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Evaluating to what extent the ‘scientific exemption clause’ acts as a loophole and influences international whaling

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Abstract

The purpose of the study was to identify if the scientific exemption clause of the international whaling ban is a loophole for commercial hunting to continue under disguise and to evaluate the level of public perception towards whaling exemptions and longevity of policy. The study used secondary data from the International Whaling Commission to calculate total catch data for commercial and scientific brackets. It also used primary data in the form of questionnaires to identify public knowledge and belief. From the results, it was identified that Japan had the most consistent scientific programme and Norway the most consistent commercial programme. With this, Japan recorded a peak of 1,188 individual whales compared to Norway’s peak of 376 for commercial practises. Iceland was difficult to evaluate due to a loss of data between 1990 and 2002, meaning catches could not be representatively calculated or compared. Japan’s scientific catches for minke whales consistently exceeded catch quotas, whilst Norway failed to reach its commercial quotas. 62% of the 58 respondents had not heard of the International Whaling Commission (IWC), with 60% also unaware of the international whaling ban. This lack of knowledge led 59% to believe that the IWC was, in some way, ineffective in informing the public. Split opinion existed towards exemptions, with 40% believing they should and 40% believing they should not exist. However, 42% believe that they would have longevity in conservation. The main conclusion was that the scientific exemption is, to some extent, a loophole for commercial practises to continue. This means countries can exploit international legislation and hunt vulnerable species, all within legal right. The comparison to peak catches supports this statement, with a difference of 452 in favour of science. Norway used the exemption as an additional practise, with primary focus on commercial whaling. The public are split on exemptions, but narrow margins suggest a belief that they will work in the long term. This may, in turn, alter viewpoints towards whaling practises as education and awareness from the IWC increases.

Keywords: International Whaling Commission, moratorium, scientific whaling, Japan, Norway, Iceland, questionnaire

Introduction

History

All modern whaling has its origins with Basque hunters who are recorded to have conducted some of the first commercially organised hunts with handheld spears in 700 AD (Cherfas., 1988) (Fitzmaurice., 2017). With early whaling, almost all the whale was used. This included meat for food, baleen for baskets, and blubber for the oil industry (National Geographic., 2022). In 1960, Sven Føyd developed the exploding harpoon. Coupled with the floating factory ship, in 1903, the modern whaling industry was born (Rocha *et al.*, 2014). At the end of the 19th century, scarcity of whales led hunters to the untouched waters of Antarctica where stocks were still abundant. However, by 1960, whaling was no longer economically viable due to severe depletion in stocks. Almost all countries withdrew from Antarctica except for Japan and the USSR (Cherfas., 1988). Between 1900 and 1999, an estimated 2.9 million whales were hunted. As a result, almost all populations were significantly reduced (Rocha *et al.*, 2014).

Laws, Policies, and the International Whaling Commission

In 1946, the International Convention for the Regulation of Whaling (IWRW) was signed, and the International Whaling Commission (IWC) was formed (IWC-a., 2023). The IWC originally comprised of fifteen member states but reached a peak of eighty nine in 2020 (WWF., 2020). The combined aim is to “provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry” (IWC-b., 2023).

The convention is divided into two sections, with the first detailing the general regulatory schemes for management and the second detailing the legally binding schedule regulations for conserving whale stocks (e.g. whaling methods and sanctuaries) (Knauss., 1997) (Fitzmaurice., 2017). Under Article XL, individual member state governments are required to enforce measurements set out by the body to ensure conservation. The IWC themselves have no power to enforce regulations (Gambell., 1997) (Ruffle., 2002) (Britannica., 2023) (ECOLEX., 2023) (IWC-a., 2023). Any changes to the schedule (e.g. moratorium introduction and establishment of sanctuaries) requires a $\frac{3}{4}$ majority vote but under Article V of the convention, dissatisfied member nations can file a formal protest within 90 days of decision and not be bound by the ruling (Knauss., 1997) (Fitzmaurice., 2017).

In 1972, the United Nations (UN) Conference on Human Environment led to a call for a ten year moratorium on commercial whaling which was agreed in 1982 and implemented from the 1985/86 season (Rocha *et al.*, 2014). With this, under Article V, Japan and Norway lodged formal objections to the moratorium and were not bound by its implementation meaning they could continue with previous practises (Rocha *et al.*, 2014) (IWC-c., 2023). The USSR also submitted an objection to the moratorium, however, it was not exercised and was subsequently withdrawn (The Conversation., 2022) (IWC-d., 2023). The moratorium was intended to be temporary, with the hope that stocks would recover and allow for sustainable practises. However, in 1992, an extension was proposed and is still in place today (Parsons & Rawles., 2003) (Fitzmaurice., 2017).

Whaling Classifications

The convention divides whaling into three subsections: Aboriginal subsistence, special permit, and commercial. Catch quotas for aboriginal subsistence whaling are set by the IWC every six years following a review by the Scientific Committee (IWCSC). This classification is used by four nations: Denmark (Greenland), Russia, St Vincent and the Grenadines, and the United States of America (Alaska) (IWC-e., 2023). Likewise, commercial whaling quotas are set by the IWC. However, this does not apply to Iceland, Norway, and as of 2019, Japan because of their moratorium objections under Article V. These three nations establish their own quotas (in accordance with IWC guidelines) and catches are reported to the IWC each season (Holm-b., 2019) (NikkeiAsia., 2019) (IWC-d., 2023).

Article VIII of the convention gives member nations the right to kill for science, with catches and scientific data reported to the IWC each season. Special permit whaling is self regulated, meaning there is no interference by the IWC or its bodies. Individual member nation governments are responsible for setting quotas, managing catches, regulating practises, and issuing permits after proposals have been reviewed and approved by the IWCSC (Cherfas., 1988) (IWC-f., 2023) (IWC-g., 2023).

Special permit, or scientific, whaling is the action of hunting whales for research purposes. Each scientific program has a dominant focus, with Japan's "JARPA" programme focusing on the examination of stock structure and "JARPA II" on monitoring and modelling of whales for future development. To do this, Japan uses lethal techniques of harpooning the whale (which is allowed under Article VIII). With the harpooned whale, scientists can then examine stomach contents. This information, combined with length, weight, and age can be used to calculate sustainable hunting levels. However, it has been counterargued that nonlethal techniques can be used to achieve the same research. DNA samples from skin and blubber for genetic sampling can be used to determine population structure, with sighting surveys, photo identification, and acoustic surveys suitable for population size estimations (Gales *et al.*, 2005) (IFAW., 2014). Once scientific research has concluded, the whale meat can be commercially sold into the market (Hakai Magazine., 2016) (Waugh & Monamy., 2016).

Japan, Norway, and Iceland

After initial rejection, Japan withdrew its objection to the moratorium in 1987 due to conflict with the United States of America, who threatened to reduce fishing quota within the Exclusive Economic Zone (EEZ) by 100,000 tonnes if not recalled (Holm-a.,2019). In the same year, Japan received approval for special permit whaling and began its scientific programme which ran in different forms until 2019. In March 2014, the Government of Australia took the Government of Japan to the UN International Court of Justice over the legality of its Antarctic programme "JARPA II". The court ruled the programme illegal, stating that the permits issued "were not for the purpose of scientific research". Japan was also found to have breached provisions of the Antarctic sanctuary and were asked to stop issuing permits and cease the programme (International Court of Justice., 2014). The temporarily halted practises however, in November 2015, it was announced by Japan that the Antarctic programme would resume in a reduced format and stated that recommendations from both the court ruling and the Scientific Committee had been considered (The Guardian., 2015). This scientific programme was named "NEWREP-A", defined as

“New Scientific Whale Research Program in the Antarctic Ocean”, and ran until 2019 when Japan withdrew from the IWC, ceased special permit whaling, and resumed commercial whaling for sei, bryde’s, and minke whales within its EEZ (Holm-a., 2019) (IRC., 2023) (IWC-c., 2023) (IWC-d., 2023) (Figure 1).

