Science in the Court! The Role of Science in 'Whaling in the Antarctic'

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The trouble with the whaling industry today is that there are too many damned intellectuals mixed up in it!¹

Introduction

*'The Court concludes that the special permits granted by Japan for the killing, taking and treating of whales in connection with JARPA II are not "for purposes of scientific research" pursuant to Article VIII, paragraph 1, of the Convention.'*²

This paper deals with the way science featured in the case *Whaling in the Antarctic (Australia v. Japan: New Zealand intervening)*. 'Science' was invoked by both Australia and Japan (and by New Zealand). The activities carried out under JARPA II and JARPA were portrayed as 'unscientific' by Australia and as 'science' by Japan. Scientists, as expert witnesses, were called upon to give written and oral evidence (two by Australia and one by Japan) and they were cross-examined in Court, and were questioned by the bench. Australia presented two Expert Witnesses to discuss science, Dr Nick Gales, Chief Scientist of the Australian Antarctic Program, and Professor Marc Mangel of the University of California, Santa Cruz. Japan presented one Expert Witness, Professor Lars Walløe from the University of Oslo.

It is uncommon for scientists to appear as witnesses in the International Court of Justice. In the *Case Concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay)* the International Court of Justice observed:

1 Of Whales and Men, RB Robertson, 1956, The Reprint Society, London p. 191.

2 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening), International Court of Justice, 31 March 2013, para 246. At, <http://www.icj-cij.org/docket/files/135/15877.pdf> as accessed on 20 January 2015.

Regarding those experts who appeared before it as counsel at the hearings, the Court would have found it more useful had they been presented by the Parties as expert witnesses under Articles 57 and 64 of the Rules of Court, instead of being included as counsel in their respective delegations. The Court indeed considers that those persons who provide evidence before the Court based on their scientific or technical knowledge and on their personal experience should testify before the Court as experts, witnesses or in some cases in both capacities, rather than counsel, so that they may be submitted to questioning by the other party as well as by the Court.³

Besides being able to be cross-examined and/or questioned by the Court, expert witnesses (as opposed to 'experts' as counsel) are less likely to be taken as 'advocates' for the position of parties to a dispute.⁴ Foster (2014) in discussing the role of experts in international environment conflicts, wrote that '[d]isagreements over science feature with growing regularity in international disputes'.⁵ Foster went on to consider '...the possibility that the Court could additionally decide to appoint its own experts to assist in the resolution of a case...'.⁶

While the Court did not appoint its own experts in the whaling case, the Judgment deals in detail with the evidence of the expert witnesses from both sides in the case. In doing so, it draws extensively on this evidence in delivering its Judgment. The Court examined the evidence before it about 'science' and 'scientific research' and ultimately drew its own conclusions as to the veracity of that evidence and its relevance to the case.

I deal with how 'science' was used by Australia, Japan and New Zealand to describe the 'Special Permit whaling' carried out by Japan in the Antarctic, and how the Court interpreted the 'science' before it. Like the Court, I do not attempt to describe what science is, although I will characterise the strength of some of the arguments used in the written and oral evidence in the proceedings.

3 Judgment, Case Concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay), International Court of Justice, 20 April 2010, para 167.

4 Case Concerning Pulp Mills on the River Uruguay, Separate Opinion of Judge Greenwood, para 28. At, <http://www.icj-cij.org/docket/files/135/15889.pdf> as accessed 20 January 2015.

5 Foster, CE 2014, New Clothes for the Emperor? Consultation of Experts by the International Court of Justice, *Journal of International Dispute Settlement*, 2014, 5, 139–173, doi: 10.1093/jnlids/ido15p140.

6 Foster 2014, p. 141.

In general, I have followed the sequence of the Judgment (in so far as it relates to 'science') in order elucidate the reasoning of the Court.

JARPA II

JARPA II⁷ was the whaling program authorised by Japan under Article VIII of the International Convention for the Regulation of Whaling and conducted in the Antarctic. It commenced in 2005, following the cessation of JARPA in 2004, and continued until the Judgment of the International Court of Justice (2014). For JARPA II, Japan authorised the killing of up to 935 Antarctic minke whales, 50 fin whales and 50 humpback whales per annum. The program was open ended (ie no forecast end date) and was to be 'reviewed'⁸ every 6 years.

Japan asserted that JARPA II '...was launched in 2005 to meet specific research needs on the basis of the results of JARPA'⁹ (author's emphasis). Australia, on the other hand argued '[i]t is clear that, in giving effect to ...overriding commercial considerations, JARPA II is in fundamental conflict with the requirements of established scientific process'¹⁰ (author's emphasis). These arguments were, in effect, the basis of the dispute between Australia and Japan.

Japan had authorised JARPA II, as it had its predecessor JARPA, as Special Permit Whaling. Special Permit Whaling can be authorised under Article VIII of the International Convention for the Regulation of Whaling by a Party to the Convention. Argument in the case was whether the activities carried out in JARPA II were covered by Article VIII. As the Court said at para 42 of the Judgment:

The present proceedings concern the interpretation of the International Convention for the Regulation of Whaling and the question whether

7 Japan 2005 Plan for the Second Phase of the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) – Monitoring of the Antarctic Ecosystem and Development of New Management Objectives for Whale Resources, Government of Japan. At <http://www.icrwhale.org/pdf/SC57O1.pdf> as accessed on 23 January 2015.

8 'When the full-scale research program has been launched, a comprehensive report will be submitted to the IWC/SC after each six-year research period'. Japan 2005 pp. 20–21.

9 Japan 2012 Counter-Memorial of Japan, March 2012, p. 225 para 5.1. At, <http://www.icj-cij.org/docket/files/148/17384.pdf> as accessed 20 January 2015.

10 Australia 2011 Memorial of Australia, 9 May 2011, Volume 1 pp. 113–114, para 3.74, Government of Australia. At, <http://www.icj-cij.org/docket/files/148/17382.pdf>.

special permits granted for JARPA II are for purposes of scientific research within the meaning of Article VIII, paragraph 1, of the Convention.¹¹

Science is meant to play a central role in the way activities under the ICRW are managed. In 1950 the International Whaling Commission established a Scientific Committee.¹² The role of the Scientific Committee is to assist the International Whaling Commission ‘...in discharging its functions, in particular those relating to “studies and investigations relating to whales and whaling”’.¹³

The IWC, at its ‘Scientific Committee Home Page’¹⁴ As accessed 20 January 2015, states that ‘[a]n important feature of the [Whaling] Convention is the emphasis it places on scientific advice. The Convention requires that amendments to the Schedule “shall be based on scientific findings”. To this end, the Commission has established a Scientific Committee’.

In current practice the Scientific Committee is made up of scientists nominated by States parties, and supplemented by ‘...advisers from intergovernmental organizations and scientists who have not been nominated by States parties [who] may be invited to participate in a non-voting capacity’.¹⁵

The functions of the Scientific Committee are underpinned by Article IV of the ICRW which provides that:

The Commission may either in collaboration with or through independent agencies of the Contracting Governments or other public or private agencies, establishments, or organizations, or independently (a) encourage, recommend, or if necessary, organize studies and investigations relating to whales and whaling; (b) collect and analyze statistical information concerning the current condition and trend of the whale stocks and the effects of whaling activities thereon; (c) study, appraise, and disseminate information concerning methods of maintaining and increasing the populations of whale stocks.¹⁶

11 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 42.

12 The International Whaling Commission was established in under the provisions of the International Convention of the Regulation of Whaling.

13 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 47.

14 Scientific Committee of the International Whaling Commission, Homepage. At, <https://iwc.int/scmain>

15 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 47.

16 International Convention for the Regulation of Whaling 161 UNTS 72, Article VIII, para 3.

Under the ICRW, the International Whaling Commission can use the findings of the Scientific Committee in making amendments to the Convention's Schedule. Importantly, Article v of the ICRW provides that '...amendments of the Schedule...shall be based on scientific findings...'.¹⁷

The Scientific Committee also has a role with respect to Special Permit Whaling. Under paragraph 30 of the Schedule to the ICRW, '...the Scientific Committee reviews and comments on special permits before they are issued by States parties to their nationals for purposes of scientific research under Article VIII, paragraph 1, of the Convention'.¹⁸ It should be noted that the Scientific Committee has no decision-making powers with respect to Special Permit Whaling. The Court observed that:

[t]he Scientific Committee has not been empowered to make any binding assessment in this regard. It communicates to the Commission its views on programmes for scientific research, including the views of individual members, in the form of reports or recommendations. However, when there is a division of opinion, the Committee generally refrains from formally adopting the majority view.¹⁹

The reality of recent decades is that the Scientific Committee itself has been deeply divided in its views on Special Permit whaling, and mired in disputes about the scientific necessity of both JARPA and JARPA II (as reflected in the observation of the Court, above). Clapham (2014) wrote:

[i]mportantly, the ICJ judgment represented the first time that an objective international body, independent of the IWC, had reviewed and assessed Japan's scientific whaling – and in doing so had found it wanting. By implication, the ruling also stood as a condemnation of the intractably mired process used by the IWC Scientific Committee to review and discuss scientific whaling programs; until recently, such reviews featured full participation by Japan in not only the review, but also in the writing of the subsequent report. Such reports invariably featured numerous statements along the lines of 'Some members felt... In contrast, others disagreed...', and debates often included charges by Japan that criticisms were politically motivated. Not surprisingly, the Scientific Committee

17 International Convention for the Regulation of Whaling 161 UNTS 72, Article v, para 2.

18 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 47.

19 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 47.

could never reach agreement on either endorsement or condemnation of a scientific whaling program.²⁰

In analysing how 'science' played a key role in the outcome of the case, I have generally followed the structure of the Judgment in order to illustrate the Court's majority thinking (re science), and the evidence it had before it.

