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Prospects for future sealing in the North Atlantic

Proceedings of the 13th Norwegian-Russian Symposium Tromsø, 25-26 August 2008

Edited by
Daniel Pike, Tom Hansen and Tore Haug

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Preface

The prospects for future sealing in the North Atlantic have been discussed by the Joint Norwegian-Russian Fisheries Commission (JNRFC) in recent years. There are concerns over the current lack of ability on both the Norwegian and Russian side to fulfill given seal quotas. Also, the multispecies perspective of seal management is a matter of concern in the two countries. The main problem for the sealing industry in the last 2-3 decades has been the market situation. Protest activities initiated by several Non-governmental Organizations in the 1970s destroyed many of the old markets for traditional seal products which were primarily the skins. The results have been reduced profitability which subsequently resulted in reduction in available harvest capacity (e.g., the availability of ice-going vessels) and effort. With the present reduced logistic harvest capacity in Norway and Russia it is impossible to take out catches that would stabilize the stocks at their present levels. Unless sealing again becomes profitable, it is likely that this situation will prevail.

In September 2003, the symposium "Prospects for future sealing activities in the North Atlantic" was held (based upon an initiative from JNRFC) in Archangelsk, Russia with participation from Canada, Greenland, Norway and Russia. The meeting was successful, and at its last meeting in St Petersburg, Russia, in October 2007, JNRFC decided that a new symposium should be arranged in 2008. This was the background for the symposium "Prospects for future sealing in the North Atlantic" which was arranged at the Polar Environmental Centre in Tromsø, Norway, on 25 and 26 August 2008. The symposium was an arena where experts involved in the various aspects and branches of sealing could meet. The meeting was primarily for people from all levels of the sealing industry, including participants with knowledge of both the sealing itself, the products and their application, and the market prospects. Themes addressed focussed on market prospects for traditional products (skins), but also the possibility to introduce "new" products (meat- or blubber-based) on the markets were assessed. Participation from other seal hunting nations included Canada (where a successful seal hunt is currently sustained), Greenland and Finland. To ensure input about the resource bases and management, the symposium included participants from management authorities and science. The symposium was open for participation to the public.

This report (compiled and written by Daniel Pike) summarizes all presentations (based on abstracts provided by the contributors) and the discussions at the symposium. The power point presentations from contributors are included as pdf-files on the enclosed CD. The report is available on the IMR website, www.imr.no.

Tromsø November 2008

Tore Haug

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Welcoming address

Ernst Bolle
Directorate of Fisheries, Norway

Director Bolle welcomed all the attendees, noting that scientists, hunters, managers and others involved in the sealing industry had come from all over the northern hemisphere to attend the symposium. The conference would include presentations about all aspects of sealing, including science and management, hunting, processing, marketing, animal welfare and sealing as an international issue. The fundamental question to be addressed would be whether or not sealing as a commercial activity has a future.

Opening address

Jørn Krog,
Secretary General, Norwegian Ministry of Fisheries and Coastal Affairs, Oslo, Norway

Management of seal stocks in the Barents Sea (the "East Ice") and in the Jan Mayen area (the "West Ice") is part of the obligations of the Joint Norwegian Russian Fisheries Commission. This has been a task of the Commission since its establishment, and will be in the future because the fisheries authorities in Norway and Russia together are involved in developing competence, methods and strategies that will ensure an overall and ecosystem based management of the living marine resources in the North Atlantic.

As seals as well as other marine mammals are at the top of the marine food web, they also compete directly with humans in the utilization of the ocean's biological resources. In the northern areas this is indeed an important discussion. In Norway we know that the content and the sense of the challenges are not communicated well enough. Our director of Fisheries used to say that in the North marine mammals represent a "25 to 30 per cent problem", while in other areas they represent a 2 to 3 per cent problem. Our approach to the management of seals takes such thoughts as a point of departure and of course also the obligations we have to safeguard biodiversity.

At last year's session of the Joint Norwegian-Russian Fisheries Commission the parties recorded inter alia the following:

"The parties noted that the number of harp seals taken in 2007 continued to be on a low level.

The parties agreed that the number of seals in the East Ice and the West Ice has an influence on the commercial fish stocks. Therefore, the parties intended to accomplish a joint research program with the aim of clarifying the ecological role of the harp seals in the Barents Sea.

In this situation the parties will endeavour to improve the conditions for Norwegian and Russian hunting interests, which will make it possible to implement joint projects with the aim of increasing the harvesting of seals in the East and West Ice, and to bring about profitability in the seal hunt. Status and future prospects for sealing shall be discussed in 2008 by representatives of industry (hunters as well as producers), product development, management and science at an international conference in Tromsø."

This is the second symposium on the prospects of sealing arranged by the Joint Fisheries Commission. The previous one was held in Archangelsk in 2003. This series of symposiums demonstrates that the Joint Commission attaches great importance to the role of the marine mammals in the Barents Sea ecosystem, particularly that of seals. We want to make sure that scientists continue to improve their insight into the seals' impact on the commercial fisheries.

As a point of departure I want to underline the fact that Norway and Russia do not believe that the marine mammals are in a privileged position compared to humans. Both nations regard marine mammals as important resources and want to manage them in order to strike a balance in the ecosystem. This is, however, not an easy task. There are both economic, social and scientific problems we need to solve.

In order to describe the social situation we are facing, I would like to quote from an article on the Canadian sealing publish by The Economist in June 2008 with the title "Cute, Cuddly and edible":

"Sustainability – whether in reference to farming, logging, fisheries, medicinal plants or crocodile skins – is all the rage these days. But people seem less likely to cheer sustainability when it comes to killing anything cute….

Across Europe, game is shot, rats are poisoned and millions of animals slaughtered. Scottish fish-farmers regularly kill seals to protect their nets, and two headless seals washed up on the beach last month. Nobody knows how many seals are killed in Britain because the killing is unregulated. If it is in the thousands, as anecdotal reports have it, that would be equivalent to the proportion of Canada's seal population killed in the hunt. Seals are killed elsewhere – in Greenland, Russia, Namibia, Norway, and to a lesser extent in countries like Sweden and Finland – and Canada's is surely the most highly regulated seal hunt in the world.

Still, groups like the International Fund for Animal Welfare (IFAW) call it inhumane, and they have successfully lobbied politicians across Europe."

This is a good description of the situation and we all know that we have a lot of challenges ahead of us if we shall succeed with our seal management. I will comment on a few of them.

Challenges

Firstly, we have to ask ourselves how we can cooperate in order to make other countries understand the situation we are faced with.

Killing of animals is not pleasant to watch whether it is done on the ice, in the woods or in slaughterhouses. It looks gruesome, particularly to urban people who do not have experience from farming and hunting. They are used to meat wrapped in plastic, and react vigorously when they see killing of animals, especially cute animals. However, the killing and utilization of animals for food and clothing is widely accepted worldwide. The task we are facing is therefore to educate politicians and opinion leaders and make them understand that what kind of animals man kills for food and clothing is a matter of culture, not a matter of principle. Concerning sealing in particular it is important to find ways to educate people on the balance that is needed in the marine ecosystems in order to make them as productive as possible. This, I believe is one of our biggest challenges.

Part of the solution to this challenge is to find ways to increase the flow of information on the species in the ecosystem and the interrelationships between them. This is a formidable task. We need educational skills and also the right channels to disseminate the information. In this field we will compete with very skilful NGO's and their ability to get their animal welfare and animal rights messages across.

Secondly, it is a challenge for the authorities to create a basis for the sealing industry so that it can become profitable. As the conditions for the sealing industry are not optimal, the authorities need to help the industry to finance hunting activities, and improve the hunting activities both with regard to methods and efficiency, and also to alleviate market conditions including market access.

Therefore, the authorities support the sealing industry in many ways to develop its industrial and commercial capacity. The Norwegian Government annually makes financial contributions to the Norwegian harvest, product development and to projects for cooperation with Russian communities. In the last few years the Norwegian company GC Rieber has collaborated with local communities in the White Sea area on different projects for the harvest of harp seals. Several of these projects have been supported by Norwegian authorities. Also, Russian authorities have been backing this kind of cooperation. We will continue to encourage these types of initiatives, with the final aim of achieving a self-supporting and profitable harvest in the White Sea.

The trend towards decreased market access in recent years is of great concern. We have seen a positive development in the Nordic countries, where the Ministers responsible for sealing recently have agreed on two declarations demanding the right to exploit the seal resources in the Baltic Sea and the North Atlantic. But the development in the EU gives reasons for concern. The only way to escape the EU ban on trade in seal products is to demonstrate that the hunting methods are well within the requirements set by the EU Commission. This is challenging, but not impossible.

Thirdly, we have a challenge for the scientific world. We have to make sure that the scientists can answer certain basic questions: What is an adequate and balanced number of harp seals in the North East Atlantic? Is it 2.5 million, or is it one million? What is the level necessary to preserve biodiversity and ensure the survival of the species?

Currently, we in the Commission get advice on the quotas for sealing from ICES. We have recognised that the advice from ICES has been criticised by the Scientific Committee of NAMMCO for taking a single species approach and neglecting the ecosystem considerations. Does this mean that NAMMCO will have a better approach for setting quotas? We need some reflections on this issue during the symposium from the scientists present here.

NAMMCO is the only international organisation that is tasked to discuss the management of seals. Regardless of which body gives us advice on quotas, it is important that the sealing countries use the relevant forum for discussing seal management questions. Therefore, we need both Russian and Canadian participation in NAMMCO. We appreciate that both countries participate as observers to NAMMCO meetings. But in order for NAMMCO to play a more important role in management seal stocks, we need their full participation.

Conclusion

I have touched upon the current situation for the sealing industry and some of the challenges the industry is facing. I am looking forward to a fruitful symposium, and during the discussions here in Tromsø I expect to get ideas on how to proceed in order to restore the sealing industry in our area.

I am pleased to see the broad participation from countries outside of Norway and Russia. I am sure that we together can help each other and make a great effort to improve the science as a basis for a better management of the seal resources and also to find ways to achieve better market access.

It is a must for Norway and Russia to continue to cooperate in the sealing industry. We also appreciate the cooperation with all the other sealing countries.

I wish you all a successful symposium.

Theme session 1: THE RESOURCES

(Chair: Ernst Bolle)

1.1 The northeast Atlantic seal resources, their management and role in the ecosystem

Dr. Tore Haug,
Institute of Marine Research, Tromsø, Norway

1.1.1 Target species

Harp seals

Two stocks of harp seals inhabit the Northeast Atlantic Ocean, whelping on the pack ice off the east coast of Greenland (the Greenland Sea or West Ice stock), and in the White Sea (the Barents Sea or East Ice stock). During spring, harp seals exhibit a set sequence of activities: whelping (in March–April), followed by 12 days of intensive lactation, and then mating. The moult of adults and immatures takes place north of each whelping location after a further lapse of approximately four weeks. The location of these events in the Northeast Atlantic is either the fringe of winter ice laying seawards of the heavier Arctic ice off the east Greenland pack, located between the latitudes 69°N and 75°N (the West Ice stock), or in the White Sea and south-eastern parts of the Barents Sea (the East Ice stock). When the moult is over, the seals disperse in small herds to feed. Harp seals exhibit a regular seasonal pattern in deposition of energy reserves as fat in the subcutaneous blubber layer: they are generally thin in spring and early summer (May–June). Their condition improves over the summer, and the seals are quite fat by September–October.

The location of harp seals during feeding depend on the configuration of the drifting sea ice. The East Ice seals follow the receding ice edge during summer, gradually moving northwards and north-eastwards in the Barents Sea. The southward movement of harp seals towards the breeding areas in the White Sea begins in November-December. Overlap between harp seals from the West Ice and East Ice occurs during summer and autumn in that animals from the West Ice seems to migrate to and stay in the northern parts of the Barents Sea around and to the east of the Svalbard archipelago in the period July-December. In the rest of the year their occurrence is confined to the Denmark Strait and the Greenland Sea. While harp seals spend much of their time in close association with the pack-ice, occurrence in open waters appears to be quite common, particularly during summer and early autumn.

Harp seals are the most numerous and very likely the most important marine mammal top predator in the Barents Sea. The seals show opportunistic feeding patterns in that different species are consumed in different areas and at different times of the year. However, the bulk of the harp seal diet is comprised of relatively few species, in particular capelin, polar cod, herring, krill and pelagic amphipods. The crustaceans appear to be of particular importance as harp seal food during their summer and autumn feeding in the northern parts of the Barents Sea (July-October). As the ice cover expands southwards in late autumn and winter, the southward migrating seals appear to

switch from crustaceans to fish (particularly capelin and polar cod) as their preferred food. In the southernmost areas of the Barents Sea, where the East Ice seals occur during winter and early spring, herring is also an important forage fish. The total food consumption by harp seals in the Barents Sea has been estimated using data on energy intake, diet composition, energy density of prey and predator abundance. Estimations were made both for periods with high and low capelin abundance (both events occurred in 1990-1996, the period when the currently available seal diet data was collected). The annual food consumption was estimated to be within a range of 2.69 - 3.96 million tonnes of biomass. Distributed across a representative mix of prey species, point estimates of 1.22 million tonnes crustaceans, 808,000 tonnes capelin, 605,000 tonnes polar cod, 212,000 tonnes herring and a mix of gadoids and other more Arctic fishes of *ca* 500,000 tonnes were obtained. A low capelin stock (as in 1993-1996) led to a switch in harp seal diet with increased consumption of other fish species, in particular polar cod, other gadoids and herring.

The two Northeast Atlantic stocks of harp seals have been commercially exploited and managed jointly by Norway and Russia during the past two centuries. The total sizes of the stocks in the Northeast Atlantic were estimated at 2 million (East Ice, assessed in 2005) and 707 000 (West Ice, assessed in 2007) animals.

Hooded seals

Hooded seals occur both in the Northwest and Northeast Atlantic. The former stocks whelp on the pack ice in Canadian waters (Gulf of St. Lawrence, off Newfoundland and in the Davis Strait), while the latter stock whelps off eastern Greenland (the West Ice) in mid–late March. The intensive lactation period only last 3–5 days, after which the adults mate, and the females desert their pups. Between breeding and moult, hooded seals may perform long feeding migrations, whereas during moult (June/July) the West Ice stock hauls out on pack ice north of the usual breeding area, *i.e*. northwest of the island of Jan Mayen. Satellite tracking data have revealed that hooded seals from the West Ice stock appear to occupy ice-covered waters off the east coast of Greenland (including the areas around the island Jan Mayen) much of the year. But, both between breeding and moult, and after the moulting period, they may make long excursions to distant waters (temperate as well as Arctic) such as the waters off the Faroe Islands, the Irminger Sea, north/northeast of Iceland, areas in the Norwegian Sea, and along the continental shelf edge from Norway to Svalbard, presumably to feed, before returning to the ice edge again. During these excursions, which may last for more than three months, the seals apparently never haul out, even when they spend time in coastal areas. In the Greenland Sea, squid is the main hooded seal food, followed by polar cod. In other areas they may also feed considerably on other fish species, *e.g*. redfish and Greenland halibut. Hooded seals of the West Ice stock have been commercially exploited since the mid 19th century and are managed jointly by Norway and Russia, based on advice given by ICES. In 2007 the total (minimum) size of the stock was estimated to be 67,000 animals.

