ENVIRONMENTAL INVESTIGATION AGENCY

Animal Welfare Institute
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Commercial whaling: Unsustainable, inhumane, unnecessary

September 2018

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We investigate and campaign against environmental crime and abuse.

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ABOUT AWI

The Animal Welfare Institute is a nonprofit charitable organization founded in 1951 and dedicated to reducing animal suffering caused by people. AWI engages policymakers, scientists, industry, and the public to achieve better treatment of animals everywhere—in the laboratory, on the farm, in commerce, at home, and in the wild.

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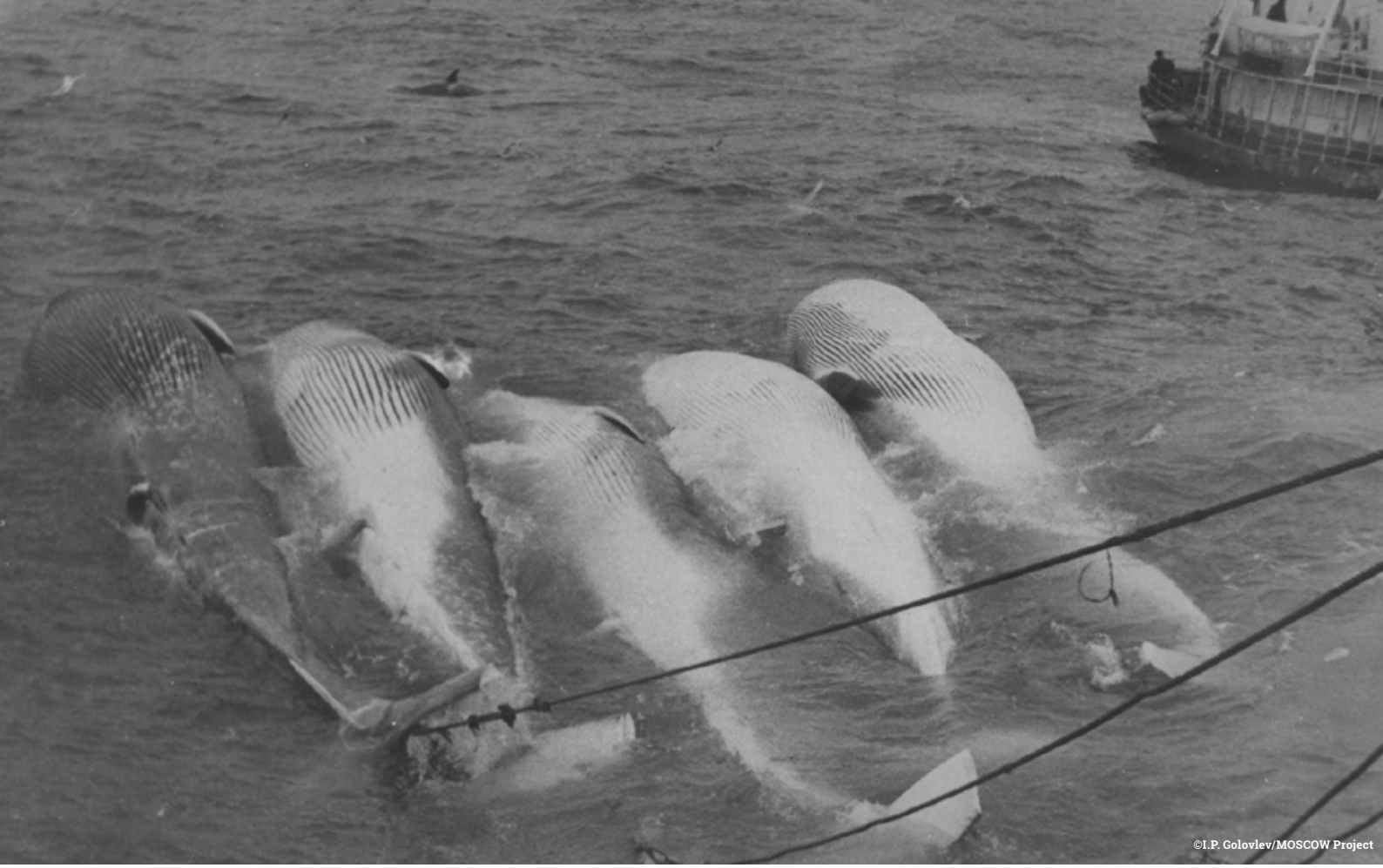
Executive summary

The shameful history of commercial whaling is well documented. An estimated 2.9 million whales were killed during the 20th century, decimating global whale populations. Sperm whales, for example, were reduced to about 30 per cent of their pre-whaling population and blue whales by up to 90 per cent.[1] Some estimates indicate that total biomass of large whales was reduced to less than 20 per cent of pre-commercial whaling levels.[2] Given the significant amount of illegal and unreported whaling, even higher levels of depletion are likely.

The moratorium on commercial whaling enacted by the International Whaling Commission (IWC) saved several whale species from extinction and allowed some populations to recover. But more than three decades later, the great whales and their cetacean cousins – dolphins and porpoises – face grave and growing threats from a range of human activities, from climate change to pollution. Over the past two decades, the IWC has increasingly turned its attention to these threats and now addresses a wide range of cetacean conservation and welfare issues, including bycatch, marine debris, ocean noise and responsible whale-watching.[3]

Despite the moratorium on commercial whaling and the promising redirection of the IWC towards a science-based cetacean conservation body, Japan, Norway and Iceland continue commercial whaling. Japan allows the sale of whale products despite claiming that its whaling in the Antarctic whale sanctuary and North Pacific are for scientific research; Norway lodged an objection to the moratorium which allows it to continue commercial whaling;[4] and Iceland has a disputed reservation to the moratorium, which it has used to justify commercial catch quotas since 2006. The three countries have killed 38,539 whales since 1986, when the moratorium went into effect.[5]

Propped up by government subsidies and support, commercial whaling in the 21st century flies in the face of international environmental agreements while serving no economic or nutritional purpose. It causes suffering to thousands of animals, deprives the marine environment and coastal communities of the multiple ecological and economic benefits that whales provide and undermines the conservation of targeted populations that face ever-increasing threats from other human activities. It is time for commercial whaling to end and for Contracting Governments to the IWC to reaffirm the continuation of the moratorium and promote to the fullest extent the conservation of all cetaceans.



Above: Fin whales killed by a Soviet whaling fleet

Commercial whaling – a history of over-exploitation

Commercial whaling took place as early as the ninth century.[6] The 1860s, however, are recognised as the beginning of the modern commercial whaling era.[7] The introduction of explosive grenade harpoons in combination with steam-powered ships transformed the industry, allowing even the largest and fastest whales to be caught and transported to shore.[8] Originating in Norway, the harpoon technology soon became widespread. Rapid industrial development fuelled a growing demand for whale oil, considered an important energy source during the 19th century.[9] The introduction of factory ships able to process large numbers of whales offshore further increased the efficiency of the industry.[10]

As early as the 1920s, it was recognised that whales were over-exploited and steps were taken to regulate the industry. In the 1930s, the International Council for the Exploration of the Sea (ICES) set up the Bureau of International Whaling Statistics to track catches and brought the issue to the attention of the League of Nations.[11] A series of international agreements imposing limited restrictions on the whaling industry ultimately resulted in the signing of the 1946 International Convention for the Regulation of Whaling (ICRW), which established the International Whaling Commission (IWC).[12] Initially a whalers' club, the IWC continued to sanction the unsustainable commercial whaling industry for several decades.[13]