Science in the Case, Part 1: Does the Court Need a Definition of Science?

This Chapter does not attempt to define science—the Court also declined to do so. But the Court's interpretations of the use of 'science' in the argument of the case are fundamental to understanding the outcome, and, ultimately Japan's response to it.²¹

Australia's argument (with respect to 'science') was that JARPA II '...is not a programme for purposes of scientific research within the meaning of Article VIII of the Convention...'.²² Australia also argued that Japan had '...failed to comply with the procedural requirements set out in paragraph 30 of the Schedule for proposed scientific permits'.²³

Japan, on the other hand, argued that JARPA II '...has been undertaken for purposes of scientific research and is therefore covered by the exemption provided for in Article VIII, paragraph 1, of the Convention' and also that they [Japan] had not breached 'procedural requirements' as alleged by Australia.²⁴

What is Scientific Research?

For JARPA II Special Permit Whaling to be legitimate, the activities authorised by Japan must be covered by Article VIII of the ICRW: Japan argued that JARPA II (and JARPA) were 'activities for the purposes of scientific research'; Australia

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- 20 Clapham, PJ 2015 Japan's whaling following the International Court of Justice ruling: *Brave New World – Or business as usual?* *Marine Policy* 51, 238–241.
 - 21 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 47.
 - 22 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 48.
 - 23 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 48.
 - 24 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 49.

argued that those activities did not meet the necessary objective criteria to be science: 'Japan seeks to cloak its ongoing commercial whaling program in the lab-coat of science',²⁵ Australia's Agent stated in opening its case before the Court.

In written and oral evidence, one of Australia's expert witnesses, Professor Marc Mangel, argued that:

[c]onsistent with generally accepted scientific practice and with criteria identified by the Scientific Committee of the IWC, my opinion is that the essential characteristics of a program for the purposes of scientific research in the context of conservation and management of whales are that the program:

- (a) has defined and achievable objectives that aim to contribute knowledge that is important to the conservation and management of whale stocks;
- (b) employs appropriate methods that are likely to achieve the stated objectives, including:
 - (i) lethal methods only where the objectives of the research cannot be achieved by any other means (for example, by the analysis of existing data and/or the use of non-lethal research techniques);
 - (ii) setting sample sizes using accepted statistical methodology; and
 - (iii) linking mathematical models to data consistently;
- (c) includes periodic review of research proposals and results and adjustment in response to such review; and
- (d) is designed to avoid adverse effects on the stocks being studied²⁶ (author's emphasis).

Article VIII of the ICRW says, in part:

...any Contracting Government may grant to any of its nationals a special permit authorizing that national to kill, take and treat whales for purposes of scientific research subject to such restrictions as to number and subject to such other conditions as the Contracting Government thinks fit, and the killing, taking, and treating of whales in accordance with the provisions of this Article shall be exempt from the operation of this Convention²⁷ (author's emphasis).

25 International Court of Justice, Verbatim Record CR2013/7.

26 Mangel, M 2011 An Assessment of Japanese Whale Research Programs Under Special Permit in the Antarctic (JARPA, JARPA II) as Programs for Purposes of Scientific Research in the Context of Conservation and Management of Whales, April 2011. In Australia 2011, Whaling in the Antarctic (Australia v. Japan), Memorial of Australia, Volume 1 Appendix 2, p. 237.

27 International Convention of the Regulation of Whaling, Article VIII.

The Court spent some time considering the ‘meaning of the phrase “for purposes of scientific research”’.²⁸

In presenting its case, Australia argued that ‘scientific research’ could be assessed against the objective criteria of Mangel (above). Australia also argued that the phrase ‘for the purposes of scientific research’ should be analysed in two parts, effectively: that which is ‘scientific research’; and that which was authorised ‘for the purposes’ of that scientific activity.²⁹

The Court reached the view that:

...the two elements of the phrase ‘for purposes of scientific research’ are cumulative. As a result, even if a whaling programme involves scientific research, the killing, taking and treating of whales pursuant to such a programme does not fall within Article VIII unless these activities are ‘for purposes of’ scientific research³⁰ (author’s emphasis).

The ICRW does not contain a definition of ‘scientific research’—so what is scientific research in an international Convention? The answer to that question remains hypothetical, at least in this case. The Court did not provide a definition of ‘science’ or of ‘scientific research’, nor did it accept that the ‘objective criteria’ argued by Australia needed to be met in order for activities to be ‘for the purpose of scientific research’. As Australia pointed out in its Memorial, ‘...of the 40 other international environmental agreements which currently contemplate the conduct of “scientific research”, none expressly define the concept’.³¹

In not accepting Australia’s argument that, in the context of this case and the operation of the ICRW, scientific research has four objective and essential criteria, the Court:

...observes that the experts called by both Parties agreed that scientific research should proceed on the basis of particular questions, which could take the form of a hypothesis, although they disagreed about the level of specificity required of such a hypothesis. In short, the opinions of the experts reveal some degree of agreement, albeit with important nuances, regarding the role of hypotheses in scientific research generally.

28 ‘Meaning of the phrase “for purposes of scientific research”’, Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Part E.

29 Memorial of Australia 2011, paras 4.33 – 4.48.

30 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 71.

31 Memorial of Australia para 4.43.

To Kill a Whale: The Place of Lethal Whaling in Scientific Research

The use of lethal methods for scientific research in the context of JARPA II, was central to Australia's argument in this case. Mangel had addressed the issue of lethal take in scientific research in his expert opinion³² and Japan's case rested strongly on its assertions that lethal take was not only required to obtain the data sought in JARPA II, but that non-lethal research methods could not provide the data required by JARPA II.

Australia argued strongly that the granting of permits under Article VIII to 'take, kill and treat' whales for scientific purposes should only be done when non-lethal methods were not available and that the scientific question was of merit. New Zealand, in its intervention, argued that 'whales may be killed only where that is necessary for scientific research and it is not possible to achieve the equivalent objectives of that research by non-lethal means'.³³

In putting its case, Japan argued that, as Article VIII specifically authorised a Party to '...kill, take and treat whales for purposes of scientific research...', it was not required to refrain from issuing permits under Article VIII only if non-lethal methods were not available. Japan argued that it authorised lethal whaling only to the extent necessary to undertake the scientific research contemplated by JARPA II, even though it was not legally obliged to do so.³⁴ (See below for further discussion of lethal whaling).

The Court found that Article VIII of the ICRW did expressly allow the use of lethal methods.³⁵ The Court further found that there was not a '...requirement that lethal methods be used only when other methods are not available'.³⁶

In further looking at Japan's ability to authorise lethal whaling, the Court observed, though, that '...the States parties to the ICRW have a duty to co-operate with the IWC and the Scientific Committee and thus should give due

32 Mangel, M 2011 An Assessment of Japanese Whale Research Programs Under Special Permit in the Antarctic (JARPA, JARPA II) as Programs for Purposes of Scientific Research in the Context of Conservation and Management of Whales, April 2011. In, Memorial of Australia Volume 1 Appendix 2. Memorial of Australia, Volume 1 Appendix 2 pp. 334–389.

33 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 81.

34 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 80.

35 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 83.

36 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 83.

regard to recommendations calling for an assessment of the feasibility of non-lethal alternatives'.³⁷ These observations would play a major role, ultimately, in the final deliberations of the Court (see below).

Does Special Permit Whaling Require Peer Review?

Australia had also argued, through Mangel's '...characteristics of a program for the purposes of scientific research in the context of conservation and management of whales...',³⁸ that peer review of JARPA and JARPA II was required to establish the legitimacy of the research and its methods (Mangel's criterion (c) above).

The Court found that, regardless of whether peer review was established practice in science generally, '...it does not follow that a programme can be said to involve scientific research only if the proposals and the results are subjected to peer review'.³⁹ The Court's view was that, while 'not precluding' peer review, the Convention had established mechanisms, including through Paragraph 30 of the Schedule and the 'Guidelines',⁴⁰ for the Scientific Committee to review proposed permits and to undertake reviews of ongoing and completed programs.

Avoiding Harm to Stocks

Australia (and New Zealand) also argued strongly that Special Permit Whaling must not adversely impact whale stocks. This was put forward by Mangel as his the fourth characteristic of 'a program for the purposes of scientific research'. Japan did not oppose this argument.

37 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 83.

38 Mangel, M 2011 An Assessment of Japanese Whale Research Under Special Permit in the Antarctic (JARPA, JARPA II) as Programs for Purposes of Scientific Research in the Context of Conservation and Management of Whales, p. 337., Appendix 2, pp. 334–389.

39 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 84.

40 Annex P to the International Convention on the Regulation of Whaling, Process for the Review of Special Permit Proposals and Research Results from Existing and Completed Permits. At <https://iwc.int/private/downloads/u25vr6ymdas0008w4040c4go/Annex%20P%20updated.pdf> as accessed 20 January 2015.

The Court observed ‘...the Parties and the intervening State appear to be in agreement in respect of this criterion. In the particular context of JARPA II, however, Australia does not maintain that meeting the target sample sizes would have an adverse effect on the relevant stocks, so this criterion does not appear to be of particular significance in this case’.⁴¹

So, What *is* Scientific Research

Australia failed to convince the Court that the criteria outlined by Mangel needed to be met in order for the JARPA II to be ‘a program for the purposes of scientific research in the context of conservation and management of whales’, or, in the context of the Court’s finding, ‘scientific research’: ‘The Court is not persuaded that activities must satisfy the four criteria advanced by Australia in order to constitute ‘scientific research’ in the context of Article VIII’.⁴² The Court considered that Mangel’s criteria constituted an expert’s view of ‘well-conceived scientific research’ but that they did not necessarily apply to the ICRW.