1.1.2 Catches

Harp seals - Barents Sea/White Sea

The initial harvest was shore based, taking place along the coasts of the White Sea and around the Kanin Peninsula, and presumably of a very small magnitude. Offshore hunting started in 1867. Prior to 1875 there were many years without catch information at all, but it is assumed that the catches were probably quite small, supposedly annually in the hundreds. After 1875 the total catches increased, with levels between 15,000 and 60,000 up to around 1900, above 100,000 after this year, and with the largest catches taken in the 1920s and 1930s (annual average of 200,000 – 300,000 animals). The catch numbers prior to World War II are very unreliable, and most probably only the numbers available from 1946 on should be used in any analyses.

While exploitation was low during World War II, the total hunting pressure increased from 1946 on with average catches between 150,000 and 200,000 up to 1955. Quotas for the Soviet catches were introduced unilaterally in 1955 (100,000 seals) and were gradually reduced until 1965 when a quota of 34,000 seals was implemented for the total catch (taken by Norway and Soviet together). Adult females were protected in the whelping patches from 1963, and Soviet catches of 1+ seals were stopped in 1965. Catches increased in the late 1970s and in the 1980s (annual quotas increased to 50,000 in 1977, 60,000 in 1981, 75,000 in 1982, a maximum of 82,000 in 1983, then decreased to 80,000 in 1984-1987). The total quota was reduced to 70,000 in 1988 and further down to 40,000 in 1989-1998. There seems to be good reason to expect an increase in numbers owing to the implementation of several catch regulations such as full protection of whelping females from 1963, a stop in Soviet catches of 1+ animals and a general decrease in catches due to a new quota system from 1965, and the general lack of capacity to take recommended TACs in the most recent (15) years. The majority of the low catches taken in 1965-2008 were pups. Recent catches have been well below assumed sustainable levels. From the 2008 season the Russian hunt changed from being helicopter-based to being boat-based.

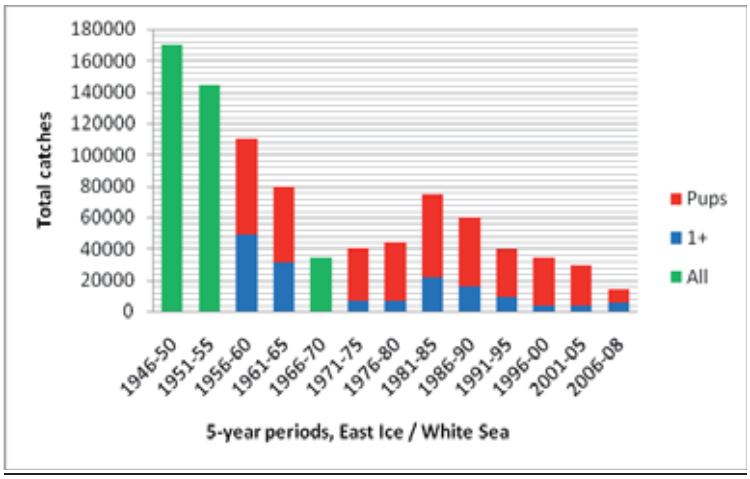

Figure 1. Total Norwegian and Russian catches of harp seals in the Barents Sea (East Ice) and White Sea after World War II. Total catches are given as means for 5-year periods (last period only 3 years).

Harp seals – Greenland Sea

The Greenland Sea (West Ice) stock of harp seals has been subject to commercial exploitation for centuries. Knowledge of the Greenland Sea catches in the 18th and the first two-thirds of the 19th century, performed by Dutch, British, German and Danish ships, is poor. Norwegian sealers appeared for the first time in the Greenland Sea in 1846, and have subsequently participated with increased effort. Exploitation levels reached a historical maximum in the 1870s and 1880s when annual catches of harp seals (pups and adults) varied between 50,000 and 120,000. This assumed overexploitation probably drove the stock to an all time low, and the competition for a limited supply of seals in the 1870s resulted in the disappearance of all non-Norwegian fleets. It was evident that the catch levels in the 1870s were higher than the stock could sustain, and some regulatory measures (mainly designed to protect adult females) were taken in 1876. In the first decades of the 20th century the annual harp seal catches varied between 10,000 and 20,000 animals, whereas an increase to around 40,000 seals per year occurred in the 1930s.

The pre World War II catch statistics are even more uncertain for this population than for the White Sea population. Analyses should therefore only include data from 1946 on. After a 5 year pause in the sealing operations during World War II, total annual catches quickly rose to a postwar maximum of about 70,000 in 1948, but then followed a decreasing trend until quotas were imposed in 1971. From 1955 to 1994 a minor part of the catches were taken by the Soviet Union/Russia, and the total annual catches have varied between a few hundreds to about 17,000 from 1971 to present. It is likely that the population may have increased in size after 1971.

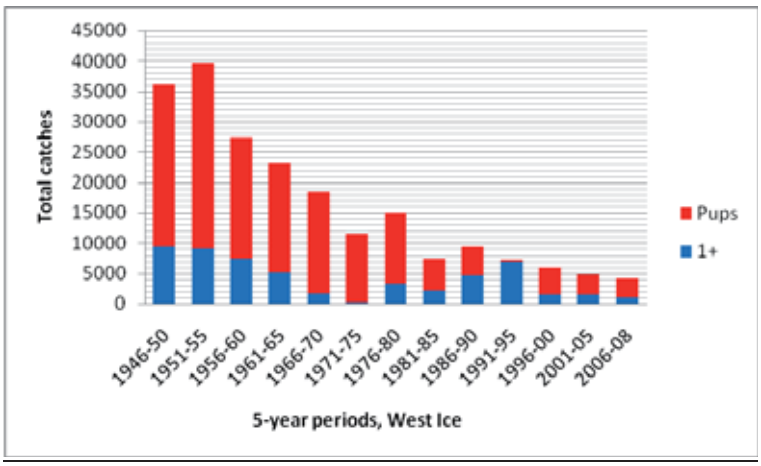

Figure 2. Total Norwegian and Russian catches of harp seals in the Greenland Sea (West Ice) after World War II. Total catches are given as means for 5-year periods (last period only 3 years).

Hooded seals – Greenland Sea

Harp seals are assumed to have been the most important catch object in the Greenland Sea in the early years, whereas hooded seals occurred more frequently in the catches from the 1890's on. Hooded seal whelping concentrations were rather unusual in the Greenland Sea area, and the early hooded seal hunt usually targeted scattered hooded seal families distributed over larger areas. After 1920, however, larger whelping concentrations were found and efficiently exploited on a more regular basis in the area by the sealers. This lead to a substantial increase in the hooded seal hunt with average annual catches ranging between 40,000 and 50,000 individuals. After a 5 year pause in the sealing operations during

World War II, total annual catches quickly rose to a postwar average level of 50,000 to 60,000 in the early1950s. It was evident that these catch levels were higher than the stock could sustain, and some regulatory measures (mainly to reduce effort) were taken in 1958. The total annual catches have subsequently followed a decreasing trend, primarily due to reduction in catch effort. Number of operating Norwegian vessels decreased from more than 40 in the 1950s, to 10-20 in the 1970s, to a present level of 2-4 ships – Russian effort included 4-6 vessels from 1958 to 1966, and 1-3 vessels in 1975-1994. Quotas were imposed in 1971. Average annual catches in the early 1960s were approximately 47,000 individuals, whereas in the early 1980s the level had sunk to *ca* 8,000 seals. In the past 25 years, the average annual catch level has remained less than 5,000 animals (almost exclusively pups), which is considerably lower than the TACs given for the period. Due to concerns related to the stock situation, the commercial hooded seal hunt was stopped after the 2006 season.

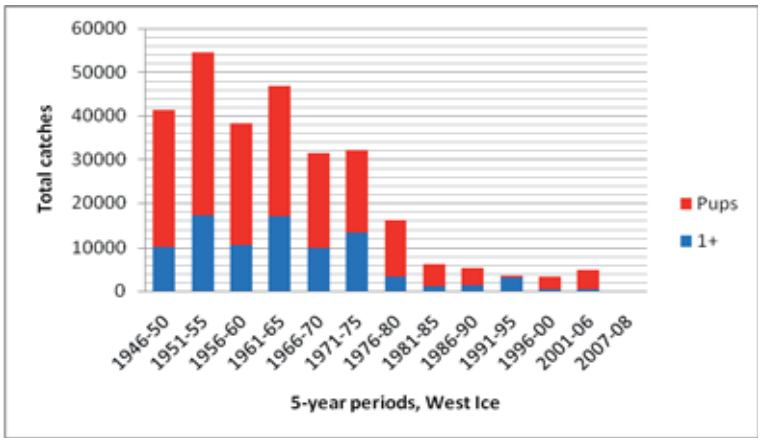

Figure 3. Total Norwegian and Russian catches of hooded seals in the Greenland Sea after World War II. Total catches are given as means for 5-year periods (6 year period given for 2001-06; in 2007-08 only small (<62 per year) catches for scientific purposes were taken).

1.1.3 Management advice and status of stocks

Current management of harp and hooded seals is based on assessments performed by the Joint ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP). Major topics of WGHARP are to assess status of the populations, provide advice on sustainable harvest levels, and to assess interactions with prey (*i.e.* ecological role of seals). Terms of references (TORs) given to WGHARP are based on requests for information and advice related to management of the seal stocks, as provided to ICES or NAFO by commissions (*e.g.*, NAMMCO) or member governments. Formulation of the TORs is the responsibility of the ICES Advisory Committee on Fisheries Management (ACFM) and the NAFO Scientific Council (NAFO SC). After meetings, WGHARP reports the results of its deliberations to ACFM and NAFO SC. Subsequently, ACFM and NAFO SC provide the advice requested for the northwestern and northeastern stocks, respectively. At present, WGHARP includes appointed members from Canada, Denmark (Faroe Islands and Greenland), Germany, Iceland, Norway, Russia, UK and USA.

WGHARP will meet at the Institute of Marine Research, Tromsø, Norway,in August 2008 to assess the stocks of Greenland Sea and White Sea / Barents Sea harp seals, and Greenland Sea hooded seals. Management agencies have requested advice on "sustainable" yields for these stocks, *i.e.*, the catch that is risk neutral with regard to maintaining the population at its current size within the next 10 year period. Population assessments will be based on a

population model that estimates the current total population size. These estimates are then projected into the future to provide a future population size for which statistical uncertainty is provided for each set of catch options. The advice given by ICES for currents harvests will be based on the results from the WGHARP assessments in 2008.

Harp seals – Barents Sea / White Sea

ICES has concluded that recent removals have been below the recommended sustainable yields, that prolongation of current catch level will likely result in an increase in population size, and that there is some evidence that densities may be so high that biological processes like rate of maturation may be showing density dependent effects. Based on available data on pup production estimates (from Russian aerial surveys 1998-2003) and population productivity, ICES estimated the following 2005 abundance of harp seals in the White Sea: 2,065,000 (95% C.I. 1,497,000-2,633,000) 1+ animals (*i.e.*, seals that are one year old or older) with a pup production of 361,000 (95% C.I. 299,000-423,000). A continuation of current catch level will likely result in an increase in population size, and ICES emphasized that a catch of 78,198 1+ animals, or an equivalent number of pups, in 2006 and the following years would sustain the population at the present level within a 10 year period. Catches 2 X sustainable levels would result in the population declining by approximately 53-67% in the next 10 years.

Russian aeroplane surveys of White Sea harp seal pups were conducted also in March 2004 and 2005 using traditional strip transect methodology and multiple sensors. The results obtained may indicate a reduction in pup production as compared with the results obtained in similar surveys in 1998-2003. Surveys flown with helicopters in March 2006 and fixed-wing aircraft in March 2007 apparently confirmed the possible reductions in pup production. Severe reductions in both period and extension of ice cover in the White Sea in recent years may have contributed to the possible reductions in pup production in the area. The possible reduction in pup production for harp seals in the White Sea is a matter of concern. For this reason the Joint Norwegian-Russian Fisheries Commission suggested that the Barents Sea / White Sea quota should be reduced, and decided that the 2008 TAC should be 55,000 1+ animal where each 1+ seal could be balanced by 2.5 pups.

New aerial surveys were conducted in the area in 2008 to investigate whether this possible reduction in pup production still prevail. The results will be discussed at the WGHARP meeting in Tromsø in August 2008, and new advice will be formulated by ICES in September 2008.

Harp seals – Greenland Sea

ICES has concluded that recent removals have been below the recommended sustainable yields, and that prolongation of current catch level will likely result in an increase in population size. Based on available and updated data on pup production estimates (from previous tag-recapture experiments in 1983-1991 and from aerial surveys in 2002 and 2007), and population productivity, the following 2007 abundance for Greenland Sea harp seals was

estimated: 707,000 (95% C.I. 483,000-930,000) 1+ animals with a pup production of 106,000 (95% C.I. 76,000-137,000). A continuation of current low catch levels will likely result in an increase in population size, whereas a catch of 29,300 1+ animals, or an equivalent number of pups, in 2008 and the following years would sustain the population at present level within a 10 year period. Catches 2X sustainable levels will result in the population declining by approximately 40-50% in the next 10 years. The new 2007 data and model runs will be discussed at the WGHARP meeting in Tromsø in August 2008, and ICES will formulate new advice in September 2008.

Hooded seals – Greenland Sea

ICES has previously concluded that recent removals have been below the recommended sustainable yields. However, results from pup surveys conducted in 2005 and 2007 suggest that current pup production (15,400 pups, 95% CI 12,100-18,700 in 2007) may be lower than observed in a comparable 1997 survey (point estimate 23,800 pups). Model explorations indicate a decrease in population abundance from the late 1940s and up to the early 1980s. In the most recent 2-3 decades, the stock appears to have stabilized at a low level with a 2007 population estimate of 67,000 (95% CI 50,000-84,000). Catch levels during this period have been below given TAC levels. Due to the restricted availability of data for the Greenland hooded seals stock, the concept of the Potential Biological Removal level (PBR) has been used to set catch limits after 2003.

The PBR approach identifies the maximum allowable removals that will ensure that the risk of the population falling below a certain lower limit is only 5% and that would allow a stock that dropped below this limit to recover. Using the PBR approach, the catch limit was calculated as approximately 2,200 animals. However, ICES has concluded that even harvesting at the PBR level could result in a continued stock decline or a lack of recovery. ICES therefore recommended that harvesting should not be permitted with the exception of catches for scientific purposes from 2007 on. Results from the survey in 2007 will be discussed at the WGHARP meeting in Tromsø in August 2008. With the prevailing low pup production estimate, it is most likely that ICES will maintain the advice of no hooded seal catches in the Greenland Sea when new advice is formulated in September 2008.

1.2 The status, management and ecological role of harp and hooded seals in Canada

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1.2.1 Movements and catches

Harp Seals

In the northwest Atlantic, harp seals are seasonal migrants that summer in the eastern Canadian Arctic and along the coast of Greenland. In the late autumn and early winter, the majority of seals migrate southward to pup on the pack ice in the Gulf of St. Lawrence ('Gulf') and off the coast of southern Labrador or northeast Newfoundland ('Front') from late February through mid March. Following weaning and breeding, harp seals disperse to feed, hauling out on the remaining ice to moult from mid April through May. After the moult is completed they migrate northward to their summer feeding grounds.

