

A Case For Killing Humpback Whales?

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During the austral summer of 2007/08, hunting of Southern Hemisphere (SH) humpback whales will recommence after almost half a century of protection. The stated rationale for this hunt, by the Government of Japan (GoJ), is to gather important scientific information for use in management. If the scientific need was defensible, and the proponents had accommodated reasonable conservation concerns, then criticisms of the hunt would be limited to philosophical issues. This is not the case. The program's research objectives are unlikely to be achieved by lethal methods and do not address the principal research needs for SH humpback whales identified by the International Whaling Commission (IWC).

Japan's Antarctic scientific whaling dates to 1987, the year after the moratorium on commercial whaling. During the next 18 years, this controversial program (known as "JARPA") killed almost 7,000 Antarctic minke whales, sustaining a domestic commercial market in whale meat (Normile 2000). In 2005, the GoJ announced plans for a new, substantially expanded research program called JARPA II (Government of Japan 2005, Gales et al. 2005). After completion of the first two 'feasibility' years, the full-scale program is scheduled to begin in the austral summer of 2007/08, with an annual kill of up to 935 minke whales, 50 fin whales and 50 humpback whales.

Unlike Antarctic minke whales, which were never a primary target of commercial whaling, fin and humpback whales were hunted intensively and reduced to low numbers throughout the SH. From 1904 to 1986, more than 200,000 humpbacks and 720,000 fin whales were killed (Clapham and Baker 2002). Although humpback whales appear to be recovering in some areas, there are other populations (such as Fiji, New Caledonia, Tonga and New Zealand) that remain small despite decades of protection. It is of particular concern that whales from these depleted breeding stocks migrate into the JARPA II whaling grounds,

where it will be impossible for a harpooner to distinguish them from animals from larger, recovering populations.

When the JARPA II proposal was presented to the IWC's Scientific Committee (SC), it led to considerable controversy. Members from over half of the national delegations authored a paper criticising JARPA II's scientific basis, further noting that it was inappropriate to review the new proposal before Japan had given the IWC an opportunity to assess the results of the preceding 18-year JARPA program (Childerhouse et al. 2006). That review (eventually held in December 2006 (IWC 2008)), concluded that JARPA had 'the potential to improve management of minke whales in the Southern Ocean', but that such an outcome had not been realised, despite nearly two decades of effort by a large and well-funded research laboratory in Tokyo. The review concluded that the major JARPA objectives were largely unachieved, notably:

- The data were not required under the IWC's accepted method of managing whale populations and assigning catch limits;
- Efforts to estimate natural mortality had produced confidence intervals that 'spanned such a wide range that the parameter remains effectively unknown';
- Data on trends in abundance were so imprecise that they could be interpreted as consistent with anything from a decline to an increase; and,
- Efforts to elucidate the role of whales in the Antarctic marine ecosystem had led to 'relatively little progress, even allowing for the complexities of the subject'.

Despite these failings, and the near-parity in the methodologies used in JARPA and JARPA II, the GoJ stated at the 2007 IWC SC meeting that the objectives and methods of the full-scale JARPA II program would remain unchanged from the original proposal.

Broadly speaking, JARPA II aims to monitor the Antarctic ecosystem by examining how three species of whale (minke, fin and humpback) interact with each other and with their environment (Government of Japan 2005). The GoJ intends to do this primarily by measuring or estimating parameters such as age, stomach content mass and prey species, blubber thickness and reproductive status of hunted animals, set against limited measurements of the physical and biological environment from which the whales are taken. These data are intended for use in models that examine the degree of presumed competition among these whales, and to develop a new, multi-species management procedure. The primary objective of this procedure is to accelerate the recovery of the largest and most valuable whale species

(e.g. blue and fin whales) through the culling of less valuable and more numerous species such as minke and humpback whales. These objectives are being pursued despite the fact that there is little evidence for competition among the species concerned, that culling is a crude and ineffective method of managing species, and that the models being employed in JARPA II simplify or ignore key variables involved in this complex ecosystem.

So what will be learned from the inclusion of humpback and fin whales in the JARPA II hunt? The GoJ argues in its proposal that the sample sizes for these two species (50 each annually) were derived to measure trends in pregnancy rates and age at sexual maturity. During the original 18-year JARPA program the GoJ attempted to measure these same parameters in Antarctic minke whales, but could detect no significant trends despite having an annual sample size that was almost an order of magnitude greater than those planned for humpback and fin whales. The use of the same methodologies and smaller sample sizes will clearly result in even less power to detect such changes. Reliable estimates of reproductive rates in humpback whales are much more likely to come from some of the many long-term studies of individual whales (e.g. Barlow and Clapham 1997).

A more fundamental question is whether JARPA II will contribute to filling the knowledge gaps and research needs required for management of these species. For this, the IWC has a formal process known as the Comprehensive Assessment: ‘an in-depth evaluation of the status of all whale stocks in the light of management objectives and procedures that would include the examination of current stock size, recent population trends, carrying capacity and productivity’ (IWC 2007a). A Comprehensive Assessment of SH humpback whales has been underway since 2000, and was the subject of a four-day IWC workshop in 2006 (IWC 2007b), which Japan attended. The key research priorities were identified as follows:

- Describe the genetic structure of seven putative SH breeding populations;
- Quantify the complex linkages between high-latitude feeding grounds and breeding stocks; and,
- Estimate the abundance of breeding stocks.

To this end, the workshop recommended methodological approaches that included genetic analysis from skin samples; analysis of photo-identification, acoustics and historical marking data; improving resolution of historical catch data; satellite-monitored telemetry studies; sighting surveys; and the further development and refinement of assessment models.