While dismissing the arguments put forward by Australia on how to assess what is or is not ‘scientific research’ in this case, the Court did not substitute another, or its own, characterisation of scientific research. It concluded: ‘[n]or does the Court consider it necessary to devise alternative criteria or to offer a general definition of “scientific research”’.⁴³

Science in the Case, Part 2: Whither ‘Scientific Research’

The purpose of this section is to look at how the Court, without a definition of ‘scientific research’, proceeded to look at the arguments put forward about science and scientific research in the case. This is not an attempt to analyse the legal arguments.

The Court found that it did not need to ‘...pass judgment on the scientific merit or importance of...’ a research program’s objectives ‘...in order to assess

41 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 85.

42 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 86.

43 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 86.

the purpose of the killing of whales under such a programme'. It was also not for the Court to decide '...whether the design and implementation of a programme are the best possible means of achieving its stated objectives'.⁴⁴

The Court then went to consider '...whether a programme's use of lethal methods is for purposes of scientific research'.⁴⁵ The Court had earlier said that it '...will consider if the killing, taking and treating of whales is "for purposes of" scientific research by examining whether, in the use of lethal methods, the programme's design and implementation are *reasonable in relation to achieving its stated objectives*'⁴⁶ (author's emphasis).

In order to do this, the Court took aspects of the arguments put forward by both sides in the case and considered the following 'elements':

- decisions regarding the use of lethal methods;
- the scale of the programme's use of lethal sampling;
- the methodology used to select sample sizes;
- a comparison of the target sample sizes and the actual take;
- the time frame associated with a programme;
- the programme's scientific output; and
- the degree to which a programme co-ordinates its activities with related research projects.⁴⁷

The Court also considered the differences between the characteristics of commercial whaling and those of scientific research, saying:

The Parties agree that the design and implementation of a programme for purposes of scientific research differ in key respects from commercial whaling. The evidence regarding the programme's design and implementation must be considered in light of this distinction. For example, according to Japan, in commercial whaling, only species of high commercial value are taken and larger animals make up the majority of the catch, whereas in scientific whaling 'species of less or no commercial value' may

44 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 88.

45 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 88.

46 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 67.

47 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 88.

be targeted and individual animals are taken based on random sampling procedures.⁴⁸

In dealing with this aspect of the case, I do not intend to look at the legal arguments regarding the characterisation of JARPA II as commercial whaling, except in so far as they relate to 'science' and 'scientific research'.

The Court found that motivations that a State may have which go beyond scientific research cannot be used to justify '...the granting of a special permit for a programme that uses lethal sampling on a larger scale than is reasonable in relation to achieving the programme's stated research objectives. The research objectives alone must be sufficient to justify the programme as designed and implemented'⁴⁹ (author's emphasis).

JARPA and JARPA II

JARPA

Central to the case were the arguments as to whether JARPA and JARPA II were programs for the purposes of scientific research under Article VIII of the ICRW. Australia had described JARPA and JARPA II (in various ways) as 'commercial whaling in disguise', whereas Japan characterised both as necessary scientific research required because of the adoption in 1982 of the moratorium on commercial whaling. The Moratorium on commercial whaling was established by setting the catch limits for all whale stocks at zero.⁵⁰ The Moratorium entered into force for Japan in 1987, and the JARPA Special Permit Whaling program began in the 1987–88 austral whaling season.

The JARPA Special Permit Whaling program was conducted from 1987 until the end of the 2004–2005 austral whaling season. JARPA II followed immediately, commencing in the 2005–2006 season.

48 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 89.

49 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 97.

50 Schedule to the International Convention on the Regulation of Whaling, paragraph 10. (e): 'Notwithstanding the other provisions of paragraph 10, catch limits for the killing for commercial purposes of whales from all stocks for the 1986 coastal and the 1985/86 pelagic seasons and thereafter shall be zero. This provision will be kept under review, based upon the best scientific advice, and by 1990 at the latest the Commission will undertake a comprehensive assessment of the effects of this decision on whale stocks and consider modification of this provision and the establishment of other catch limits'.

Japan's case centred on their argument that data on whales and whale stocks were required because the Moratorium meant that no data were available from commercial whaling and the lifting of the Moratorium required review of scientific information and a comprehensive assessment of the Moratorium. Paragraph 10(e) of the Schedule to the ICRW says that:

...this provision will be kept under review, based upon the best scientific advice, and by 1990 at the latest the Commission will undertake a comprehensive assessment of the effects of this decision on whale stocks and consider modification of this provision and the establishment of other catch limits.

It was Japan's contention that the purpose of JARPA was to provide the research and data to contribute to that 'best scientific advice' and therefore to the 'review' and the 'comprehensive assessment' of the Moratorium.

As established, JARPA was designed to lethally take 825 Antarctic minke whales and 50 sperm whales. At its inception, JARPA had three 'research objectives':⁵¹

- Objective 1: Estimation of the biological parameters required for the stock management of the Southern Hemisphere minke whale
- Objective 2: Elucidation of the role of whales in the Antarctic marine ecosystem, and
- Objective 3: Elucidation of the effect of environmental change on cetaceans

Japan later added a fourth objective:⁵²

- Objective 4: Elucidation of the stock structure of Southern Hemisphere minke whales to improve stock management

After JARPA was established, but before its whaling program began, the sample size for the annual lethal take of minke whales was reduced to from 825 to 300 +/-10% (from 1987–1988 to 1994–1995).⁵³ From 1995–1996 the sample size for

⁵¹ Counter-Memorial of Japan, March 2012, p. 143 para 4.8.

⁵² In its Counter-Memorial, Japan stated that '... Objective 4 was originally implicit in Objective 1 but was separated during the research period'. Counter-Memorial of Japan, March 2012, p. 143 para 4.8.

⁵³ The Judgment, at Para 107, states that the annual sample size of 300 minke whales went from 1987–88, to 1993–94, while the Counter-Memorial of Japan at page 145, paragraph

the annual lethal take of minke whales was set at 400 $\pm$ 10%. The proposed take of sperm whales was dropped from JARPA altogether.⁵⁴

In total, between 1987 and 2005, more than 6,795 minke whales were killed in the JARPA Special Permit whaling program. The season by season take varied from a low of 241 in 1988/89 to a high of 440 (which was achieved annually for much of the time between 1995–1996 and the end of the JARPA).⁵⁵

JARPA II

In early 2005, Japan presented its Research Plan for JARPA II to the IWC, and began Special Permit Whaling under JARPA II in the 2005–2006 austral whaling season. The JARPA II Research Plan was finalised following a Japanese-sponsored workshop (note: not an IWC workshop) held in January 2005. This workshop was convened by Japan to ‘review’ data obtained for JARPA. The IWC Scientific Committee review of JARPA was not held until December, 2006 – after JARPA II was underway.

The methodologies and kinds of data collected in JARPA II were very similar to those of JARPA, but the articulation of the research objectives for JARPA II was somewhat different.

The JARPA II Research Plan establishes its objectives as:

- (1) Monitoring of the Antarctic ecosystem
 - i. Monitoring of whale abundance trends and biological parameters
 - ii. Monitoring of krill abundance and the feeding ecology of whales
 - iii. Monitoring of the effects of contaminants on cetaceans
 - iv. Monitoring of cetacean habitat
- (2) Modelling competition among whale species and future management objectives
 - i. Constructing a model of competition among whale species
 - ii. New management objectives including the restoration of the cetacean ecosystem
 - Establishing future management objectives
 - Estimating surplus production (and hence allowable catch) by species, under some of the management objectives
 - Contribute towards a multi-whale-species management

4.14 states that ‘Until the 1994/95 season, the sample size...was 300...and this was increased to 400...in the 1995/6 and 1996/7 seasons’.

54 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 104.

55 Table 4.78, p. 181, Counter-Memorial of Japan.

- (3) Elucidation of temporal and spatial changes in stock structure
- (4) Improving the management procedure for Antarctic minke whale stocks
 - Improvement of MSYR (maximum sustainable yield rate) estimates for Antarctic minke whales
 - Redefinition of appropriate management Areas
 - Incorporation of effects arising from the inter-species relationships among the whale species⁵⁶

As originally formulated, JARPA II was designed to sample, through lethal take, 850 $\pm$ 10% Antarctic minke whales, 50 humpback whales and 50 fin whales. It was designed to run indefinitely, and be reviewed every 6 years (6-year 'phases'⁵⁷). History shows that JARPA II Special Permit whaling ceased with the handing down of the Judgment of the Court. The actual lethal take of whales under JARPA II was 3,364 Antarctic minke whales, zero humpback whales and 17 fin whales between 2005–2006 and 2013–2014.⁵⁸

On Lethal Sampling

At the core of the case and its conclusion were the acts of lethal sampling undertaken in JARPA and JARPA II. Long, drawn out discussions in the IWC and its Scientific Committee, the vehement opposition of non-government organisations, the many diplomatic interchanges now spanning four decades, were all stimulated by the act of killing whales – in this case, framed in the pursuit of scientific knowledge. The case would never have gone to the ICJ if JARPA II had not involved the harvesting of whales.

Leaving aside some argument about experimental design, the case did not consider directly the non-lethal components of the JARPA II research program. Japan argued that the research could only be carried out by killing whales.

⁵⁶ Government of Japan, 'Plan for the Second Phase of the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) – Monitoring of the Antarctic Ecosystem and Development of New Management Objectives for Whale Resources', SC/57/O1 (2005), pp. 10–12[Annex 150]; also at Para 5.20, p. 232, Counter-Memorial of Japan.

⁵⁷ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, Para 119.

⁵⁸ Counter-Memorial of Japan, Paras 5.72, 5.78 and 5.79, pp. 262–266. In addition to the 3624 minke whales reported killed up to 2010/11, a further 103 and 251 minke killed whales were reported by Japan to the IWC for the 2012/13 and 2013/14 seasons respectively.