Before Japan’s withdrawal from the International Whaling Commission in 2018, they faced three decades of international pressure from NGO bodies and international governments. Japan’s withdrawal came after it failed to argue that whale stocks were now abundant and the international whaling ban could be altered, with the Government of Japan stating that the IWC “refused to agree to take any tangible steps towards reaching a common position that would ensure the sustainable management of whale resources” (Holm-b., 2019) (Kolmaš., 2021).

Japanese attitudes towards whaling are based on three cultural aspects. The first is the belief that Japan, as a nation, has consumed whale for thousands of years but common eating only occurred after World War II. Secondly, in Japanese culture, whales are considered a type of fish and not a mammal. This makes them disagree with international belief of whale rights. Thirdly, Japan does not want interference with its indigenous behaviours and practises. The Japanese culture views interferences as morally wrong and sees whaling as no different to other controversial practises, like foie gras (Hirata., 2005) (Harrell., 2020).

Norway submitted an objection to the moratorium in 1985 and have never withdrawn it. In 1987, they ceased commercial whaling and applied for special permit whaling allowances which was subsequently granted in the same year. Norway focused on special permit whaling until 1993, when they restarted their commercial whaling programme and conducted both types until 1995. In 1995, they ended their special permit whaling programme and chose to only commercially whale. This has continued through into the present day, with Norway hunting minke whales within its EEZ (Rocha *et al.*, 2014) (IWC-d., 2023) (WDC-a., 2023) (Figure 1).

Iceland ceased commercial whaling in 1985 with the moratorium and submitted a proposal for special permit whaling in the same year. This was conducted until 1992 when Iceland withdrew from the IWC over disapproval of the proposed moratorium expansion. In the same year, Iceland restarted commercial whaling and failed to report catches to the governing body until 2003. In 2003, Iceland rejoined the IWC, ceased commercial whaling, applied for, and received approval for the restart of special permit whaling. This ran until 2006, when Iceland reintroduced the moratorium objection and resumed commercial whaling alongside special permit whaling. In 2008, Iceland re-withdrew from the IWC and chose to cease special permit whaling in favour of commercial whaling (Parsons & Rawles., 2003) (Holm-a., 2019) (WDC-b., 2023). Now, in 2023, Iceland hunts fun and minke whales within its EEZ. However, between 2018 and 2020, no whaling was conducted. In 2022, Iceland announced an end to its whaling practises by 2024 due to declined economic benefit (The Guardian., 2022) (IWC-d., 2023) (Figure 1).

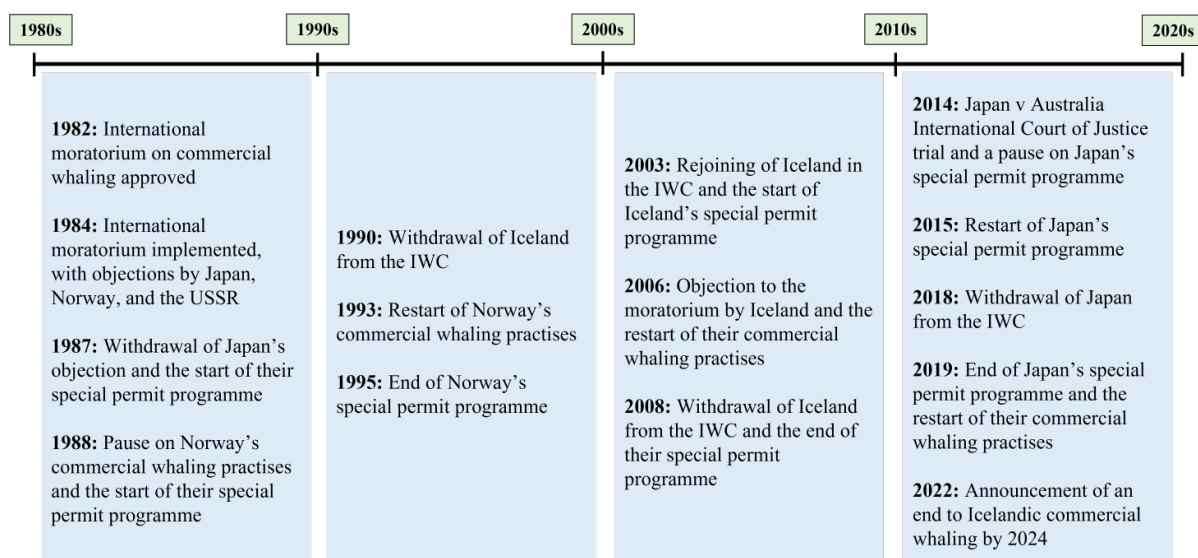


Figure 1: A timeline of events for Japan, Iceland, and Norway between 1982 and 2022. Information was supplemented from the International Whaling Commission and The Guardian (IWC-c., 2023) (IWC-d., 2023) (The Guardian., 2015) (The Guardian., 2022)

Aim and Objectives

The research covers two “unknowns” that need to be addressed. These are:

- Are the annual scientific catches exceeding the self allocated quotas? If so, by how much and what is the legality of this? How do these values compare to commercial practises?
- What is the public perception of the International Whaling Commission and the international whaling ban? Does the public believe that the exemptions will work in the long term to conserve whales?

The aim of the research is to evaluate if the scientific exemption clause of the international whaling ban is acting as a loophole for commercial practises to continue and to evaluate the level of public perception towards whaling, policy, and governing bodies.

The objectives of the research are:

- To use pre-existing secondary data from the IWC to calculate the total commercial and scientific catches conducted by the three whaling nations since the moratorium introduction.
- To compare the total commercial and scientific catches to the individual, yearly set quotas to identify excess hunts and legality.

Methodology

IWC Total Catch Data

Data Selection

To achieve the first half of the research aim, a secondary database from the

International Whaling Commission was used (IWC-c., 2023). This dataset was collated through the Bureau of International Whaling Statistics, where nations report catches, and is publicly available via the IWC website. It records catch year, season, type, area, nation, and species. The database is separated by individual whaling type, allowing specific datasets to be chosen. The commercial and scientific datasets start with the 1985/86 season and continue through until recent years, with scientific ending in 2019 and commercial in 2021.

When selecting data range, three whaling nations (Japan, Norway, and Iceland) and three commonly hunted species (minke, sei, and fin whales) were chosen for comparison. This selection included the most active whaling nations and species that covered all three nation practises for representative comparison. With this, the full dataset was chosen for use because with short ranges, sufficient gaps appeared where nations switched between whaling types.

Data Analysis

Total and mean catches of each species were calculated for the three nations. For comparative analysis of species quotas against catches, statistics were performed using Minitab to identify relationships. Normally distributed data ($p < 0.05$) used a two sample student's t-test whilst not normally distributed data ($p > 0.05$) used a nonparametric Mann-Whitney U test.

Questionnaire Survey Data

Ethical Considerations

Before conducting the questionnaire survey, human ethical and safety considerations were first addressed. These highlighted potential risks and impacts and how they would be controlled. Risks were determined to be a low threat, meaning little harm was likely to come to participants.