With the exception of sightings surveys, JARPA II will address none of these objectives through its lethal research program, particularly since the GoJ continues to ignore the critical need for research in breeding areas (JARPA II operates exclusively on the whales' feeding grounds).

The belated protection afforded by the IWC to the world's populations of humpback whales (IWC 2007) has been a remarkable success, with some populations recovering from levels that were arguably close to extinction. Scientists using non-lethal techniques in large-scale research programs have added enormously to our knowledge of this species. In particular, international collaborative studies in the North Atlantic (Palsbøll et al. 1997), North Pacific (Calambokidis et al. 2001) and SH (Pomilla and Rosenbaum 2005, Olavarria et al. 2007) have combined photo-identification and genetic techniques to obtain high-precision assessments of abundance and population structure across entire ocean basins. Remaining knowledge gaps in the SH can be filled with similar integrated, non-lethal studies (Baker and Clapham 2004).

The promulgation of a lethal research program that targets low-priority science, with a demonstrably low likelihood of achieving its stated objectives, appears unsupportable when viewed solely in a scientific context. However, under the 1986 IWC moratorium, commercial whaling is banned until such time as a three-quarters majority of member nations vote to overturn it, and agree to the conditions that would govern any resumption of whaling. Furthermore, members would also need to abolish the Southern Ocean Sanctuary, which currently prohibits commercial whaling in the waters where JARPA II is being conducted. Thus, for the GoJ the only legal option for whaling during the moratorium and within the Sanctuary is to conduct a hunt for scientific purposes, as allowed by Article VIII of the 1946 International Convention for the Regulation of Whaling (ICRW) (9).

Japan has been exploiting this provision for several decades, to the point where its *annual* hunt now equates to more than half the *total* catches for scientific research by all nations in the past half-century (Gales et al. 2005). These actions have not been without protest, but multiple IWC resolutions and multinational demarches have had no effect, and an unresolved stand-off remains.

It is now clear that the scientific whaling provision of the ICRW is being used for a purpose and to an extent never intended when it was drafted, a point which even a leading Norwegian proponent of whaling acknowledges (Morell 2007). Japan's proposal to kill humpback whales is not scientifically credible, and will potentially disrupt ongoing non-lethal research programs directed at filling knowledge gaps identified for the Comprehensive Assessment.

The IWC has been presented with yet more lethal studies that have little relevance to identified key research objectives, and which could threaten humpback whales from depleted populations that mix on the Antarctic feeding grounds with animals from larger stocks.

Given that the GoJ remains impervious to any influence from the broader scientific community, it is time to acknowledge that the debate about research whaling has little or nothing to do with science. Indeed, by insisting that this form of whaling is scientifically valid, Japan forces the SC to remain dead-locked, ultimately to the detriment of the IWC's credibility and function. Although the threat of scientific whaling to small, unrecovered stocks is an urgent topic for scientific investigation, Japan's justification for the imminent hunt of 50 humpback whales, together with 50 fin and almost 1,000 minke whales, must be debated in the larger context of policy, politics and national obligations to international agreements.

References cited

- Normile D. 2000. Japan's whaling program carries heavy baggage. *Science* 289: 2264-2265.
- Government of Japan. 2005. Plan for the second phase of the Japanese whale research program under special permit in the Antarctic (JARPA II). Paper SC/57/O1 presented to the IWC Scientific Committee. Available from International Whaling Commission, Cambridge, UK.
- Gales NJ, et al. 2005. Japan's whaling plan under scrutiny: useful science or unregulated commercial whaling? *Nature* 435: 883-884.
- Clapham P, Baker CS. 2002. Modern whaling. In: Perrin, W.F., Würsig, B. and Thewissen, J.G.M. (eds.) *Encyclopedia of Marine Mammals*, pp. 1328-1332. Academic Press, San Diego.
- Childerhouse SJ, et al. 2006. Comments on the Government of Japan's proposal for a second phase of special permit whaling in Antarctica (JARPA II). *Journal of Cetacean Research and Management* 8 (suppl.) 260-261.
- IWC. 2007a. Schedule, International Convention for the Regulation of Whaling, Washington, DC, 2 December 1946, as modified May 2007. International Whaling Commission, Cambridge, UK.
- IWC. 2007b. Report of the Scientific Committee 2006. *Journal of Cetacean Research and Management* 9 (suppl.)

- IWC. 2008. Report of the Scientific Committee 2007. *Journal of Cetacean Research and Management* 10 (suppl.) Forthcoming.
- Barlow J, Clapham PJ. 1997. A new birth-interval approach to estimating demographic parameters of humpback whales. *Ecology* 78: 535-546.
- Palsbøll PJ, et al. 1997. Genetic tagging of humpback whales. *Nature* 388: 767-769.
- Calambokidis J, 2001. Movements and population structure of humpback whales in the North Pacific. *Marine Mammal Science* 17: 769-794.
- Pomilla C, Rosenbaum, HC. 2005. Against the current: an inter-oceanic whale migration event. *Biology Letters* 1: 476-479.
- Olavarria C, et al. 2007. Population structure of humpback whales throughout the South Pacific, and the origin of the eastern Polynesian breeding grounds. *Marine Ecology Progress Series* 330: 257-268.
- Baker CS, Clapham PJ. 2004. Modeling the past and future of whales and whaling. *Trends in Ecology and Evolution* 19: 365-371.
- Morrell V. 2007. Killing whales for science? *Science* 316: 532-534.

The authors are all members of the International Whaling Commission's Scientific Committee.