Opinion piece

Science should not be abandoned in a bid to resolve whaling disputes

The International Whaling Commission (IWC) is currently engaged in an intensive negotiating process in an attempt to resolve international disputes about whaling. The IWC has pioneered and agreed a management procedure approach for setting catch limits for commercial whaling that was unanimously recommended by its Scientific Committee. It is disturbing that current negotiations are moving towards discarding this agreed and carefully developed scientific procedure in favour of ad hoc catch allowances based on political expediency.

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Currently, the members of the International Whaling Commission (IWC) are engaged in an intensive and often heated debate regarding the future of the organization. Obstacles to progress within the IWC include (among others) the highly controversial issue of ‘scientific whaling’, as well as a stated need by Japan for catch quotas for its coastal whaling communities. However, this controversy should not overshadow the extensive work that the IWC has done to agree a management procedure to ensure that if commercial whaling were to be permitted in the future, sustainable catch limits could be determined. The management procedure approach developed by the IWC Scientific Committee is now being applied to fisheries management (Plagányi *et al.* 2007).

At the 60th meeting of the IWC in Santiago de Chile in 2008, a ‘Small Working Group’ was appointed to investigate ways of resolving the issues that have divided IWC members in recent years, including scientific whaling, and to find a way forward for the future of the organization (IWC in press *a*, §3.2). A serious concern is the apparent willingness now to depart from sound science and to issue ad hoc catch allowances based on political expediency rather than the safety of the affected whale populations. The Chair of the IWC has identified that setting a quota for minke whales in Japanese coastal waters is an ‘item requiring immediate attention’ (IWC 2009*a*, p. 20). Thus decisions on the approach taken could be made as soon as the 61st IWC meeting in Madeira, Portugal, in line with the Chair’s expressed hope that a short-term solution was something, ‘the Commission could agree on no later than June 2009’ (IWC 2009*a*, p. 3).

Following the adoption of the moratorium on commercial whaling, which came into effect in 1986, a

scientific process started to develop a robust mechanism for determining sustainable catch limits for any future commercial whaling. The IWC Scientific Committee conducted extensive research and analysis to determine a formula for setting safe catch limits, known as the Revised Management Procedure (RMP), including simulation testing to take account of uncertainty. The approach involves the modelling of a broad range of plausible scenarios, followed by extensive simulation testing of candidate management procedures to ensure that satisfactory performance with respect to stated policy objectives is achieved under all plausible scenarios (Cooke 1994, 1999). The RMP that emerged from this exercise met conservation and management objectives specified by the Commission, to be applied in the event of the moratorium being lifted or relaxed (Kirkwood 1992). The objectives specified by the IWC were threefold: (i) stability of catch limits which would be desirable for the orderly development of the whaling industry; (ii) acceptable risk that a stock not be depleted beyond some chosen level (e.g. a fraction of its carrying capacity), so that the risk of extinction of the stock is not seriously increased by exploitation; and (iii) making possible the highest continuing yield from the stock (IWC 1990, p. 18). The second objective on depletion of stocks was recognized by the majority of IWC Commissioners as the priority (IWC 1990, p. 21).

The RMP was unanimously recommended by the Scientific Committee and accepted in principle by the Commission in a number of consensus resolutions (IWC 1995, p. 43; IWC 2001, p. 55; IWC 2005, p. 69). Indeed, the management procedure approach pioneered by the IWC has now been advocated and, in many cases, used as the appropriate way of providing management advice for exploitation of living resources (Butterworth 2007; Punt & Donovan 2007). The theme underlying the management procedure approach is stated by Butterworth (2007) as the ‘need to agree the rules before a fisheries management game is played’. The IWC agreed those ‘rules’ in 1994 by consensus (IWC 1995, p. 43).

The RMP was to be the scientific component of a wider scheme, the Revised Management Scheme (RMS), which was to include management elements such as reporting, inspection and enforcement, in addition to the catch limit rule of the RMP. In the event, agreement was not reached on these additional elements, and the completion of the RMS was postponed (IWC 2007, p. 25).

Although the RMP has not been adopted into law, the Scientific Committee has, nevertheless, continued a programme of work such that the RMP could be applied in the areas where countries have expressed a wish to conduct commercial whaling, including around Japan and Norway. In 2003, the Scientific Committee completed the preparatory work needed to apply the RMP to minke whales (*Balaenoptera acutorostrata*) in the North Pacific (IWC 2004, p. 9) (formally defined as an *Implementation* within the specification of the RMP). These calculations have also been completed for minke whales in the North Atlantic (IWC 2004, p. 12), for Bryde’s whales (*Balaenoptera edeni*) in the North Pacific (IWC 2008, p. 9) and will be probably completed in 2009 for fin whales

(*Balaenoptera physalus*) in the North Atlantic (IWC in press b, §6.2).

In one case (North Pacific minke whales), the Committee's advice was not unanimous, with some members recording their view that the Committee's recommended implementation was 'not acceptable from the perspective of coastal whaling' (IWC 2004, p. 11). The Scientific Committee had been due to conduct an *Implementation Review* by 2008, but this has been postponed at the request of the Japanese delegation (IWC in press b, §6.4). Implementation Reviews are usually conducted every 5 years and are part of the feedback mechanisms, which are a key component for ensuring that the RMP meets conservation objectives.

In the meantime, coastal minke whaling in Japan continues since its resumption in 2002, but is licensed through the issuance of 'scientific' permits to the vessel operators and is therefore not subject to the IWC moratorium or other regulations, and, as with all scientific whaling, catch limits are not calculated using the RMP.