The Northwest Atlantic harp seal population is subjected to various types of human induced mortality including subsistence harvests in Greenland and the Canadian Arctic, commercial catches in southern Canadian waters, animals that are killed but not landed ('struck and lost'), and bycatch in commercial fishing gear. From 1952 through 1971, catches taken in the Canadian commercial hunt averaged in excess of 288,000 seals. Between the introduction of quotas in 1972 and the demise of the large vessel hunt in 1982, an average of 165,000 seals was taken annually. Catches decreased after 1982 and remained low, averaging approximately 52,000, until 1995. Annual catches, consisting primarily of young of the year, increased to an average of 258,000 between 1996 and 2004.

In 2003, a three year (2003-05) management plan was implemented for the Canadian commercial harp seal hunt. The Total Allowable Catch (TAC) for harp seals was set at an average of 325,000 per year (total 975,000) with a maximum of 350,000 allowed in the first two years provided the TAC in the third was reduced so that the total for the three years was not exceeded. As a result of catches in the first two years, the TAC in the final year of the plan (2005) was set at 319,517. Although the current 5-year management plan began in 2006, the multiyear quota system was not renewed. In 2006, the commercial quota was held at 325,000 but an additional 6,000 seals were identified for a special Aboriginal hunt initiative. 2,000 seals were also allocated for the Personal Use hunters and Arctic catches for a total TAC of 335,000. In order to ensure that the population was maintained above the Precautionary Reference Level of N_{70} (see below) and concerns about poor ice in the southern Gulf of St. Lawrence, the TAC was reduced in 2007 to 270,000. The TAC was raised slightly to 275,000 for the 2008 hunt, as a result of low catches the previous year.

Catches in 2005 totalled 323,826, which was slightly above the TAC. As a result, catches for the 2003-05 year management plan were 979,309 which was 0.4% over the total allowable (975,000). In 2006, catches (354,867) exceeded the TAC by 6% although this assumes that

2,000 seals were taken in the Canadian Arctic which is double the level assumed to occur. Catches were significantly reduced in 2007 (224,745, 83% of TAC) due to the lack of ice in the southern Gulf and heavy ice off Newfoundland. Poor ice, offshore distribution and low prices also resulted in lower catches in 2008 with preliminary catches figures indicating that only 75% (206,454) of the TAC was taken. The current catch in Canada is comprised of approximately 98% young of the year (YOY).

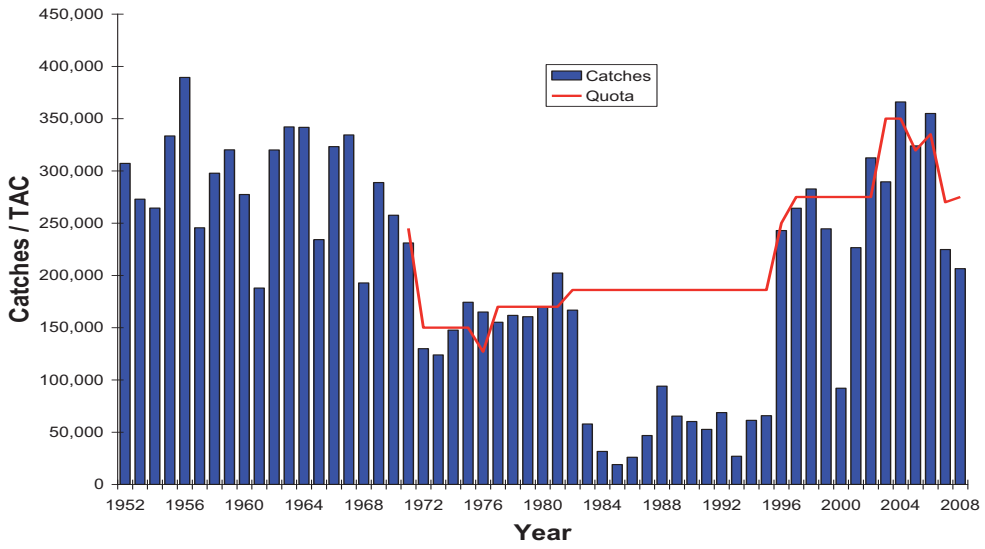

Figure 1. Reported catches and Total Allowable Catch (TAC) of Northwest Atlantic harp seals in Canada, 1952-2008.

Prior to 1980, catches of harp seals from the Northwest Atlantic population in Greenland were consistently less than 20,000 animals. Since 1980, Greenland catches increased relatively steadily to a peak of over 100,000 in 2000. From 2002 through 2004, catches decline to between 66,000 and 70,000. In 2005 and 2006, the last years for which data are available, reported catches were slightly over 90,000 seals. Seals of all ages are taken in Greenland with the majority being over 1 year of age.

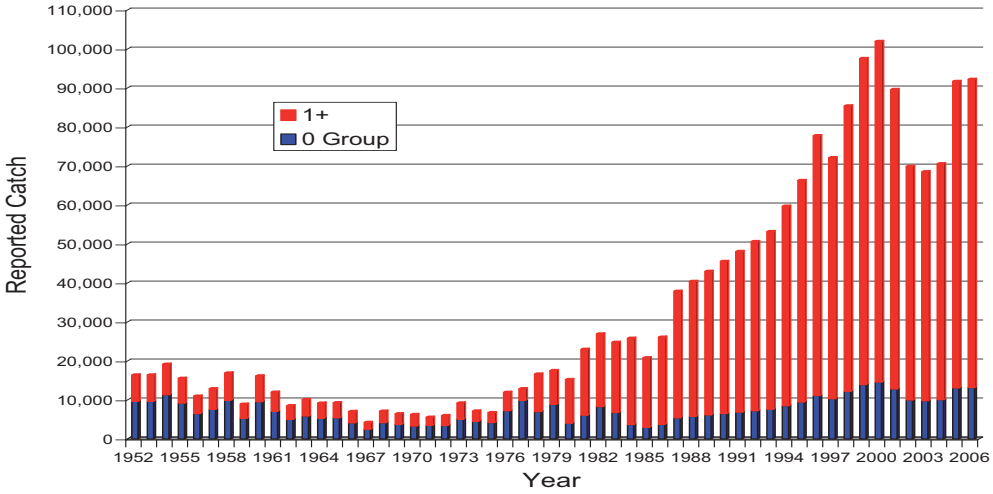

Figure 2. Reported catches of Northwest Atlantic harp seals in Greenland waters, 1952-2006.

Although limited data are available on catches in the Canadian Arctic, they appear to be relatively low (generally <5,000). A recent study indicates that current catches average less than 1,000 per year.

Although seals are caught incidentally in a variety of fishing gear, the majority occur during the fishery for lumpfish in Newfoundland. Harp seal bycatch in this fishery is estimated to have increased from less than 1,000 in the early 1970s to 31,700 in 1994. By 2003, they had declined to approximately 5,000 due to reduced fishing effort. Low numbers of harp seals (<1,000) are also caught in US fisheries.

Estimating the number of seals that are killed but not landed and reported (i.e. 'struck and lost') is difficult. Studies carried out in Newfoundland indicated that losses of YOY harp seals are less than 5%. However, the loss of older seals shot in the water is much greater (10-50%). Historical studies in the Arctic indicated that loss rates may be as high as 65%. As a result, Canadian assessments assume that 95% of YOY taken in the Canadian commercial hunt are reported while only 50% of older seals and seals taken in the Canadian Arctic and Greenland are landed.

The average total removals from 1952 – 1982 was approximately 388,000, but declined to 176,000 per year between 1983 and 1995. Between 1996 and 2004, higher catches in Canada and Greenland resulted in average annual removals of 468,500. Owing primarily to the lower catches in Canada, total removals in 2008 was estimated to be approximately 389,000. Young of the year account for approximately 66% of the current removals.

Given the reduced level of catches in Canada during the past two years, the high level of hunting in Greenland (including struck and loss) and the relative ages of seals taken in the two hunts, the current Greenland hunt may be having as great, or possibly even greater, impact on the population dynamics of Northwest Atlantic harp seals than the hunt in Canada.

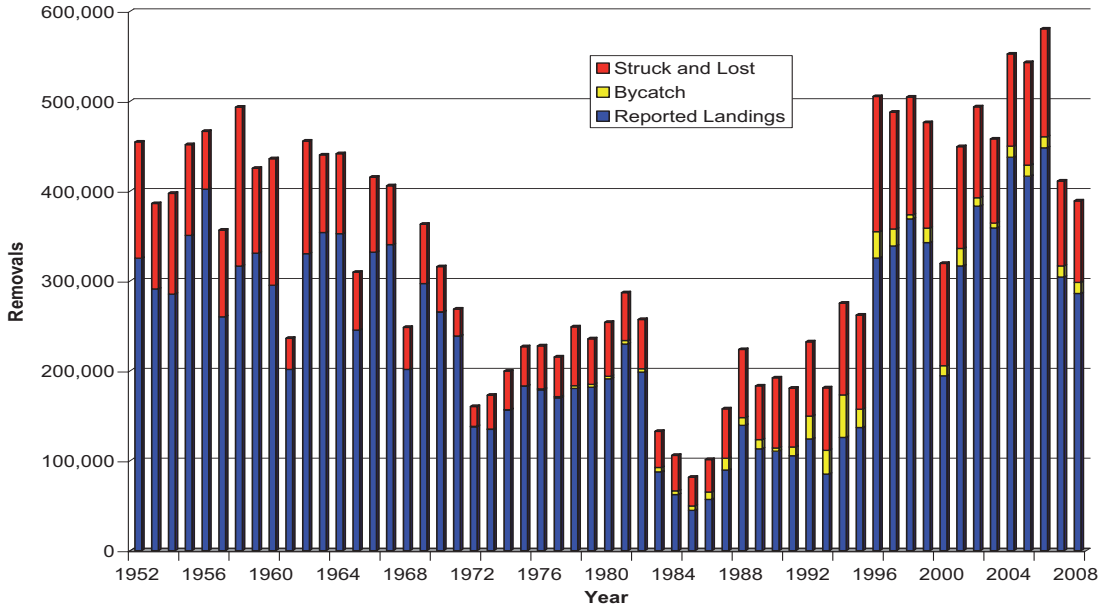

Figure 3. Total removals of Northwest Atlantic harp seals, 1952-2008.

Hooded Seals

Like harp seals, hooded seals are also seasonal migrants that summer along the coast of Greenland (primarily West Greenland) and in Baffin Bay or the northern Labrador Sea. In the winter, adult hoods migrate to one of three whelping areas, the Gulf, the Front or Davis Strait, where they give birth on the pack ice during mid to late March. Of these three, the Front accounts for ~90% of all pupping. Following breeding, hooded seals disperse to feed, eventually migrating to the moulting grounds off southeast Greenland and Denmark Strait where they shed their fur during July. Unlike harps, few juvenile hoods appear to migrate southward in the winter, most remaining in northern areas throughout the year.

Northwest Atlantic hooded seals are killed during a subsistence harvest in Greenland and a commercial hunt in southern Canadian waters. Prior to the imposition of quotas in 1974, Canadian catches were highly variable, ranging from a couple of hundred to more than 25,000. Between 1974 and 1982 catches averaged 12,500 (SD=2,000) but as a result of a collapse in the major markets, catches declined after 1982. With the exception of 1 year, annual catches were in the range of a few hundred until the mid 1990s. In 1996 a large number of bluebacks (young hooded seals) were taken illegally while a subsidy for meat resulted in catches of over 7,000 in 1997 and 1998. From 1998 – 2006, the TAC for hooded seals was set at 10,000. As a result of new data on the status of the population and the adoption of the precautionary approach under Objective Based Fisheries Management (OBFM), the quota was reduced to 8,200 in 2007 and 2008. Catches of hooded seals (1+ only) have remained extremely low for the past decade. Since 2005, less than 50 hoods have been taken annually, with only 5 being reported, to date, in 2008. Hunting of hooded seals is not allowed in the Gulf of St. Lawrence and the killing of bluebacks is prohibited in Canada.

Between 1945 and 1960 moulting hooded seals were hunted by Norwegian vessels in the Denmark Strait. Annual catches ranged from 1,500 - 48,000 and averaged 14,500 (SD = 10,800). Less than 1,000 seals were taken by Norwegian scientists biennially between 1970 and 1978.

Catches in Greenland were between 1,000 and 2,000 between the mid 1950s and 1972 (Av = 1,600, SD = 600). Since then catches have ranged from 3,000 - 10,000, being in the 6,000 – 7,000 range in most years. The most recent data indicates that 4,128 and 4,747 hooded seals were taken in 2005 and 2006, respectively.

Total removals averaged 34,800 (SD = 10,200) seals between 1954 and 1960. Throughout the 1960s annual catches varied greatly while from 1974 - 1982, hooded seals catches were relatively steady averaging 24,600 (SD = 2,000). With the exception of three years (1996-98) catches have averaged 8,100(SD = 1,900) since 1982.

Currently, the vast majority of hooded seals are caught in Greenland. With the exceptions of the 1963-1982 period when Canadian catches accounted for over 70% of the annual catches, Greenland accounted for over 65% of the hooded seals killed. In recent years, they have

accounted for almost 100% of the catches. The proportion of young in the harvest has remained consistent with approximately 30% being young of the year.

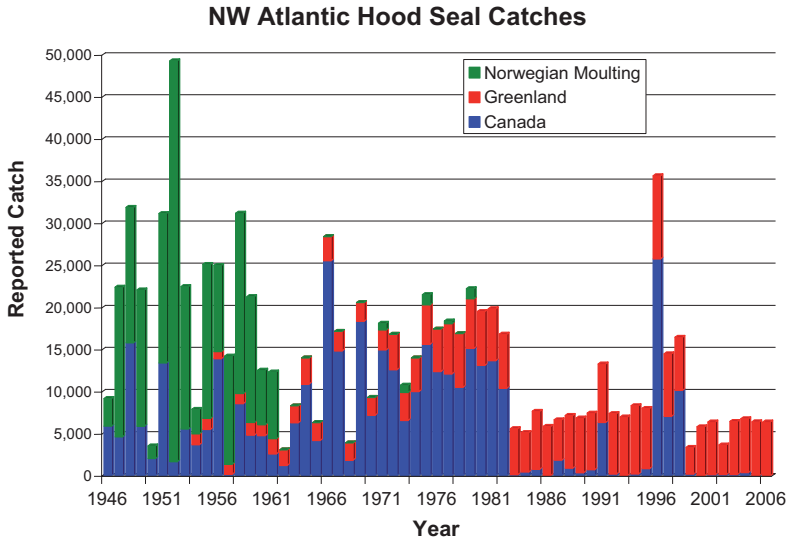

Figure 4. Reported catches of Northwest Atlantic hooded seals, 1946 – 2006.

