

### Appendix 3

#### AMENDMENT TO THE REQUIREMENTS AND GUIDELINES FOR IMPLEMENTATIONS

The Requirements and Guidelines for *Implementations* are given in IWC (2005).

The following amendments are proposed (note that 'variant' refers to RMP variants, i.e. specifications or *Small Areas*, *Catch cascading*, etc).

##### Page 87, Item 4.1

Replace the first sentence under point (1) with the following text:

The conservation performance (given the highest priority by the Commission) for each trial and variant shall be examined using the following guidelines to determine whether each combination of variant and trial will be classified as 'acceptable', 'borderline' or 'unacceptable' (see box 1 of Fig. 2).

For each stock in an *Implementation Simulation Trial (IST)* for which  $MSYR=1\%$ :

- (1) construct a single stock trial, which is 'equivalent' to the *IST*. For example, if a particular *IST* involved carrying capacity halving over the 100-year projection period, the 'equivalent single stock trial' will also involve carrying capacity halving over the next 100 years;
- (2) conduct two sets of 100 simulations based on this single stock trial in which future catch limits are set by the *CLA*. The two sets of simulations correspond to the 0.60 and 0.72 tunings of the *CLA*. Rather than basing these calculations on a single initial depletion, the simulations for each stock shall be conducted for the set of initial depletions for the stock concerned in the *Implementation Simulation Trial* under consideration;
- (3) the cumulative distributions for the final depletion and for the depletion ratio (the minimum over each of the 100 year projection of a trial of the ratio of the population size to that when there are only incidental catches) shall be constructed for each of these two tunings of the *CLA*;

- (4) the lower 5%-ile of these distributions shall form the basis for determining whether the performance of the RMP for the *IST* is 'acceptable', 'borderline' or 'unacceptable';
- (5) if the 5%-ile of the final depletion or the 5%-ile of the depletion ratio for the *IST* that shows better performance is less than for the equivalent single stock trial with 0.60 tuning of the *CLA*, the performance of the RMP shall be classified as 'unacceptable';
- (6) if the 5%-ile of the final depletion or the 5%-ile of the depletion ratio for the *IST* that shows better performance is greater than for the equivalent single stock trial with 0.60 tuning of the *CLA* but less than for the equivalent single stock trial with 0.72 tuning of the *CLA*, the performance of the RMP shall be classified as 'borderline';
- (7) if the 5%-ile of the final depletion or the 5%-ile of the depletion ratio for the *IST* that shows better performance is greater than for the equivalent single stock trial with 0.72 tuning of the *CLA*, the performance of the RMP shall be classified as 'acceptable'.

Appendix 2, fig. 1 outlines these steps for a hypothetical case and the reader should refer to this appendix for full details.

##### Page 88

Delete Table 1.

##### Pages 88 and 89

Renumber Figs 1 and 2 as Figs 2 and 3, respectively.

#### REFERENCE

International Whaling Commission. 2005. Report of the Scientific Committee. Annex D. Report of the Sub-Committee on the Revised Management Procedure. Appendix 2. Requirements and guidelines for *Implementation*. *J. Cetacean Res. Manage. (Suppl.)* 7:84-92.

### Appendix 4

#### REPORT OF SUB-GROUP ON REVIEW OF MAXIMUM SUSTAINABLE YIELD (MSY) RATES

**Members:** Cooke, Butterworth, Gunnlaugsson, Hatanaka, Polacheck, Schweder, Tanaka, Wade.

The group had two terms of reference:

- (i) determine what interim range of MSY rates should be used in trials in the meantime pending a review of the range of plausible MSY rates;
- (ii) make proposals for how to structure a review of the plausible range of MSY rates for use in management procedure evaluation.

##### 1. Interim range of MSY rates

The group agreed that if further work on RMP variants is conducted before completion of the review described below, the full range of MSY rates used to date should be used in trials, namely from 1% (mature) to 7% (1+). This

corresponds roughly to the range 0.66-7% for  $MSYR_{(1+)}$ , or 1-10% for  $MSYR_{(mat)}$ . This range will be revisited following the review.

##### 2. Review of the plausible range of MSY rates

The last comprehensive review by the Scientific Committee of the plausible range of MSY rates for baleen whales was conducted in 1993 (IWC, 1994). At the time the Committee concluded that there was no need to change the plausible range of MSY rates from the range of 1-7% (mature) that had been used in the RMP trials until then.

