

Proposed revisions to and re-organisation of the Schedule to the

International Convention

for the

Regulation of Whaling, 1946

The intersessional meeting of the Revised Management Scheme (RMS) Working Group took place in Monaco from 6-8 February 2001. At that meeting the Working Group agreed that the Secretariat's 'Proposed Revisions Needed to Incorporate the RMP and RMS into the Schedule' (i.e. Document 2 from the RMS intersessional meeting), provided a good basis upon which a Schedule amendment could be prepared. Contracting Governments were invited to send any further comments in writing to the Secretariat by 1 April 2001 at the latest.

The Secretariat was asked to develop a revised draft Schedule that incorporated both comments made at the RMS intersessional meeting and later in writing. The draft is to form the basis for discussions at the RMS Working Group meeting in London. The Working Group also agreed that in producing a revised text for discussion in July, the Secretariat should streamline the current Schedule text to remove redundancies that have crept in over the years.

This document contains the Secretariat's proposed revised draft Schedule. Further explanation of the approach used in developing the draft is included on the following pages. To facilitate the RMS Working Group discussions it would be very helpful if Contracting Governments could review this document and, if possible, **provide comments in writing to the Secretariat by 3 July 2001**. Comments received by this date will be collated and made available before the Working Group meeting. Other comments, of course, can be made during the Working Group meeting itself.

Action Required: Commissioners, Contracting Governments and the RMS Working Group are invited to:

- (1) review and comment on Document IWC/53/RMS 4, and in particular on whether the proposed editorial and organisational changes provide a good basis for removing redundancies and streamlining the Schedule;***
- (2) take note of the practical issues to consider in the revision process (e.g. on objections, consistency and voting) outlined in the following pages; and***
- (3) consider Document IWC/53/RMS 4 during the process of revising the Schedule to incorporate the RMP and RMS into the Schedule.***

THE PRESENT DOCUMENT

In accord with discussions in Monaco, the Secretariat has produced the following draft of a fully revised Schedule (with the exception of Chapter V, Supervision and Control).

The aim has been to try to create a cohesive and consistent document. The current Schedule has changed considerably from the original and it is many years since it has been fully reviewed. One consequence of this is that there is both a degree of redundancy (due to changes in the nature and scale of whaling operations) and a lack of consistency as some paragraphs were necessarily, given the pressure of Annual Meetings, reviewed in isolation rather than part of a whole.

The Secretariat has taken this opportunity to undertake a major review of the document as a whole. Given that, the revised Draft presented here, appears at first sight to be radically different from the current Schedule. In fact, many of the changes are largely editorial (for example trying to avoid the use of many layers of sub-paragraphs) and organisational, rather than substantive. The Table given below summarises the main organisational differences.

The draft is intended to form the basis for discussion and a move towards final adoption. This will probably need to be an iterative process. Several Governments made comments on the draft produced in Monaco (see IWC/53/RMS 1). Where these seemed to be relatively non-controversial, they have been included. Otherwise, they have been referred to in notes and their possible implications noted. This is not intended to be the Secretariat censoring proposed wording but rather an attempt to clarify and provide background information that will allow Commissioners to move towards consensus. This is particularly true of the question as to whether or not current Paragraph 10(e) should be retained. PLEASE NOTE that the simplest option (i.e. with the least number of paragraphs) has been included in this draft, not because the Secretariat is implying that it is the best, but because given the numerous suggestions for modifications and their implications, it is clear that considerable discussion will need to take place before any final agreement is reached.

PRACTICAL CONSIDERATIONS

In developing this draft, a number of practical issues have become apparent that the Commission needs to resolve before extensive discussion of the details. These issues are also important with respect to discussions over the Chapter on 'Supervision and Control'.

Objections

The current Schedule has a number of existing objections to certain paragraphs. This has the potential to create some confusion when reviewing revised drafts that may modify or re-organise those paragraphs. One possible approach is that Contracting Governments agree that:

- The Secretariat should examine the current Schedule and the revised draft and develop new footnotes that ensure that the substance of any existing objections remain (we have tried to do so in the revised draft);
- Contracting Governments agree that it is not possible to lodge objections to paragraphs that do not contain new matters of substance but merely reflect editorial changes.