1.2.2 Population status

Harp Seals

Prior to 1990, annual pup production was estimated using a variety of methods. A review of the different estimates concluded that pup production in 1978 was in the order of 300,000-350,000. However, using mark-recapture methods, pup production in the late 1970s and early 1980s was estimated to be approximately 500,000. Since 1990, visual and photographic aerial surveys have been used to determine pup production of Northwest Atlantic harp seals at 4-5 year intervals. These surveys indicate that pup production increased from 577,900 (SE = 38,800, CV = 6.7%) in 1990 to 708,400 (SE = 67,200CV = 9.5%) in 1994 and 997,900 (SE = 102,100, CV=10.2%) in 1999. Surveys carried out in 2004 indicated that pup production, estimated to be 991,400 (SE = 58,200, CV = 5.9%), had not changed since 1999, likely due to the increased hunting of young animals which began in the mid 1990s. Another survey was carried out in March 2008, but the results will not be available until May or June 2009.

Total abundance of harp seals is estimated using a population model that incorporates pup production estimates since the late 1970s, reproductive rates since 1960 and human induced mortality (catches, by-catch in fishing gear and struck and lost) since 1952. Changes in population size have been estimated for the period 1960 – 2004 using such a model. The harp seal population declined during the 1960s to a low of less than 2 million in the early 1970s, and then increased steadily to 1996. Since then the population has remained relatively stable near the highest values in the time series, and possibly its highest level since commercial exploitation began in the 1700s. The estimated total population size in 2005 was 5.82 million (95% CI= 4.1-7.6 million). By 2007, the population was estimated to have declined slightly (5.5 million (95% CI=3.8-7.1 million) as a result of poor ice conditions and the high level of hunting that has occurred over the past decade.

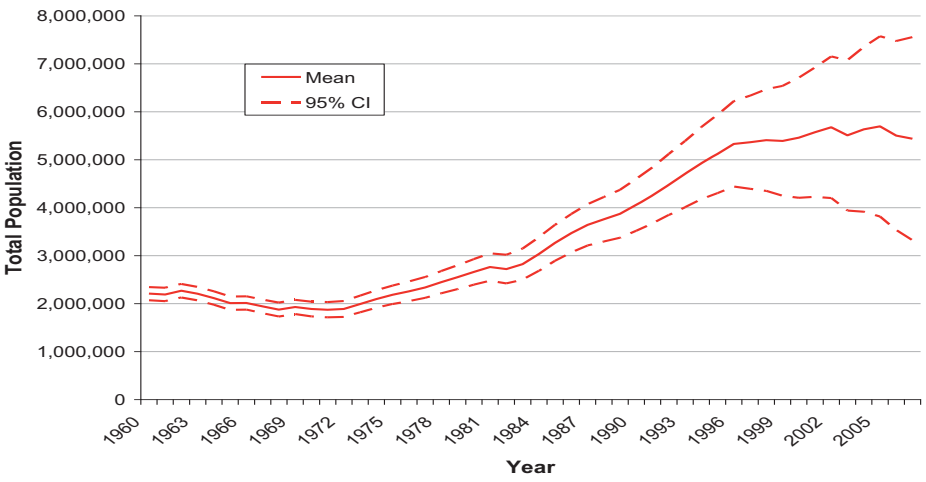

Figure 5. Estimated abundance of Northwest Atlantic harp seals, 1960 – 2007.

In recent years, poorer ice conditions, particularly in the southern Gulf of St. Lawrence, have been observed compared to conditions observed during the late 1980s and early 1990s. Harp seals use pack ice to haul out on, to give birth and nurse their young. After weaning the young of the year (YOY) remain with the ice, which they use as a resting platform. In the Gulf of St. Lawrence, poor ice conditions, which are thought to lead to increased mortality among young animals, have been observed in 6 of the last 10 years. Most recently, extremely poor ice conditions were observed in the southern Gulf in 2007. To account for this increased mortality during poor ice years, an additional mortality factor has been incorporated into the assessment model since 2004. The likelihood of increased mortality is also accounted for when providing advice about the impact of future catches.

Hooded Seals

Using sequential population analyses or survival indices, researchers estimated hooded seal pup production at the Front to be approximately 30,000 in the early 1980s. However, independent aerial survey estimates of pup production in mid 1980s indicated that pup production was approximately 62,000 during the 1980s and 83,000 in 1990. Unfortunately, there is less known about the historical abundance of animals in Davis Strait and in the Gulf. Bowen et al. estimated pup production in Davis Strait to be approximately 18,600 in 1984 based on an aerial survey. Relatively few pups are born in the Gulf, with estimates from aerial surveys being 2,000 and 4,000 animals in 1990 and 1994, respectively.

The most recent estimates of pup production were obtained from surveys of the Front in 2004 and from all three whelping areas in 2005. In 2004, pup production at the Front was estimated to be 123,862 (SE = 18,640). In 2005, pup production at the Front was estimated to be 107,013 (SE = 7,558) while 6,620 (SE = 1,700) pups were estimated to have been born in the Gulf. Pup production in the Davis Strait whelping concentration was estimated to be 3,346 (SE = 2,237). Combing these areas resulted in an estimated pup production in the three northwest Atlantic whelping areas of 116,900 (SE = 7,918). Comparison with previous estimates suggests that pup production may have increased since the mid 1980s.

A population model incorporating hooded seal pup production estimates since the 1980s, reproductive rates and human induced mortality (reported catches and struck and lost) were used to estimate total abundance for the period 1965 - 2005. Fitting to pup production estimates from all herds and making assumptions about numbers of hooded seals in the Davis Strait herd for years when this area was not included in the survey program, resulted in an estimated total population of 593,500 (SE=67,200; 95% C.I.= 465,600-728,300) in 2006. However, there is considerable uncertainty associated with these estimates owing to our lack of understanding of the relationship between the Davis Strait, Front and Gulf pupping areas, few surveys of all three areas, limited reproductive data and uncertain harvest statistics.

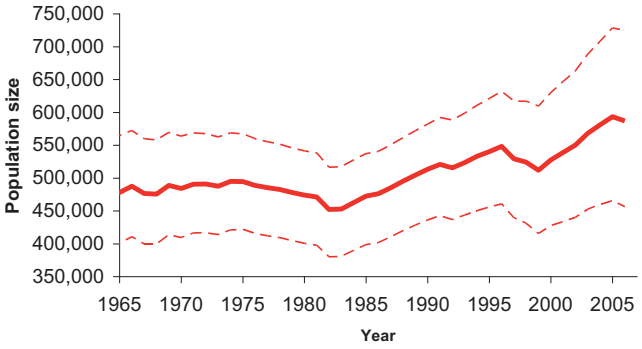

Figure 6. Estimated abundance of Northwest Atlantic hooded seals, 1965-2006.

1.2.3 Management

Since the early 1980s, the Canadian government used a reference point known as 'Replacement Yield' in the management of harp and hooded seals in the Northwest Atlantic. Replacement yield is the number of animals that can be taken in any one year that will result in the population remaining the same as in the previous year. In 2003, however, Canada adopted a new approach to the management of seals in Atlantic Canada. This management approach, referred to as Objective Based Fisheries Management, incorporates the Precautionary Approach (PA) which strives to be more cautious when information is less certain, does not accept the absence of information as a reason for not implementing conservation measures, and defines, in advance, decision rules for stock management when the resource reaches clearly stated reference points. These points or levels are referred to as conservation (limit or critical), precautionary (or buffer) and target reference points.

One of the basic PA principles is the need to account for the uncertainty associated with estimates and to develop a basis for taking action even if stock status is insufficiently known. Therefore, we distinguish between species where a considerable amount of data are available ('data-rich') and situations where resource information is more limited ('data-poor'). Data-rich species are defined as requiring three or more abundance estimates over a 15-year period, with the last estimate obtained within the last five years, and current information (≤5 years old) on fecundity and/or mortality. If these data are not available, the species would be considered as data-poor.

For data-rich species, the conservation reference point ($N_{critical}$) represents the (estimated) numerical abundance at which continued removals are considered to cause serious and irreversible harm to the population. However, estimates of abundance are associated with considerable uncertainty and this uncertainty increases as the population is projected into the future. Managing a population close to the conservation reference point could result in a high probability that the population unintentionally declines below $N_{critical}$. Therefore, a Precautionary Reference Point (N_{buffer}) identifies an 'unsafe' population range within which risk-adverse management control rules would apply. When a population is above the precautionary reference point, managers may establish a target reference point based upon considerations such as ecosystem impacts and/or socio-economic benefits. As long as the population remained above N_{buffer}, higher-risk harvest strategies could be adopted. In fact, in Canada there must be an 80% likelihood that a population is above N_{buffer} to be considered in the healthy zone.

If the population is below N_{buffer} (but above $N_{critical}$), conservation concerns become a higher priority and pre-agreed harvest control rules would be applied with the objective to rebuild the population to above N_{buffer} within a specified number of years. Although harvesting and other human-induced removals could continue, management strategies require a high probability that the population will increase (or conversely, a lower risk that the population would continue to decline).

A population below $N_{critical}$ is considered to be a conservation concern and continued removals present an unacceptable risk of serious or irreversible harm. Therefore, management actions should ensure that all human-induced mortality is eliminated.

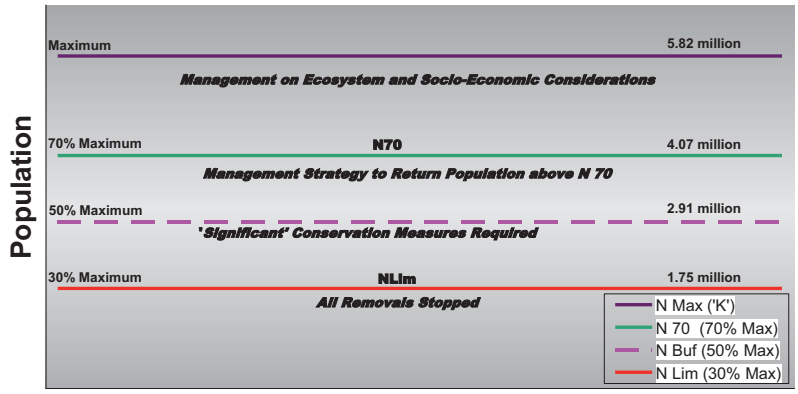

Figure 7. Objective Based Fisheries Management approach adopted by Canada in 2003.

Currently, we have set $N_{critical}$ to be 30% of the highest population level estimated or inferred ('N_{30}'), while the N_{buffer} is considered to be 70% of this maximum (N_{70}). For management purposes we have also identified a level at 50% where more stringent management measures are required. The precautionary reference level is set quite high owing to the characteristics of the way in which seals are assessed and the age structure of the current harvest. Because the primary method of assessment is to estimate pup production every 4 to 5 years and the high level of YOY in the harvest, the impact of current catches cannot be evaluated until surviving animals have themselves reproduced 5 or more years later. Also, recent

environmental conditions have been poor and will likely continue to worsen, on average. Finally, history has shown us that marine mammal populations grow relatively slowly, but can decline quickly (e.g. St. Lawrence beluga, blue whales) and that failure to consider uncertainty can result in severe harm (e.g. Atlantic cod, salmon, abalone).

For species not satisfying the data-rich criteria, the uncertainty associated with resource status and with the effects of particular management actions increases. Therefore, an even more risk-adverse approach is needed. We apply a formula similar to the 'Potential Biological Removals' approach developed by the United States under the Marine Mammal Protection Act.

Under the Objective Based Fisheries Management plan, hooded seals are considered to be 'Data Poor'. Harp seals are considered to be 'Data Rich' and are currently considered to be above the N_{70} precautionary reference level

1.2.4 Ecology

Harp and hooded seals are two of the most abundance marine mammals in the North Atlantic. As such, both species play important roles in structuring this ecosystem. Considerable research has been carried out over the past decade to determine their ecological role and the potential impact of seal predation on the population dynamics of their prey. However, these are extremely complex problems and definitive answers are not easy to determine.

The development of satellite telemetry has provide scientists with the opportunity to improve their understanding of the movements and habitat use of free ranging seals. Both harp and hooded seals are pelagic species that spend much of their time in (or rather below) the open ocean. Harp seals are found mainly along the continental shelves where they dive to relatively shallow depths (100-200m) although they have been observed diving as deep as 800m. In contrast, hooded seals inhabit the edges of the continental shelves and deep water slopes. Hoods regularly dive to depths greater than 300m and, occasionally, deeper than 1500m.

Both species feed on a variety of fish and invertebrates. The exact diet varies with age, sex, location, season and year. In general, harp seals feed upon a variety of small forage fish such as capelin, Arctic cod (or Polar cod in Europe, *Boreogadus saida*), herring and sand lance. They also prey upon invertebrates such as amphipods and shrimp. Although hooded seals feed on many of the same species, they tend to take larger amounts of deep water species such as Greenland halibut and redfish which are found along the shelf edges.

Traditionally, diets have been determined using hard parts found in the stomachs. However, every method has potential biases that may reduce the accuracy of diet estimates. New techniques such as fatty acid signatures and DNA analysis of stomach contents are providing new information on the diets over longer temporal and spatial scales. They are also providing new insights into the importance of individual prey species consumed by harp and hooded

seals, and provide an opportunity to determine the extent of biases associated with each method.

Consumption of important prey species by seals in Atlantic Canada has been estimated using bioenergetics models. Harp seals are important predators off the east coast of Newfoundland and in the northern Gulf of St. Lawrence while hooded seals feed primarily in off Newfoundland and around the Flemish Cap.

A number of studies have attempted to determine the impact of seals on fish stocks in the northwest Atlantic, particularly the impact of harp and/or grey seals on Atlantic cod. In general, these studies have indicated that although seals consume substantial amounts of commercial fish species and important forage species, the impact of these removals on the current fish stocks is difficult to determine. Seals are important predators of both large and small cod and could be playing a role in the non-recovery of cod stocks, but seal predation can not account for a large component of mortality in most areas and therefore, the total impact of seal predation cannot be determined. Often, estimates of age specific cod consumption by seals are inconsistent with the high mortality observed among older age groups. Little is known about the functional response of seals to changes in abundance of prey, other sources of mortality, or possible ecosystem effects such as competition for forage fish and positive feedback through seal predation on piscivorous fish.

Among other initiatives, ICES, NAFO and NAMMCO are sponsoring a symposium on the role of marine mammals in the ecosystem this fall that will improve our understanding of the role seals are having on the population dynamics of their prey.

1.2.5 Discussion

Remote sensing by satellite is not used to detect seals in surveys as the resolution is not adequate. The seals are surveyed from aircraft both visually and photographically. However detecting white seal pups on a white ice background can be challenging. Satellite radar images are used to classify ice types in order to stratify the survey.

Climate change is expected to lead to increased climate variability, and this may result in increased variability in the food base of pelagic fish and crustaceans consumed by seals. Capelin are a major food source for seals in both the NW and NE Atlantic, and this species shows huge annual variations even in the absence of fishing pressure. Seals adapt by switching to other prey when capelin stocks are low. Crustaceans are most important during the summer when seals are in the Arctic. Little is known about the variability in Arctic crustacean stocks, however.