To protect participants, a full information sheet was provided before the questionnaire began. This highlighted the survey's confidentiality practises and anonymous nature, as well as the inability to withdraw after submission because of this. The questionnaire included a compulsory consent box to exclude under 18's and vulnerable adults were not targeted.

Data Collection

To achieve the second half of the paper's aim, a primary questionnaire was produced and released (See Appendices for full version). This was generated and shared through online systems rather than face to face to ensure wider reach.

Questions were produced in different formats, including open and closed ended, short and long answer, and Likert scale. Google Forms was the chosen software because of its simple system, with questionnaires quick to produce and easy to 2023. It was shared through social media platforms and channels (Facebook, Twitter, and LinkedIn) and also through direct sharing to organisations. In some cases, the survey was then passed onto colleagues within the body (Marine Conservation Society, Ocean Conservation Trust, Marine Biological Association, The Wildlife Trust, RSPB, Sea Watch Foundation, Sea Shepherd USA, and Sea Shepherd UK). The survey was not shared with any non environmental organisations, meaning viewpoints could have been biased towards pro conservation and sustainability viewpoints.

Data Processing

Respondent data was changed from a text to numerical format. Short and long answer questions remained as text, as well as age and country of permanent residence.

- Yes and No (1-2) | Prefer not to Say (3)
- Male and Female (1-2) | Prefer not to Say (3)
- Strongly Disagree to Strongly Agree (1-5) | Don't Know (6)
- Very Uninformed to Very Informed (1-5) | Don't Know (6)

Data Analysis

Most questions were in a closed format, meaning percentage data was produced. With the Likert scale question, a stacked bar graph was firstly produced. Following this, statistics were performed using Minitab to identify associated nominal relationships. With this focus, a Chi-Squared test for independence was used to identify whether there was a relation or a significant difference between participant conservation charity association and response to law and policy statements.

Results

IWC Total Catch Data

Total Calculated Catches

Japan had the most consistent special permit programme and conducted the most scientific hunts between 1987 and 2019, with a peak of 1,188 individual whales hunted in 2005 (Figure 2). Norway had the most dominant commercial whaling programme between 1986 and 2021, with consistent running between 1993 and 2021 and a peak of 736 individual whales hunted in 2014 (Figure 3). Iceland presented a lack of data, with the country failing to report catches between 1990 and 2002 after they left the governing body. This makes it difficult to analyse their total catches against other nations (Figure 4). Peak catch data shows that Japan caught 452 more individual whales for special permit practises than Norway did for commercial [Table 1]. Likewise, Japan on average hunted 37 more individual whales than Norway [Table 2].

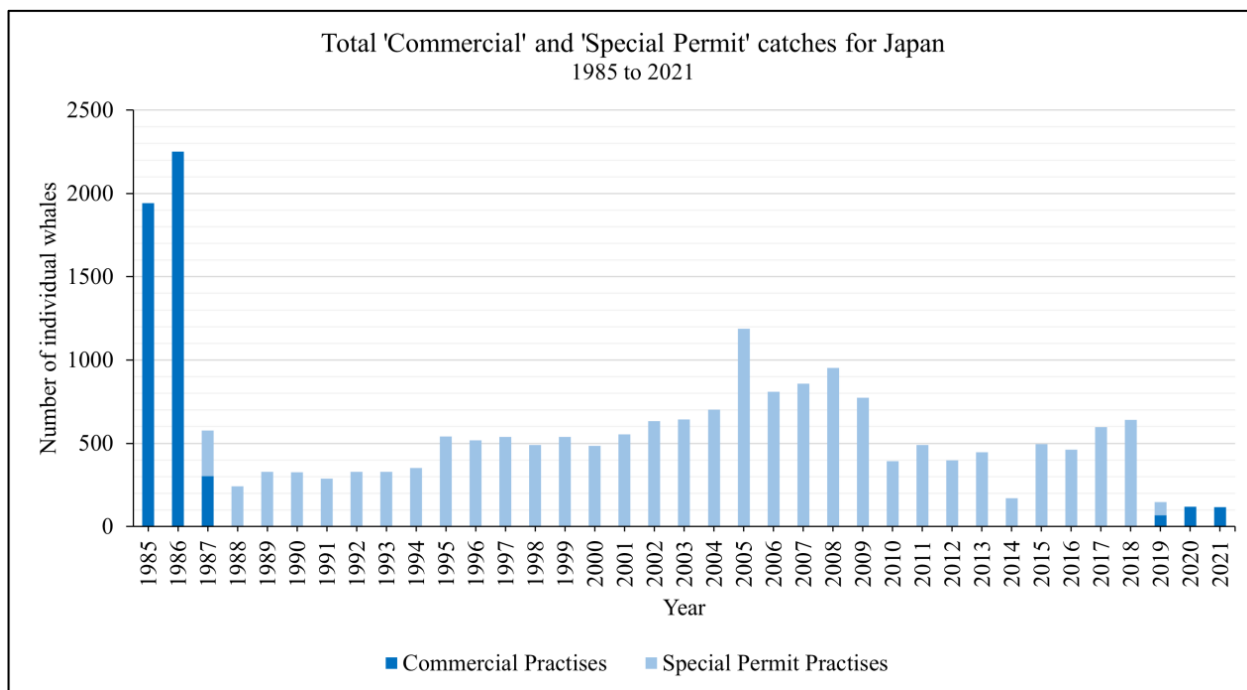


Figure 2: Total commercial and special permit catches conducted by Japan between 1985 and 2021. Practises are colour coded, with special permit in a light shade and commercial in a dark shade. Data was supplemented from the IWC (IWC-c., 2023)

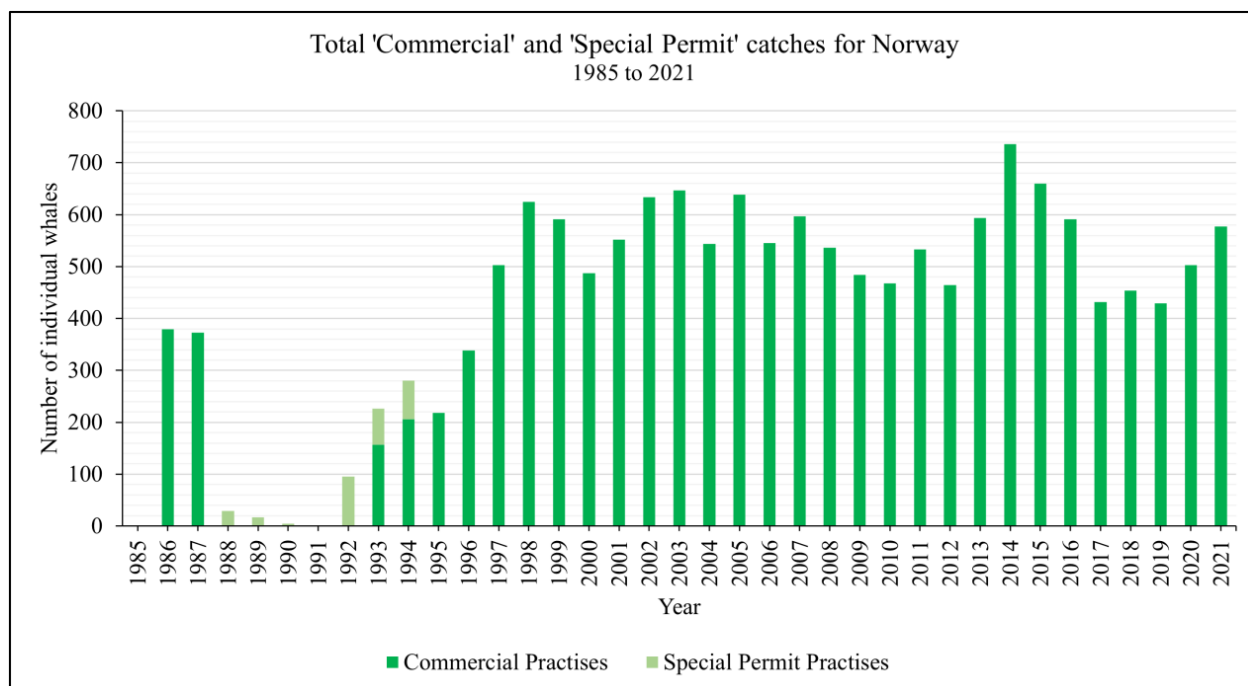


Figure 3: Total commercial and special permit catches conducted by Norway between 1985 and 2021. Practises are colour coded, with special permit in a light shade and commercial in a dark shade. Data was supplemented from the IWC (IWC-c., 2023)

