing industry". The Organisation is owned by the fishermen through the county organisations of The Norwegian Fishermen's Association in The Norwegian Fishermen's Sales Organisation's district, The Norwegian Seamen's Union, The Fishing Vessel Owners Union, and The Norwegian Coastal Fishermen's Association.<sup>30</sup> The Norwegian Fishermen's Sales Organisation organises the sales of most of the

whale meat landed in Norway. Occasionally, the organisation funds projects on the promotion of whale products.<sup>31</sup>

**Marketing Council for Whale (Markedsrådet for Hval)**

The Marketing Council promotes the sales of whale meat, and is financed through a mandatory marketing levy.<sup>32</sup>

**Norwegian Small-Type Whalers Association (Norges Småkvalfangerlag)**

The Norwegian Small-Type Whalers Association is the whalers interest organisation; the association also funds whaling related research and promotion projects undertaken by other parties.<sup>33</sup>

## Notes for the Annex.

- <sup>1</sup> Introduction page of The Ministry of Fisheries and Coastal Affairs. <http://www.regjeringen.no/en/dep/fkd.html> [Accessed 28/03/11]
- <sup>2</sup> Letter of received funding to Rieber Skinn AS from the Ministry of Foreign Affairs, in email from Harald Sandhåland, Ministry of Foreign Affairs, 04/03/09
- <sup>3</sup> Directorate of Fisheries, Vision, goal and role. <http://www.fiskeridir.no/english/about-the-directorate/vision-goal-and-role> [Accessed 28/03/11]
- <sup>4</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, award letter to Directorate of Fisheries (*Statsbudsjettet 2011, tildelingsbrev til Fiskeridirektoratet*), 22/12/10 <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed 28/03/11]
- <sup>5</sup> Institute of Marine Research. About IMR, [http://www.imr.no/om\\_havforskningsinstituttet/en](http://www.imr.no/om_havforskningsinstituttet/en) [Accessed 28/03/11]
- <sup>6</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, award letter to the Marine Research Institute (*Statsbudsjettet 2011, tildelingsbrev til Havforskningsinstituttet*), 22/12/10 <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed 28/03/11]
- <sup>7</sup> Institute of Marine Research, Marine Mammals. <http://www.imr.no/forskning/faggrupper/sjopattedyr/en> [Accessed 28/03/11]
- <sup>8</sup> The National Institute of Nutrition and Seafood Research, NIFES. [http://www.nifes.no/om%20nifes/index.php?page\\_id=&lang\\_id=2](http://www.nifes.no/om%20nifes/index.php?page_id=&lang_id=2) [Accessed 28/03/11]
- <sup>9</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, award letter to the National Institute of Nutrition and Seafood Research (*Statsbudsjettet 2011, tildelingsbrev til Nasjonalt institutt for ernærings- og sjømatforskning*), 21/12/10
- <sup>10</sup> NIFES, Accounts from 2009 (*Regnskapstall fra 2009*) [http://www.nifes.no/index.php?page\\_id=302&article\\_id=3284](http://www.nifes.no/index.php?page_id=302&article_id=3284) [Accessed 28/03/11]
- <sup>11</sup> Forskningsradet, The Research Council's vision and mandate. [http://www.forskningsradet.no/en/Article/The\\_Research\\_Councils\\_vision\\_and\\_mandate/195592857001](http://www.forskningsradet.no/en/Article/The_Research_Councils_vision_and_mandate/195592857001) [Accessed 28/03/11]
- <sup>12</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, award letter to the Norwegian Research Council (*Statsbudsjettet 2011, tildelingsbrev til Norges Forskningsråd*), 22/12/10. <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed 28/03/11]
- <sup>13</sup> Innovasjon Norge, Innovation Norway. <http://www.innovasjon norge.no/system/Global-toppmeny/English/> [Accessed 28/03/11]
- <sup>14</sup> Ministry of Fisheries and Coastal Affairs. Prop. 1 (2009-2010) Proposition to the Parliament for fiscal year 2010 (*Proposisjon til Stortinget for budsjettåret 2010*)
- <sup>15</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, letter of assignment Innovation Norway (*Statsbudsjettet 2011, oppdragsbrev Innovasjon Norge*), 22/12/10 <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed, 28/03/11]
- <sup>16</sup> Nofima, About Nofima. <http://www.nofima.no/en/about-nofima> [Accessed 28/03/11]
- <sup>17</sup> Nofima, Shareholding. <http://www.nofima.no/en/about-nofima/shareholding> [Accessed 28/03/11]
- <sup>18</sup> Ministry of Fisheries and Coastal Affairs, State Budget 2011, award letter to Nofima AS. (*Statsbudsjettet 2011, tilskuddsbrev til Nofima AS*), 22/12/10. <http://www.regjeringen.no/nb/dep/fkd/aktuelt/nyheter/2011/tildelingsbrev-2011.html?id=630036> [Accessed 28/03/11]
- <sup>19</sup> FHF, About FHF (Om FHF). [http://www.fiskerifond.no/index.php?current\\_page=about](http://www.fiskerifond.no/index.php?current_page=about) [Accessed 28/03/11]; and FHF, English Information. [http://www.fiskerifond.no/index.php?current\\_page=english](http://www.fiskerifond.no/index.php?current_page=english) [Accessed 28/03/11].
- <sup>20</sup> Personal communication by email with Emil B Jenssen, Innovation Norway, 20/09/10.