Whaling peaked in the 1960s, when an estimated 437,920 animals were killed in the Southern Hemisphere and 265,315 in the Northern Hemisphere.[14] At this time, Norway, Great Britain, Japan and the Soviet Union were hunting in both hemispheres. Other countries involved included Argentina, Australia, Brazil, Canada, Chile, China, Denmark, France, Iceland, Korea, the Netherlands, New Zealand, Panama, Peru, Portugal, South Africa, Spain and the United States.[15] In total, 2.9 million whales were killed over the course of the 20th century, likely the largest removal of total biomass of any animal group in human history.[16]

With rising awareness of the industry's unsustainability and mounting public pressure to end the mass slaughter, catch quotas were gradually reduced, beginning in the 1960s. With the exception of Japan and the Soviet Union, the number of whales caught by most countries began to decline and the IWC increased its focus on protecting whales.[17] The hunting of blue and humpback whales was banned globally in 1966[18] and the hunting of fin whales in the Southern Hemisphere was banned in 1976.[19] In 1979, the IWC prohibited factory ship whaling (other than for minke whales) and the Indian Ocean Sanctuary was established.[20] In a landmark agreement in 1982, IWC members approved a moratorium on commercial whaling (to become effective in 1986), which passed with 25 votes in favour, seven opposed and five abstentions.[21]

Commercial whaling since 1986 - Norway

In the years preceding the IWC's adoption of the moratorium on commercial whaling, Norway killed an average of 2,000 minke whales a year. Norway objected to the moratorium within 90 days of the decision, which allowed commercial whaling to continue. Norway killed 752 minke whales over the next two seasons (1986 and 1987).[22]

In June of 1986, US Secretary of Commerce Malcolm Baldrige issued a finding that Norway 'had not given any indication that it would comply with international standards for whale conservation' and recommended that sanctions be issued against Norwegian seafood products.[23] Norway responded to the threat by ceasing commercial whaling, replacing it with a two-year 'special permit' whaling programme under Article VIII of the ICRW, which allows Contracting Governments to 'kill, take and treat whales for purposes of scientific research'. During that time, Norway continued to hunt minke whales for 'scientific' research but sold the edible products commercially.[24]

In 1993, Norway resumed commercial whaling under its objection. The country initially faced strong criticism from IWC Contracting Governments, especially the United States which threatened to impose sanctions on Norwegian seafood products.[25] However, following bilateral discussions between the two countries,[26] the threat was lifted and Norway continued commercial whaling. From an initial catch of 157 minkes in 1993, Norway's commercial whale hunt peaked with 763 whales killed in 2014 (see Table 1). In total, Norway has killed 14,306 minke whales since the IWC commercial whaling moratorium took effect.[27]

An industry in crisis

Since 2014, the number of vessels engaged in the Norwegian whaling industry has declined and the number of whales killed consistently falls far short of the quotas issued by the government. Only 11 vessels participated in the hunt in 2017, the lowest number since the 1990s. While whaling permits were issued to 15 vessels in 2018, only 11 are using them.[29] As of early August 2018, the number of whales killed was only slightly higher than in early August 2017: 417 compared to 397.[30]

Above: Whale meat being offloaded by a Norwegian whaling vessel. Only the leanest meat is used for human consumption, while the remaining meat, blubber and bones are used for animal feed, or discarded

In another recent change in the industry, more vessels have registered as buyers, allowing them to forego dealing with whale meat distributors and thus sell their meat directly to the public. Only two large processing/distributing companies bought whale meat in 2017, down from five the previous year.[31] Citing concern about the future of the domestic market for whale meat, the Norwegian Minke Whalers Association (NMWA) called for a special meeting with representatives of the Norwegian Fisheries Ministry and other Government agencies in December 2017. Seeking greater Government intervention (in addition to existing fuel and other subsidies), Truls Soløy, head of the NMWA, stated it 'can no longer be solely responsible for the development of the industry'.[32]

The Government acknowledges the problems within the whaling industry but attributes its struggles to a failure to recruit more fishermen into whaling and to the simple fact that fishing is more profitable both for vessel owners and buyers.[33] Of the 15 vessels that have obtained a whaling permit in 2018, almost all have licenses for fish species such as cod and haddock.[34]

The market faces a growing glut of whale meat. In 2017, more than 80 pallets of unsold whale meat – some 60 tonnes – from the Myklebust Hvalprodukter company were given away 'because stores can only keep the meat for a one year shelf life and this meat is seven- or eight-months-old and hard to sell'.[35] In 2018, in response to the oversupply, the Norwegian Råfisklaget Sales Association (which sets conditions for sales of whale meat) has required that whalers must secure a sales agreement for all their whale meat, fixing the price and quantity, *before* they start hunting.[36]

Below: Whale meat on sale at a EuroSPAR supermarket. SPAR/EuroSPAR is part of the NorgesGruppen company, the largest grocery retailer in Norway

Table 1: Norwegian minke whaling since the moratorium[28]

	Catches under objection	Catches under special permit
1986	379	
1987	373	
1988		29
1989		17
1990		5
1991		
1992		95
1993	157	69
1994	206	74
1995	218	
1996	388	
1997	503	
1998	625	
1999	591	
2000	487	
2001	552	
2002	634	
2003	647	
2004	544	
2005	639	
2006	545	
2007	597	
2008	536	
2009	484	
2010	468	
2011	533	
2012	464	
2013	594	
2014	736	
2015	660	
2016	591	
2017	432	
2018*	434	
Total	**14,017**	**289**
Total whales killed		**14,306**

*As of 15 August 2018

Above: Until recently, Hvalur shares in seafood giant HB Grandi have helped maintain the financial viability of Iceland's fin whale hunt

Commercial whaling since 1986 - Iceland

Iceland, a founding member of the IWC, did not formally object to the 1982 moratorium and was thus bound by the ban. However, it continued to whale after the moratorium took effect under the special permit provision in Article VIII of the ICRW.[37] Iceland killed an average of 90 whales per year from 1986-90, exporting most of the products to Japan. In 1992 it withdrew from the IWC.[38]

In 2002, Iceland rejoined the IWC and lodged a reservation to the moratorium – a move disputed by many countries as being contrary to international law.[39] Iceland resumed special permit whaling in 2003, killing 200 minke whales over the next five years under the guise of scientific research.[40] In 2006, the country resumed commercial whaling under its contested reservation to the moratorium, targeting endangered fin whales as well as minke whales. Since that time, Icelandic whalers have killed 764 fin whales (despite fin whaling being suspended in 2011, 2012, 2016 and 2017) and 453 minke whales. In total, Iceland has killed 1,796 whales since the moratorium began (see Table 2).[41]

In April 2018, the Hvalur whaling company announced that it planned to resume fin whaling. At that time, the director of the company, Kristján Loftsson, stated that the two-year hiatus in hunting had been spent researching the use of whale meat, bones and blubber as medicinal and food additives, including iron supplements.[43] The 2018 season has been problematic for the company and both the Hvalur 8 and Hvalur 9 whaling vessels have experienced mechanical difficulties.[44] The company also came under intense international criticism in early July, when it killed a rare blue/fin hybrid whale.[45]