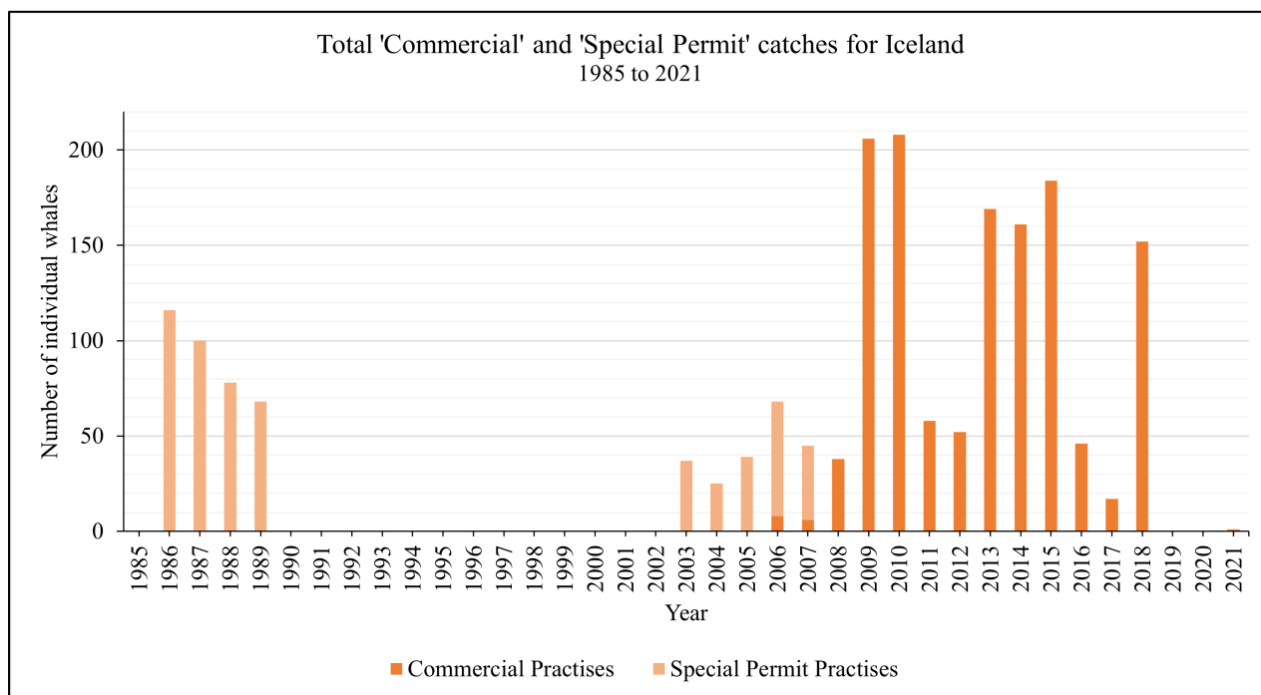


Figure 4: Total commercial and special permit catches conducted by Iceland between 1985 and 2021. Practises are colour coded, with special permit in a light shade and commercial in a dark shade. Data was supplemented from the IWC (IWC-c., 2023)

Table 1: Peak commercial and special permit catches and calculated difference for Japan, Norway, and Iceland between 1985 and 2021. Data was supplemented from the IWC (IWC-c., 2023)

Nation	Peak Commercial	Peak Special Permit	Calculated Difference (C-SP)
Japan	304	1,188	-884
Norway	736	95	641
Iceland*	208	39	169

(Japan's commercial value is from after the moratorium objection was withdrawn) (*Iceland failed to report catches between 1990 and 2002, meaning values may not be representative of the country's actions)

Table 2: Average commercial and special permit catches and calculated difference for Japan, Norway, and Iceland between 1985 and 2021. Data was supplemented from the IWC (IWC-c., 2023)

Nation	Average Commercial	Average Special Permit	Calculated Difference (C-SP)
Japan	130	456	-326
Norway	419	8	411
Iceland*	35	15	20

(Japan's commercial value is from after the moratorium objection was withdrawn) (*Iceland failed to report catches between 1990 and 2002, meaning values may not be representative of the country's actions)

Quotas v Actual Catches

Japan's special permit whaling programme predominately focused on the landing of minke whales. Looking at actual catches between 2000 and 2005, we can identify that those values exceeded allotted quotas in all five years. The biggest recorded excess came in 2001, where 452 individual extra whales were caught (Figure 5). Catches of sei whales were significantly lower, with Japan failing to set quotas for 2000 and 2001. Between 2002 and 2003, they failed to meet sei whale quotas. This is comparable to 2004, where the quota was matched, and 2005 where 100 individual whales were caught against a quota of 0 (Figure 6). Although quota allocation existed, Japan captured almost no fin whales between 2000 and 2005. With this, they failed to set quotas until 2005, where catches sat 40 individual whales below the available value (Figure 7).