Climate change is also expected to result in a greater frequency of low ice years in the whelping areas and a greater frequency of storms during the pupping season. Storms often

break up the ice and result in high mortality among seal pups. Pup mortality must therefore be monitored and integrated into the management model.

Every method of determining diet and consumption by seals has biases. While most research has been conducted using stomach content analysis, other methods such as fatty acid analysis provide a longer term view of diet and may shed light on the importance of prey that are poorly preserved in stomach samples.

The precautionary level of 70% of the maximum observed population level used in the Objective Based Fishery Management system in Canada (N_{70}), and in the proposed ICES system, was considered to be high and not based on any desirable target population level by some attendees. This level was set at 70% mainly because there is a substantial lag time, at least 10 years, before a population level response will be detected using current survey methods and frequency. Therefore having the level at a relatively high level helps to ensure that management measures will be taken before the population reaches the more critical N_{buffer} and $N_{critical}$ levels. In addition a relatively high population is considered desirable by the sealing industry because it allows larger quotas to be taken.

Theme session 2: THE SEALING

(Chair: Vladimir Zabavnikov)

2.1 The traditional Russian hunt: organisation, status and prospects

Benedikt Gofman,
Chapoma, Murmansk, Russia

The many archeological sites on the coast of the White Sea attest that the seal hunt has an ancient history in Russia. Information about the seal hunt in North-West Russia is found in documents dating back as early as the 9th century. The seal hunt was a major source food, fuel and skins in the area for hundreds of years.

Seals were hunted from villages using small flat bottomed boats holding 5-7 hunters. In good weather they could kill 60-100 seals a day. In addition some larger vessels overwintered at Spitzbergen and Novaya Zemlya, hunting and trapping in the area. Some of the products from these hunts were traded by Pomors along the Norwegian coast and other areas. By 1917 seal hunters had begun to use powerful icebreakers, and the use of spotter aircraft was introduced in 1925. Hunting was centered in the White and eastern Barents seas, but in 1955 Russian vessels began hunting for hooded and harp seals in the Greenland Sea. Russian and Norwegian hunters have operated in the same areas for hundreds of years, generally with little conflict.

The White Sea harp seal population traditionally used by Russian and Norwegian hunters was intensively exploited from 1900 to 1963. This resulted in reduction of the population and quotas were reduced between 1955 and 1965. At the same time a ban on hunting for mature females at whelping sites was imposed and the number of adult individuals subject to hunting was reduced. As a result of these measures the seal population began to recover.

In the season of 1971 hunters began to capture live seal pups at the khokhlusha (ragged jacket) stage and bring them to shore where they were kept in open air enclosures until they reached the serka (beater) stage, when the pelt was most valuable. This proved to be a lucrative method of harvesting seals. Helicopters were often used to transport the live pups to shore, but the costs have become too high in recent years.

The primary products of the seal hunt are raw-salt skins packed into plastic barrels which are shipped either to Russian or Norwegian enterprises for further treatment. Other products include seal oil, pharmaceuticals and seal meat, but the market for these is quite limited at present. Seal meat used to be a major food for local people.

In recent years economic conditions have been poor for seal hunters. Until 2004 the quota was given free of charge but now it is subject to taxation which has caused discontent among the hunters and made their financial situation still more difficult. Operating costs have risen to the point where the use of helicopters is no longer viable. As a result of these problems in 2004 not a single quota holder hunted.

The Russian seal hunt is not subsidized in any way, and harvests have been very low in recent years due to the poor returns from the hunt. However, environmental changes have played a

role as well. For several years noticeable warming has been taking place in the Arctic as a whole and in the White Sea in particular. This has resulted in later freeze-up, lower ice thickness, a decrease in the area covered by ice and earlier breakup. This can lead to high mortality among seal pups. It also makes the herds difficult to locate as their whelping patches are not stable from year to year.

It is clear that a vessel based hunt is the only way forward for Russia, and recent cooperative programs with Norway have been working towards establishing such a hunt. This will require sustained will and interest on both sides. In recent years there has been increased opposition to the hunt in Russia, with some demonstrations and media events. This too must be addressed if the hunt is to continue.

2.2 Changing the Russian hunt: the new boat-based approach

Sergej Pocholov,
Arkhangelsk, Russia

The use of small, seagoing vessels in the White Sea seal hunt was common up until the early 1970's, when helicopters began to be used to bring live seals to shore stations. The sealing vessels thus fell into disuse or were reconfigured for other purposes, and the hunters and sailors who were skilled in this hunting method eventually retired. As a consequence, when the use of helicopters became prohibitively expensive in the 1990's, neither appropriate vessels nor skilled manpower were available to resume seal hunting using vessels, and the seal harvest has been very low in recent years.

In 2006 a program was initiated, with cooperation and support from Norway, to try to bring back the vessel based seal hunt in the White Sea. The first challenge was to find a suitable vessel, with sufficient storage capacity, crew accommodations, range and ice capability. A deep sea tug was chartered and used in the 2006 season, but a late start meant that few seals were taken.

The program has continued in 2007 and 2008. In addition to the main vessel, smaller boats are used to locate, kill and transport seals. A small helicopter was also used to locate the seal herds. A subsidiary vessel was used to transport seal pelts to coastal villages for processing.

Problems have been encountered with heavy ice and poor weather conditions, but the number of seals taken has increased as experience is gained, up to 13,000 in 2008. There is a renewed sense of optimism that the Russian seal hunt can be revitalized and made viable again, but this will require continued support and cooperation in the near future.

2.3 The hunt in Norway: management objectives, regulations and organisation

Halvard P. Johansen,
Norwegian Ministry of Fisheries and Coastal Affairs, Oslo, Norway

The main objective of the Norwegian sealing policy is to make possible a profitable development of the sealing industry. Sustainable management is a prerequisite for a successful regulation of marine living resources. But for the sealing industry sustainable management is only a small part of the solution to the problems this industry is facing. An equally important management objective is therefore to implement measures that will make sure that the skills of the industry survive until the main problems are solved.

Norwegian seal hunting is subject to strict and detailed regulations concerning all aspects of the sealing activities. There are rules for participation, hunting seasons, approval of vessels, quotas, methods of slaughtering, and instructions and training of seal hunters and their supervisors. The rules and regulations for sealing are laid down by the Ministry of Fisheries and Coastal Affairs. Great importance is attached to the regulations concerning killing methods and animal welfare, and the enforcement of these regulations. These issues are discussed with veterinary authorities and special consultants before they are enacted.

An important feature of the Norwegian management policy is that the industry and the users as well as the scientists are closely involved in the decision-making process. This gives credibility and legitimacy to the regulations and the way the process is organized.

2.3.1 Discussion

In the "White Paper" outlining the policy of the Government of Norway on the management of marine mammals, the Government stated that it would start to prepare for the transition to an ecosystem-based management regime for living marine resources, in which marine mammals were to be viewed as harvestable components of the ecosystem. Therefore the target stock sizes of marine mammal populations must be evaluated in relation to management of other living marine resources. In his opening address the Secretary General of the Ministry of Fisheries and Coastal Affairs challenged the scientists here present to discuss what would be an adequate balance of the harp seal stocks in the North Atlantic, and Johansen reiterated this request.

The main objective of the Norwegian sealing policy is to make possible a profitable development of the sealing industry. Consequently, the most important management objective today is therefore to help the industry live through the current problems by implementing measures that will help the industry and the skills it possesses to survive until the main challenges are solved.

The logistics of sending sealing vessels on long voyages to the West Ice do not favour economic viability of the industry, and participation has been low in recent years. Conditions in the East Ice/White Sea are potentially much more favourable mainly because the sealing areas are much closer to home ports in Russia and Norway. The cooperation between Norway and Russia in revitalizing the sealing industry in this area therefore offers the greatest hope of maintaining a sealing industry in the eastern North Atlantic. The sealing industry and the Government of Norway will continue to support this effort.

It remains to be seen whether the Norwegian sealing industry will qualify for an exemption from the proposed EU trade ban on seal products. The rules for this have not yet been published. However the hunt is highly regulated and monitored by independent inspectors, so it certainly should qualify under any reasonable criteria.

Norwegian sealers must undergo a 2 day training course every year, which covers rules and regulations, killing, bleeding and skinning methods, as well as a practical shooting test.

2.4 Norwegian sealing as seen from a sealers perspective

Bjørne Kvernmo,
MS Havsel, Alta, Norway

2.4.1 Short history and overview

Due to international pressure, the profitability of seal hunting was reduced over the 1970´s. But Norwegian seal hunters managed to operate in the traditional 3 zones, Newfoundland, West ice and East ice until the end of the 1982 season. When in 1982 the EU banned trading of whitecoat seal skins the commercial seal hunting was over.

The Norwegian government decided to subsidize the seal hunt so that a couple of Norwegian sealing vessels could operate in the West ice and East ice. In the East ice the hunting of beaters and adult harp seals was attempted by a couple of boats, but new restrictions on the dumping of the carcasses meant that the small traditional East ice vessels were no long useable, leading to the end of this hunt.

2.4.2 Media mania

In 1989 a new media mania around seal hunting began after the´Lindberg´film was shown in Sweden and England. The film was shot by a free-lance journalist in 1987. The same journalist acted as a fisheries inspector on the same vessel in 1988. The film was protrayed as being from the 1988 season but this was not the case. The film attempted to demonstrate that seal young, called baby seals in the film, where being skinned alive. As a result of the media attention and public outcry, hunting of young of the year seals was stopped and a Scandinavian commission was established to report on the issue. The report found no evidence to support the allegation that seals were being skinned alive.

2.4.3 New regulations

As a result of the commission all inspectors on sealing vessels were required to have professional qualifications, preferably as a veterinarian. Hunters were required to take a course before every season. The ban on hunting young of the year seals lasted until 1995, and in this period only adult animals were taken. As a result there was very low participation in the hunt, generally only 2 vessels. After 1995 the take of beaters and bluebacks was legalized, but still there was little participation because of the lack of profitability. In 2007 the take of bluebacks was ended due to conservation concerns. The skin of the blueback was the most valuable, and this caused further difficulties for hunters.

At present the take of harp seal beaters is permitted and this forms the basis of the hunt. The skin of adult seals has virtually no value. There is a good market for fat and meat from seals in Norway, and all the meat from the animals is used. It is salted or vacuum packed and frozen, then sold in the northern regions of Norway.

2.4.4 Season 2008

In 2008 only one vessel, the *MS Havsel*, participated in the hunt, arriving in the West Ice on the 6th of April. This date proved to be too early, as there were large numbers of harp seals with whitecoat young. These would take up to 3 weeks to mature to the beater stage when they could be legally hunted. In addition many hooded seals were found in the same ice.

After drifting and sailing for over a week, we located a few beaters on the 15th April, and hunting commenced. However the seals were very spread out and most were not developed enough to hunt.
The following week we were hunting every day but took only 50-60 animals per day as they were spread out and fog hindered the hunt. But there were very large numbers of animals in the water.

On the 25th April we retreated to Iceland to ride out a storm and remained there until 5 May. Hunting resumed for 2 days but a new storm pushed us back to Iceland until the 12th of May. Hunting resumed for another week but takes were low because most of the seals were still too young. On the 19th of May we found an area with large numbers of animals, but the ice and sea conditions were too bad for hunting. After this we returned to Norway.

The result of the hunt was only 1,250 animals, with a value for the skin, meat and fat of about NOK 500. The value would have been much higher had the take of bluebacks been permitted.

Due perhaps to climatic change the West Ice has been changing the last 10-15 seasons. There is a higher frequency of persistent north east winds, gale and storms, and the air temperature seems to be higher today. There are few perods of stable cold weather which are favourable for hunting. This combined with new restrictions on hunting nearly every year make continuing the hunt nearly impossible.

In my opinion, the Norwegian seal hunt is definitely over.

2.4.5 Discussion

Part of the reason for the low success of the 2008 hunt has to do with regulatory restrictions, and it is of interest to managers to know what restrictions are hindering success. A main factor in the Norwegian hunt is the ban on taking bluebacks (weaned hooded seal pups), which are the most valuable component of the harvest. However the hunt was not profitable even before this ban took effect. The starting date for 2008 was too early and most pups were not mature enough to be taken. In this respect the ban on taking "ragged jackets" renders the hunt less efficient. Presently, hunters are not allowed to shoot legal harp seal pups (beaters) while they are in the water, which restricts hunting as a substantial proportion of these animals tend to be in the water. At this time of year a shot beater tends to float, so retrieving animals would not be a problem.

2.5 The seal hunt in Greenland: Organization, status and prospects

John Biilmann,
KNAPK, Greenland

Archaeological investigations have shown that the Greenlandic economy and culture has always been based on sealing. Hunting has always been and still is an important part of our cultural and social identity. Until a couple of decades ago, sealing was the principal occupation in the winter ice areas. There are still parts of Greenland where sealing is the most important component in the pursued livelihood strategy, combined with other forms of hunting. It provides people living in remote communities with a significant amount of meat and income.

Seals are hunted using several different methods, depending on the species, location, season and ice conditions. During the winter in northern areas, there is sea ice and ringed and bearded seals are hunted by their breathing holes in the ice and also by using nets closer to the shore. During the early spring (April to June) when seals are up on the ice, they are hunted by stalking using shooting screens for camouflage. During the late spring, summer and early fall, harp and hooded seals appear in open water. All species are hunted during the open water period using small dinghies and rifles.

The meat from the catch is either consumed by the hunter and his family or sold at local meat and fish markets. The skins are either kept for home use or sold to the Great Greenland Company. Prices for sealskins are negotiated each year between the Organization of Fishermen and Hunters in Greenland (KNAPK), the Greenlandic Home Rule Government and Great Greenland. Each member of KNAPK pays 1.5% of the price of each sealskin sold to support KNAPK.

Hunters in Greenland are classified as either free time or full time. Free time hunters have other means of support, generally paid employment, while full time hunters are solely dependent on hunting. Although there are more free time than full time hunters, the latter account for most of the seal catch. Annual catches in recent years have been 80,000 to 85,000

ringed seals and 90,000 to 95,000 harp seals, with lesser numbers of other species. Full time hunters account for between 78% to 85% of these totals.

At present seal hunters in Greenland face many challenges and these affect the entire economy of Greenland. Although Greenlanders will be exempt from the proposed European ban on trade in seal products, the market for these products will be affected detrimentally. This will require finding new markets, perhaps in eastern Europe and Asia. Climate change has also affected seal hunters, particularly in central and northern Greenland, where there is less sea ice than previously. This means that hunters can no longer hunt and travel on the ice in some areas as they used to. Greenland is heavily dependent on the fishing industry, and there needs to be a balance between fish and their predators, seals and whales. This will require the continuation of a sustainable harvest of seals and other marine mammals.

2.5.1 Discussion

The taking of seals using nets continues to be important particularly in northern Greenland. In this area there is extensive sea ice and it is dark during the winter, making it difficult to hunt seals using other methods. Also dog teams are widely used in this area, and seal meat is important as dog feed during the winter months. The use of nets has become less important in other areas because of the lack of stable sea ice in recent years.

The prices that hunters receive for skins depend on the species of seal and the quality of the skin. At present prices are highest for high quality ringed seal skins. Full time hunters are also paid a higher price than free-time hunters. The sealing industry is subsidized by the Home Rule Government, mainly because of high transportation costs.

