

Applying scientific principles in international law on whaling

The approach might address disputes beyond whaling and the courtroom

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In March 2014, the International Court of Justice (ICJ), the principal judicial organ of the United Nations, ruled that a Japanese whaling program in the Antarctic, ostensibly for scientific purposes, was not sufficiently research-oriented and thus was illegal (1). The ICJ's critical assessment represents the first time that scientific whaling has been reviewed by an authoritative body outside the International Whaling Commission (IWC). With Japan considering a replacement program, and the IWC meeting later this month, we discuss minimum realistic actions the IWC should take in response to the ICJ judgment. More broadly, we believe the approach used by the ICJ in reaching its judgment provides a precedent for how arbitrators might assess scientific principles when resolving complex technical disputes.

Commercial whaling is currently prohibited under the International Convention on the Regulation of Whaling (ICRW). Japan argued that its Japanese Whale Research Program under Special Permit in the Antarctic (JARPA II) program satisfied Article VIII of ICRW, which allows special permits authorizing killing, taking, and treating of whales "for purposes of scientific research" (2). The stated objectives of JARPA II, which also had no stated time limit, were (i) monitoring the Antarctic ecosystem, (ii) modeling competition among whale species and developing future management objectives, (iii) elucidation of temporal and spatial changes in stock structure, and (iv) improving the management procedure for minke whales. Under JARPA II, Japan issued permits to take up to 935 minke whales ($850 \pm 10\%$) per year and 50 each of humpback and fin whales. The number of minke whales taken was substantially less than 850 in all but one year; more than 3500 were taken from 2005 to 2013 (see the photo). No humpback and fewer than 20 fin whales were taken.

The ICJ decided in favor of Australia, which had argued that JARPA II was not "for purposes of scientific research" as required by Article VIII (3). The ICJ ordered Japan to revoke permits granted to JARPA II. This ended Japan's program of Southern Ocean whaling, which had polarized and disenfranchised scientists (4, 5) and galvanized environmentalists.

States that appear before the ICJ understand that its judgments are binding and without appeal. Whereas Japan indicated that it would abide by the judgment and terminated JARPA II, it appears that Japan hopes to devise a replacement program to commence in 2015. Although the judgment does not preclude whaling under Article VIII, the reasoning of the ICJ has clear implications that any future special permit program must meet higher scientific standards than JARPA II did.

LOGIC OF SCIENCE, NOT DETAILS. At the heart of the judgment was whether Japan's program is "for purposes of scientific research." Japan argued that its activities involved science and, therefore, Article VIII rendered JARPA II wholly outside any other provisions of the ICRW. In essence, Japan

argued that if an activity involves scientific research it is also "for the purposes of scientific research," which fulfills obligations under Article VIII. Japan argued that this decision is self-determined by the state issuing the permit.

Australia argued that "scientific research" is subject to internationally accepted norms not unique at the level of the nation-state. Australia argued that scientific research in the context of Article VIII should be characterized by features that include (i) defined and achievable objectives; (ii) use of appropriate methods, including use of lethal methods only where objectives cannot be answered through alternate methods; and (iii) proper assessment and response through the community of scientists. Japan offered no alternative model but argued that Australia's interpretation was overly restrictive.

The ICJ was not persuaded that activities must satisfy Australia's normative criteria in order to constitute "scientific research" in the context of Article VIII, although many elements of those criteria were taken into account by the ICJ (3). Rather than offering its own definition of science, the ICJ proceeded by first asking whether, and ultimately concluding that, the activities associated with



An adult and subadult Minke whale are dragged aboard the Nisshin Maru, a Japanese whaling vessel.

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the lethal take in JARPA II could in principle be characterized as scientific research.

The ICJ then considered whether the whaling itself was “for purposes of scientific research,” as required by the ICRW, by examining whether the elements of the program’s design and implementation were reasonable in relation to achieving its stated scientific objectives. The ICJ relied heavily on presentations by Australia and Japan, using commonalities of expert testimony (authors N.G. and M.M. called by Australia and L. Walløe called by Japan) when examining relevant elements of the program’s design and implementation. These elements included (i) use and scale of lethal research, (ii) methods used to select sample sizes, (iii) comparisons of target sample sizes and actual take, (iv) program time frame, (v) scientific output of the program, and (vi) degree to which the program coordinates its activities with related research projects.

The ICJ paid particular attention to inconsistencies between the methods of determin-

“[Were] elements of the program’s design and implementation ... reasonable in relation to achieving its stated scientific objectives[?]”

ing sample sizes for the different species (6). Rather than trying to decide whether sample sizes were scientifically correct or necessary, the ICJ looked at the logic: If the sample sizes were purported to be necessary for achieving the objectives, then failing to collect the specified numbers must mean either that the objectives would not be attained or that the specified sample sizes were unnecessarily large. In either case, program design and implementation are not logically consistent, that is, not reasonable.