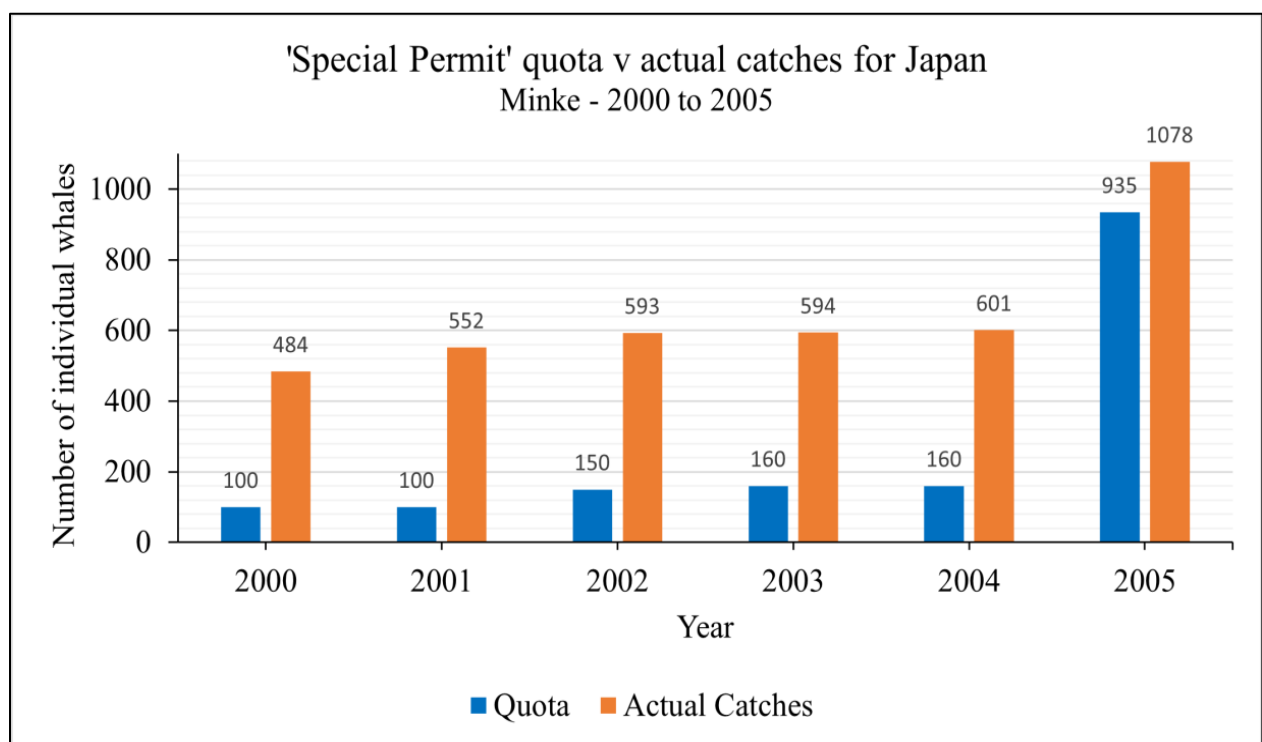


Figure 5: Japan's special permit quotas v actual catches for minke whales between 2000 and 2005. Quota data was taken from Whale and Dolphin Conservation (WDC) (WDC-c., 2023)

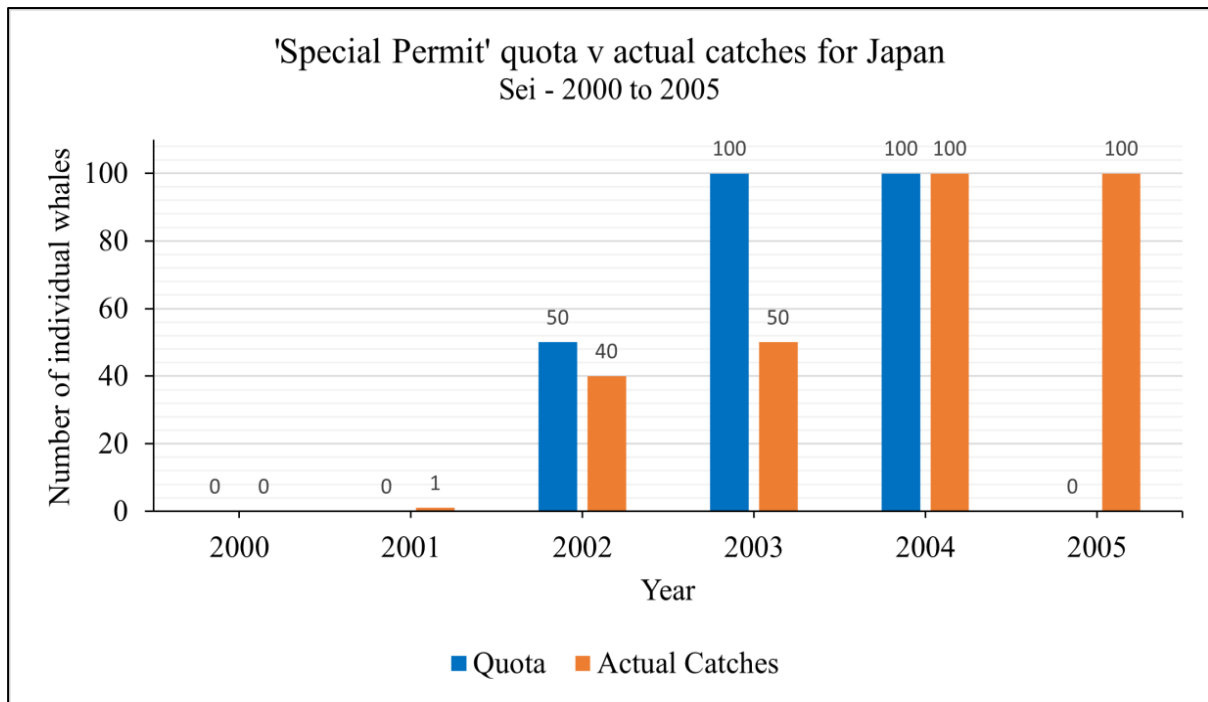


Figure 6: Japan’s special permit quotas v actual catches for sei whales between 2000 and 2005. Quota data was taken from Whale and Dolphin Conservation (WDC) (WDC-c., 2023)

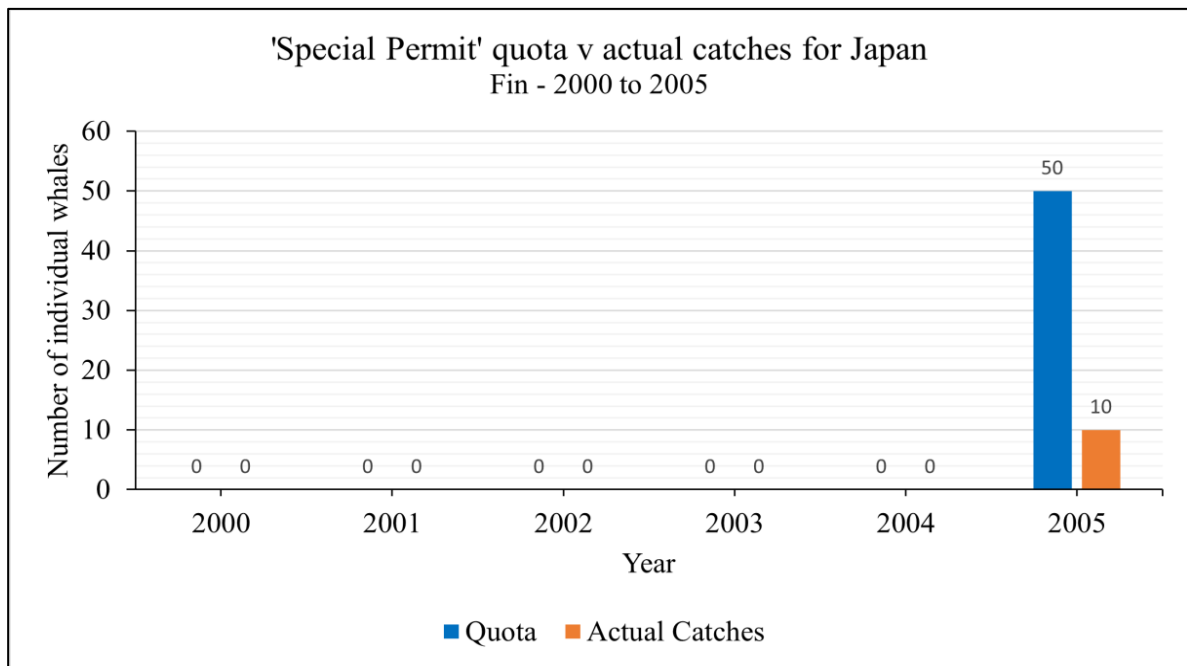


Figure 7: Japan’s special permit quotas v actual catches for fin whales between 2000 and 2005. Quota data was taken from Whale and Dolphin Conservation (WDC) (WDC-c., 2023)

A two sample student’s t-test was performed to compare Japan’s quotas and actual catches for fin and minke whales. The test highlighted that there was no significant difference between fin whale quotas ($M = 8.3, SD = 20.4$) and fin whale catches ($M = 1.67, SD = 4.08$); $0.78(5) = 3.9, p = 0.468$. However, there was a significant difference between minke whale quotas ($M = 268, SD = 328$) and minke whale

catches ($M = 650, SD = 214$); $2.39(8) = 19.12, p = 0.044$. This shows that Japan's actual catches for minke whales were higher than the allotted quotas.