According to recent tax filings, Hvalur has not made a profit from whaling for some time and it is only the company's indirect shareholdings (via the Vogun company) in other corporations that allow it to continue whaling. For years, Hvalur relied most heavily on the massive Icelandic seafood company HB Grandi for profits. However, the seafood company's ties to whaling were cut in 2018 when Vogun sold its HB Grandi shares to another seafood company, Brim.[46] Kristján Loftsson also left the HB Grandi board of directors in 2018. Numerous seafood buyers and retailers in the United States and Europe have also opted not to buy from companies associated with whalers in recent years. In April 2018 then CEO of HB Grandi, Vilhjalmur Vilhjalmsson, admitted that not having the whaling company as a shareholder 'will make the job easier for our marketing department'.[47] Hvalur still draws profits from other well-known Icelandic corporations, such as the information technology firm Origo hf and fishing gear manufacturing giant, Hampiðjan.[48]

Public support for whaling has plummeted in Iceland in recent years. A 2018 survey by Icelandic polling company MMR found that 34 per cent of Icelanders favour whaling (compared to 60 per cent in 2013) while 34 per cent of the population actively oppose it (compared to 18 per cent in 2013).[49] The opposition has extended to Iceland's parliament, the Alþingi, with a number of legislators calling for a thorough review of the reputational impact of Iceland's whaling policy on its fishing, agriculture and tourism, as well as an assessment of the income, export earnings and jobs generated by whaling compared to other sectors of the economy.[50]

While Prime Minister Katrín Jakobsdóttir, a member of the anti-whaling Left Green party, indicated that no new fin whaling quotas would be issued until the completion of the review, she declined to rescind the current quota, which is in its final year of a five-year block.[51] As of 13th August 2018, 75 fin whales had been killed from a quota of 238.[52]

Lacking the financial backing enjoyed by the Hvalur fin whaling company, minke whaling in Iceland has almost ground to a halt. By the end of July, only six minke whales had been killed during the 2018 season. Of the two vessels holding a whaling permit, only one has hunted while the other remained in port. In an interview with Icelandic media at the end of July, minke whaler Gunnar Bergmann Jonsson indicated that he was likely finished for the season.[53]

Although most minke whale meat is consumed domestically in Iceland, a 2017 consumer survey conducted by Gallup for the International Fund for Animal

Welfare indicated that only one per cent of Icelanders eat whale meat regularly while 81 per cent never eat whale meat.[54] With a population of fewer than 330,000, it is clear that Iceland's whaling industry, particularly its fin whaling industry, is dependent on exports for survival.

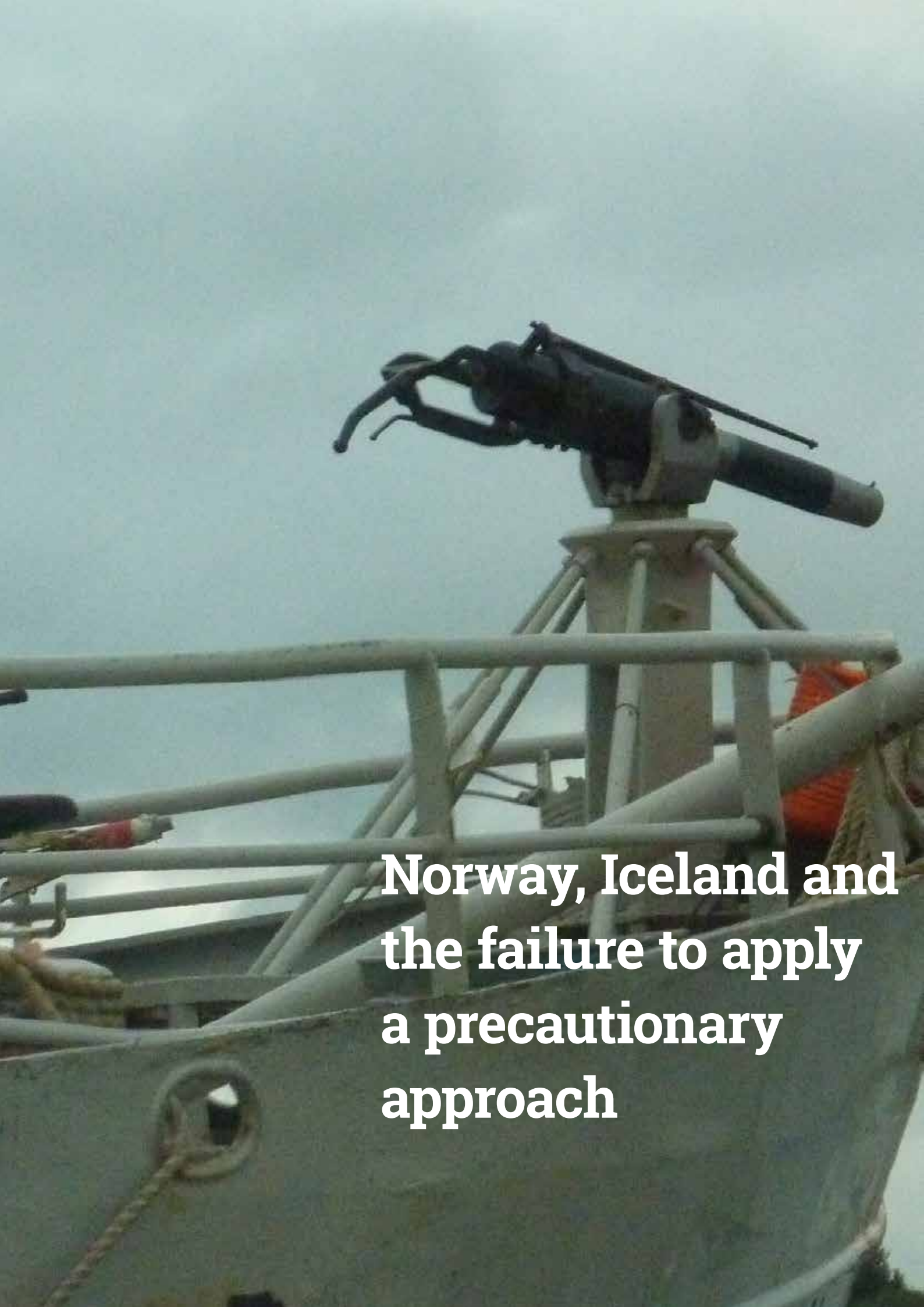
Table 2: Icelandic commercial and 'scientific' whaling since the moratorium[42]

Year	Minke whales		Fin whales		Sei whales
	Special permit whaling	Whaling under 'reservation'	Special permit whaling	Whaling under 'reservation'	Special permit whaling
1986			76		40
1987			80		20
1988			68		10
1989			68		
2003	37				
2004	25				
2005	39				
2006	60	1		7	
2007	39	6			
2008		38			
2009		81		125	
2010		60		148	
2011		58			
2012		52			
2013		35		134	
2014		24		137	
2015		29		155	
2016		46			
2017		17			
2018*		6		75	
Total	**200**	**453**	**292**	**781**	**70**
				Total whales killed	**1,796**

*As of 13 August 2018

Above: Icelandic fin whale meat on sale in Tokyo, Japan

Below Fin whale killed in Iceland, 2011



Norway, Iceland and the failure to apply a precautionary approach

Following the adoption of the moratorium, the IWC asked its Scientific Committee to develop a precautionary approach to setting commercial whaling quotas in the event that the moratorium was ever lifted. In response, the Committee developed the Revised Management Procedure (RMP). A key element of the RMP is the 'tuning level' – the fraction of the pre-exploited whale population that would be left after 100 years of hunting with catch limits set by the RMP. The higher the tuning level used, the smaller the allowed quota. Another important provision is the setting of quotas in 'Small Areas' to ensure no whale population is overexploited.[55]

The Scientific Committee offered a range of possible tuning levels to the IWC, from the least conservative (.60) to the more precautionary (.72). The IWC adopted the .72 tuning level in 1991 and approved the RMP in 1994, although it did not include it in the ICRW's Schedule for implementation because the moratorium remained in place.[56] In June 2010, the Scientific Committee again stated that only the .72 tuning level is the IWC's agreed value.[57]

Norway initially set its quotas using the .72 tuning level but switched to a .66 level in 2003 to avoid having to greatly reduce its whaling quotas due to the higher-than-average proportion of female minke whales being killed. In 2005, the tuning level was further dropped to .60, despite concerns raised by the IWC.[58] The Norwegian Government continues to use the .60 tuning level and issued an overall quota of 1,278 minke whales for 2018. The quota is broken down into 170 minke whales in the Jan Mayen (IWC small area CM) with the remaining 1,108 minke whales in the small areas off the Norwegian Sea and coastal zones, the eastern Barents Sea, the North Sea and Svalbard (the ES small area).[59]

Scientists from the Norwegian Institute of Marine Research have acknowledged that Norway's practice of setting a single quota for multiple merged small areas was deemed unacceptable by the IWC Scientific Committee in 2017.