Japan rejected Australia's assertions that the key research questions Japan purported to be investigating, could be better and more efficiently achieved through non-lethal means.

As noted above, the Court did not define science or scientific research. In the words of the Court 'The research objectives come within the research categories identified by the Scientific Committee... Based on the information before it, the Court thus finds that the JARPA II activities involving the lethal sampling of whales can broadly be characterized as "scientific research". There is no need therefore, in the context of this case, to examine generally the concept of "scientific research"'.⁵⁹

The Court therefore looked at whether lethal sampling under JARPA II Special Permit whaling was justified—in its words '[w]hether the design and implementation of JARPA II are reasonable in relation to achieving the programme's stated research objectives'.⁶⁰

As noted previously, Japan and Australia had diametrically opposing views on the necessity for lethal whaling to meet the stated objectives of JARPA II. Australia argued both that lethal whaling was unnecessary, and that it produced poor scientific information: '...the data collected by Japan through its continued whaling is neither useful nor reliable: killing whales is simply not the most effective way to obtain knowledge that is important for the conservation and management of whales'.⁶¹ Interestingly, to emphasise its argument in this regard, Australia quoted a paper written by a long-term advisor to Japan's Institute for Cetacean Research, Dr D Butterworth, in which he said '[a]s far as the lethal components of these lethal research programs are concerned, the empirical evidence thus far of their value towards an improved basis for management is poor'.⁶²

In its Memorial, Australia said:

[i]t is the clear view of the IWC that scientific research should be conducted using non-lethal techniques where available. As noted by the Commission in Resolution 2003-2, 'Article VIII of the ICRW was drafted and accepted by States Parties in 1946, at a time when few alternatives to lethal investigations existed, a situation drastically different from today'. In the same Resolution, the Commission reaffirmed its clear view that

59 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 127.

60 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, p. 41.

61 Memorial of Australia, para 2.75.

62 Butterworth, D 'Science and sentimentality', *Nature* 357 (18 June 1992) 532, 532.

'non-lethal techniques available today will usually provide better data at less cost to both animals and budget', and it urged 'any country conducting or considering the conduct of Special Permit whaling to terminate or not commence such activities and to limit scientific research to non-lethal methods only'.⁶³

Referring to the IWC's *Guidelines*,⁶⁴ Australia said that '...lethal methods may be utilised only where the objectives of the research cannot be achieved by any other means'⁶⁵ – an argument expanded on by Mangel in his role as Expert Witness for Australia.

In presenting its case against Japan, Australia emphasised that non-lethal methods including satellite tagging, biopsy sampling, faecal analyses and sighting surveys, could provide the critical data meant to be obtained through JARPA II. These methods, Australia said, were more effective ways of conducting whale research than lethal whaling, and technological developments for non-lethal research since the inception of JARPA made the killing of whales for JARPA II unnecessary.

Japan, in its Counter Memorial and oral evidence, dismissed Australia's arguments on the efficacy of non-lethal research techniques, saying that lethal research whaling was 'indispensable'.⁶⁶ Lethal whaling was required to determine: 'age composition' by analysing whale ear plugs;⁶⁷ 'pregnancy...and the reproductive cycle' and 'reproductive parameters' by '...observation of ovaries and testes'; and 'physical maturity' by '...examining dorsal vertebrae'. 'Because of the internal nature of these organs the only way to collect them is through lethal sampling',⁶⁸ Japan argued.

The collection of stomach contents from whales killed in JARPA and JARPA II was central to Japan's arguments in favour of lethal whaling, especially in relation to the objectives of 'monitoring of the Antarctic ecosystem' and 'modelling competition between whale species'. In their Counter Memorial, Japan dismissed the use of non-lethal methods '...for investigating diet of marine vertebrate predators':⁶⁹ '...none of them provides quantitative information on stomach contents, which is important for evaluating the impact of a whale's

63 Memorial of Australia, para 4.80.

64 Annex P to the International Convention on the Regulation of Whaling, Process for the Review of Special Permit Proposals and Research Results from Existing and Completed Permits.

65 Memorial of Australia, para 4.101.

66 Counter-Memorial of Japan, paras 4.56, 4.83 and 5.8.

67 Counter-Memorial of Japan, para 4.66 – 4.68 and 5.8.

68 Counter-Memorial of Japan, para 4.69.

69 Counter-Memorial of Japan, para 4.71.

prey consumption on the ecosystem'.⁷⁰ Similar arguments were used by Japan to reject the practicality of non-lethal techniques for studies of the effects of pollutants, and whale condition (in this case measured by 'blubber thickness').⁷¹

Whereas Australia had argued strongly that biopsy sampling could be used to provide the data necessary for stock assessment—a key objective for both JARPA and JARPA II—Japan responded by stating it was impractical for '...the Antarctic minke whale'.⁷² Data from non-lethal methods, Japan argued, would be of lesser quality or reliability than data from lethal sampling and would be obtained at 'unrealistic' amounts of time and expense.

In the context of scientific research, Australia (and New Zealand) did not preclude the possibility that some research questions might require lethal research methods. Australia argued that the research 'exemption' provided by Article VIII of the ICRW was '...to be construed narrowly'⁷³ and that '[i]t is the clear view of the IWC that scientific research should be conducted using non-lethal techniques where available'.⁷⁴

The Court ultimately formed the view that '...the Parties agree that non-lethal methods are not a feasible means to examine internal organs and stomach contents. The Court therefore considers that the evidence shows that, at least for some of the data sought by JARPA II researchers, non-lethal methods are not feasible'.⁷⁵

How Good are the Data Obtained from Lethal Whaling and JARPA II?

In its Memorial, Australia had argued strongly that data obtained from lethal whaling in JARPA and JARPA II were scientifically both unnecessary and of such poor quality as to be unreliable for the purposes of the International Whaling Commission. Describing JARPA as 'a failure', and its objectives as '...irrelevant to the management procedure agreed by the IWC – the RMP [Revised Management Procedure] – and that were predicted, and ultimately proved, to be unachievable', Australia went on to say:

⁷⁰ Counter-Memorial of Japan, para 4.72.

⁷¹ Counter-Memorial of Japan, para 4.77–4.81.

⁷² Counter-Memorial of Japan, para 4.78.

⁷³ Memorial of Australia, para 4.71.

⁷⁴ Memorial of Australia, para 4.80.

⁷⁵ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 133.

...the shift from JARPA to JARPA II is critical since Japan continues to collect the same data using the same methods that failed to produce useful or reliable scientific results in JARPA. Japan has simply framed a new purported scientific purpose for JARPA II in an attempt to justify its continued whaling.⁷⁶

Australia dismissed the relevance of the science in JARPA by stating '[t]he main objective of JARPA was to collect data on the biological parameters of Antarctic minke whales that were central to the NMP [New Management Procedure], the management approach that was conclusively discarded by the IWC in 1994'.⁷⁷ Australia said that the aim of estimating natural mortality in Antarctic minke whales was '...practically unachievable, and that Japan's results would be so imprecise as to be useless'.⁷⁸

The adoption of the Revised Management Procedure in 1994 made JARPA (and JARPA II) irrelevant, Australia argued: '...the RMP is a sophisticated management procedure that was deliberately designed to eliminate the need for data on biological parameters obtained through whaling'.⁷⁹ As Expert Witness for Australia, Mangel had written:

The RMP thus eliminates the use of data obtained from whaling-dependent or other lethal-source data, which are often unreliable for purposes of management because they represent non-random samples of the population. Consistent with this, in 1995 the IWC adopted a Resolution (1995–9) that stated, among other things, 'that scientific research intended to assist the comprehensive assessment of whale stocks and the implementation of the Revised Management Procedure *shall be undertaken by non-lethal means*' (emphasis added).⁸⁰

Australia also rejected the importance of the data in JARPA derived from analysis of whale stomach contents as '...well-established and uncontroversial information, which did not represent any advance in existing scientific knowledge and did not require that Japan kill one whale, let

⁷⁶ Memorial of Australia, para 5.5.

⁷⁷ Memorial of Australia, para 5.6.

⁷⁸ Memorial of Australia, para 5.9, referring to W de la Mare, 'A Further Note on the Simultaneous Estimation of Natural Mortality Rate and Population Trend from Catch-at-Age Data', *Rep. int. Whal. Commn* 40, 1990, 489–492.

⁷⁹ Memorial of Australia, para 5.12.

⁸⁰ Mangel, M 2011, in Memorial of Australia, para 3.26.

alone 6,777'. 'Yet', Australia added, '...Japan relies on these "results" in support of JARPA II'.⁸¹

The 'seamless'⁸² segue from JARPA to JARPA II, in the absence of a comprehensive review of JARPA, was also highlighted by Australia. In referring to the Scientific Committee's review of JARPA (concluded in 2006, after JARPA II had commenced), Australia said: 'For a long-term, large-scale "research" program, the Scientific Committee's statement [that JARPA had "potential" to improve management] was tantamount to a finding of object failure. In short, JARPA had only managed to accumulate masses of data'.⁸³

Australia dismissed as contrived, JARPA II's 'new overarching goal' to '... inform the development of "a new and improved management system for whales"'.⁸⁴ 'This proposed new management system will purportedly take into account interactions between baleen whale species in the Antarctic, and in particular possible competition between them for their single food source, krill'.⁸⁵

Deeply embedded in Japan's justification for the JARPA II whaling program was the proposition that there was 'competition' for food (krill) between baleen whale species in the Antarctic,⁸⁶ and between baleen whales and other Antarctic krill predators (for example, penguins). Related to the proposition that there is competition for krill in the Antarctic, is the 'krill surplus hypothesis' which postulates that the demise of the populations of great whales during the heyday of the whaling industry created a surplus of krill.⁸⁷ This 'krill surplus' then allowed for other species to become more abundant – in effect, putting the Antarctic ecosystem 'out of balance'.⁸⁸

Japan proposed that data from JARPA II could be used to build an 'ecosystem model' which took into account this proposed competition between whale species,⁸⁹ ultimately with the view that some species of whales could be

81 Memorial of Australia, para 5.12.

82 Counter-Memorial of Japan, para 4.99.

83 Memorial of Australia, para 5.15.

84 Memorial of Australia, para 5.18.

85 Memorial of Australia, para 5.18.

86 Japan 2014 'Whales and Whaling', Japanese Fisheries Agency. At, <http://www.jfa.maff.go.jp/j/whale/pdf/140513english.pdf> as accessed on 30 January 2015.