Although seal products produce by Inuit will be exempt from the proposed EU ban on trade in seal products, Greenlanders are nevertheless unhappy with this situation. It seems that now that EU members have for the most part abandoned the hunting of marine mammals, they feel that everyone else should too. Greenlanders felt that the importance of the hunting for marine mammals to their economy and culture was not appreciated by the EU.

2.6 Today's successful seal hunt in Canada: organisation, status and prospects

Tom Fowler,
Manager, DFO, Canada

Today's seal hunt in Canada represents a traditional cultural activity as well as an economic activity that brings income to rural Canadians living in some of the less economically advantaged areas of the country. The hard work and hunting skills of the sealers and the availabiltiy of a ready market for seal products support a prosperous industry without the need for subsidy. The Canadian government fully supports the seal hunt and values the presence of

a uniquely skilled community of resource users on its coasts. Canada will consider all available options when it comes to defending the hunt.

Sealing is critical to the livelihood of more than 6,000 sealers in rural communities across Atlantic Canada, Quebec and the North. It can provide as much as 35% of a sealer's annual income. In 2006 the value of the harvest to the economy was in excess of C$55m in Newfoundland and Labrador alone.

From an operational aspect, the majority of the harp seal hunt occurs during March and April on the Front and Gulf and involves sealers from the provinces of Newfoundland and Labrador, Quebec and the Maritime provinces. There is a smaller grey seal hunt that occurs mostly in February on Scotian shelf and in the Southern Gulf of St. Lawrence.

There are approximately 14,000 commercial licenses, between 5000 and 7000 of these are active in a given season. These include Professional licenses and Apprentice licenses, where apprentices are supervised for two years by a professional sealer.

There are approximately 300 to 500 vessels involved in the hunt. These include longliners (over 45 feet) which can take hundreds of seals per trip, and can manage longer trips in heavier ice. The small boat fleet consists of vessels under 45 feet which conduct mostly day trips and typically take a few dozen seals per trip. Long liners often use smaller vessels, which manoever though the ice collecting seals.

Today's sealing method involves a three step process: stunning (with rifle, shotgun, hakapik or club), checking, and bleeding. The largest proportion istaken with rifle. Detailed specifications for rifle and other weapons in are found in the regulations, as well as checking via the corneal reflex test. Bleeding was made mandatory in 2008 via license condition. Checking by palpation of the skull and mandatory bleeding will be proscribed in regulatory changes for 2009.

The Canadian hunt also manages a large number of third Party observers. These individuals apply to DFO for observer licenses. Most are journalists and members of Non-Governmental Organizations. 2008 saw the most active year for 3rd party observers, with over 60 licenses issued. In issuing licenses, the Department needs to consider the observers right to observe the activity but also the need to protect the seals and the sealers from disturbance. Therefore the observers are required to maintain a distance of 10 meters from sealing activity. Some unlicenced observation does occur. The 2008 activities of the Sea Sheppard Society's vessel Farley Mowat is one high profile example which added to the challenge of monitoring and regulating the hunt.

DFO's role is primarily to provide science and policy advice respecting the management of the hunt, to develop and implement regulation, and to manage the hunt in such a way as to ensure the conservation of the resource and a humane hunt. The management approach used is

Objective Based Fisheries Management, whereby harvest levels are established that ensure the population remains healthy.

DFO works closely with sealers, veterinarians, and others through regularly planned consultations including regional planning sessions as well as Atlantic-wide advisory meetings and sealing fora. There is also an expert working group that advises on the development of regulations and other technical matters.

Management measures applied to the hunt include the establishment of a Total Allowable Catch, the use of closed areas and close times, and the use of license conditions for humane killing and other requirements. Enforcement of these measures is comprehensive. Fisheries Officers conduct at sea inspections from large vessels and small boats. Newfoundland Longliners are tracked using an electronic Vessel Monitoring System. Aircraft are used for overflights and on-ice inspections via helicopters. This surveillance is complemented by dockside, plant and vessel inspections as well as examination of vessel hails and buyer receipts. Independently contracted At-Sea Observers are placed on sealing vessels. Given the number of participants in the hunt and the large area over which is occurs, self enforcement by sealers is also key to ensuring compliance with management measures.

To summarize some of the key aspects that make the Canadian hunt unique, it is a large scale hunt, widely distributed over the Atlantic Region. It is highly regulated and monitored. It is highly scrutinized by Non-Governmental Organizations, Journalists, Parliamentarians, and it has been comprehensively studied by experts ranging from marine mammal scientists, veterinarians to sociologists and political scientists.

Some of the key challenges and opportunities are to ensure the continued healthy status of the population, to effectively implement the latest veterinary advice, and to ensure continued humane killing practices and other management measures via a comprehensive compliance strategy. Another key challenge will be to obtain derogation from the proposed EU legislation regarding the import of seals and seal products, or to identify and access non-EU markets.

2.6.1 Discussion

Under the UN Convention on the Law of the Sea, states are required to cooperate in the management of stocks that cross international boundaries, as do Northwest Atlantic harp and hooded seals. Scientific advice on the management of seal stocks is generated internally in Canada and peer reviewed by a committee that includes international participation. The advice is also reviewed by the Joint ICES/NAFO Working Group on Harp and Hooded Seals (WGHARP) and secondarily by the NAMMCO Scientific Committee. However NAFO does not provide management advice on seals and Canada is not a member of NAMMCO. Canada does, however, carry out bilateral discussions with Greenland that include seal management.

In Canada those wishing to observe the seal hunt must obtain a license. The review of applications focuses mainly on ensuring that prospective observers will not disrupt the hunt or its orderly management. Generally license applications are approved unless there is a good reason not to, for example if an applicant has a history of disrupting the hunt.

Most seal skins originating in Canada are processed in Canada and/or Norway and transshipped through Europe to markets in Russia and Asia.

Theme session 3: THE PRODUCTS

(Chair: Paul Jensen)

The Chairman introduced the topic by noting that the seal population should be controlled through harvesting to restore balance to the marine ecosystem. A high seal population combined with low fish stocks had led to "seal invasions" of the Norwegian coast in the past, and he feared that this could happen again. However commercial harvesting of seals was simply not economically viable for Norway under present conditions. New products and new markets offered some hope that the industry could be restored.

3.1 Traditional products from the seal hunt: status and prospects

Knut Nygaard,
Director, CGRieberSKINN AS, Bergen, Norway

There is abundant archaeological evidence that the peoples occupying the Norwegian coast have been catching and processing seals for thousands of years. This includes fire pits used for the processing of seal oil. Norwegian involvement in sealing in the White Sea dates back to 7th century, when Ottar from Hålogaland described his travels to Dvina and the White Sea where he hunted walrus and other seals. He wrote that the skins were used for rope and the teeth were also said to be valuable.

The Rieber company has been in existence for over 130 years, and seal products have been a major focus for the entire existence of the company. However the company is quite diversified, with interests including skins and leather from other animals, salt, fish processing, real estate and shipping. It is this diversity, and also the willingness to adapt to changing times, that has helped the company survive the ups and downs of the volatile sealing industry. Today the company is focussed on fine seal skin and leather products, seal oil products, especially omega-3 pharmaceuticals, salt, shipping and real estate. The company has a seal oil processing plant in Kristiansund, Norway and a new oil processing is under construction in Newfoundland.

Almost all seals processed by Rieber are beater harp seals. The skins are mainly used with the fur on. Products made from sealskins today include fashion items such as jackets and vests, hats, sporrans, shoes and boots, carpets and furniture. There is also a small market for leather, which is unique in that it has a natural grain and requires no embossing. The leather is used for products such as shoes and boots, belts, bags and accessories.

The market for seal meat is relatively small and limited mainly to the harvesting areas in Norway and Newfoundland.

As with any business, success in the sealing industry depends on providing customers with products they need and desire, and balancing supply and demand. At the present time there is

a potential for large increases in the harvest in some areas, especially the Russian harvest in the White Sea. Profitability issues preclude increasing the harvest in the Barents Sea, and the Canadian quotas are usually fully taken. However the supply is strictly limited by quota in almost all areas. Given this limitation on supply, it is best to concentrate on niche markets and high-end products, as there will never be enough sealskin to supply cheap consumer goods to large numbers of people. The market for seal oil products is still emerging and presents an opportunity for growth in the future. At present the total annual harvest of seals amounts to about 400,000, with a primary (wharf) value of 10-12 million USD. The total retail value of all seal products is over 100 million USD.

3.1.1 Discussion

Rieber operates two seal oil processing plants. The Canadian plant produces raw oil by heat rendering and has a large capacity to process oil quickly in the harvesting season. The Norwegian plant produces refined, food grade oils.

The possible closing of the EU market for seal skins was of great concern to the seal processing industry, although direct sales to the EU were low. The EU is a leader in world opinion, and it was feared that other markets might follow the EU example. The concerns about a humane harvest were real and must be addressed honestly and openly. The industry had nothing to hide in this area.

3.2 Products from seals – potentials and possibilities

Mona Gilstad,
Cand.real in marine biology, Vega, Norway

Conflicts between coastal seals and the fishery are a reality. Along the Norwegian, Swedish and Finnish coasts, coastal people are looking for solutions that can restore the harmony between fishers and seals. The project "Seals: Our common resource" was intended to be a step in solving these problems.

The main objective of the project was to bring forward ecologically based management of the seal stocks for the benefit of coastal people in the 3 participating countries, Finland, Norway and Sweden. The project was intended to create the conditions for a sustainable use of a valuable and renewable resource, as well as facilitating cooperation between coastal peoples and their organizations, and government authorities. A secondary goal was to train hunters in ethical and effective hunting methods, and to teach chefs and craftsmen to utilize seals as a resource.

To these ends the project arranged courses for craftsmen, hunters and chefs. In addition the project facilitated the exchange of knowledge and experience between coastal peoples in several different areas, through workshops on resource management, science, equipment

development, hunting techniques and safety. A central feature of the project was the development of a "virtual seal centre", a web site that functions as an information bank on seals and sealing.

3.2.1 Discussion

Ironically considering the present efforts to implement a trade ban on seal products within the EU, this project was supported by the EU for 6 years. That support is now ended but components of the project have been integrated into the management programs in Finland and Sweden. The cookbook is available for sale but at present it is available in Swedish, Finnish and Norwegian and there are no plans to produce an English version.

3.3 Can seal oil contribute to better human health?

Bjarne Østerud,
Professor, University of Tromsø, Norway

During the last two decades it has been established that Greenland Eskimos living on their traditional diet have a lower incidence of coronary heart disease than Danes living on a Western diet. The Eskimo diet consists of meat and blubber of seal and whale and fish, containing high amounts of monounsaturated acids (MUFA) and omega-3 poly-unsaturated fatty acids (PUFA) and relatively small amounts of saturated fatty acids. Eskimos consume the bulk of their food raw or dried, seldom boiled or exposed to excessive heat.

The fatty acid composition in seal and whale blubber deviates from fish oil in the positioning of the n-3 fatty acids in the glycerol. It has also been shown that PUFA in marine mammals are better protected from oxidation. The oils used in clinical studies have been subjected to a traditional refining process. The main objectives of such processes are to remove pesticides and to make an edible and stable product. Removal of molecules that cause off-flavors or taste by "steam stripping" (exposure to excessive heat) destroys potent antioxidants.

We have previously performed 3 clinical studies on the effects of supplementing daily diet with marine oils including seal oil. In all these studies, the effect of seal oil appeared to be quite similar to fish oil except that there is a tendency of a rise in the positive HDL-cholesterol associated with intake of seal oil. In contrast, intake of cold pressed (non refined) whale oil, despite its low content of omega-3 fatty acids; less than half of cod liver oil (CLO), influenced several factors (lipids, inflammatory products) related to coronary heart disease in a positive direction relative to CLO.

Since antioxidants are removed during refining of marine oils, we decided to combine the refined seal oil with a special extra virgin (cold pressed) olive oil, in order to create an oil mixture that may be regarded as an "artificial" or blended non-refined whale oil. The

combination of fatty acids resembles the whale oil and the special extra virgin olive oil delivers the antioxidants and anti-inflammatory agents lost during refining of marine oils.
The major results of this clinical study showed that in contrast to refined CLO, intake of the combined oil mixture gave a significant reduction in inflammatory products, implying that the inflammatory reactions in the subjects are altered in a very positive way. Furthermore, HDL-cholesterol, the good cholesterol, was increased in groups consuming this oil. This confirms our earlier observation that marine oils from blubber of mammalian animals have a very good effect on HDL-cholesterol. In addition, our oil mixture was recently shown to suppress significantly the development of atherosclerosis in transgenic mice.

In conclusion, we have documented that a combination of seal oil and our special extra virgin olive oil is superior to refined marine oils, even if the content of omega-3 fatty acids is halved. Thus, we have to a large extent been able to mimic a non-refined (virgin) whale oil, which was an important part of the traditional Eskimo diet.

3.3.1 Discussion

Larger controlled clinical studies are required to convince the medical community of the effectiveness of seal oil. However such studies have become difficult in Norway because so many people now use supplements. Clinical studies are only possible in a few countries where seal oil is available and people accept its use as a supplement. The development of a larger market for refined seal oils would be of great benefit to the sealing industry.

Theme session 4: SEALS AND THE WORLD

(Chair: Jørn Pedersen)

4.1 Why arrange a sealing conference in Vaasa, Finland – some thoughts after the international "Seals and society" conference in 2007

Dr Eero Aro,
Finnish Game and Fisheries Research Institute, Helsinki, Finland

The rationale to organize the conference was to evaluate the state of seal stocks in the Baltic and North Atlantic, to seek possibilities to resolve conflicts between exploitation and conservation of seal stocks, evaluate the importance of sealing for the economy and culture of local communities in the Baltic Sea and North Atlantic and to enhance possibilities to develop biologically sustainable, economically profitable and socially acceptable exploitation of seals stocks in the Baltic and North Atlantic.

The main aim of the conference was to exchange experiences and constraints encountered so far in the Baltic Sea and North Atlantic, to identify strategies and best practices to facilitate further implementation of seal stock management and conservation and to boost and generate solutions towards implementing sustainable management strategies of seal stocks. The multi-disciplinary conference provided a venue for scientists, managers, policy-makers and stakeholders to discuss recent advances, new ideas and share experiences to develop new avenues and create networks for sustainable development of seal stocks.

Sealing has long been an important part of the economy and culture of many local communities in the Baltic Sea and North Atlantic. Most of the seal stocks exploited presently are abundant and healthy, providing a basis for continued sustainable use. The competition for food resources between fishers and seal stocks is increasing and in some areas seals consume substantial quantities of commercial fish. Fish consumption by seals in the Barents Sea, for example, is greater than the take of the fishery. There are also increasing numbers of conflicts between seal stocks, fisheries and aquaculture in coastal areas and some mitigation measures are necessary, such as new gear development, seal scaring, removal of seals, fishery closures and establishment of protected areas. In some coastal areas seals have become a severe problem for gill net and trap net fisheries and losses of 30% to 50% in gill net fishery have been observed.