Consistency and Voting

Care should be taken to ensure that if voting is found to be necessary on a paragraph-by-paragraph basis, the integrity of the document remains intact. This may be particularly important in Chapter V where adoption of a certain alternative in one paragraph may have consequential implications for several others. It is important that the Commission does not adopt conflicting paragraphs.

Similarly, the implications of a failed vote in certain circumstances need to be investigated, given the widespread re-organisation. A somewhat muddled combination of old and new paragraphs and headings must be avoided if the aim is to improve the clarity and consistency of the Schedule. One possible approach would be for the Commission to

- agree the broad outline (i.e. new organisation) of any revised Schedule
- adopt *en bloc* paragraphs that contain revisions of a purely editorial nature
- should voting be necessary, confine it to options within the revised paragraphs (or additional paragraphs) and clarify the implications for other paragraphs when each option is adopted.

SUMMARY OF ORGANISATIONAL CHANGES

The new draft Schedule now contains slightly different sections and makes more use of explanatory headings within Sections, as described in the Table below.

Current Schedule	Draft revised Schedule
I. INTERPRETATION	INTRODUCTION
<p>This Chapter contained definitions of:</p> <ul style="list-style-type: none"> A. Baleen whales; B. Toothed whales; and C. General terms. <p>Neither all the species defined nor all the terms defined are included in the current Schedule itself.</p>	<p>The suggestion is that the definitions are moved to Appendices and that only words used in the Schedule are defined. [Japan had suggested that the definitions in the RMP be brought together with the other definitions at the beginning of the Schedule]. The Commission already has a list of accepted common and scientific names for whales. There seems to be no point in giving large numbers of now rarely used alternative common names. The important factor is to ensure that if catch limits are given there is no ambiguity as to which animals they apply. The use of common names in the text of the Schedule makes it easier to read and the inclusion of Latin names in the definitions ensures that there is no ambiguity. The RMP defines its own terms. Any other terms used in the Schedule can be picked up and defined as appropriate.</p> <p>The Introduction is un-numbered and can be used to, for example, explain the relationship of the Schedule to the Convention (and specifically Article V) – thereby removing the need to cite Article V in individual Schedule paragraphs (for example those relating to Sanctuaries).</p> <p>It could also contain the guiding principles behind the Schedule as suggested by New Zealand in their comments on Chapter V (see document IWC/53/RMS1)</p>
II. SEASONS	
<p>This Chapter was of historical importance but is now almost completely redundant, due largely to the RMP.</p>	<p>The ‘Seasons’ Chapter has been deleted. The RMP sets catches by calendar year but may introduce more limited seasons should they be deemed necessary. Any important aspects can now be covered in other Chapters (e.g. Table 1 – Catch limits and Chapter VI – Information Required).</p>