87 Murase, H., Nishiwaki, S., Ishikawa, H., Kiwada, H., Yoshida, T. and Ito, S., 2006. Results of the cetacean prey survey using echo sounder in JARPA from 1998/99 to 2004/2005. IWC Doc. SC/Do6/J21.

88 Japan 2014 'Whales and Whaling', Japanese Fisheries Agency; Memorial of Australia paras 5.19 & 5.12; and Mangel 2011 para 5.36–7.

89 Government of Japan, 'Plan for the Second Phase of the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) – Monitoring of the Antarctic

harvested (to reduce competition) in order to allow for the population growth in more commercially important whale species.⁹⁰

The krill surplus hypothesis, and the proposition that the proposed 'ecosystem model' could be used to undertake ecosystem engineering for whaling ('multi-species management'⁹¹), was (and is) fiercely disputed in scientific circles, including the IWC Scientific Committee.⁹²

Central to Japan's case was the argument that the Special Permit Whaling undertaken in JARPA and JARPA II was '...a legitimate scientific programme... [whose] objectives and methods, together with its valuable scientific outputs [is] designed to contribute to the working of the International Whaling Commission (IWC) and its Scientific Committee'.⁹³

The JARPA Special Permit Whaling program '...was designed and implemented after the adoption of the Commercial Whaling Moratorium in order to provide the scientific data necessary for the IWC and its Scientific Committee to utilize for their work, and thus to contribute to the "review" and the "comprehensive assessment" envisaged in Paragraph 10(e) of the Schedule to the ICRW'.⁹⁴

Ecosystem and Development of New Management Objectives for Whale Resources', SC/57/O1 (2005), pp. 10–12[Annex 150]; also at Para 5.20, p. 232, Counter-Memorial of Japan.

90 Government of Japan, 'Plan for the Second Phase of the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) – Monitoring of the Antarctic Ecosystem and Development of New Management Objectives for Whale Resources', SC/57/O1 (2005), pp. 10–12[Annex 150]; also at Para 5.20, p. 232, Counter-Memorial of Japan; and Japan 2014 'Whales and Whaling', Japanese Fisheries Agency. At, <http://www.jfa.maff.go.jp/j/whale/pdf/140513english.pdf>.

91 Government of Japan, 'Plan for the Second Phase of the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) – Monitoring of the Antarctic Ecosystem and Development of New Management Objectives for Whale Resources', SC/57/O1 (2005), pp. 10–12[Annex 150]; also at Para 5.20, p. 232, Counter-Memorial of Japan.

92 Nicol, S., Croxall, J., Trathan, P., Gales, N., and E. Murphy. 2007. Paradigm misplaced? Antarctic marine ecosystems are affected by climate change as well as biological processes and harvesting. *Antarctic Science* 19:291–295. See also, Report of the Scientific Committee, Report of the Standing Working Group on Scientific Permits, Appendix 2, 'Comments on the Government of Japan's Proposals for a Second Phase of Special Permit Whaling in Antarctica (jarpa ii)', *J. Cetacean Res. Manage.* 8 (Suppl.), 2006; and Mangel 2011 para 5. 36–7.

93 Counter Memorial of Japan, para 12.

94 Counter Memorial of Japan, para 33. See also para 3.7.

JARPA II, most importantly for this case, ‘...was launched and conducted to collect scientific data contributing to the “review” and the “comprehensive assessment”, and to follow up on the findings of JARPA which indicated that significant changes in the Antarctic ecosystem were taking place.’⁹⁵

Further, Japan argued that Special Permit Whaling was required in order to ‘overcome’ the ‘scientific uncertainties’ associated with the IWC’s management measures, in particular ‘...the need to improve the RMP [Revised Management Procedure] and to obtain data for the development of ecosystem modelling. The need to overcome these scientific uncertainties thus became one of the objectives of JARPA II.’⁹⁶

JARPA II was also designed, Japan claimed, to take into account known changes in different whale population parameters, climate change impacts on cetacean populations, and ‘a major shift’ in the ecosystem.⁹⁷ Because of these changes, Japan said, ‘...we should have a better management tool to achieve appropriate utilization of more than one whale species with a better RMP, as the current RMP is a basically single species management model’.⁹⁸

Japan ascribed arguments against JARPA II as unscientific: ‘The whaling controversy at the IWC and elsewhere has drifted away from any basis in science and law for too long.’⁹⁹ Japan said that those that opposed whaling ‘...tended to underrate the importance of science-based management, the core principle of the ICRW’.¹⁰⁰

Defending against strong criticism of the poor scientific outputs of its Special Permit Whaling programs, Japan said: ‘JARPA and JARPA II have produced valuable scientific outputs, and Japan has provided and continues to provide these results to the IWC Scientific Committee. JARPA and JARPA II have made significant contributions to the deliberations at the Scientific Committee, and have been duly evaluated as such.’¹⁰¹

Japan’s scientific expert, Professor Lars Walløe, disputed Australia’s evidence on the value of data from JARPA and JARPA II,¹⁰² especially as presented

95 Counter Memorial of Japan, para 33.

96 Counter Memorial of Japan, para 3.10.

97 Counter Memorial of Japan, para 5.17, and JARPA II Proposal.

98 Counter Memorial of Japan, para 5.17 and 5.54, and JARPA II Proposal.

99 Counter Memorial of Japan, para 19.

100 Counter Memorial of Japan, para 3.67.

101 Counter Memorial of Japan, para 34.

102 Walløe, L 2013 Scientific review of issues raised by the Memorial of Australia including its two Appendices, p. 7 At, <http://www.icj-cij.org/docket/files/148/17418.pdf> as accessed 20 January 2015.

by Mangel.¹⁰³ In doing so, Walløe chose to ‘...assume that the judges do not have in-depth scientific knowledge of the field. For this reason I have not found it necessary to set out detailed scientific evidence, but have tried to indicate in general terms which deliberations my views are based on’.¹⁰⁴ Walløe provided a general criticism of Mangel’s ‘characteristics of a program for the purposes of scientific research’ describing it as ‘...an adequate – though somewhat idealistic and somewhat oversimplified – description of research in a fairly advanced biological field...’.¹⁰⁵ In positing rejection of Mangel’s criticisms this way, Walløe went on to argue that ‘[e]xisting knowledge about the Southern Ocean ecosystem is very limited. This makes it difficult to tell which observations are likely to be important... [so] all...data that can be collected may be considered potentially valuable, not only data relevant to specific hypotheses’.¹⁰⁶

Walløe also rejected Mangel’s (and Australia’s) argument regarding data necessary for the Revised Management Plan, stating, *inter alia*, that ‘...in the Japanese research programmes, the genetic information necessary to determine stock structure is obtained from samples of killed whales’,¹⁰⁷ adding that while non-lethal means may be used [to collect genetic information] ‘...biopsy samples from minke whales...would be prohibitively expensive’.¹⁰⁸ He concluded his consideration on this matter by stating: ‘...it is only feasible to obtain a sufficiently large number of genetic samples from minke whales by lethal sampling’.¹⁰⁹ These arguments will be discussed further below.

The Court’s view about these differences in view about science was that ‘[t] his disagreement appears to be about a matter of scientific opinion’.¹¹⁰ The Court further went on to say, ‘Taking into account the evidence indicating that non-lethal alternatives are not feasible, at least for the collection of certain data, and given that the value and reliability of such data are a matter of scientific opinion, the Court finds no basis to conclude that the use of lethal methods is *per se* unreasonable in the context of JARPA II’.¹¹¹

103 Mangel, M 2013 Response to ‘Scientific Review of Issues Raised by the Memorial of Australia Including its two Appendices’ by Professor Lars Walløe [9 April 2013]. At, <http://www.icj-cij.org/docket/files/148/17420.pdf> as accessed 20 January 2015.

104 Walløe 2013 p. 3.

105 Walløe 2013 p. 3.

106 Walløe 2013 p. 5.

107 Walløe 2013 p. 11.

108 Walløe 2013 p. 11.

109 Walløe 2013 p. 11.

110 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 134.

111 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 135.

Non-Lethal Research and the Scale of Lethal Whaling in JARPA II

In looking at 'the scale' of lethal whaling established under JARPA II, the Court started with the following premise: lethal whaling, even where non-lethal methods were available, was not per se contrary to Article VIII of the ICRW (as discussed previously). The Court found, though, that the JARPA II Research Plan '... should have included some analysis of the feasibility of non-lethal methods as a means of reducing the planned scale of lethal sampling in the new programme'.¹¹²

The Court, in reaching this conclusion took into account, among other things, that Japan had stated that it does not use lethal methods '...more than it considers necessary',¹¹³ and that expert evidence put forward by Australia¹¹⁴ '...referred to significant advances in a wide range of non-lethal research techniques over the past 20 years'¹¹⁵ which could be used to obtain the data sought under JARPA II.