In particular, there are significant problems in the ES small area. Svalbard has traditionally been a very popular whale hunting area due to the density and availability of whales but, given that minke whales tend to segregate by sex and age/length, there are high concentrations of females in that area. In 2016, 76 per cent of the whales hunted in the ES area were females; in 2017, the proportion increased to 80 per cent.[60] From 2011 through 2017, Norwegian whalers killed 1,095 male minke whales and 2,884 females, of which 2,003 were pregnant.[61]

Fin whales are listed as endangered by the International Union for Conservation of Nature (IUCN) on the basis of the criteria that 'the global population has declined by more than 70% over the last three generations (1929–2007)'.[62] Iceland's 2018 fin whale quota is the highest since its resumption of commercial whaling and now includes catch limits for an additional small area (the East Iceland/Faroe EI/F area). Under the current quota, 161 fin whales can be killed off western Iceland in 2018, compared to 154 in 2017. In addition, 20 per cent of an unused quota can be carried over from the previous year, meaning an additional 29 fin whales can be taken in this area (190 in total). A further 48 can be taken off eastern Iceland, for a total of 238 fin whales.[63] The minke whale quota for 2018 was set at a base quota of 217, with carryover of unused quota bringing the total available to 262.[64]

Based on a series of marine surveys since 1986, it is apparent that there have been considerable changes in the distribution and abundance of several cetacean species in Icelandic waters. Minke whales in particular have suffered a statistically significant decline in abundance. A 2007 survey revealed less than half the number of minke whales found in 2001 and a 2009 aerial survey showed a further decline.[65] The causes of this sudden drop in numbers are unknown, although changes in abundance and distribution of important prey species such as sandeel and capelin could be a key factor.[66]

Norwegian researchers have also seen declines in minke whale abundance. A 2014 survey yielded fewer than half the number found in a 2008 survey in the ES small area; researchers have noted a displacement of prey and have acknowledged that since the 1990s there has been considerable thinning of the blubber layer in minke whales.[67]

Commercial whaling since 1986 - Japan

Japan initially filed an objection to the 1982 IWC moratorium and continued commercial hunting, catching 1,941 Antarctic minke whales in the 1985/86 season.[68]

Following intense pressure from the United States, including a threatened loss of fishing access within the US Exclusive Economic Zone (a sanction that would be imposed in accordance with the 1979 Packwood-Magnuson Amendment to the Magnuson Fishery Conservation and Management Act),[69] Japan signed the Murazawa-Baldrige deal in 1987.[70] Japan withdrew its objections; effective 1 May 1987 with respect to commercial pelagic whaling, effective 1 October 1987 with respect to commercial coastal whaling for minke and Bryde's whales and effective 1 April 1988 with respect to commercial coastal sperm whaling.[71] A total of 5,519 whales were killed by Japan under objection, including 3,882 Antarctic minke whales, 615 common minke whales, 634 Bryde's whales and 388 sperm whales (see Tables 3 & 4).[72]

Immediately after this decision, the Government began issuing special permits for lethal research under Article VIII of the ICRW.[73] To manage the 'research programme', Japan set up the Institute of Cetacean Research (ICR) in 1987.[74] At the same time, Japan's remaining whaling company, Nippon Kyodo Hogei, was dissolved and its assets transferred to a new company, Kyodo Senpaku, which was set up to carry out the collection, processing and wholesaling of whale 'by-products' from the research. The shareholders of Nippon Kyodo Hogei, namely Nippon Suisan, Kyokuo and Maruha, Japan's three largest whaling companies responsible for the killing of nearly half a million great whales, were the original shareholders of the 'scientific whaling' company which continued to market the products resulting from the alleged research programmes.[75]

Japan's first post-moratorium foray into killing whales for science began with the stated intent to accumulate scientific data to eliminate the uncertainty over the status of whale stocks, one of the rationales for the passage of the moratorium. Over time the objectives of the lethal scientific research have been changed to include, among other objectives, investigating stock structure, investigating feeding ecology, ecosystem-based modelling and, most recently, gathering information that Japan considers necessary to calculate commercial catch limits of minke and sei whales.

In addition to the 'special permit' whaling in the Antarctic and North Pacific, Japan authorises commercial Small Type Coastal Whaling (STCW) and hand-harpoon and drive hunts for toothed whales, dolphins and porpoises. Since 2002, STCW companies (e.g, Toba Hogei Ltd. and Ayukawa Hogei Ltd) have taken part in special permit hunts off the coast of Japan and are authorised to sell the meat and blubber products.[76] Quotas for these hunts – which target Baird's beaked whales, short-finned pilot whales, Dall's porpoises, false killer whales and Risso's, bottlenose, striped, white-sided and spotted dolphins – totalled over 15,000 for the 2015-16 period.[77]

Below: In 2014 the International Court of Justice ruled that Japan's Antarctic whaling was not for the purpose of scientific research

Antarctic whaling

The Japanese Whale Research Program under Special Permit in the Antarctic (JARPA) started in the 1987/88 Antarctic summer season with a self-established annual catch limit of 300 minke whales until 1994/95 and 400 per year from 1995/96 to 2004/05.[78] This whaling occurred in what is broadly referred to as the Southern Ocean, an area designated by the IWC as a sanctuary in 1994.[79]

In 2005, Japan implemented the second phase of the special permit whaling programme, JARPA II, significantly increasing the catch limits to 850 minke whales, 50 fin whales and 50 humpback whales, although no humpbacks were ever taken.[80] After the International Court of Justice (ICJ) ruled in 2014 that Japan's Antarctic whale hunt was not 'for purposes of scientific research', Japan officially ended JARPA II and no hunt took place during the 2014/15 Antarctic summer.[81] This respite for the whales was short-lived, however, as Japan almost immediately proposed a new 12-year lethal research programme, the New Scientific Whale Research Program, in the Antarctic Ocean (NEWREP-A) with a plan to catch up to 333 minke whales each year.[82] In total, Japan has killed 15,613 whales in the Antarctic since the moratorium was implemented (see Table 3).