Presently *"public opinion"* tends to favour conservation and population growth of seals although the results from questionnaire surveys vary greatly between surveys on the seal hunt, seal conservation and exploitation (*e.g.* DFO versus IFAW surveys). However, the continuation of a sustainable harvest of marine mammals in the future is expected, when the harvest is sustainable based on scientific advice, precautionary approach principles and the ecosystem approach is implemented. This sustainable use of wild populations has been accepted by many international authorities and organizations including the IUCN.

Seal stocks are considered to be a valuable natural resource. Presently sealing is culturally and economically important for many small remote communities in the North Atlantic and the Baltic and hunting seals is a vital component in the everyday life and culture. Traditional and new seal product producing programs have been introduced lately – from skin to oil – and a

large number of traditional products are available (oil, meat, pelt, bone, fancy goods) together with new products such as clothing and other skin products, new seal meat products, oil as paint and for medicine and bones for jewelry.

The introduction of the sealing ban in 1980's was disastrous for many remote areas and today there is a renewed movement to ban import and marketing of seal products. Presently the European Union is under pressure from animal rights groups and legislators at the European Parliament to take action over the seal hunt, which they say is cruel and inhumane. The activists have called for a total hunting ban that would affect Canada along with Russia, Namibia and Greenland and EU members Finland and Sweden. The EU's environment commissioner proposed a partial ban (23. July 2008), which would prohibit the sale of products from seals the EU determines have been killed inhumanely, or culled in hunts that it considers not sustainable. The present proposal includes two exemptions from the ban. Aboriginal communities, such as those in Canada and Greenland, where the hunts are a vital part of the local economy, and any country that meets a certain list of criteria can apply for an exemption, or derogation. These criteria include adequate national legislation outlining rules on animal welfare, the use of appropriate hunting tools, and proper training of hunters.

Conservation and management tend to go hand in hand. The overall principles for management of seals should include *inter alia* a definition of the management unit(s), clearly spelled out and prioritized management objectives, a set of defined strategies to achieve the management objectives, a program to monitor whether or not the management objectives are met and a feedback mechanism to improve the management strategies based on new data from the monitoring programs or from other data sources. There is also a need to involve stakeholders in the development process of management objectives and seal management should be an integrated part of marine-spatial plans, which should acknowledge other activities and uses of the marine areas. There are three separate but complimentary systems for management of seal populations in the North Atlantic Ocean—US/Canada, ICES and IUCN. The US system is strongly oriented towards population recovery and conservation. Mandates under the Canadian Fisheries Act and Species-At-Risk Act are similar, but include commercial harvesting and the ICES/NAFO provides advice to member states on sustainable harvests of seal stocks. In all cases the role of science is to provide advice to managers and scientists should not decide whether to harvest or not.

The scientific/research information available is used both to justify exploitation of seal stocks (increased stock sizes, valuable resource) and to justify conservation and protection (increased stock sizes are still a small fraction of pristine size- stocks are vulnerable to extinction). The main problems in the use of scientific information for conservation and management of seal stocks are connected to the complexity of the systems. When the complexity of systems and interactions in the ecosystems increase, it creates estimation problems and increases uncertainty of estimates *i.e.* as complexity rises, precise statements lose meaning and meaningful statements lose precision. Likewise in the modeling of ecosystem interactions, insofar as the formulation of models refers to reality, they are not certain and insofar as they are certain, they do not refer much to reality.

4.1.1 Discussion

Seal populations in most areas of the North Atlantic are thriving so conservation is not a major issue at present. In the Baltic, seal populations are growing but have not yet reached

historical levels. In Sweden and Finland, the majority of the public wants the seal populations to continue to grow. However this depends very much on who is asked, and those involved directly in the fishing industry might have a very different view. As a result there is intense debate about seal management in these countries.

4.2 Sustainable harvest of marine resources: should seals and fish be treated differently?

Eugene Lapointe,
President, IWMC World Conservation Trust, Florida, USA

When it comes to harvesting, marine mammals and fish are treated differently from each other and, generally speaking, marine species are treated differently from other species. Why is this so? Furthermore, why is a distinction made between even various marine mammal species, to the point where some abundant species are excluded from harvesting?

Most people around the world will readily accept that there are certain basic necessities required for survival and that food and clothing are among them. Today we are faced with a myriad of choices in how we meet these needs. However, with choice comes individual responsibility and politically imposed limits. We must ensure that the animals we eat, or cover ourselves with, are killed humanely and that we do not threaten the survival of species. At the same time we have to contend with those who impose their individual choices on others. These two concepts frequently become clouded.

There is no difference in principle between harvesting one species or another. Whether we are talking about fish or seals or elephants, the bottom line is that our harvests should be sustainable. We should endeavor to use as much of the product as possible and waste very little. We should also organize our harvests in a way that produces good management practices. It is a good management practice that establishes the difference in how we should treat harvests of fish and seals. When we establish good management practices, we accept that animal species are exactly that – species. And species are, by definition, different. Different in size, habitat, migration patterns, abundance, and possibilities of use. Therefore all animals cannot be managed in the same manner, even if we apply the same basic principle of sustainability to different species.

Sustainability is dictated by science, traditional knowledge and common sense. But other factors have a tremendous influence on the treatment granted to various wild species. Most animal rights advocates do not support the consumption of animal products at all. If they could have their way, they would include fish and seals in a total ban on all animal use. To them, killing an animal for any reason – even if it is to provide food and clothing – is fundamentally wrong and unethical.

How these groups advance their core agenda is sometimes misunderstood. Only some of the more militant groups, such as People for the Ethical Treatment of Animals (PETA) and Sea Sheppard, openly advocate a total ban on all animal use. But the more common path, as established by the Humane Society of the United States (HSUS) and the International Fund for Animal Welfare (IFAW), is one of stealth, animal by animal, making each one special in some way that will appeal to the broader population. And in addition to lobbying today's legislators and regulators, they lobby tomorrow's thinkers by bringing their case into schools disguised under the environmental banner or a concern for animal welfare.

In the case of marine mammals, the campaigners use mainly *emotions* to convinced interested politicians to take decisions that in no way affect their own electorate. With seals, there is a clear cuteness factor, the "charismatic image". But whereas around 25 per cent of fish stocks are over-exploited, this is not the case with seals. For seals, the animal rights groups justify their campaigns on the killing methods, which they say are inhumane. Of course, there is no killing method that they would regard as humane or acceptable.

So how does this impact the way we harvest seals and fish? In each case, nations turn to institutional solutions, managing harvests through some form of regulation. One result of such management processes is that they tend to pit fishing interests against campaign groups. On a national level, this may not create a serious problem. But on an international level, it puts fisheries interests at a disadvantage because the campaign groups are expert in the craft of lobbying. The fishing and sealing industries, by contrast, are not sufficiently resourced to do the same. The campaigners are able to devote large amounts of money and manpower to their campaigns, manipulating public opinion, embracing legislators, bureaucrats, journalists, boycotts and lawsuits that are planned to force government action where it is not forthcoming or it is not done their way.

With seals, regulation is both national and regional. But since this arrangement makes it very difficult for animal rights groups to influence harvest levels, they rely on direct action campaigns and "indirect" lobbying through other institutions, being very successful, as an example, in getting the European Union to support their objectives. We should expect these pressures to intensify. If they cannot restrict supply, they will try to force restrictions in demand.

A new type of cultural imperialism has taken hold. The new cultural imperialist does not bash a bible; he pushes an ecological manual in your face and demands your adherence. Our new imperialist also comes armed with two new weapons, namely, ready access to an instant global communication and support network that will amplify his message around the globe and equally ready access to enormous bank accounts that can finance both his activities and the international promulgation of his message.

There is also an ever more obvious emergence of cross cultural and personal intolerance often practiced in the name of left-wing politics and supposed environmental concern. Here in Europe, no countries, with the exceptions of Norway and Iceland, have a whaling culture. The

question of whaling is minimal to non-existent. And yet, every year, we see the US rounding up its circle of European puppets to parade into the halls of the International Whaling Commission to condemn Iceland, Japan and Norway for taking and eating whales as they have done for centuries. Similarly, what exactly is the interest of European countries in the Canadian seal harvesting?

The prospects for future sealing activities will depend on how regulation is managed and how public perception evolves. The prospects for sealing are good so long as we accept the differences between harvesting seals and harvesting fish, and so long as we are prepared to objectively consider and deal with the many pressures from NGOs that believe that the use of all animals should be prohibited. And that remains the major problem.

4.3 EU perspective of seals and sealing

Paul Oma,
Fisheries Counsellor, Mission of Norway to the EU, Brussels, Belgium

The European Commission adopted 23 July 2008 a new proposal for a regulation concerning trade in seal products. The proposal will now be handled by the European Parliament (EP) and the Council of the European Union through the co-decision procedure.

The proposal has a provision for a general ban on trade in seal products within the European Community. This ban also includes transit of such products through the territory of the European Union. In the proposal all seal products will be banned, *i.e.* meat, oil, blubber and fur skins (raw, tanned or dressed). It is stated that the proposed regulation should be extended to the European Economic Area.

However, the proposal has provisions for derogations to the bans. There is a general derogation for seal products originating from hunts conducted by Inuit communities and which contribute to Inuit communities' subsistence. All other hunts may also achieve derogation to the bans if they fulfil certain criteria. Exporting countries have to prove that the seal products originate from countries which have adequate legislative provisions to ensure effective killing and skinning of seals without causing avoidable pain, distress and suffering. Furthermore, that legislation has to be effectively enforced by relevant authorities. A certification and labelling scheme for qualifying hunts will be introduced in order to ensure this.

The proposal has to be adopted jointly by the Council and the EP and that will take at least 5-6 months. Thereafter, the Commission has to adopt implementing measures before the bans can enter into force, and that may very well take more than 6 months. Consequently, it is unlikely that next year's hunting seasons in the North-Atlantic will be affected by this proposed new regulation.

4.3.1 Discussion

The review of the legislative proposal for the European Parliament will be led by the Internal Market and Consumer Protection committee. Although the Fisheries Committee will likely be consulted, the committee has expressed little interest in participating. It was considered that the participation of the Fisheries Committee in the review would be constructive and should be encouraged.

Norway is not a member of the EU, and therefore does not have full access to the review process. Norway is cooperating with Finland and Sweden, but they are not commercial sealing nations so their interests are somewhat different from those of Norway. There is also information exchange and cooperation with Canada, but not, so far, with the Russian Federation. There was agreement that Russia should be encouraged to become engaged on this issue, as it will affect them as their sealing industry revives.

4.4 Anti-sealing organizations – who are they and what are their arguments?

Georg Blichfeldt,
Cand.scient. in political sciences, Olsborg, Norway

The campaigns to stop sealing have existed for more than 30 years. The widespread notion is that the organizations behind these campaigns are part of the environmental, or "green" movement. The green umbrella, however, covers players who adhere to different and conflicting ideologies. On the one side you have animal welfare and conservation which are part of the wider sustainable development concept. These are both anthropocentric ideologies. On the other side you have animal rights and deep ecology; which describe themselves as ecocentric or non-anthropocentric and are in direct conflict with the anthropocentric standpoints.

The texts of international agreements on the environment make it clear that the international consensus is firmly placed on the anthropocentric side. A study of these texts also reveals no place for cultural particularism in the form of special rules for animals that in a specific cultural realm are considered as special. These agreements are based on universal principles.

The organizations which have anti-sealing campaigns as the core of their activity want special rules for seals. The founder of the International Fund for Animal Welfare states that it is not a question of how seals are killed, but whether they should be killed at all. Other organizations, like People for the Ethical Treatment of Animals, are based on the animal rights philosophy. It does not allow for human utilisation of animals.

Research into the arguments and acts of the players behind the anti-sealing campaign shows that they in general are outside the international consensus on what is truly green. It also reveals that for some of them a commercial motive has to be taken into consideration.

5. PANEL DISCUSSION

Does sealing in the North Atlantic have a future?

Panel Chair: Gunnar Sætra,
Fiskeribladet Fiskaren, Tromsø, Norway

Panelists: Halvard P. Johansen, Bjørne Kvernmo, Vladimir Zabavnikov, Bernard Guimmault, John Biilmann, Knut Nygaard and Eugene Lapointe

Opening statements

Chairman Sætra introduced the panelists and invited each to state their opinion about the future of sealing in the North Atlantic in 3 minutes or less.

Kvernmo stated that 3 minutes would not be needed because the issue was very simple for Norwegian sealers. Commercial sealing was simply not viable and would not be so unless restrictions on the take of bluebacks and ragged-jackets were eased.

Nygaard noted that the sealing industry, despite being very small in economic terms, was well known and contentious worldwide. The sealing industry therefore had to have standards above and beyond those of other industries, particularly in the area of animal welfare. It was crucial for the sealing industry in Canada and Norway to qualify for a derogation from the EU trade ban. If these standards can be met, products from sealing must be accepted within the EU and will be accepted in other areas of the world. This may require some revision of regulations, hunting methods and hunt monitoring programs in both countries. This should be done cooperatively among all sealing nations. In addition, there is a growing demand for food and clothing produced in an ecologically sustainable manner, and products from seals certainly fulfill these criteria. For these reasons Nygaard was optimistic about the future of the sealing industry.

For Johansen the most important issue facing the Norwegian sealing industry was economic viability. The hunt had not been profitable for many years and there was little chance of it being so in the near future. Long term support of the industry was essential if the industry, and with it the skills and experience of the hunters and processers, was to survive in Norway. However there could be no relaxation of measures relating to animal welfare or the conservation of seal stocks. There must also be a greater effort in reaching the public with factual information about the seal hunt.

Lapointe also found it surprising, even after over 30 years of involvement with the issue, that an industry as small as sealing attracted so much public attention and controversy. This was mainly generated by extremists who used sealing as a totem to attract members and generate funds. Given that most seal stocks were in good shape and adequate management systems

were in place, science and management were no longer important factors in what has become largely a political issue driven by public perceptions. Therefore the political context surrounding sealing must be changed if the industry is to survive. This could be achieved with a coordinated effort to counter the arguments of the extremists and tell the truth about sealing, but it will not be easy.

Guimmault agreed that the negative public image of sealing was the main obstacle to the future success of the sealing industry, but noted that public perceptions were changing and the concept of conservation was better understood. There was a greater demand for environmentally friendly products and the industry should capitalize on this. There was a great need for positive information about the sealing industry to change public perceptions.

Zabavnikov agreed that seals could be a valuable resource but noted that there were threats to seal populations apart from hunting, particularly in the White and Barents Seas where oil and gas exploitation was increasing rapidly. More research was needed into the ecological role of harp seals in the area, and the potential threats posed by industrial development and climate change. To this end the cooperative research program between Norway and the Russian Federation will be very valuable in providing information to ensure a positive conservation status for seals.

Conservation and hunt sustainability

It was generally agreed that there was no essential conflict between sustainable use and conservation, and that this was confirmed by all relevant international conventions and agreements. Presently all exploited stocks are in good shape and most are stable or increasing. Some stocks had been overexploited in the past, although none had been reduced to dangerously low levels. Presently all hunts were managed using reference levels with an overriding conservation basis. Other management objectives relating to optimizing fishery yields have been discussed but not implemented.