The Court concluded '[i]t stands to reason that a research proposal that contemplates extensive lethal sampling would need to analyse the potential applicability of these advances in relation to a programme's design'.¹¹⁶ In assessing whether Japan had undertaken this kind of analysis, the Court said:

...there is no evidence of studies of the feasibility or practicability of non-lethal methods, either in setting the JARPA II sample sizes or in later years in which the programme has maintained the same sample size targets. There is no evidence that Japan has examined whether it would be feasible to combine a smaller lethal take (in particular, of minke whales) and an increase in non-lethal sampling as a means to achieve JARPA II's research objectives.¹¹⁷

¹¹² Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 137.

¹¹³ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 137.

¹¹⁴ Gales, N 2013a Statement by Dr Nick Gales, 15 April 2013. At <http://www.icj-cij.org/docket/files/148/17416.pdf>; and Gales, N 2013b Statement by Dr Nick Gales in Response to the Expert Statement by Professor Lars Walløe, 31 May 2013. At, <http://www.icj-cij.org/docket/files/148/17422.pdf> as accessed 20 January 2015.

¹¹⁵ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 137.

¹¹⁶ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 137.

¹¹⁷ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 141.

JARPA II: Bigger and Bolder than JARPA

Japan was at pains to argue that JARPA II was not simply a continuation of JARPA: it had, they said, more sophisticated and complex objectives, and was more ambitious in its foreshadowed outputs, even though much of the methodology used in JARPA II was the same as in JARPA.

Japan explained these differences as follows: 'JARPA was focused on a one-time estimation of different biological parameters for minke whales, but JARPA II is a much more ambitious programme which tries to model competition among whale species and...detect changes in various biological parameters and the ecosystem'.¹¹⁸ Further, JARPA II was also focussed on the impacts of climate change: 'a growing concern about climate change, including global warming, necessitated research whaling of a different kind from JARPA'.¹¹⁹ Japan's argument was that the increased annual sample size for minke whales, and the inclusion of humpback and fin whales in JARPA II was required because of its focus on, especially, the first two objectives JARPA II, 'monitoring of the Antarctic ecosystem' and 'competition among whale species'.

The Court was not convinced of great material difference between the research objectives of JARPA II and JARPA. It concluded:

Taken together, the overall research objectives of JARPA and JARPA II, as well as the subjects of study and methods used (i.e. extensive lethal sampling of minke whales) thus appear to have much in common, even if certain aspects differ. These similarities cast doubt on Japan's argument that the JARPA II objectives relating to ecosystem monitoring and multi-species competition are distinguishing features of the latter programme that call for a significant increase in the minke whale sample size and the lethal sampling of two additional species.¹²⁰

Japan's decision to commence JARPA II, with its increased minke whale sample size and two additional whale species, immediately following the cessation of JARPA and before assessment of JARPA by the Scientific Committee, was also criticised by the Court (paragraphs 154 to 156 of the Judgment). The Court concluded:

¹¹⁸ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 149.

¹¹⁹ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 149.

¹²⁰ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 153.

These weaknesses in Japan's explanation for the decision to proceed with the JARPA II sample sizes prior to the final review of JARPA lend support to the view that those sample sizes and the launch date for JARPA II were not driven by strictly scientific considerations. These weaknesses also give weight to the contrary theory advanced by Australia that Japan's priority was to maintain whaling operations without any pause, just as it had done previously by commencing JARPA in the first year after the commercial whaling moratorium had come into effect for it.¹²¹

How to Set a Sample Size (or Not)

The ICJ Judgment spends some time (paragraphs 157–198) examining the way Japan set the sample sizes for lethal whaling in JARPA II and the arguments put forward by both sides in the case. Japan had claimed that the sample sizes had been set 'on the basis of carefully selected parameters' and by using 'a standard scientific formula'.¹²²

Japan argued that its final sample size of 850 $\pm$ 10% for minke whales was set by determining what data were required for the research (the research items), and what levels of change in research parameters needed to be detected; and then deciding that that number provided enough information on the various research items at 'a reasonable level of statistical accuracy overall'.

Australia on the other hand had argued that Japan could not justify the JARPA II sample sizes on rational statistical grounds.¹²³ The Court characterised Australia's case as '[i]n essence, Australia's contention is that Japan decided that it wished to take approximately 850 minke whales for purposes other than scientific research and then "retro-fitted" individual sample sizes to justify the overall sample size'.¹²⁴

Cross examination of the expert witness for Japan, Professor Lars Walløe, on how Japan had established the figures for the lethal take of minke, fin and humpback whales, also provided a touch of drama in the proceedings when he said: 'The reason is, and that is one of the, as I state here, weaknesses of the

121 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 156.

122 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 159.

123 Memorial of Australia, paras 5.72 – 5.78; Mangel 2011, paras 5.38 – 5.48; and Mangel 2013 paras 5.1 – 5.3.

124 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 158.

JARPA II documents, that I do not understand how they have calculated their sample sizes¹²⁵ (author's emphasis).

But are the Numbers of Whales to be Killed Reasonable?

The Court made no assessment of the 'scientific merit' of the Special Permit whaling in JARPA II: '...the Court reiterates that it does not seek here to pass judgment on the scientific merit of the JARPA II objectives...'. It concluded that JARPA II could be '...broadly characterised as "scientific research"' and that it was '...not in a position to conclude whether a particular value for a given [research] variable has scientific advantages over another...'. The Court's role was to '...evaluate whether the evidence supports a conclusion that the sample sizes are reasonable in relation to achieving JARPA II's stated objectives'.¹²⁶

The Court first looked at the fin and humpback whale sample sizes established for lethal take under JARPA II, which, as noted above, were set at an annual take of 50 for each species. Japan asserted that this number was set using a 12 year research period to provide data on two 'research items' age at sexual maturity and pregnancy rate. Japan had stated that the 12 year research period for fin and humpback whales (as opposed to the 6 year research period for minke whales) was precautionary and that there was not yet any consideration of implementing the RMP for these two species (paras 174–176 of the Judgment).¹²⁷

The Court considered that the apparent inconsistency in the research periods set for fin and humpback whales, and for minke whales, as well as the differences in sample sizes, 'casts doubt on the centrality of the objectives that Japan highlights to justify the minke whale sample size of 850 (plus or minus 10 per cent)',¹²⁸ and, in particular, Japan's asserted emphasis on multi-species competition among whales, and its reason for including fin and humpback whales in the JARPA II Special Permit whaling.

The Court concluded also that, on the basis of the evidence presented by Japan, JARPA II would not have been able '...to produce statistically relevant information on at least one central research item to which the JARPA II

¹²⁵ International Court of Justice, Court Record CR2013/14 p. 41.

¹²⁶ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 172.

¹²⁷ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, paras 174–176.

¹²⁸ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 178.

Research Plan gives particular importance¹²⁹ ie change in age at sexual maturity (of fin and humpback whales).

Design, Numbers, and Random Sampling

Walløe had also provided evidence that, with respect at least to fin whales, the lethal sampling procedures used by Japan could not be considered 'random'. Japan had emphasised that 'random sampling' was an integral part of the methodologies used in JARPA II, and therefore critical to the efficacy of the data obtained under the Special Permit Whaling program. Only part of the fin whale population is found in the JARPA II research area. – the main population lying further to the north. There was also a technical obstacle: the larger of fin whales cannot be hauled aboard the whaling vessels, so only small fin whales can be sampled.¹³⁰

Given the centrality of the Court's consideration of the setting of sample sizes in determining its final decision, it is worthwhile considering its findings at paragraph 181 of the Judgment:

The Court finds that the JARPA II Research Plan overall provides only limited information regarding the basis for the decisions used to calculate the fin and humpback whale sample size. These sample sizes were set using a 12-year period, despite the fact that a shorter six-year period is used to set the minke whale sample size and that JARPA II is to be reviewed after each six-year research phase. Based on Japan's own calculations, the sample sizes for fin and humpback whales are too small to produce statistically useful results. These shortcomings, in addition to the problems specific to the decision to take fin whales, as noted in the preceding paragraph, are important to the Court's assessment of whether the overall design of JARPA II is reasonable in relation to the programme's objectives, because Japan connects the minke whale sample size...to the ecosystem research and multi-species competition objectives that, in turn, are premised on the lethal sampling of fin and humpback whales.¹³¹

129 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 179.

130 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 180.

131 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 181.

In scientific terms, the Court's conclusion is that the research design of the JARPA II Special Permit Whaling program (sampling in relation to fin whales; duration of research periods; and sample sizes) was not sufficiently justified in the Research Plan, and the proposed research outputs, especially for a central component of the program, 'elucidating multi-species competition', could not be achieved (see also paras 191–195 of the Judgment).¹³²

In ultimately setting the annual lethal take of minke whales at 850 $\pm$ 10%, Japan had said that this number provided a sample size to obtain sufficient information from most of the research items in the JARPA II Research Plan. These research items included were age at sexual maturity, pregnancy rate, blubber thickness, pathology, DNA mark-recapture, populations trends and the mixing of individuals from different stock in the study area. Figure 5.4 of the Japanese Counter-Memorial¹³³ (also reproduced at para 182 of the Judgment) shows the ranges of sample sizes calculated by Japan to provide 'sufficient data' for each of these items.

As detailed above, Australia's case was that the JARPA II Research plan provided insufficient information to determine how the final sample size for the lethal take of minke whales was arrived at, and why a large number (850) was chosen in preference to a smaller sample.