Most participants in the IWC discussions have been assuming that any future commercial whaling which might be allowed would be subject to the strict limits of the RMP, preferably embedded in an RMS. However, the Chair's proposals contained in the Small Working Group report, and in particular, the Chair's comments at the March 2009 Inter-Sessional Meeting in Rome (IWC 2009a) indicate that catch limits would be issued based on ad hoc considerations without reference to the RMP. There is, in fact, no mention of the RMP in the Chair's report except in the concerns of IUCN, which advocated using the machinery already developed and extensively tested by the Scientific Committee for setting catch limits.

The ICW (2009a, p. 20) states that

An interim quota for 'O' stock common minke whales in Japanese coastal waters for a five year period would be implemented, having regard to the unique circumstances that exist for four Japanese coastal communities. This whaling would be managed, consistent with the advice of the Scientific Committee, under a Schedule amendment that would last for 5 years. The Scientific Committee would provide interim advice concerning the total removals of O and J stock common minke whales. The advice would be provided under the following two scenarios: a) constant catches for 5 years and 0 thereafter, b) constant catches for 5 years with the same level of catches thereafter.

For scenario (a), asking the Scientific Committee for advice on a catch over just a 5-year period does not relate to the concept of sustainability. In 5 years, the risk of serious depletion or extinction would clearly be low, but this is not relevant to IWC's agreed management objectives, which emphasize long-term continuing yield (Kirkwood 1992).

A constant level of catch for an indefinite period (scenario b) is not a meaningful scenario to consider. Any constant level of catch, except a trivially small one, will engender a high risk of severe depletion or even extinction if continued for long enough, because it does not allow for corrective action in the event of the catch being unsustainable or during an environmentally related downturn in the whale population. The RMP, in

contrast, incorporates explicit feedback such that catch limits are updated every 5 years based on the available data or phased progressively down to zero in the event that no new data are supplied (IWC 1999).

The intention therefore appears to be that the Scientific Committee would be asked to give advice on the effect of given catch levels over a period of 5 years, without having to apply the RMP. The Chair's report (IWC 2009a, p. 20) also suggests that during an interim period of 5 years, long-term solutions could be developed, to be implemented on expiry of this period:

The first stage consists of short-term solutions which, it is hoped, the Commission could agree on no later than June 2009, which would last for a 5-year period—referred to hereafter as the 'interim period.' It should be noted that, although several of the proposed resolutions to identified issues will be *ad hoc* and short term in nature, they have been developed in a precautionary manner and are consistent with the management objectives of the ICRW. During the interim period, long-term solutions relating to the governance and future functioning of the IWC are to be developed to be put in place at the end of the interim period, when the second stage begins. These would incorporate well-developed policies as well as full testing of management protocols using computer simulations following approaches pioneered by the Scientific Committee.

While clearly intended to allay conservation concerns, such vague promises to put off a scientifically rigorous approach until sometime in the future are unconvincing in view of the history of whaling (and that of many other fisheries). Too often in the past, effective measures to ensure sustainability have been postponed to await scientific developments; this continued reluctance to make difficult decisions can lead to the progressive depletion of marine mammal populations (Taylor et al. 2000). The Scientific Committee has already spent many years developing and refining its management approach in the form of the RMP. There is no explanation in the Chair's report as to why the methods developed to date are considered inadequate, nor any indication as to how the new approaches to be developed are supposed to differ—whether in their objectives or in their methods—from the RMP. The unwillingness to use the RMP may be driven by the expectation that RMP catch limits would be very small. The population structure of minke whales around Japan is complex and not fully understood. The coastal whaling envisaged by Japan would also impact on more than one minke whale population, including the highly depleted Sea of Japan population. In addition, there is a very high incidental catch of minke whales around Japan and South Korea. The IWC has agreed that whale mortality owing to by-catches and ship strikes (collisions) should be estimated and deducted from catch limits calculated using the RMP (IWC 2001, p. 32).

When the Scientific Committee developed the RMP in the 1990s, it was given clear guidance by the IWC on the management objectives that were to be met, such that the performance of the resulting procedure relative to the objectives could be quantitatively assessed. The current negotiations seem to have set

aside these agreed objectives, referring instead to the objectives of the International Convention for the Regulation of Whaling (ICRW 1946, which established the IWC). The objectives of the ICRW are stated only in broad terms that cannot be quantified directly. This is a further disturbing sign, because quantifiable objectives are a prerequisite for a scientific approach to resource management (Sainsbury *et al.* 2000).

As this article was going to press in May 2009, the IWC published a report of a working group that contains a request for advice from the Scientific Committee on a proposed catch of 150 minke whales per year for an interim period of 5 years by coastal whaling operations off Japan (IWC 2009b, pp. 26–27). The Scientific Committee is to evaluate the proposal at its annual meeting starting on the 31st May. The request specifies that Japan should provide its own justification of the proposed catch, along with proposals for conservation and utilization objectives, at least three weeks before the meeting. The request states that it is 'not appropriate' for the Scientific Committee to use the RMP catch limit algorithm to provide advice.

No scientific reasons have been advanced for considering catch allowances that exceed RMP limits, and the circumventing of the RMP in the current IWC negotiations appears to be driven by politics. Rough-and-ready evaluation of catch limits for whale stocks based on a 5-year time horizon under pressure to satisfy politically negotiated catch levels would inevitably expose whale populations to greater risks than when catches are subject to management procedures that are designed and tested to ensure long-term sustainability. It would be an unfortunate development for the scientific approach to whaling management to be suddenly abandoned, just because certain players, who after years of claiming to support responsible sustainable use of whales subject to the best scientific standards, now do not like the results of that science. Having pioneered the development of a precautionary management procedure approach, it would now set a poor precedent for the management of other marine living resources for the IWC to abandon the RMP for political reasons.

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