Nygaard pointed out that it was the sealing industry itself that had originally asked for harvest quotas on seals. Generally the industry sees a benefit to maintaining large and stable seal stocks.

Haug's view was that science was and should be the basis of decisions on safe harvest levels for seals. At present scientific assessments were discussed at an international level through ICES and NAMMCO. Management advice should also be discussed on an international level for all stocks that cross international borders, and nations should come to explicit agreements on the sharing of stocks. Zabavnikov agreed but cautioned that climate change was occurring rapidly in northern areas, and that this could potentially have great impact on ice breeding seals. More research was required to understand the consequence of this and this too required cooperation between northern countries.

Kvernmo pointed out that, even though seal quotas are set very conservatively, they are not an issue for Norwegian or Russian sealers because they lack the capacity or interest to take the quotas. However this is not the case for Canada, where sealers generally take the quota in a short time. This is mainly a result of the logistics and relative profitability of the hunts. He also pointed out that Greenland does not have quotas on seals, even though they take large numbers in their commercial hunt.

Public perception *vs* reality

Gofman noted that majority public opinion in most areas of the world including Russia was against commercial sealing. Even though there was solid science demonstrating the sustainability of seal hunts, and the methods used were the best available in terms of animal welfare, this message was not reaching the public. The opponents of sealing were more skillful in getting their message across to the public even though it was often not based on factual information. He felt there was a great need to get factual information out to the public, and to respond to criticisms of the sealing industry with good science. Johansen agreed but noted there was an astounding level of public ignorance on the subject of seals and sealing, particularly (but not exclusively) in non-sealing nations. Experience with the whaling issue in Norway suggested that disseminating information need not be expensive as long as the information is carefully directed towards target audiences. Advocates for the sealing industry should point out especially the outright lies used by their opponents, such as the continued use of the whitecoat as a symbol of opposition to the hunt, and the idea that seals are "skinned alive". It was also crucial that the industry continue to operate with the highest possible standards, given the level of public scrutiny.

Blichfeld was less optimistic that the purveyance of dry, factual information would be effective in attracting media attention or changing public attitudes. The media tended to respond to theatre and drama, and the opponents of sealing were well aware of this and used it to their advantage. Therefore advocates for sealing had to learn from this and play the media game. This might involve staging events that would attract media attention, as was done at the height of the whaling issue when advocates actually brought a small Norwegian whaling vessel to Britain to counter the protests surrounding the IWC meeting being held there. This proved very effective. He acknowledged that government agencies are limited in what they can do in this area, but pointed out that non-government organizations can be much more effective. Another effective tactic would be to point out the "skeletons in the closet" of countries protesting sealing, particularly in the area of animal welfare. Many countries engage in activities that do not compare favorably to sealing, for example muskrat trapping in the Netherlands or the camel cull in Australia. However this should be done in a manner that emphasizes the necessity of standards for animal welfare, rather than merely excusing the practices used in the seal hunt.

Lapointe agreed with this assessment but noted additionally that politicians find benefit in exporting environmental issues at no cost to their own country – the "cheap green points"

phenomenon. It will mean virtually nothing in economic terms for Europe to ban trade in seal products, but politicians will benefit by appearing to be doing something important in the environmental arena. This is far easier for them than, for example, raising fuel prices to lower carbon emissions. He suggested that the necessary media drama could perhaps be created by exposing this process and pointing out that there were real issues of conservation and animal welfare that were far more important than those in the seal hunt. He also agreed that non-government organizations were in the best position to achieve this, but might require support to do so.

Johansen responded that the Norwegian government had provided funding to non-government organization to carry out specific activities in the past, but that this had to be done very carefully or else the "non-government" organization will be perceived as a mouthpiece for the government. He also acknowledged the difficulties faced by such organization trying to raise money in Norway, which did not have a culture favorable to advocacy charities. In addition the message of "saving the sealers" was much more difficult to sell than that of "saving the seals".

Animal welfare issues

The chairman asked the panelists to address the issue of whether the hakapik should be banned as a killing weapon for seals. Johansen noted that this was not suggested in the EU legislative proposal, and that the use of the hakapik is considered a humane killing method by those who have studied the issue. The main problem would appear to be that killing a seal with a hakapik does not look good because most of us are not accustomed to such sights. Nevertheless it would be inconsistent and unproductive to give in to unreasonable arguments that are not based on science.

Kvernmo pointed out that the hakapik had been in use for hundreds of years, and was now used by Norwegian hunters only as a secondary killing method to secure seals that had been shot. In Canada it is used as a primary killing method for a small fraction of the seals taken. While the media loves to show dramatic views of brutal sealers clubbing defenseless seals, with red blood on white ice, they never show the effects of a bullet hitting a seal, which can be equally damaging.

Johansen recounted some of his experience with a similar issue with whales in the IWC. Norway had done extensive research in developing and testing a grenade harpoon to replace the "cold" harpoon originally used in the minke whale hunt, primarily to satisfy demands that the hunt be more humane and times to death be shortened. Later the black powder grenade was replaced with a more effective penthrite grenade. Even though the effectiveness of the killing method was now comparable to those used in slaughterhouses, and certainly better than most used to hunt wild animals, the issue of humane killing was still used as an argument against minke whaling. It is therefore likely that a killing method will never be good enough to satisfy those who oppose sealing on principle. Norway has requested information on killing

times from hunts conducted by countries that oppose the whale hunt, for example the camel cull in Australia, but this information has never been forthcoming.
Blichfeld suggested that this issue presented an opportunity to play "media theatre" and score points with the public. Governments faced with unreasonable demands concerning the humane killing of seals and whales should require that similar standards be applied to all hunts, and demand that information on hunts conducted in other countries (e.g. kangaroo hunting in Australia, deer hunting in Britain) be presented publically. Failure to present this information will be construed as hypocrisy. International fora are all about power and perception rather than the rule of law. It was necessary to find the weak points in the opponents and exploit them. Johansen responded by pointing out that it was not always possible for governments to play this kind of game because it was not considered acceptable practice in diplomatic circles. He considered that the low key efforts by sealing nations to influence the EU legislative proposal had been successful and that the proposal is much more reasonable than it might have been. An approach using reasonable arguments backed by sound science can often be more persuasive and productive than media theatrics.

International cooperation

Johansen noted that there are few sealing countries and that these could achieve more in the international arena by working together. Since sealing is a regional rather than a global activity, management at the international level is best carried out by a regional rather than a global organization. NAMMCO was the only organization with a mandate to provide scientific and management advice on seals in the North Atlantic. Unfortunately, Canada and the Russian Federation were not yet members of NAMMCO, although they had participated as observers and in various workshops and fora for many years. Lapointe agreed and noted that there had been suggestions from some quarters that the mandate of the IWC should be expanded to include all marine mammals, including seals. Given the long-term dysfunction of that organization, this would be a disaster for regional management in the North Atlantic. He urged the sealing industry to put pressure on their governments to participate fully in NAMMCO.

Zabavnikov considered that NAMMCO had proven itself as an effective vehicle for coordinating international scientific activities, using the example of the Trans North Atlantic Sightings Survey conducted in 2007 and coordinated through the NAMMCO Scientific Committee. A similar level of coordination in seal research would be beneficial. His impression was that membership in NAMMCO was under active consideration by Russia.

Fowler was not in a position to address Canada's intentions concerning NAMMCO, but noted that Canada had had good cooperation with NAMMCO, particularly at the scientific level, for many years. Canada also participated in the ICES/NAFO working group on seals.

Johansen informed the meeting that NAMMCO would be holding their annual meeting in the next week. NAMMCO, through its Management Committee on Hunting Methods, was

presently in the process of developing “best practices” for sealing in the North Atlantic. In addition, NAMMCO had recently initiated a separate Management Committee on Seals and Walruses, in order to address management issues relating to seals more explicitly.

Chairman Sætra thanked the participants in the forum for the interesting and useful discussion of the difficult issues facing the sealing industry. He also thanked the interpreters for their fine work.

6. CLOSING REMARKS

Liv Holmefjord,
Directorate of Fisheries, Bergen, Norway

Thank you to the organizers for setting up a program covering so many aspects of sealing and the sealing industry. These two days have shown us the complexity we as scientists, managers, industry and NGO's have to face – but I hope that you at the same time have seen that there are some possibilities.

Most of us present have a common objective, and that is to develop sealing as a sustainable, modern and profitable industry providing good quality products to the market.

We started with talks about the populations and the knowledge status from scientists. The scientists seem to work closely together and have the same opinion on crucial issues. But we still need to increase our knowledge on impact of different sizes of the seal population on the rest of the ecosystem (and through that come to agreement on the "optimal" population size), but also questions about effects of climate changes and other factors.

We went on with lectures on the actual hunting and regulation - with a glimpse at the past, but with focus on the future. We heard that there is a well functioning sealing industry in Canada, optimism among the sealers in Russia and perhaps some pessimism in Norway. It is important to continue to develop the way we carry out the hunting operation and the rest of the regulations regarding the hunt (including inspection and enforcement) – this is important because of animal welfare issues, but also to ensure that we use all relevant knowledge and technology to develop the hunting itself. We should cooperate to find "best practice" even though the conditions and framework may differ between Canada, Greenland, Russia and Norway.

Next topic was "the products". We learned about local producers with good ideas, but there is still a need to find a way to go from a sort of hobby to a commercial production. This can only be done through better marketing and new ways to distribute the products to markets that are willing to pay for them. Larger producers seem to be optimistic about the future demand for their products – if issues related to market access are solved. And of course; all different stages in the value chain have to be profitable.

As we heard from many speakers and also in the final discussion today; we have the "eyes of the world" on us. We have to take arguments and protests against sealing serious. We have to continue to be transparent and give all the information we have on the scientific knowledge (for example the status of the seal population), the killing methods, our regulation and the way we conduct control and enforcement. That's the only way we can ensure that decisions made are based on knowledge, and not assumptions or maybe feelings. And of course; we have to act in a reliable way. If we say we have a "humane" killing method we have to carry out the

hunt in accordance with this method. We also need to follow up the discussions with the EU on the implementation of their ban against trade in seal products.

To sum up; we have a complicated task ahead of us if we are to maintain and maybe increase the harvest of seals in the North Atlantic. But I feel that these two days have shown that we more or less have a common understanding of the challenges – and that we have to work together to come up with answers.

Again; thank you to the organizers, thank you to the speakers and to all the attendants.

Appendix 1: Symposium program

Prospects for future sealing in the North Atlantic

Norwegian-Russian Symposium,
Polar Environment Centre, Tromsø, Norway,
25 and 26 August 2008

Organized after

an initiative taken by the Joint Norwegian-Russian Fisheries Commission.

Arranged by

The Directorate of Fisheries, Region Troms, Norway.

Scope

The symposium was an arena where experts involved in the various aspects and branches of sealing could meet. This was primarily a meeting for people from all levels of the sealing industry, including participants with knowledge of both the sealing itself, the products and their application, and the market prospects. Themes addressed primarily focused on market prospects for traditional products (skins), but also the possibility to introduce "new" products (meat- or blubber-based) on the markets was assessed. Participation also from other seal hunting nations were secured, and included Canada, where a successful seal hunt is currently sustained, Greenland and the Baltic. The symposium was open for participation to the public.

Symposium planning committee in Norway

Ernst Bolle, Directorate of Fisheries, Tromsø
Tore Haug, Institute of Marine Research, Tromsø
Paul Jensen, Norwegian Coastal Fishermens Union, Tromsø
Knut Nygaard, CGRieberSKINN AS, Bergen
Jørn Pedersen, Norwegian Fisherman's Association, Trondheim
Charlotte Winsnes, NAMMCO, Tromsø
Hild Ynnesdal, Directorate of Fisheries, Bergen

Local organizing committee

Ernst Bolle, Directorate of Fisheries, Tromsø
Tom Hansen, Directorate of Fisheries, Tromsø
Tore Haug, Institute of Marine Research, Tromsø

PROGRAM

25 August 2008

1100-1110 Opening
Ernst Bolle, Directorate of Fisheries, Norway

1110-1145 Opening address
Secretary General Jørn Krog, Norwegian Ministry of Fisheries and Coastal Affairs, Oslo, Norway

1145-1245 The resources (Chair: Ernst Bolle)

The northeast Atlantic seal resources, their management and their role in the ecosystem
Dr Tore Haug, Institute of Marine Research, Tromsø, Norway

The status, management and ecological role of harp and hooded seals in Canada
Dr Garry B. Stenson, Department of Fisheries and Oceans, Newfoundland, Canada

1245-1345 Lunch

1345-1715 The sealing (Chair: Vladimir Zabavnikov)

The traditional Russian hunt: Organisation, status and prospects
Benedikt Gofman, Chapoma, Murmansk
Changing the Russian hunt: the new boat-based approach
Sergej Pocholov, Arkhangelsk
The hunt in Norway: Management objectives, regulations and organisation
Halvard P. Johansen, Norwegian Ministry of Fisheries and Coastal Affairs, Oslo
Norwegian sealing as seen from a sealers perspective
Bjørne Kvernmo, Alta, Norway
The seal hunt in Greenland: Organisation, status and prospects
John Biilmann, KNAPK, Greenland
Todays successful seal hunt in Canada: Organisation, status and prospects
Tom Fowler, Department of Fisheries and Oceans, Newfoundland, Canada

1930 Dinner

26 August 2008

0900-1120 The products (Chair: Paul Jensen)

Traditional products from the seal hunt: status and prospects
Director Knut Nygaard, CG Rieber SKINN AS, Bergen, Norway
Products from seals – potentials and possibilities
Mona Gilstad, Vega, Norway
Can seal oil contribute to better human health?
Professor Bjarne Østerud, University of Tromsø, Norway

1120-1400 Seals and the world (Chair: Jørn Pedersen)

Why arrange a sealing conference in Vaasa, Finland – some thoughts after the international "Seals and society" conference in 2007.
Eero Aro, Finnish Game and Fisheries Research Institute, Helsinki
Sustainable harvest of marine resources: should seals and fish be treated different?
President Eugene Lapointe, IWMC World Conservation Trust, Florida, USA
EU perspective of seals and sealing
Fisheries Counsellor Paul Oma, Mission of Norway to the EU, Brussels, Belgium
Anti-sealing organizations – who are they and what are their arguments?
Georg Blichfeldt, Olsborg, Norway

1400-1500 Lunch

1500-1645 Does sealing in the North Atlantic have a future?

A discussion between the audience and a selected panel including Halvard P. Johansen, Bjørne Kvernmo, Vladimir Zabavnikov, Tom Fowler, Knut Nygaard and Eugene Lapointe
The discussion was lead by Gunnar Sætra, Fiskeribladet Fiskaren, Tromsø, Norway

1645-1700 Concluding remarks

Liv Holmefjord, Directorate of Fisheries, Bergen, Norway

Exhibitions

We will encourage for exhibition of relevant products from the sealing industry.

Appendix 2. List of participants

Adagamov	Roustem	Russian newspaper "Kommersant"	Russia	roustem.adagamov@sup.com
Andenes	Egil	Innovasjon Norge	Norway	egil.andenes@innovasjonnorge.no
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