The evidence of the expert witnesses from both Australia and Japan was used by the court to conclude that '...the JARPA II Research Plan lacks transparency in the reasons for selecting particular sample sizes for individual research items'.¹³⁴ As Australia had argued, the Court considered that selecting different levels of change or accuracy to be measured, could have led to dramatically smaller number of whales to be killed annually in JARPA II. Evidence presented for Australia by Mangel was that the same level of accuracy could be achieved in research with smaller sample size, but a larger margin of error.¹³⁵

Decisions such as these (ie about sample size, accuracy, precision, and margin of error) are the bread and butter of scientific research. Australia's case was that the JARPA II Research plan failed to address these trade-offs, and lacked transparency. The Court ultimately agreed: 'The absence of such evidence in connection with most of the sample size calculations described in the JARPA II

¹³² Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 195–196.

¹³³ Counter-Memorial of Japan, Vol. I, p. 261.

¹³⁴ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 188.

¹³⁵ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 190.

Research Plan lends support to Australia's contention that a predetermined overall sample size has dictated the choice of the research period and the rate of change to be detected, rather than the other way around'.¹³⁶

The Court's view was also that Japan had presented more material and reasons for determining what an adequate sample size might be to detect age at sexual maturity in minke whales, and the relationship between this 'research item' and the first two objectives of the JARPA II Research Plan, than it had for the other research to be conducted under JARPA II. 'This highlights the absence of evidence, at least in the JARPA II Research Plan, that could support a finding that the sample size for the lethal take of minke whales, a key component of the design of JARPA II, is reasonable in relation to achieving the programme's objectives'.¹³⁷

In concluding its consideration of the selection of sample sizes for lethal take in the JARPA II Research plan, the Court concluded:

Taken together, the evidence relating to the minke whale sample size, like the evidence for the fin and humpback whale sample sizes, provides scant analysis and justification for the underlying decisions that generate the overall sample size. For the Court, this raises further concerns about whether the design of JARPA II is reasonable in relation to achieving its stated objectives.¹³⁸

Research to Reality: The Practice of JARPA II

As the evidence presented to the ICJ shows, the actual lethal take of whales in JARPA II fell far short of the sample sizes established in the Research Plan. Zero humpback whales were killed, 18 fin whales (instead of 400) and 3,618 Antarctic minke whales (instead of 6,800 or the potential a maximum of 7,480) were killed. In only the first year of the JARPA program did the annual take fall close to the target in the Research Plan (853 whales killed in 2005–2006). The reasons for the failure to achieve the stated annual sample size for minke whales was hotly disputed in the case. Australia claimed that the actual take

¹³⁶ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 195.

¹³⁷ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 189.

¹³⁸ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 205.

closely matched the economic target that Japan required for the program,¹³⁹ whereas Japan blamed the sabotage activities of Sea Shepherd and the 2007 fire aboard *Nishin Maru* for its failure to reach the projected sample size for minke and fin whales. Japan also said that it decided not to take humpback whales at the request of the Chair of the International Whaling Commission.

It is not the task of this Chapter to evaluate the veracity of these arguments, only to note the impact of the actual take on the goals of the JARPA II Research Plan. Following the logic of Japan's arguments with respect to setting sample sizes, failure to collect the nominated sample sizes, especially chronically, must have material consequences for achieving JARPA II's objectives. With respect to humpback whales, it is obvious that none of the species-specific research objectives which 'require' lethal sampling, could be achieved, and the small sample of small fin whales would only have produced basic data with little or no statistical robustness. With respect to Japan's research objectives of elucidating competition among whale species in the Antarctic, insofar as this objective required the lethal sampling of humpback and fin whales, as Japan asserted, JARPA II had failed. Australia described JARPA II's goal of producing a multi-species competition model as 'illusory'.

Japan conceded that its failure to meet its sample sizes with respect to minke whales had an impact on the length of time the research would need to be continue, and/or on whether they would need to accept '...a lower degree of accuracy' for some parameters.¹⁴⁰

The Court was very critical of Japan's failure to modify the research program envisaged in the JARPA II Research Plan given the reality of Japan's whaling in the Antarctic, and its words are worthy of being reproduced in full here:

The Court observes that, despite the number of years in which the implementation of JARPA II has differed significantly from the design of the programme, Japan has not made any changes to the JARPA II objectives and target sample sizes, which are reproduced in the special permits granted annually. In the Court's view, two conclusions can be drawn from the evidence regarding the gap between the target sample sizes and actual take. First, Japan suggests that the actual take of minke whales does not compromise the programme, because smaller numbers of minke whales can nonetheless generate useful information, either

139 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 195.

140 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 208.

because the time frame of the research can be extended or because less accurate results could be accepted. The Court recalls, however, that the minke whale sample sizes for particular research items were based on a six-year research period and on levels of accuracy that were not explained in the JARPA II Research Plan or in these proceedings. Japan's statement that the programme can achieve scientifically useful results with a longer research period or a lower level of accuracy thus raises further doubts about whether the target sample size of 850 whales is reasonable in relation to achieving the stated objectives of JARPA II. This adds force to Australia's contention that the target sample size for minke whales was set for non-scientific reasons.¹⁴¹

The logic here is straightforward. Japan's case rested in large part on justifications for the scale of lethal take under the Special Permit granted for JARPA II. The methods used to set sample sizes, and the rationale behind them were disputed by Australia – but strongly defended by Japan. The reality of the implementation of JARPA II, was that only in its first year did the take of minke whales meet the stated objective of the program. This reality clearly must have had material consequences for the stated research objectives of JARPA II. This reality was ignored by Japan, leading to the Court's conclusion above that the target annual lethal sample size for minke whales 'was set for non-scientific reasons'.

Looking also at JARPA II's intended objective of 'elucidation of competition between species' and 'understanding changes in the Antarctic ecosystem', the Court also drew attention to the discrepancies between the Research Plan and its implementation:

In the view of the Court, the gap between the target sample sizes for fin and humpback whales in the JARPA II Research Plan and the actual take of these two species undermines Japan's argument that the objectives relating to ecosystem research and multi-species competition justify the larger target sample size for minke whales, as compared to that in JARPA.¹⁴²

The Court also drew attention to the statements by Japan in oral evidence that constructing an ecosystem model for the Antarctic did not require the

¹⁴¹ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 209.

¹⁴² Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 210.

‘missing’ data from the humpback and fin whales not killed under JARPA II – at least some of these data could be obtained through non-lethal means. The Court’s view was ‘...[Japan’s own evidence] suggests there is no strict scientific necessity to use lethal methods in respect of this objective’.¹⁴³

The Court’s final conclusions in relation to sample sizes in JARPA II was that there was ‘doubt’ that JARPA II could be characterised as ‘a programme for purposes of scientific research’, and that the target lethal samples size for minke whales ‘are larger than are reasonable’. The full text of paragraph 212 of the Judgment is reproduced here:

Japan’s continued reliance on the first two JARPA II objectives to justify the target sample sizes, despite the discrepancy between the actual take and those targets, coupled with its statement that JARPA II can obtain meaningful scientific results based on the far more limited actual take, cast further doubt on the characterization of JARPA II as a programme for purposes of scientific research. This evidence suggests that the target sample sizes are larger than are reasonable in relation to achieving JARPA II’s stated objectives. The fact that the actual take of fin and humpback whales is largely, if not entirely, a function of political and logistical considerations, further weakens the purported relationship between JARPA II’s research objectives and the specific sample size targets for each species—in particular, the decision to engage in the lethal sampling of minke whales on a relatively large scale.¹⁴⁴

Australia had also argued strongly that the open ended timeframe for JARPA II cast further doubt on the scientific veracity of the Research Plan. The Court noted ‘...the open-ended time frame of JARPA II and observes that with regard to a programme for purposes of scientific research, as Annex P indicates, a “time frame with intermediary targets” would have been more appropriate’.¹⁴⁵

The Court also pointed to two other elements of Australia’s arguments concerning Japan’s Special Permit Whaling as a legitimate scientific research program – its poor publication record, and failure to engage collaboratively. On research publication, the Court said: ‘... In light of the fact that JARPA II has

143 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 211.

144 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 212.

145 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 216.

been going on since 2005 and has involved the killing of about 3,618 minke whales, the scientific output to date appears limited'.¹⁴⁶ On research collaboration '[t]he Court ...observes that some further evidence of co-operation between JARPA II and other domestic and international research institutions could have been expected in light of the programme's focus on the Antarctic ecosystem and environmental changes in the region'.¹⁴⁷

Article VIII and JARPA II: Is the Special Permit Whaling 'for the Purposes of Scientific Research'?

The Court's ultimate consideration was that lethal take of whales in JARPA II 'is not unreasonable' per se, but that the '...target sample sizes in JARPA II are not reasonable in relation to achieving the programme's objectives'¹⁴⁸ (author's emphasis).

In reaching this conclusion, the Court reiterated its previous considerations and conclusions in four parts. First, that the JARPA and JARPA II had similar research objectives and Japan had provided little evidence to show how any differences between them had led to the '...considerable increase in the scale of lethal sampling in the JARPA II Research Plan'.¹⁴⁹ Second, that the sample sizes for the inclusion of fin and humpback whales in the Research Plan were, in effect, spurious. They were '...too small to provide the information that is necessary to pursue the JARPA II research objectives based on Japan's own calculations...';¹⁵⁰ and the random sampling of fin whales was unachievable. The third conclusion was that the Research Plan for JARPA II lacked transparency in the way that the sample size for the annual lethal take of minke whales was set.

The fourth conclusion turns on the lack of consideration by Japan of alternatives to lethal sampling. As shown above, Japan had provided evidence that

¹⁴⁶ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 219.

¹⁴⁷ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 222; See also para 226.

¹⁴⁸ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 224.

¹⁴⁹ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 225.