A Mann-Whitney U test was performed to compare Japan's quotas and actual catches for sei whales. The test highlighted that there was no significant difference between quotas ($Mdn = 25$) and catches ($Mdn = 45$); $W = 36.00, p = 0.677$.

Norway's commercial programme has always focused on the landing of minke whales. Table 3 and Figure 8 shows the quotas v actual catches between 2000 and 2005 [Table 3] (Figure 8).

Table 3: Norway's commercial quotas v actual catches and calculated differences for minke whales between 2000 and 2005. Quota data was taken from the Animal Welfare Institute (AWI., 2016)

Year	Quota	Actual Catch
2000	655	487
2001	549	552
2002	671	634
2003	711	647
2004	670	544
2005	797	639

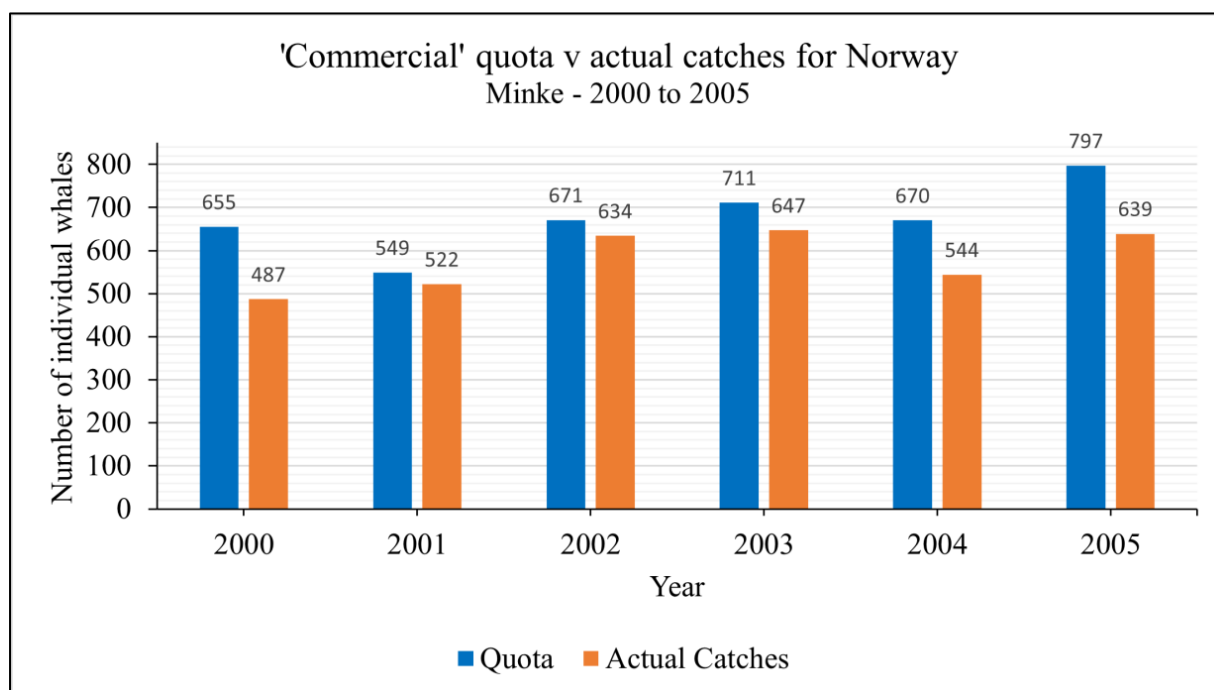


Figure 8: Norway's commercial quotas v actual catches for minke whales between 2000 and 2005. Quota data was taken from the Animal Welfare Institute (AWI) (AWI., 2016)

A Mann-Whitney U test was performed to compare Norway's quotas and actual catches for minke whales. The test highlighted that there was a significant difference between quotas ($Mdn = 670.5$) and catches ($Mdn = 593$); $W = 53.00, p = 0.031$. This shows that Norway's actual catches for minke whales were lower than the allotted quotas.

A Mann-Whitney U test was then performed to compare Japan's actual catches for minke whales and Norway's actual catches for minke whales. The test highlighted that there was not a significant difference between Japan's catches (Mdn = 593.5) and Norway's catches (Mdn = 593); $W = 38.50$, $p = 1.000$. This shows that Japan's special permit programme was hunting similar numbers to Norway's commercial programme.

Questionnaire Survey Data

Demographics

In total, fifty eight questionnaire responses were recorded. The majority identified as female (81%, $n = 47$), with the remaining identifying as either male (17%, $n = 10$) or preferring not to specify (2%, $n = 1$). Over half of the respondents (55%, $n = 32$) were 18-25. This was followed by 26-35 (31%, $n = 18$), 36-45 (10%, $n = 6$), 46-55 (2%, $n = 1$), and 76+ (2%, $n = 1$). 0 respondents were aged between 55-65 or 66-75.

Most respondents permanently resided in the United Kingdom (71%, $n = 41$), followed by the United States of America (7%, $n = 4$), and The Netherlands (3%, $n = 2$). The remaining respondents permanently resided in Italy (2%, $n = 1$), China (2%, $n = 1$), Taiwan (2%, $n = 1$), Saudi Arabia (2%, $n = 1$), and Nigeria (2%, $n = 1$). With this question, 1 respondent (2%) preferred not to specify.

Awareness, Knowledge, and Personal Choices

69% ($n = 40$) of respondents were aware that some countries still partook in whaling. 28% ($n = 16$) were unaware of this and 3% ($n = 2$) preferred not to specify. In relation, over half of the respondents (57%, $n = 33$) said that they would still visit a country that conducted hunts. 31% ($n = 18$) said that they wouldn't and 12% ($n = 7$) preferred not to specify. Respondent 25, who would still visit, stated: "*They [countries] have interesting cultures and attractions which outweigh the fact that they still do whaling*".

97% ($n = 56$) of respondents would not purchase whale products, with the remaining 3% ($n = 2$) stating that they would. 93% ($n = 54$) of respondents would also not consume whale products, with 5% ($n = 3$) stating that they would and 2% ($n = 1$) preferring not to specify.

Over half of the respondents (62%, $n = 36$) had not heard of the International Whaling Commission, whilst the remaining 38% ($n = 22$) were aware of the governing body. With this, 60% ($n = 35$) were not aware of the international whaling ban. 38% ($n = 22$) were aware and 2% ($n = 1$) preferred not to specify. Because of a lack of knowledge, 59% ($n = 34$) of respondents believe that the IWC were, in some way, ineffective in informing the public about themselves and their conservation work (19%, $n = 11$ "very ineffective" and 40%, $n = 23$ "somewhat ineffective"). 5% ($n = 3$) believed that they were "somewhat effective" and 0 respondents thought they were "very effective". 36% ($n = 21$) believed that the IWC were "neither effective nor ineffective" in informing the public.