<p>III. CAPTURE</p> <p>This Chapter contained information on</p> <p>Killing Techniques, Sanctuaries, Area Limits for Factory Ships, Classification of Areas and Divisions, Classification of Stocks, Baleen Whale Catch Limits (including aboriginal whaling), Baleen Whale Size Limits, Sperm Whale Catch Limits, Sperm Whale Size Limits.</p> <p>This is a very large Chapter (18 full paragraphs and very many sub- and sub-sub- paragraphs) containing much redundancy if the RMP/RMS is adopted. It has therefore been broken down into smaller Chapters in the Draft Revised Schedule</p>	<p>I. AREAS</p> <p>This has been divided under the following headings:</p> <p>Management Areas for Commercial Whaling. After a general introduction (<i>Para.1</i>), this includes those <i>Small Areas</i> thus far defined by the Scientific Committee i.e. the common minke whale in the North Atlantic – <i>Para. 2</i> - and the Antarctic minke whale in the Antarctic – <i>Para. 3</i>. To make these clearer, maps as well as written definitions will be included.</p> <p>Sanctuary Areas. After a general introduction on the precedence of sanctuaries over any catch limits that may be agreed for those waters (<i>Para. 4</i>), the two existing sanctuaries are defined (and again a map included for clarity) - <i>Paras 4(a) and 4(b)</i> – [c.f. current <i>Paras 7(a) and (b).</i>]</p> <p>As the AWMP is developed, it <i>may</i> be that suggestions for management areas are proposed. These could then be included under this Chapter.</p> <p>II. CATCH LIMITS</p> <p>This has been divided under three headings:</p> <p>Commercial Catch Limits for Baleen Whales. The first paragraph (<i>Para 5</i>) effectively adopts the RMP as the basis for calculating catch limits. Any catch limits and seasons by species and <i>Small Area</i> (or combinations) that the Commission may choose to adopt will be included in Table 1. The second paragraph (<i>Para. 6</i>) goes on to detail how allowable removal levels calculated by the RMP are to be adjusted to give commercial whaling catch limits. There have been a number of comments on this and these are discussed extensively in the draft. [c.f. current <i>Para 10</i>]</p> <p>Aboriginal Subsistence Whaling Catch Limits. This represents a re-organising of current <i>Para 13</i> and its many sub-paras. The first two paragraphs (<i>Paras 7,8</i>) are general and the catch limits themselves are given in <i>Paras 9-12</i>. This section will need modification as the AWMP is introduced.</p> <p>Sperm Whale Catch Limits. The RMP is only applicable to baleen whales. This Chapter retains a paragraph (<i>Para. 13</i>) that emphasises that catch limits are zero for this species. [c.f. current <i>Paras 16 and 17</i>]</p>
<p>IV. TREATMENT</p> <p>This Chapter largely concerned aspects of whaling operations that are no longer valid (e.g. methods of processing).</p>	<p>III. OPERATIONAL MATTERS</p> <p>This Chapter deals with aspects of whaling operations that are not directly related to areas or catch limits. It has four paragraphs. The first (<i>Para. 14</i>) deals with the question of killing calves (and whales accompanied by calves) and applies to both commercial and aboriginal subsistence whaling. The second (<i>Para. 15</i>) deals with killing methods and is a simplified version of current <i>Para. 6</i>. The third (<i>Para. 16</i>) deals with the use of factory ships and in effect replaces current <i>Paras 8 and 10(d)</i>. The fourth (<i>Para. 17</i>) tries to capture the spirit of several of the now redundant paragraphs on this issue.</p>
<p>V. SUPERVISION AND CONTROL</p>	<p>IV. SUPERVISION AND CONTROL</p> <p>This is being dealt with elsewhere.</p>
<p>VI. INFORMATION REQUIRED</p>	<p>VI. INFORMATION REQUIRED (Note that the paragraphs have been ‘numbered’ alphabetically until a revised Chapter on Supervision and Control is agreed)</p> <p>This Chapter has been re-organised under the following headings: Scientific information, Scientific Permits, Operational Matters, Submission of Laws</p>

International Convention for the Regulation of Whaling, 1946

PROPOSED REVISED DRAFT SCHEDULE

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Fig.2 – Map of management areas for the Antarctic minke whale in the Southern Hemisphere *(not yet included)*

Fig.3 – Map of the Sanctuary areas *(not yet included)*

INTRODUCTION

The Schedule forms an integral part of the Convention as specified under Article I. It has been and can be amended in accordance with the provisions of Article V.

The Schedule uses the common names for whale species agreed by the Scientific Committee and given in Appendix 1a. Other terms used in are defined in Appendix 1b or Appendix 2.

I. AREAS

Management Areas for Commercial Whaling

1. Commercial whaling catch limits shall be set by *Small Area* (or combinations thereof) as defined in the Revised Management Procedure (RMP) specified in Appendix 2.

SECRETARIAT COMMENTS

The opening sentence is intended to replace the need to refer to the Convention text in individual paragraphs.