¹⁵⁰ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 225.

data derived from non-lethal research could be used to fill the gaps in the research program caused by the 'under-sampling' of humpback and minke whales, at least with respect to some of the research objectives. The Court concluded: '[t]he evidence...further suggests that little attention was given to the possibility of using non-lethal research methods more extensively to achieve the JARPA II objectives and that funding considerations, rather than strictly scientific criteria, played a role in the programme's design'.¹⁵¹

The Court, at paragraph 226 of the Judgment, was again very critical of Japan's failure to consider how the gap between the Research Plan the actual implementation of JARPA II affected the objectives of the program:

Neither JARPA II's objectives nor its methods have been revised or adapted to take account of the actual number of whales taken. Nor has Japan explained how those research objectives remain viable given the decision to use six-year and 12-year research periods for different species, coupled with the apparent decision to abandon the lethal sampling of humpback whales entirely and to take very few fin whales.¹⁵²

The Courts Conclusion?

'The Court concludes that the special permits granted by Japan for the killing, taking and treating of whales in connection with JARPA II are not "for purposes of scientific research" pursuant to Article VIII, paragraph 1, of the Convention'.¹⁵³

In setting the 'remedies' in its Judgment, the Court ordered that '...Japan shall revoke any extant authorization, permit or licence to kill, take or treat whales in relation to JARPA II, and refrain from granting any further permits under Article VIII, paragraph 1, of the Convention, in pursuance of that programme'.¹⁵⁴

¹⁵¹ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 225.

¹⁵² Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 226.

¹⁵³ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 226.

¹⁵⁴ Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 245.

Discussion

*'It is to be expected that Japan will take account of the reasoning and conclusions contained in this Judgment as it evaluates the possibility of granting any future permits under Article VIII, paragraph 1, of the Convention.'*¹⁵⁵

In summing up Japan's case during the oral proceedings, Alan Boyle said: 'If JARPA II is not a program of scientific research, then neither are the primary research activities of institutions providing advice on sustainable catch levels for fisheries world wide'.¹⁵⁶ This statement and his subsequent commentary concerning international environmental law, reflect not only Japan's view of the 'rightness' of Special Permit Whaling, but also the implications perceived by Japan from any adverse decision. 'Science' cannot be defined by 'peer-reviewed academic publications, and supported by multiple hypotheses...'¹⁵⁷ Boyle went on to say.

The fact that the Court found that JARPA II was not consistent with Article VIII of the ICRW was obviously not what Japan had expected from the Judgment. Some elements of JARPA II could be categorised as 'science' but the Program and its Research Plan were 'not for the purposes of scientific research'. The Court had rejected Japan's arguments that if the Special Whaling Permit activities involved 'science' they were covered therefore by Article VIII.

While not accepting *in toto* Australia's arguments that scientific research should be defined through reference to objective criteria (Mangel's four elements, see above), the Court did reflect on whether the activities themselves were 'reasonable' to achieve the stated objectives of the JARPA II research plan.

This is a key finding for how future research activities could be construed. Australia's Expert Witness, Dr Nick Gales, had described in written and oral evidence the available non-lethal alternatives to the killing of whales for scientific research.¹⁵⁸ Japan's Expert witness, Lars Walløe, had argued that non-lethal alternatives to killing whales were not viable and too costly. Australia's evidence in relation to the use of non-lethal research methods in the Southern

155 Judgment, Whaling in the Antarctic (Australia v. Japan: New Zealand intervening) 31 March 2013, para 246.

156 ICJ Verbatim Record C2-13/22 para 13.

157 ICJ Verbatim Record C2-13/22 para 13.

158 Gales 2013a and b; see also International Court of Justice Verbatim Record CR 2013/10.

Ocean Research Program contradicted much of what Walløe (and Japan) had said in this regard, and provided an alternative perspective on the activities authorised in JARPA II.

The availability of alternatives to lethal whaling goes to the heart of the construction of any future research program authorised under Article VIII, or any challenge to it. The Court's use of the yardstick of 'reasonableness' requires an objective consideration of research objectives, research methodologies, sampling techniques and sample sizes – the mere statement that a sample size has been determined objectively, or that one research technique is justified over another, must be evaluated against alternative propositions. They must be, and be seen to be, 'reasonable in relation to achieving' the objectives of any authorised research program.

As noted previously, the Court did not provide a definition of 'science' or 'scientific research', and referred to 'differences of opinion' between scientists. But the Court did take into account some of the propositions put forward by Australia and its expert witnesses in relation to the connection between the objectives of JARPA II and the activities undertaken in it. For example, the Court's Judgment was that JARPA II had failed in its research objective of 'elucidating competition among whale species in the Antarctic', in so far as this research required lethal sampling of humpback and fin whales. The Court was also critical of the lack of transparency in setting sample sizes for lethal whaling; the poor publication record of the JARPA II program; and the lack of engagement of the JARPA II research program with other Southern Ocean research initiatives.

Can Science be Objectively Defined?

I am not critical of the Court for not defining 'science' or 'scientific research' in this case – to do so would have involved more than just reviewing the evidence of three expert witnesses and the competing opinions of counsel for Australia and Japan. Science is a complex body of work, defined not only by the common practices of communities of researchers and scholars, but also by the philosophical precepts of those same practitioners. To attempt to define *science* was beyond the realm of this case.

But science can be evaluated objectively. The usual practice is that of peer review through publication or of evaluation through panels of experts. Science presented in the public domain is open to criticism from others. Sometimes referred to as a 'self-correcting' process, the combination of peer

review and publication (in the public domain) allows for commentary on methods, methodology and appropriateness of the research to meet its objectives, to be taken into account by the researcher or others in the field. It is therefore open to bodies such as the International Court of Justice to consider how a program of scientific research is viewed among the broad community of researchers in that field in order to assess whether the science is purposeful.

Future Lethal Whaling and the Advent of NEWREP-A

Many commentators in the media had interpreted the Court's ruling on the legality of JARPA II as an end to Antarctic whaling. History has now shown, though, that Japan, has produced a new proposal for whaling in the Southern Ocean and intends to commence its program in the 2015–16 austral summer. The advent of NEWREP-A¹⁵⁹ (a Special Permit Whaling program to replace JARPA II) will again focus global attention on whaling in the Antarctic.

Japan's new whaling program will be considered by the International Whaling Commission's Scientific Committee in May 2015. Mangel et al. have pointed to past 'politicised' review processes inside the Scientific Committee, stating that '...even though logical inconsistencies noted by the ICJ as flaws had been identified by many members of the scientific committee, these did not stand out in the committee's reviews as being so serious that they required attention'.¹⁶⁰ Clapham, in looking at how the IWC and its Scientific Committee will deal with a new Antarctic whaling program, has said '...the Scientific Committee will continue to be mired in disagreement'.¹⁶¹

While de la Mare et al. hold the view that '...the ICJ's approach represents a model for separating scientific matters and the non-scientific agenda in other complicated disputes involving science, society, and law',¹⁶² Clapham's view, in so far as this sentiment relates to the International Whaling Commission, is

¹⁵⁹ Japan 2014a Proposed Research Plan for New Scientific Whale Research Program in the Antarctic Ocean(NEWREP-A), The Government of Japan; Japan 2014b Outline of the Proposed Plan for the New Scientific Whale Research Program in the Antarctic Ocean, The Government of Japan.

¹⁶⁰ Mangel et al. 2014.

¹⁶¹ Clapham 2014.

¹⁶² de la Mare, W, Gales, N and M Mangel 2014 Applying scientific principles in international law on whaling, *Science* Vol 345 pp. 1125–1126.

that '[s]uch change will not happen because of this judgement: Japan will continue business as usual in the coming years, while pursuing its long-term plan of attempting to obtain the votes necessary to lift the IWC moratorium and reinstate commercial whaling...'¹⁶³

In this author's view, the validity of NEWREP-A (regardless of whether it is ever the subject of any future challenge outside of the IWC) will depend not just on its formulation, but also its scientific relevance to its stated goals. In constructing NEWREP-A, Japan has procedurally addressed the major criticisms that the Court had of JARPA II¹⁶⁴ by explicitly detailing its justifications for lethal methods; scale of lethal sampling; sample size methodology; time-frame; collaboration and cooperation; scientific output, among others.

But the fact remains that NEWREP-A potentially relies on the lethal take of up to 333 Antarctic minke whales per annum (during its 12 year period), while still pursuing goals broadly similar to both JARPA and JARPA II.

In its publication 'Whales and Whaling', the Japanese Fisheries Agency emphasises both 'Marine Ecosystem Balance' wherein

[w]ith the moratorium on commercial whaling protecting even abundant whale species, if their abundance continues to increase, the top layer alone of the food pyramid will expand, upsetting the balance of the marine ecosystem, since the fish available as food for so many whales would, by consequence, be reduced. The sustainable utilization of a certain number of whales based on scientific evidence is therefore important in terms of maintaining the marine ecosystem balance;

and 'Competition between Whales and Fisheries' wherein

[t]he balance of the marine ecosystem will be affected if whales alone increase excessively in number.¹⁶⁵

Like the 'Krill Surplus Hypothesis' discussed above these 'hypotheses' are open to scientific criticism from a theoretical point of view, let alone from the

¹⁶³ Clapham 2014.

¹⁶⁴ Hodgson-Johnson, I and Jabour J 2014 Japan's new whaling program is a small win for whales, but.... At, <https://theconversation.com/japans-new-whaling-program-is-a-small-win-for-whales-but-34420> as accessed 30 January 2015.

¹⁶⁵ Japan 2014c Whales and Whaling, at (<http://www.jfa.maff.go.jp/j/whale/pdf/140513english.pdf> accessed 30 January 2015.

perspective of justifications for 'ecosystem management' (ie the utilisation of whales to maintain ecosystem balance), or the commencement of a new lethal whaling research program. The Court's observation that future Special Whaling Permits must to take into account the reasoning behind its Judgment significantly raises the bar for lethal whaling. Merely asserting that the Court's views have been taken into consideration may not be seen as 'reasonable' if subsequently challenged.