Above: Canned whale meat sold by Nippon Suisan, historically one of Japan's largest whaling companies which continued as a shareholder of Kyodo Senpaku

Table 3: Whales killed by Japan under objection and successive 'scientific' whaling programmes in the Antarctic[83]

	Minke whales		Fin whales		Humpback whales	
Year(s)	Annual quota	Total catch	Annual quota	Total catch	Annual quota	Total catch
Whaling under objection						
1985/86 - 1986/87		3,882				
JARPA						
1987/88-1994/99	300 +/- 10%	2,449				
1995/96-2004/05	400 +/- 10%	4,367				
JARPA II						
2005/06-2008/09	850 +/- 10%	2,595	10	14		
2009/10-2014/15	850 +/- 10%	1,299	50	4	50	0
NEWREP A						
2015/16-2017/18	333	1,003	0		0	
Total		**15,595**		**18**		0
					Total whales killed	**15,613**

North Pacfic whaling

In 1994, Japan expanded its special permit whaling to offshore waters of the western North Pacific through the Japan Whale Research Program under Special Permit in the North Pacific (JARPN). JARPN established an initial catch limit of 100 minke whales per year.[84] The second phase, JARPN II, implemented in 2000, expanded the hunt to 50 Bryde's, 10 sperm and 100 sei whales. In 2002/03, a coastal component was added to catch minke whales off the Kushiro and Sanriku coasts.[85]

Following the ICJ ruling in 2014, Japan limited the offshore hunt to 90 sei whales and 25 Bryde's whales and reduced the coastal minke whale catches from 60 to 51 for each location.[86]

In 2017, Japan started a 12-year 'New Scientific Whale Research Program in the western North Pacific (NEWREP-NP)'.[87] With a stated aim to develop appropriate catch quotas for commercial whaling, the special permit hunt has a quota of 134 sei whales and 43 minke whales from pelagic waters and 127 minke whales from coastal waters – 47 off northern Hokkaido and 80 off the Pacific coast, switching between Ayukawa and Kushiro land stations, depending on minke migration patterns.[88] In total, Japan has killed 6,824 whales in the North Pacific since the moratorium was implemented (see Table 4).

Table 4: Whales killed by Japan in the North Pacific under objection and successive 'scientific' whaling programmes[89]

	Minke whales (pelagic)		Minke whales (coastal)		Bryde's whales		Sperm whales		Sei whales	
	Annual quota	Total catch	Annual quota	Total catch	Annual quota	Total catch	Annual quota	Total catch	Annual quota	Total catch
Whaling under objection										
1986-87				615		634		388		
JARPN I										
1994-99	100	498			0	1				
JARPN II										
2000-01	100	140			50	93	10	13	0	1
2002-03	100	203	50	100	50	100	10	15	50	90
2004	100	100	60	60	50	51	10	3	100	100
2005-13	100	543	120	944	50	413	10	25	100	897
2014-16	0	0	102	188	25	76			90	270
NEWREP NP										
2017	43	43	85	85					134	135
Total		**1,527**		**1,992**		**1,368**		**444**		**1,493**
									Total whales killed	**6,824**

North Pacific minke whales – a conservation concern

Minke whales in the North Pacific comprise at least two and probably more genetically distinct stocks, including a depleted population known as 'J-stock' (whose range includes the Sea of Japan, Yellow Sea and East China Sea). The coastal component of Japan's special permit whaling programme routinely catches J-stock minkes; in 2017, 28 of the 47 minke whales killed in the Okhotsk Sea off northern Hokkaido were J-stock.[90] J-stock minke whales are subject to high levels of bycatch in fisheries off Japan, South Korea, China and possibly North Korea.[91]

In South Korea, fishermen are permitted to sell bycaught whales, stimulating demand for whale meat and consequently illegal whaling.[92] With one minke whale commanding up to $85,000, there have been reports of fishermen equipping their boats with harpoons to hunt minkes at night.[93] In 2017, an IWC expert panel recommended Japan postpone the lethal element of NEWREP-NP, in part due to its lack of consideration of human threats such as bycatch. The panel noted that further reduction of the J-stock is of concern and catches of 47 per year could reduce the population 20 per cent by 2030.[94]

International condemnation

Japan's 'scientific' whaling has been repeatedly criticised and condemned by scientists, governments and the ICJ, as well as by the IWC itself in at least 25 resolutions since 1987.[95]

In 2010, Australia initiated proceedings against Japan in the ICJ, claiming that its Antarctic whaling programme was in breach of its obligations under the ICRW and other international agreements. In March 2014, the ICJ ruled that the special permits issued by Japan for the killing, taking and treating of whales in connection with JARPA II were not granted 'for purposes of scientific research' pursuant to Article VIII. It concluded that Japan was in contravention of several provisions of the ICRW, namely the moratorium on commercial whaling and factory ships and the ban on whaling in the Southern Ocean Sanctuary as regards fin whaling. The court ordered Japan to revoke all existing permits for scientific whaling included in the JARPA II programme and to refrain from granting further permits.[96] It further noted that Japan should take into account the reasoning and conclusions in the judgment in evaluating future permits under Article VIII.[97]

Although Japan initially complied with the ICJ ruling and suspended its hunt under JARPA II, it quickly replaced the condemned research programme with NEWREP-A, proposing to kill up to 333 minke whales a year until 2027. In October 2015, Japan rejected the jurisdiction of the ICJ over its special permit whaling programme in an attempt to protect itself against future court cases.[98]

The Scientific Committee review process for special permit whaling continues to find multiple problems with the science behind Japan's whaling. Independent expert panels in 2015 and 2017 found that neither NEWREP-A or NEWREP-NP had justified the need for lethal research to obtain their objectives, nor had they justified the proposed 'sample' catch sizes. The Expert Panel made recommendations which were endorsed by the Scientific Committee in 2017.[99] However, whaling commenced as planned, without Japan making any meaningful changes to the 'research' programmes.[100] The Standing Working Group on Special Permit programmes, a body established at the 2016 IWC meeting, notes that Japan has still only fully addressed four (and partially addressed three) of the 29 recommendations on NEWREP-A and fully addressed eight (and partially addressed four) of the 29 recommendations provided by the expert panel on NEWREP-NP.[101] At the 2018 Scientific Committee meeting, Japan and pro-whaling allies disputed that inadequate progress had been made. As a result, the Committee was unable to reach a consensus view.

Despite international and national opposition, the Japanese Government has remained outspoken in its support for commercial whaling. In June 2017, a new whaling law was passed by the Japanese Diet, with the Director of Whaling Affairs stating: 'Japan's fundamental policy on whaling is to conduct scientific research in order to bring about the swift resumption of commercial whaling'.[102] In 2018, the fisheries agency committed $900,000 to a study into the future of commercial whaling which will include how to replace or upgrade the 30-year-old whaling 'mothership', the Nisshin Maru.[103] This comes despite a lack of public support for scientific whaling, with 85 per cent of Japanese citizens polled in 2012 opposing the use of taxpayer yen to build a new factory ship.[104]

Consumption of whale meat in Japan

Although viewed as the main market globally for edible whale products, whale meat is not commonly eaten in Japan. In 2014, it was estimated that average annual consumption was just 30 grams (one ounce) per person.[105] This is despite significant marketing efforts to promote whale products to Japanese consumers, with festivals held to showcase whale cuisine and special events aimed at promoting whale meat to children.[106]

Above: Mascot character 'Balenine-chan', used to deliver pro-whaling information on social media[107]

The failure of such whale meat consumption promotion efforts has been repeatedly demonstrated. Between 2011-12, the whaling industry attempted to boost income and reduce stockpiles by holding a series of whale meat auctions, but three-quarters of it remained unsold.[108]

In line with the lack of interest shown by Japanese consumers, at least 3,500 supermarkets, including major chains such as AEON, Ito-Yokado and Seiyu, have stopped selling whale and dolphin products in Japan. Online retailers have also rejected the sale of whale and dolphin products.[109] Following the cessation of sales by internet giants Google and Amazon in 2012, Japan's largest online retailer, Rakuten, ended whale meat sales in 2014.[110]