This may also be a suitable place for (1) some statement of general principles such as that as suggested by New Zealand in their comments on Chapter V (see document IWC/53/RMS1) and/or (2) Argentina's suggestion with respect to international and national law (see document IWC/53/RMS 1 & 3).

The RMP allows for catch limits to be set simply by *Small Area* or under certain circumstances using the *Catch-cascading* or *Catch-capping* options. If the latter option is used, then in addition to the individual catch limits set for each *Small Area*, a maximum total catch not to be exceeded for a group of *Small Areas* (based on *Medium* or *Large Areas*) can be set. This is not dissimilar to the situation that occurred in the Southern Hemisphere minke whale fishery in the early 1980s, where a maximum catch for each of the six Areas was calculated with a total overall catch for the complete Southern Hemisphere also being set as the overriding limit. Whether *Catch-cascading* or *Catch-capping* is invoked (or indeed both) is determined by the Scientific Committee. As *Medium* or *Large Areas* are simply combinations of *Small Areas*, it is not necessary to define them in the *Schedule*. In this, as in any *Combination Areas* that may be used in *Catch-cascading*, the Scientific Committee will advise on the appropriate groupings and the total catch limits can be shown in Table 1 in the same way as was done in the old Schedule for SH minke whales.

If the Commission wishes to restrict catches to within EEZs as suggested by Ireland (IWC/53/RMS1 & 3), then this would be the appropriate section to do that, e.g. by adding a new sentence to this paragraph (see notes to Para. 5)

2. The following *Small Areas* are defined for North Atlantic minke whales (and see Figure 1):

<i>EB:</i>	all waters north of the Arctic Circle between the 30°E and 100°E meridians plus all waters within the zone bounded by the following lines: the 73°N parallel from 30°E to 3°E; the 3°E meridian from 73°N to 68°N; the rhumb line from 68°N 3°E to 65°N 5°W; the 65°N parallel from 5°W to 7°E; the rhumb line from 65°N 7°E to 70°N 12°E; the 70°N parallel from 12°E to 30°E; the 30°E meridian from 70°N to 73°N.
<i>ES:</i>	all waters in the zone bounded by the following lines: the 74°N parallel from 22°W to 3°E; the 3°E meridian from 74°N to 73°N; the 73°N parallel from 3°E to 30°E; the 30°E meridian from 73°N to the North Pole; the 22°W meridian from North Pole to 74°N.
<i>EC:</i>	all waters between the 65°N and 70°N parallels west of the western coast of Norway and east of the rhumb line from 65°N 7°E to 70°N 12°E.
<i>EN:</i>	all waters between the 45°N and 65°N parallels west of the 12°E meridian and east of the line consisting of: the 18°W meridian from 45°N to 60°N plus the rhumb line from 60°N 18°W to 65°N 5°W.
<i>CM:</i>	all waters within the zone bounded by the following lines: the 74°N parallel from 3°E to 15°W; the rhumb line from 74°N 15°W to 67°30'N 25°W; the 67°30'N parallel from 25°W to 12°W; the 12°W meridian from 67°30'N to 63°N; the rhumb line from 63°N 12°W to 68°N 3°E; the 3°E meridian from 68°N to 74°N.
<i>CG:</i>	all waters between the 60°N and 74°N parallels east of the 42°W meridian and west of the line consisting of: the rhumb line from 74°N 15°W to 70°N 20°W plus the rhumb line from 70°N 20°W to 67°30'N 25°W plus the rhumb line from 67°30'N 25°W to 60°N 42°W. In addition, the waters in the rectangle 59°-60°N, 42°-44°W.
<i>WG:</i>	all waters within the zone bounded by the following lines: the rhumb line from 52°20'N 42°W to 61°N 59°W; the 59°W meridian from 61°N to 69°N; the rhumb line from 69°N 59°W to 75°N 73°30'W; the 73°30'W meridian from 75°N to the North Pole; the 42°W meridian from the North Pole to 52°20'N.
<i>CIC:</i>	all waters within the zone bounded by the following lines: the 67°30'N parallel from 12°W to 25°W; the 25°W meridian from 67°30'N to 63°N; the 63°N parallel from 25°W to 12°W; the 12°W meridian from 63°N to 67°30'N.
<i>CIP:</i>	all waters with the zone bounded by the following lines: the 63°N parallel from 12°W to 25°W; the 25°W meridian from 63°N to 67°30'N; the rhumb line from 67°30'N 25°W to 60°N 42°W; the 42°W meridian from 60°N to 45°N; the 45°N parallel from 42°W to 18°W; the 18°W meridian from 45°N to 60°N; the rhumb line from 60°N 18°W to 63°N 12°W.