The group considered that sufficient new information had become available since 1993 to justify a new review, which should be conducted at the 2007 Annual Meeting. It should

be completed by the 2008 Annual Meeting at the latest. The group recommended that review be limited to baleen whales.

### 2.1 Structure of the review

The structure of the review can be based on that of the 1993 review. The items are:

- (1) estimates from recovering populations;
- (2) estimates from changes in biological parameters;
- (3) estimates from population dynamic models of exploited populations;
- (4) estimates from catch at age data;
- (5) estimates from interspecific comparisons;
- (6) generic issues, specifically the issue of yield curve shapes, and the effects of changing environments.

### 2.2 New information since 1993

Considerable new information is available or is expected to become available under each of these headings.

- (1) Not only are there data from more recovering stocks, but some may already be near or above MSY so that not merely an estimate of the maximum growth rate at low population sizes, is available but potentially also on the changes in growth rates as the populations increase. There is information from, for example, gray and right whales and North Atlantic humpbacks which should also be used. Information from Southern Hemisphere (SH) humpback whales should arise from the current Comprehensive Assessment.
- (2) There is new information on changes in biological parameters at least of gray and northern humpback whales with increasing population level. The 1997 JARPA review resulted in revised estimates of changes in southern hemisphere minke whale parameters.
- (3) Schweder reported the intention to use the CPUE series developed in SC/58/RMP6 to fit a population model to determine confidence bounds for  $MSYR$  for Northeastern Atlantic minke whales. Similar analyses on fin whales were submitted to the joint IWC/NAMMCO meeting. The group encourages further submissions of this kind on other stocks where possible.
- (4) The extensive analyses on JARPA catch-at-age potentially provided information on MSY rates for SH minke whales. It was noted that changes in  $K$  or other parameters are needed to explain these data.
- (5) Some comparison tables of biological parameters and their changes for cetaceans have been published and

should be made available as For Information papers but the group felt that the Committee would probably want to construct its own comparison table based on its review of the information.

- (6) The ubiquity of environmental changes has become more apparent since the last review. In addition to the SH minke data mentioned above, variability in parameters was evident in other data sets such as for right and gray whales and fin whales off Iceland. An important issue is how to define and measure  $MSYR$  in the context time-varying parameters.

### 2.3 Collation and use of the available information

The group recommended that the review not simply use published estimates of increase rates or MSY rates, but would want to categorise them at least according to the nature of data used and the analysis method. For an estimate to be considered in the review, the relevant primary paper or manuscript should be made available.

Where relevant data exist, but have not been analysed with respect to the question of MSY rates, relevant analyses of these data should be actively solicited. The attention of other sub-committees should be drawn to this request.

The group recommended that a list of the cases to be considered in the review be drawn up in advance, say by the end of 2006. This should list:

- (1) existing estimates and the corresponding primary papers;
- (2) analyses in preparation which are intended for submission to the review;
- (3) other relevant data sets of which analyses would be desirable.

### 3. Other matters

The group identified but did not discuss the following issues that may need to be addressed in addition to the review:

- (1) revision of the standard set of simulation trials;
- (2) revision of the set of performance statistics to be used for comparison (some of those used for selecting the first versions of the RMP are based on syntheses of results across a range of  $MSYR$ s);
- (3) implications of a change in the plausible range of  $MSYR$  for tuning of the RMP or variants thereof.

### REFERENCE

International Whaling Commission. 1994. Report of the Scientific Committee, Annex M. Report of the Working Group on MSY rates. *Rep. int. Whal. Comm* 44:181-89.

## Appendix 5

### REPORT OF CATCH LIMIT ALGORITHM (CLA) TRIALS GROUP

**Members:** Allison, Butterworth, Cooke, Donovan, Kawahara, Walløe.

#### 1. Trials required to demonstrate the candidate procedure may be an improvement over the current version

The Group agreed the trials listed in Table 1 be required to be run for any candidates to replace the current version of the RMP. The trials were selected as being those which

would be expected to highlight differences in performance of procedures, and trials which model issues of particular concern. Trials were added with  $MSYR_{(mat)}=1.5\%$ , which are approximately equivalent to trials with  $MSYR_{(1+)}=1.0\%$ , to ensure all necessary risk-related trials are run pending the Scientific Committee decision on choice of MSY rates. It was also agreed that 400 simulations should be run for each trial (previously the 1% base case trials included 400 simulations, but other trials used only 100).