64% ($n = 37$) believed that commercial whaling was the most damaging practise to whale populations. This was followed by aboriginal subsistence (26%, $n = 15$) and then special permit (10%, $n = 6$). Respondents had split opinion on whether the exemptions should exist within the international whaling ban. 40% ($n = 23$) of respondents chose "yes", 40% ($n = 23$) "no", and 20% ($n = 12$) "prefer not to say". Respondent 19, who believed that the exemptions should exist stated: "*Indigenous*

people have always lived that way and we should absolutely not be changing that".

This was contrasted by Respondent 10, who stated: "A ban is a ban, [there is] no need for scientific research nor food consumption". With the exemptions, 43% (n = 25) of respondents believed that they would work in the long term when conserving whales whilst 38% (n = 22) didn't think they would work and 19% (n = 11) preferred not to specify.

With the statement "whales are important for the health of the ocean", 66% (n = 38) of respondents chose "strongly agree", 26% (n = 15) "agree", 5% (n = 3) "neither agree nor disagree", and 3% (n = 2) "strongly disagree". 0 participants selected "disagree" or "don't know". Similarly, with the statement "laws and policies are important for conservation", 66% (n = 38) of respondents chose "strongly agree". This was followed by 24% (n = 14) "agree", 5% (n = 3) "neither agree nor disagree", 3% (n = 2) "strongly disagree", and 2% (n = 1) "don't know". 0 participants selected "disagree" (Figure 9).

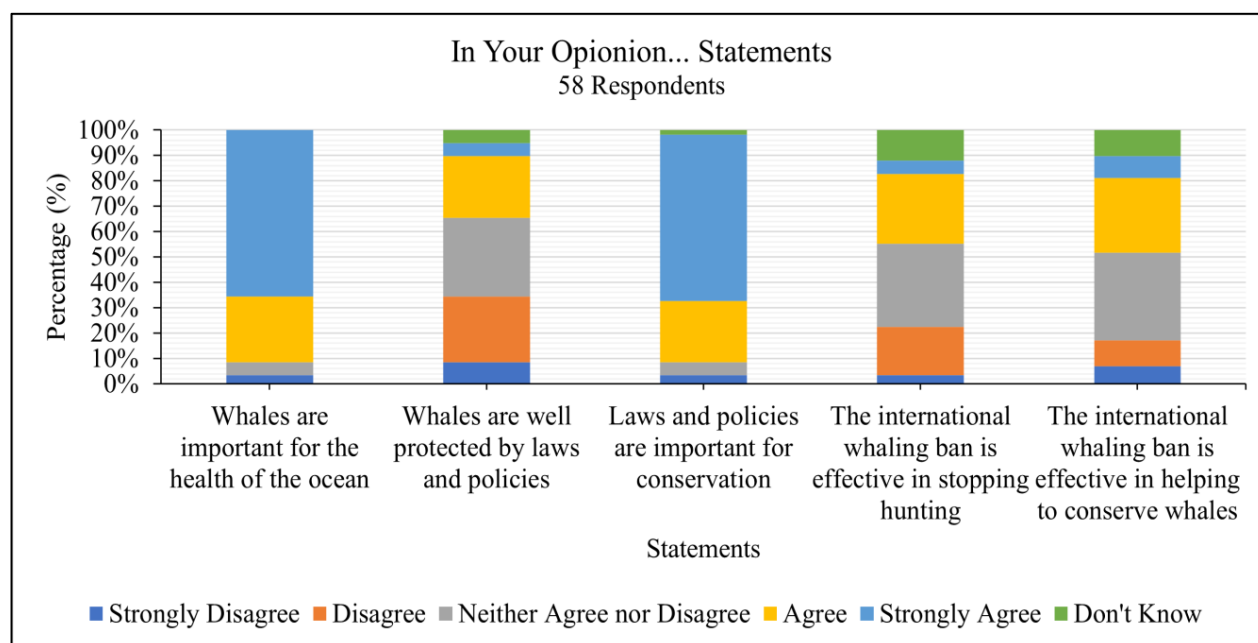


Figure 9: The distribution of participant responses to five Likert scale statements related to conservation law and policy

A chi-square test indicated that there was not a significant association between participant membership with a conservation organisation or charity and response to the statements "whales are well protected by laws and policies" ($3.6(5) = 18, p = 0.613$), "the international whaling ban is effective in stopping hunting" ($5.4(5) = 27, p = 0.374$), and "the international whaling ban is effective in helping to conserve whales" ($2.3(5) = 11.5, p = 0.811$).

A chi-square test also indicated that there was no significant association between participant age and response to the statements "whales are important for the health of the ocean" ($1.4(30) = 42, p = 1.000$) and "laws and policies are important for conservation" ($27.5(30) = 825, p = 0.596$). This was the same response for participant gender and statement response ($7.4(5) = 37, p = 0.194$) and ($2.1(5) = 10.5, p = 0.840$) respectively.

Discussion

IWC Total Catch Data

Total Calculated Catches

From the results, we can suggest that Japan's whaling practises had a special permit focus whilst Norway's had a commercial focus.

In 2005, Japan recorded a special permit whaling peak of 1,188 individuals. This is comparable to the post-moratorium commercial whaling peak of 304, meaning an excess of 884 whales were caught for scientific research. Similarly, on average, Japan caught 326 more whales for its special permit practises. Evidence from the literature supports the idea of Japan conducting excess catches, with *Brownell et al* identifying that Japan's research programme "JARPA" had hunted 2.4 times more whales than the combined catches by all other whaling nations between 1949 and 1987 (*Brownell et al.*, 2000). Holm identified that before the moratorium, Japan hunted 300 minke whales annually. This is comparable to the 2005 value, with the peak total consisting of 1,078 minke whales alone (*Holm-a.*, 2019). Gales *et al* stated that the practises and catches differ very little, in terms of scale, from commercial whaling (*Gales et al.*, 2005) whilst *Wakamatsu et al* identified that commercial whaling practises by Japan were on a smaller scale to the research programmes (*Wakamatsu et al.*, 2022).

In contrast, in 2014, Norway recorded a commercial whaling peak of 736 individuals compared to just 95 for special permit practises. Similarly, on average, Norway caught 411 more whales for its commercial practises. These values suggest that although the scientific exemption was used, Norway's practises had a commercial focus with special permit practises being an addition. This is supported by their position between 1993 and 1994, when both an objection to the commercial moratorium and scientific permits were held. Despite special permit whaling being self regulated and quotas self allocated, allowing higher catches to theoretically occur, Norway still conducted a greater number of commercial hunts.

In 1986, when Japan held a moratorium objection, 2,769 individual whales were hunted. In the following year of 1987, when the objection was withdrawn, 809 whales were hunted. The latter, in comparison to the scientific peak, gives an exceeded difference of 379 individuals. Similarly, in 2019 when restarting commercial practises, a peak of 95 was reached. This gives an exceeded difference of 1,093 for science and supports the idea that Japan's special permit practises aimed to continue commercial practises through exploitation. *Papastavrou & Ramage* and *Clapham et al* identified that Japan's special permit practises were motivated by an ability to maintain commercial markets, with Japan's Institute of Cetacean Research (ICR) being funded by scientific meat sales (*Clapham et al.*, 2003) (*Papastavrou & Ramage.*, 2010).

Quotas v Actual Catches

From the results, between 2000 and 2005, we can identify that Japan consistently exceeded special permit catch quotas for minke whales. With special permit whaling, self regulation and allocation means that quotas can be ignored or exceeded without dispute. With yearly occurrence of exceeding, it suggests that Japan was performing a commercial based programme for minke whales under the disguise of special

permit research. This is comparable to Norway who, between 2000 and 2005, recorded catches significantly below the quotas. This means that Japan, who hunted for research, could fulfil and exceed quotas whilst Norway's commercial programme struggled to do so. With these failings, the Government of Norway blamed high fuel prices and a lack of capacity in processing plants. They emphasised that falling domestic demand was not the reason for low catches (The Guardian., 2018). Opposingly, the Government of Iceland recognised its local decline and announced an end to its whaling programmes from 2024. They previously exported meat to Japan but their return to commercial whaling ceased sales and led to industry decline (The Guardian., 2022).