These *Small Areas* were agreed by the Scientific Committee in 1993 (RIWC 44: 175). Management areas may be changed during *Implementation Reviews* (see Norway's comment in IWC/53/RMS1 & 3)

3. The following *Small Areas* are defined for Southern Hemisphere minke whales (and see Figure 2):

There are 36 *Small Areas* consisting of consecutive 10° longitudinal sectors of the Antarctic, except where otherwise specified below. They are numbered from 1-36 in clockwise order with *Small Area 1* being from 50°-60°W up to *Small Area 36* (60°-70°W). the northerly boundaries of the *Small Areas* are as follows:

Small Areas 1-2: 58°S; *Small Areas 3-20*: 60°S; *Small Areas 21-23*: 59°S; *Small Areas 24-36*: 60°S.

In addition, there are the following modifications –

Small Area 1 also includes the western part of the Weddell Sea south of 64°S and west of 60°W;

Small Area 24 also includes the western part of the Ross Sea south of 72°S and west of 170°E;

Small Area 26 also includes the southeastern part of the Ross Sea south of 75°S and east of 170°W.

Sanctuary areas

4. Notwithstanding any *Small Areas* defined above and irrespective of any catch limits shown in Table 1, commercial whaling is prohibited in the following areas designated as Sanctuaries (and see Fig. 2):

- (a) The **Indian Ocean Sanctuary** comprising the waters of the Northern Hemisphere from the coast of Africa to 100°E, including the Red and Arabian Seas and the Gulf of Oman; and the waters of the Southern Hemisphere in the sector from 20°E to 130°E, with the Southern boundary set at 55°S. This prohibition shall be reviewed by the Commission at its Annual Meeting in 2002.
- (b) The **Southern Ocean Sanctuary** comprising the waters of the Southern Hemisphere south of the following line: starting from 40°S, 50°W; thence due east to 20°E; thence due south to 55°S; thence due east to 130°E; thence due north to 40°S; thence due east to 130°W; thence due south to 60°S; thence due east to 50°W; thence due north to the point of beginning. This prohibition, adopted on 6 December 1994 shall be reviewed at succeeding ten year intervals, and can be revised at such times by the Commission. Nothing in this sub-paragraph is intended to prejudice the special legal and political status of Antarctica.¹

These *Small Areas* were agreed by the Scientific Committee in 1993 (RIWC 44: 176).

This takes the two present Sanctuary texts and footnotes and tries to combine them and remove redundant text. It clearly states the precedence of sanctuaries over any catch limits that may be included in Table 1 (see Italy's comment in IWC/53/RMS1 & 3 and the notes to Para.5).

¹ The Government of Japan lodged an objection to the Southern Ocean Sanctuary to the extent that it applies to the Antarctic minke whale stocks.

II. CATCH LIMITS

Commercial Catch Limits for Baleen Whales

5. Commercial whaling shall only be permitted for those species, areas and seasons for which catch limits are shown in Table 1. These catch limits shall be based on calculations carried out by the Scientific Committee on the instruction of the Commission, in accordance with the RMP described in Appendix 1. They shall be adjusted downwards to account for human-induced mortalities as specified in paragraph 6. Commercial catch limits for all species, areas and seasons not shown in Table 1 are zero.^C
6. The adjustment to catch limits to account for human-induced mortalities shall be based on an estimate provided by the Scientific Committee of the size of adjustment required to ensure that total removals over time do not exceed the limits calculated under the RMP. Total removals include commercial catches and other human-induced mortalities caused *inter alia* by aboriginal subsistence whaling, scientific whaling, whaling outside the IWC, bycatches and ship strikes, to the extent that these are known or can be reasonably estimated^D