Above: Canned Icelandic fin whale meat sold online in Japan

The increasingly problematic trade in whale products

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has banned international commercial trade in the products of whale species listed on the treaty's Appendix I. Japan, Norway and Iceland took reservations to several of the CITES Appendix I whale listings, enabling them to trade in whale meat of certain species with other nations holding the same reservation or with non-Parties to CITES.[111]

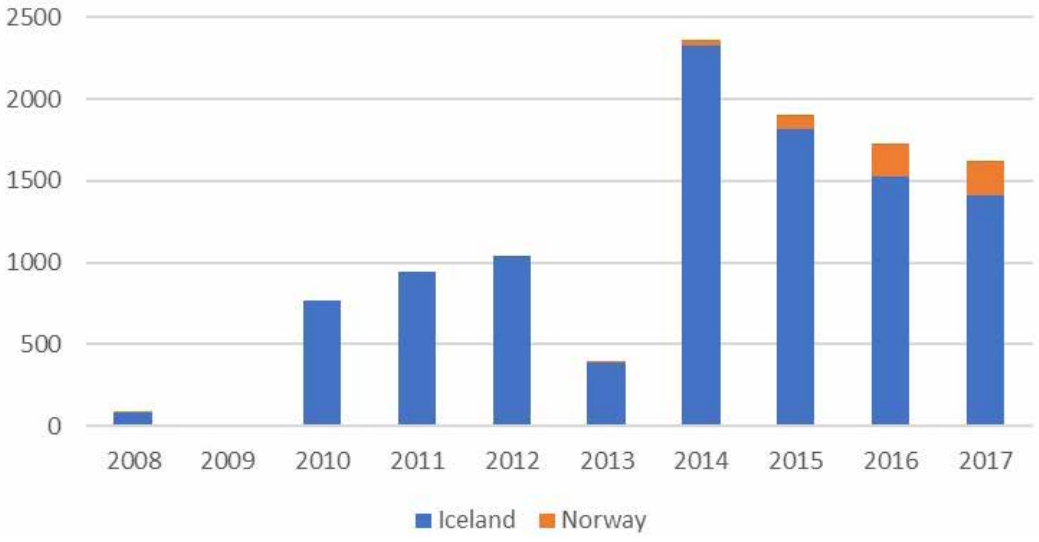
While trade 'under reservation' among the whaling nations of Iceland, Japan and Norway and with non-Parties to CITES (such as the Faroe Islands) is technically legal, the United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC) has raised concerns that such sizeable levels of trade undermine the effectiveness of CITES protections.[112] In addition, a resolution adopted by CITES Parties recommends that member governments agree to not issue any import or export permits or certificates for introduction from the sea for primarily commercial purposes 'for any specimen of a species or stock protected from commercial whaling by the International Convention for the Regulation of Whaling'.[113]

As of July 2018, Iceland has exported more than 8,800 tonnes of fin whale products worth more than $95 million to Japan since 2008,[114] while Norway has shipped more than 590 tonnes of minke whale products to Japan since 2013 (see Table 5). The quantity of individual Norwegian shipments has been steadily growing, with the most recent export in September 2017 totaling 214.765 tonnes.[115] A number of the Norwegian whale product shipments have passed through European ports since 2013, causing the European Parliament to pass a resolution in 2017 urging Norway to withdraw its CITES reservations and cease trade in whale products, as well as calling on the European Commission to look into 'all possible ways of ensuring that whale meat is no longer legally allowed to transit through EU ports, including by recommending a ban on such transits as an exceptional measure'.[116]

Prior to the adoption of the IWC commercial whaling moratorium and the subsequent CITES ban on commercial trade in whale products, both Norway and Iceland exported significant quantities of whale products to Japan.[118] Although Norway ceased legal whale meat exports in the 1990s, it began to export whale meat to the Faroe Islands (a non-Party to CITES) in July of 2002. While initially sporadic, exports to the Faroes have occurred every year since 2011.[119]

In 2002, Norway attempted to resume a regular trade in whale products with Iceland by shipping eight tonnes of minke whale in July and 17 tonnes in October. Ole Mindor Myklebust, a Norwegian whaler, said of the trade: 'It was a great

Table 5: Iceland and Norway's whale product exports to Japan (tonnes)[117]



day. Restoring exports of whale meat is a major step toward bringing whaling back to normal'.[120] The shipment had been arranged by Jon Gunnarsson, a member of the Icelandic Parliament.[121] Shipments from Norway stopped, however, once Iceland resumed minke whaling in 2003 and only resumed in 2013. Since that time, Norway has shipped over eight tonnes of whale meat to Iceland for use in the country's restaurants.[122] The meat is also available for purchase online.[123] The most recent shipment to Iceland was sent from the Lofothval company (partially owned by Icelandic fin whaler Kristján Loftsson) to IP Dreifing. According to the CITES export certificate that accompanied the export, the meat was sourced from three whales killed in 2015 and two in 2016.[124]

Japan, Iceland and Norway all have specific health requirements relevant to the sale of edible whale products. The failure to meet these requirements, both domestic and foreign, has been a common hindrance to Iceland and Norway's whale product trade. In 2008, more than 4,320kg of whale meat destined for human consumption in the Faroe Islands was found in storage in questionable conditions at a Norwegian pet food factory in Trøgstad. The entire quantity of whale meat was confiscated by health officials, who declared it unsafe for human use.[125]

Furthermore, whale meat shipped from both Iceland and Norway to Japan has been rejected due to harmful levels of pesticides – including aldrin, dieldrin and chlordane – which violate human health standards established by the Japanese Government.[126] In 2018, the Norwegian Food Safety Authority conducted an inspection of the Myklebust Hvalprodukter company, Norway's leading whale product exporter, and found numerous health code violations, including no hazard analysis being performed for the presence of listeria in ready-to-eat meals, the meat-cutting area not isolated from other activities or screened for pests, and rodents present outside the building.[127]

The Kyodo Senpaku company (which currently carries out Japan's pelagic whaling) places inspectors on board Norwegian whaling vessels in an effort to address health concerns.[128] Inspectors are also on site at the Hvalur whale processing station in Hvalfjörður in Iceland.[129] Both Norway and Iceland have complained about the difficulties involved in testing whale products for contaminants for the Japanese market;[130] since 2015, the three whaling nations have engaged in a series of discussions aimed at simplifying the export process.[131]

©Life Investigation Agency

Above: Icelandic fin whale meat arriving in Osaka, Japan

There have also been problems with the DNA registries used for traceability purposes. According to a letter from the IWC Commissioner for Japan, Hideki Moronuki, there have been instances in which DNA profiles of a sampled whale product have not been verified in the national DNA registry of the exporting country, meaning 'it is impossible to exclude the possibility that the concerned whale products were derived from animal(s) illegally hunted until detailed investigation has clarify [sic] the cause of the failure in verification'. Commissioner Moronuki suggested that if a mismatch were to be found, all products in that same lot would need to be tested. Normally, DNA sampling is done randomly on five per cent of a shipment.[132]

In response to the letter from Japan, the Norwegian Government, on behalf of itself and the Government of Iceland, asked for further clarification 'in providing information concerning the Japanese requirements for import and marketing of processed whale products, e.g, functional foods, that include by-products such as oils, balenin and proteins. A common characteristic of these products is that the concept of a DNA-profile is not applicable'.[133] This is of concern, given the number of patents for such products[134] and recent statements from the Hvalur whaling company regarding its plans to further develop such products.[135]

Introduction from the sea

CITES defines international trade to include the 'introduction from the sea' of CITES-listed specimens caught outside the jurisdiction of any state. Since 2002, Japan has hunted sei whales as part of its special permit whaling programme in the North Pacific, killing more than 1,400 of these endangered whales. The hunts occur in three IWC-designated management areas, two of which (sub-areas 8 and 9) are mostly beyond any state's jurisdiction; 134 sei whales are to be killed each year until 2022 under Japan's NEWREP-NP programme.[136] The vast majority of each sei whale taken (about 12 tonnes per whale is processed and frozen onboard the Nisshin Maru in retail-ready packages) is consigned by the ICR to Kyodo Hanbai, a sales agent, for distribution in both wholesale and retail marketplaces.[137] Japan does not hold a reservation to the Appendix I listing of the North Pacific sei whale population and therefore its introduction from the sea of sei whale products for primarily commercial purposes is prohibited. However, Japan claims its introduction from the sea of entire sei whale bodies is for scientific purposes.