In comparing Japan's quotas v actual catches from 2000 to 2005 to its commercial restart in 2019, we can see that they have failed to meet quotas despite their previous exceeding. A peak of 1,188 for scientific research compared to just 95 for post-moratorium commercial whaling highlights a decrease of 92% (WDC-c., 2023).

With Japan's special permit practises, Clapham *et al* identified that the programmes lacked feasibility and failure to publish in international journals raised questions about quality and motive of research. The study highlighted a belief that scientific programmes were designed to be long term, with the aim of keeping the commercial industry open. Clapham *et al* believed that Japan's catch levels would not be permitted under IWC's Revised Management Procedure (RMP) which is used to set commercial quotas (Clapham *et al.*, 2003). Similarly, Côté & Favaro identified that there were fewer publications in accredited journals from whaling nations compared to non whaling nations (Côté & Favaro., 2016).

Questionnaire Survey Data

Of the 58 respondents, 97% would not purchase whale products and 93% would not consume whale products. This response may have been influenced by demographics, with 71% permanently residing in the United Kingdom where such practises are non existent.

The findings that over half of the respondents had not heard of the IWC, were not aware of the ban, and believed the IWC to be, in some way, ineffective was not surprising due to a lack of knowledge amongst respondents. This suggestion is supported by the findings of Naylor & Parsons whose study on public knowledge, attitudes, and perceptions to whale and dolphins highlighted that 87% of respondents had not heard of the IWC. This is concerning as it suggests that there is a lack of public awareness to a key body of whale conservation, which reduces discussions about whaling and its practises. Despite a lack of knowledge, over half of respondents believed that laws and policies were important for conservation. This finding is further supported by Naylor & Parsons whose respondents believed the same despite a lack of knowledge (Naylor & Parsons., 2018). This suggests that public knowledge is strong towards the importance of law and policy for conservation efforts but awareness towards the protection of whales is less accessible.

With exemptions, 40% knew that they existed and 40% did not. With this, 64% believed that commercial whaling was the most damaging to populations and only 10% thought this for special permit whaling. This finding may be because of a lack of understanding about the processes of special permit whaling (e.g. self allocation). This is supported by Respondent 22 and 28 who quoted "scientific research purposes are useful" and "science is important for discovery and understanding,

particularly conservation". Alongside this, there may be preconceived ideas towards whaling practises due to historic recognition of significant depletion by commercial practises in the 19th and 20th centuries. This is supported by Freeman & Kellert whose six country study on public perception to whaling identified that 70% of Australian, English, and German and 67% of US respondents answered incorrectly to the statement "some countries continue to kill more than a thousand whales every year for scientific research". This was compared to whaling nations, with only 40% of Japanese and 34% of Norwegian respondents answering incorrectly (Freeman & Kellert., 1992). This shows a lack of knowledge to scientific practises in countries not performing such actions. With split opinion, there could be a shift towards acceptance with education. This relies greatly on the work of the IWC, who is unknown by respondents of this questionnaire. Greater awareness towards whaling practises and exemptions may work to shift viewpoints and bring stronger pressure to strengthen exemption rulings.

Whilst exemptions held split opinions, 43% believed that they would work in the long term to conserve whales. With this, it could be argued that a lack of knowledge towards the topic has led to this idea.

Conclusion

We can argue that the scientific exemption clause of the international whaling ban is, to some extent, working as a loophole for commercial practises to continue. This is identifiable through Japanese programmes, with actual scientific catches for minke whales continually exceeding quotas due to self regulation. With a lack of control by the IWC, whalers are free to catch any number of whales under the protest of research. The calculation of total scientific catches and comparison to commercial whaling values highlighted that Japan caught more whales under the special permit exemption than they had in their post-moratorium commercial whaling practises. Alongside this, Japan had also caught more whales for research than Norway (and Iceland) had for their commercial practises.

Whilst Japanese practises are supporting the hypothesis, Norwegian (and Icelandic) whaling figures suggest that the exemption is used as an additional source to dominant commercial practises and is therefore less of a loophole. This is because whilst Japan only conducted scientific practises between 1987 and 2019, Norway (and Iceland) switched between the two. Peak catches for Norway have all come from commercial brackets, including periods of time when they held both a moratorium objection and special whaling permits. Alongside this, with the failure of reaching quotas, Norwegian (and Icelandic) commercial practises are less intense than Japanese research catches.

With public perception, there is little awareness of the IWC and the whaling ban. The public majority believe that commercial practises are the most damaging to populations, with preconceived ideas of historic whaling having a potential influence. Respondents believe that the International Whaling Commission is, in some way, ineffective in informing the public about its conservation efforts. However, there is belief that the exemptions within the international ban will work in the long term to conserve whale populations. It could be suggested that split opinion towards whaling

may reduce its acceptability if greater knowledge and awareness is provided by the IWC.

Limitations of the Paper

Firstly, to improve the paper, it would be beneficial to fully investigate Icelandic practises. With the data loss between 1990 and 2002, it is difficult to representatively calculate total catches or conduct comparisons of quotas and catches. This means that we are unaware of the full extent of their hunts and exploitations. Secondly, it would be beneficial to have access to a complete dataset of catch quotas for each nation to fully explore and identify levels of exceeding.

To improve the questionnaire, it would be beneficial to have a greater number of questionnaire responses. With this, it would be ideal to look at alternative sharing routes and ways to encourage greater participation. It would also be advantageous if there was greater diversity in country response to fully investigate attitudes and the extent to which they vary with geographic location. Alongside this, it would be beneficial to look at alternative methods of producing questionnaires to ensure that under 18's and vulnerable adults are excluded. With the use of an online consent form, it is easy to agree to conditions even if they are not met. However, with this, there was no incentive or benefits to participant engagement.

Future Work

With this study, we need to consider the position of the International Whaling Commission in terms of effectiveness and longevity. With public perception knowledge of the IWC and the whaling ban being low and opinions having a negative notation, the International Whaling Commission needs to work on its public connectivity in order to inform the wider public about the whaling ban, its exemptions, and what these mean for whale populations globally. Therefore, having this information easily accessible and publicly shared would likely increase public awareness. This further helps to increase public opinion about the effectiveness of the IWC to communicate whilst also widening general knowledge of whaling practises and involved nations.

Alongside this, as shown by the study, the International Whaling Commission needs to work on strengthening its control and enforcements towards special permit practises. With the body holding control over commercial and aboriginal practises, special permit practises should also be maintained by the governing body to ensure all sustainability measures are considered. With this, the IWC should be responsible for the setting of quotas and regulation of permits, using the systems currently in place by the Scientific Committee for commercial and aboriginal practises. These could be set and distributed on a yearly basis, with alterations to quotas made when necessary for the individual whale population.

Public perception holds strong belief that whales are important and that laws and policies are required for conservation efforts. To match public belief, the IWC should work to tighten and strengthen current measures relating to special permit practises to work in favour of the public but most importantly, whale populations. This would benefit the International Whaling Commission by presenting its effectiveness in conserving populations and longevity of holding true to its primary aim of "providing

for the proper conservation of whale stocks and thus making possible the orderly development of the whaling industry”.

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