The ICJ noted that no adjustments were made to JARPA II objectives when specified sample sizes were not achieved. The ICJ found that the statements and practices of Japan supported the argument by Australia that sample sizes were determined using criteria other than science. The ICJ found that JARPA II failed against the measure of reasonableness for the other criteria as well (6). The ICJ found that if a state issues a permit, it cannot fund the activities by using more lethal sampling than consistent with the objectives of the research.

Because the practice of JARPA II was not reasonable in relation to achieving its sci-

entific objectives, the ICJ concluded that it was not “for purposes of scientific research.” Even if a program involved some “scientific research,” the taking of whales in such a program does not fall within Article VIII unless the activities are pursued “for the purposes of scientific research,” the ICJ having concluded that the two elements were cumulative (7).

In addition, the ICJ concluded that determination of whether whaling under Article VIII was for the “purposes of scientific research” is not open to self-judgment and cannot simply depend on a state’s perception.

POLITICIZED REVIEW. The ruling is a challenge both to Japan’s determination to continue whaling in Antarctica and to the IWC’s ability to respond credibly to serious external judgment. Although not explicitly noted by the ICJ, the judgment highlights weaknesses of the review process within the IWC. Logical and scientific inconsistencies in JARPA II were pointed out in the IWC scientific committee’s mandatory review of the original proposal (8). Cogent scientific criticisms were dismissed by Japan as politically motivated, a label that makes many scientists reluctant to engage in the review process. Consequently, 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. The salience of the committee reports was further degraded because proponents of the program were involved in writing and editing the reviews.

It is fair to say that the scientific committee is politicized, as it involves scientists from both whaling and nonwhaling countries, most of whom are appointed by their governments. However, in a scientific review, the motivations of critics should be irrelevant. Either criticisms are scientifically valid or they are not. If they are valid, they should not be ignored because of political differences. Weak reviews of the JARPA II proposal by the scientific committee enabled commissioners to dismiss divergent views as reflecting political opinions rather than being serious scientific flaws.

Regardless of Japan’s future actions, its approach in self-determining scientific validity has been found to be incorrect. The reasoning of the ICJ indicates that a state proposing a scientific take should provide sufficient information on program design and implementation and on how the sample sizes are necessary for achieving the objectives. Objectives cannot be stated in such vague terms that scientific judgment of their achievability is reduced to a contest of scientific opinions based on differing interpretations of what the objectives mean.

Objectives, methods, and sample sizes must be sufficiently detailed so as to be capable of quantitative evaluation using normal scientific procedures. Long-term proposed research should specify intermediate objectives so research can be adjusted or abandoned if they are not achieved.

The IWC review processes need to be improved so that clear advice on the scientific achievability of a program’s objectives can be provided by its scientific committee despite the variety of political views therein. This is why measurable objectives and prospective quantitative evaluations are needed. The burden of proof on the validity of a scientific proposal properly resides with the proponent, who should sit outside the review process. The IWC should transmit the advice of the scientific committee to the proposing state along with any other observations it may have. A state proposing a special permit should adjust its proposal to take full account of scientific criticisms and the advice from the commission and scientific committee.

BEYOND THE COURTROOM. By using the test of reasonableness, the ICJ provided a clear, well-constructed judgment focused on the logic, rather than details, of science. Such an approach could serve as a useful model in resolving other disputes over complex technical issues. Beyond the courtroom, the misrepresentation of science to advance nonscience agendas is a common feature in disputes involving economic, social, or political values (9–11). The ICJ’s approach represents a model for separating scientific matters and the nonscientific agenda in other complicated disputes involving science, society, and law. The ICJ demonstrated that it is possible to sit above the detailed technicalities of scientific research and still determine whether practices were for purposes of science or nonscience. We hope the IWC can learn from their example. ■

REFERENCES AND NOTES

1. The judgment of the ICJ, the written material submitted by Australia, Japan, and New Zealand, and transcripts of the oral proceedings can be accessed at www.icj-cij.org/docket/index.php?p1=3&p2=1&code=&case=148&k=64.
2. International Convention for the Regulation of Whaling, signed 2 December 1946, (ICRW, Washington, DC, 1946). <http://iwc.int/private/downloads/lr2jdhu5xtuswsw0ocw04wgw/convention.pdf>.
3. Paragraph 227 of the judgment in (1).
4. V. Morrell, *Science* **316**, 533 (2007).
5. N. J. Gales, T. Kasuya, P. J. Clapham, R. L. Brownell Jr., *Nature* **435**, 883 (2005).
6. Paragraphs 224–226 of the judgment in (1).
7. Paragraph 71 of the judgment in (1).
8. S. Childerhouse et al., *J. Cetacean Res. Manag.* **8** (suppl.), 260 (2006).
9. N. Oreskes, E. M. Conway, *Merchants of Doubt* (Bloomsbury Books, New York, 2010).
10. G. Taubes, *Good Calories, Bad Calories* (Knopf, New York, 2007).
11. M. Mangel, *Trends Ecol. Evol.* **16**, 110 (2001).

10.1126/science.1254616