In 2016, following a question from the European Union as to possible compliance problems with these imports, the CITES Secretariat began to consult with Japan about its actions. The EU was not satisfied with Japan's responses to the Secretariat in 2016 and 2017 and, at the 69th meeting of the CITES Standing Committee in November/December 2017, proposed that the committee adopt compliance measures.[138] The Standing Committee instructed the CITES Secretariat to conduct a mission to Japan to evaluate its compliance with CITES and the committee is expected to reach a decision on Japan's compliance at its 70th meeting in October 2018.

Going to the dogs

In an increasingly desperate search for profits, all three commercial whaling nations have looked to the production of feed for animals. Although the use of whale products for animal feed has been prohibited in Japan since 2001, dried whale meat dog snacks made from imported Icelandic fin whale meat were sold in Japan by the online pet food company Michinoku Farms in 2013.[139] A 2009 paper published in the *Japanese Journal of Food Protection* states that 'there is a possibility that whale materials are being used for feed for pigs, poultry and fish'.[140] Indeed, Japanese company Nippon Suisan Kaisha holds a patent for feed for farmed fish that lists whale oil as a possible ingredient.[141]

In 2016, the Norwegian company Rogaland Pelsdyrfôrlag used more than 113 tonnes of dumped whale products as food for fur animals.[142] Moreover, a product line of whale-based products for dogs was developed by the Myklebust Hvalprodukter company, which offers a variety of pet snacks, freeze-dried food and raw foods. The products, launched under the Kato Hund brand,[143] are produced from whale meat and blubber unfit for human consumption. Bottles of Kato Hund whale oil are advertised as being "good for the joints and muscles, and helping to maintain the heart's normal function".[144]

In December 2016, Ole Mindor Myklebust sought permission from the Norwegian CITES authorities to export minced whale meat to Denmark to be freeze-dried and processed as animal food, packaged and then re-exported to Norway for commercial sale. In the request, Myklebust stated that testing of freeze-dried whale meat for use in dog food products had been done by the Polarol company in Drøbak, Norway.[145] The Danish CITES management authority denied the request from its Norwegian counterpart because international trade in minke products for commercial purposes is prohibited.[146] The Myklebust company and other pro-whaling advocates in Norway are actively pushing their Government to seek the removal of CITES protections for whales.[147]

©http://nettbutikk.hvalprodukter.no/categories/hundefor

Above: Myklebust Hvalprodukter dog food products have been developed as part of the effort to offset the limited demand for whale meat for human consumption

Growing anthropogenic threats to great whales

Since the moratorium on commercial whaling came into force, the marine habitats upon which cetaceans depend have come under unprecedented and mounting pressure.[148] The survival of whales, dolphins and porpoises is challenged by direct, indirect and synergistic impacts of human activities, including climate change, pollution and bycatch in fishing gear. In light of these growing risks, the role of the moratorium in providing whale populations a chance of recovery has never been so crucial.

Climate change – through ocean acidification, melting ice sheets, changes in ocean temperatures and food-chain disruption – poses one of the greatest threats to marine biodiversity.[149] Despite global commitments made through the Paris Agreement in 2015, at current emission rates the carbon budget for limiting global temperature rises to 1.5°C will be exceeded in just eight years and the 2°C budget in 19 years.[150] Climate change will have extensive effects on cetaceans – from ocean acidification impacting the distribution and abundance of the plankton species that underpin marine food chains[151] to warming seas altering the range of around 88 per cent of cetacean species.[152]

Antarctic and Arctic whales are particularly vulnerable to the impacts of climate change; since the 1990s, the polar regions have been warming at twice the average global rate.[153] Sea temperature increases will have severe impacts on the whales' habitat, with a profound reduction of sea ice and possible complete disappearance of Arctic sea ice during summer months. It has been predicted that under a 2°C global warming scenario, Antarctic minke whales will lose 5-30 per cent of their ice-associated habitat.[154] Scientists predict that Antarctic krill populations, the base of the Antarctic food chain, could decline by up to 40 per cent during the 21st century due to rising sea temperatures.[155]

Marine debris, particularly plastic pollution, is also now recognised as a major threat to global marine biodiversity. Unless urgent action is taken to reverse current trends, it is expected that by 2050 there will be more plastic than fish in the sea.[156] Plastic harms cetaceans through ingestion and entanglement, in some cases leading to mortality.[157] Filter-feeding species, such as baleen whales, are particularly exposed to the risks associated with microplastics (plastic particles less than 5mm in diameter), including ingestion of plastic-associated toxins.[158]

Chemical and noise pollution – including that generated by offshore oil production – are also deadly forms of marine pollution. Polychlorinated biphenyls (PCBs) have played a major role in cetacean population declines across Europe.[159] Noise pollution can cause acute deadly impacts as well as chronic detrimental effects on the ability of cetaceans to perform critical behaviours such as communication, mating, locating prey and predators, and navigation.[160] Cetaceans face risks at every stage of offshore hydrocarbon exploration and production – from seismic surveys to oil spills. The Deepwater Horizon catastrophe reduced dolphin populations in portions of the Gulf of Mexico by up to 51 per cent.[161]

Fisheries interactions are among the greatest direct risks to cetaceans, with entanglement and bycatch in fishing gear killing more than 300,000 whales, dolphins and porpoises each year.[162] Bycatch has pushed certain species – including the vaquita porpoise – to the brink of extinction. It is putting others – including harbour porpoise populations in the Baltic Sea and Hector's dolphins in New Zealand – under substantial pressure.[163]

The rapid increase in maritime traffic and vessel speeds in recent decades has led to growing mortalities and injuries resulting from ship strikes.[164] In shipping hotspots, cetacean populations are particularly threatened; 44 per cent of confirmed deaths of the critically endangered North Atlantic right whale between 1970 and 2009 were due to ship collisions.[165] A recent study indicates high mortality rates for blue, fin and humpback whales due to ship strikes off the US west coast.[166]

These examples provide insight into the increasingly fragile state of the world's ocean. The commercial whaling moratorium plays a critical role in limiting further avoidable pressures and must be maintained to prevent further risks to cetacean populations.

Below: Sperm whale on Spanish shore killed in 2018 by gastric shock caused by ingesting 29kgs of plastic waste

©Murcia Today

Inhumane hunts

The IWC defines the humane killing of a whale as 'causing its death without pain, stress or distress perceptible to the animal. That is the ideal. Any humane killing technique aims first to render an animal insensitive to pain as swiftly as is technically possible'.[167] Under the auspices of the Whale Killing Methods and Welfare Issues Working Group, the IWC seeks to ensure that hunts are as humane as possible for whales.[168] However, despite the passage of more than 20 years since the IWC defined 'humane killing', there remain significant welfare concerns regarding the methods of all three countries engaged in whaling for commercial purposes.