<sup>21</sup> Stenseth, NC, Gyldendal, N. 1993. The Minke Whale - A whale of a problem (*Vågehvalen - valgets kval*), Oslo.

<sup>22</sup> Høge Nord Alliansen, [www.highnorth.no](http://www.highnorth.no) [Accessed 28/03/11].

<sup>23</sup> Høge Nord Alliansen, [www.highnorth.no](http://www.highnorth.no) [Accessed 28/03/11].

<sup>24</sup> Frøvik, R. and Jusnes, L. 2006. Risk analysis seal and whale (*Risikoanalyse sel og hval*) Høge Nord Alliansen, FHF project no. 221034. Available from [http://www.fiskerifond.no/files/projects/attach/risikoanalyse\\_final.doc](http://www.fiskerifond.no/files/projects/attach/risikoanalyse_final.doc) [Accessed 08/03/2011]; see also next note.

<sup>25</sup> Overview over chapter 1050, post 79 in state budget for Ministry of Fisheries and Coastal Affairs (Oversikt over bevilgninger kap. 1050, post 79); Personal communication by email with Guri Hjalte Eriksen, Ministry of Fisheries and Coastal Affairs, 24/22/10.

<sup>26</sup> Fiskebat, [www.fiskebat.no](http://www.fiskebat.no) [Accessed 28/03/11].

<sup>27</sup> Høge Nord Alliansen, 2005. Infopack, 57 Annual Meeting of the International Whaling Commission (*Infopakke, 57. årsmøte i Den Internasjonale Hvalfangstkommissjonen*)

<sup>28</sup> Norges Fiskarlag. <http://www.fiskarlaget.no/> [Accessed 28/03/11].

<sup>29</sup> Overview over chapter 1050, post 79 in state budget for Ministry of Fisheries and Coastal Affairs (Oversikt over bevilgninger kap. 1050, post 79); Personal communication by email with Guri Hjalte Eriksen, Ministry of Fisheries and Coastal Affairs, 24/22/10.

<sup>30</sup> <http://www.rafisklaget.no/portal/page/portal/Rafisklaget>

<sup>31</sup> FHF, 2010. Analysis of the microbiological quality of whale meat (*Analyse av mikrobiologisk kvalitet i hvalkjøtt*), FHF project no. 900488.

[http://www.fiskerifond.no/index.php?current\\_page=prosjekter&subpage=&detail=1&id=1081&gid=4](http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=&detail=1&id=1081&gid=4) [Accessed 28/03/11].

<sup>32</sup> Whale meat (*Hvalbiff*), [www.hvalbiff.no](http://www.hvalbiff.no) [Accessed 28/03/11].

<sup>33</sup> FHF, 2010. Analysis of the microbiological quality of whale meat (*Analyse av mikrobiologisk kvalitet i hvalkjøtt*), FHF project no. 900488.

[http://www.fiskerifond.no/index.php?current\\_page=prosjekter&subpage=&detail=1&id=1081&gid=4](http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=&detail=1&id=1081&gid=4) [Accessed 28/03/11].