Iceland has collected only minimal data on time to death (TTD) rates for minke whales killed in its commercial operations and has been unable to provide a credible answer to the question of how long its whalers take to kill a minke whale.[169] Although TTD data collected from 50 of the 137 fin whales killed in 2014 claimed that 42 of them died 'instantly' (defined by the IWC as within 10 seconds of being shot), the remaining eight whales had to be shot a second time and their median TTD was eight minutes. One whale took 15 minutes to die.[170]

There is no mandatory reporting of TTD or instantaneous death rate (IDR) in the Norwegian hunt.[171] However, Norway recently collected TTD data for 271 minke whales, including 180 whales in 2011 and 91 in 2012. The whales were killed with 50mm and 60mm harpoon guns and the penthrite grenade. Rifles were used as backup kill weapons. Although the fisheries inspectors collecting this data were neither veterinarians nor biologists, the data collected reported instantaneous deaths for 222 whales (82 per cent) with an average TTD of one minute.

The median TTD for the 49 whales not registered as instantaneous deaths was six minutes. One whale had to be shot twice, taking 20-25 minutes to die.[172]

Japan's special permit hunts currently target Antarctic and common minke whales and sei whales, the third largest whale species. Japan has not submitted welfare data to the IWC since 2006 but provides reports to the North Atlantic Marine Mammal Commission (NAMMCO). According to data for 2009-15 presented at a NAMMCO workshop on killing methods in 2015, sei whales take an average of three minutes to die and only 51 per cent die instantaneously.[173]

The instantaneous death rate in Japan's minke whale hunts (51 per cent in the offshore North Pacific hunt, 44 per cent in the coastal North Pacific hunt and 59.6 per cent in Antarctica) is substantially lower than comparable hunts in Norway and Iceland. Minke whales taken in the offshore North Pacific hunt take an average of two minutes to die while those in the coastal hunt take over five minutes. Antarctic minkes take an average of 1.8 minutes to die.

Experts at the NAMMCO workshop raised concern that Japan still uses a lance – a non-exploding ('cold') harpoon – as a secondary killing method for coastal minke whales and for sei whales if the first harpoon does not kill the whale. Use of the cold harpoon for commercial whaling has been prohibited by the IWC since 1980 and Japan does not hold an objection to this provision in respect of sei whales.[174] NAMMCO recommended in 2015 that Japan develop and use a more effective back-up killing method.

Below: There are significant welfare concerns regarding the killing methods used by all three commercial whaling countries

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Whales as ecosystem engineers

Whales provide important functions in the oceans, playing a role so significant that some scientists have dubbed them 'ecosystem engineers'.[175] As knowledge of these benefits grows, the risks associated with removing large numbers of whales become clearer – strengthening the case for maintaining the moratorium on commercial whaling indefinitely. In 2016, a resolution was passed at the 66th meeting of the IWC recognising the ecosystem functions that whales provide.[176]

A growing body of scientific research demonstrates that whales enhance marine ecosystems in several ways. First, whales facilitate the transfer of nutrients through vertical mixing and horizontal transportation.[177] By releasing faecal plumes and diving to feed, whales transfer important nutrients such as nitrogen and iron to surface waters. The contribution marine mammals make to this vital mixing process is significant, with a study finding that whales and seals may be responsible for replenishing 2.3×10^4 tonnes of nitrogen per year in the Gulf of Maine – an impact larger than that provided by all rivers feeding the Gulf of Maine combined.[178] This 'whale pump' function plays a role in enhancing marine productivity.

Cetaceans perform other types of vertical mixing. For example, gray and humpback whales disturb the sea bottom to feed, causing substantial amounts of sediment and nutrients to become suspended in the water column. This causes nutrient recycling and brings crustaceans to the ocean surface, providing nourishment for seabirds.[179]

Horizontal transfer takes place through the movement of nutrients from highly productive, high-latitude feeding areas to low-latitude calving areas. As large whales migrate, they free nutrients for drifting phytoplankton – the base of the food web upon which all fish stocks rely.[180] As whale populations recover, this horizontal transfer of iron could form a 'great whale conveyor belt', substantially enhancing productivity in lower-latitude breeding areas.[181]

Finally, when whales die their enormous bodies sequester significant amounts of carbon and provide massive pulses of organic enrichment, including proteins and lipids, to the sea floor, an area often impoverished in nutrients and energy, increasing the abundance and diversity of species.[182]

Right: Whales perform an important role in the ocean as ecosystem engineers

Recommendations

The 67th meeting of the IWC takes place in Florianópolis, Brazil, from 4th to 14th September 2018. The agenda for the meeting includes a number of complex issues which will determine the future direction of the IWC and the protection of whales, dolphins and porpoises.

Japan's proposals on the Way Forward of the IWC demonstrate a renewed determination to undermine the 33-year-old moratorium on commercial whaling. Meanwhile, Japan, Iceland and Norway continue commercial whaling and international trade in whale products, undermining both the IWC and CITES. Increasing anthropogenic threats to the marine environment and cetaceans demonstrate the imperative to achieve an outcome that strongly reaffirms the continuation of the commercial whaling moratorium without modification. This will enable the IWC to focus on its vital work to tackle the severe degradation of the marine environment now threatening cetacean populations globally.

To achieve this, we call on IWC Contracting Governments to take the following steps:

- Strongly support proposals, resolutions and Schedule amendments which support maintaining the moratorium on commercial whaling and that advance the conservation of all cetaceans. These include:
    - The South Atlantic Whale Sanctuary (SAWS)
    - Resolution on Anthropogenic Underwater Noise
    - Resolution on Ghost Gear Entanglement
    - Resolution on Advancing the Commission's Work on the Role of Cetaceans in the Ecosystem Functioning
    - The Florianopolis Declaration
- Firmly reject proposals, resolutions and Schedule amendments which seek to undermine the moratorium on commercial whaling, including the package of documents related to the Way Forward of the IWC.

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- Support increased efforts to expand the IWC's cooperation with other intergovernmental organisations in line with Resolution 2014-2 on Highly Migratory Species, including but not limited to the following:
    - The International Maritime Organization on ship strikes, noise pollution, marine debris and chemical pollution
    - The Food and Agricultural Organization on ocean noise, bycatch and ghost gear
    - The United Nations Framework Convention on Climate Change, the Convention on the Conservation of Antarctic Marine Living Resources and the Arctic Council on climate change
    - The UN Environment Programme on marine plastic pollution
    - The Stockholm Convention on persistent organic pollutants
    - The Convention on the Conservation of Migratory Species of Wild Animals and its Agreements
- Ensure the IWC's limited research budget prioritises efforts to enhance the conservation of whales, dolphins and porpoises rather than the management of commercial whaling.

We urge all governments to take the following steps:

- Lead and support communications and outreach to persuade Japan, Norway and Iceland to abide by the moratorium on commercial whaling
- Engage with CITES Parties in reaffirming the importance of the Appendix I listings for great whales and ensure robust enforcement of the international ban on trade in whale products
- Support domestic and international policies and agreements that seek to strengthen marine conservation measures and nonlethal utilisation of cetaceans, including eco-tourism and whale-watching
- Support projects in countries which strengthen cetacean research and conservation efforts.

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