There have been a number of suggested modifications to this paragraph both at and since Monaco. The proposals and some Secretariat's comments on their potential implications of these are discussed in the extensive note below. See also the note on p.2 explaining why the shortest text is included here. Current Paras 10 (a-c) are replaced by *Paras 5 and 6*. Current Para. 10(d) is replaced by *Para.16*. Current Para. 10(e) is the subject of discussion in the note below.

It has been suggested that it is necessary to add the words 'whaling under objection' but that concept is subsumed under the references to commercial catches and aboriginal whaling. For example Norway's whaling under objection is still commercial whaling.

NOTE: POINTS RELATED TO THE SECTION ON COMMERCIAL CATCH LIMITS.

A number of points were made both in Monaco and after the meeting by several countries. As explained in the Introduction to this document, please note that the simplest option (i.e. with the least number of paragraphs) has been included in this draft, not because the Secretariat is implying that it is the best, but because given the numerous suggestions for modifications and their implications, it is clear that considerable discussion will need to take place before any final agreement is reached. The proposals and comments (see also IWC/53/RMS1 & 3) are provided below along with some background information from the Secretariat that is intended to aid discussion.

These commence on the next page.

^C Secretariat note: This text reflects Resolution 1994-5 on the Revised Management Scheme (operative paragraph 11) and Resolution 1998-2 on Total Catches Over Time

^D Secretariat note: This text reflects the recommendation of the Scientific Committee (IWC/52/4) prepared in response to the Commission's request in Resolution 1998-2 and amended by the RMS Working Group (IWC/52/14). See Background Document 2 for the RMS Intersessional Meeting.

Retention of current Para. 10(e)

There was considerable discussion in Monaco over whether there is a need to retain current Paragraph 10(e). A number of points are relevant to this issue.

- The effect of Paragraph 10(e) was to create what is popularly termed the ‘moratorium’ on commercial whaling.
- In its original form it refers to the other provisions of Paragraph 10 which in essence described the ‘New Management Procedure’
- It also includes the ideas of
 - keeping the provision under review based on scientific advice
 - a ‘comprehensive assessment (to be completed by 1990 at the latest)
 - consideration of establishing catch limits other than zero.

The new paragraph 5 is intended to formalise the RMP as the basis for calculating catch limits rather than the NMP. Even if the new paragraph is adopted as in the draft, it is for the Commission to decide if it will include any numbers in Table 1 in its usual manner (i.e. by voting or by consensus). The default position is that there are no numbers in the table. In effect, therefore, the ‘moratorium’ specified under old Para 10(e) will remain in place until the Commission agrees to insert numbers in Table 1. It is therefore possible for the Commission effectively to retain the ‘moratorium’ without including Paragraph 10e, whilst formally adopting the RMP as the means by which it will calculate catch limits should it so desire in the future.

The concept of the ‘comprehensive assessment’ was initially unclear and has now become strongly associated with a Scientific Committee activity (the ‘deadline’ has clearly long since passed). The Scientific Committee can continue to work on the ‘Comprehensive Assessment’ on the instruction of the Commission irrespective of whether the words appear in the Schedule.

If the Commission does not decide to immediately include numbers other than zero in Table 1, then the establishment of catch limits other than zero will no doubt be reviewed at any subsequent meetings, particularly in the light of the work of the Scientific Committee on RMP *Implementation Trials*.

Comments by individual countries:

Ireland’s comment: *insert in the first paragraph after ‘Commercial whaling should only be permitted’ the words ‘for areas within Exclusive Economic Zones or other waters within 200 miles of the coast and only when the meat and product of such whales are to be used exclusively for local consumption’.*

Background info: There are two issues in Ireland’s proposal - the first relates to Areas and the second to use of products. If the Commission wishes to adopt these then it might fit better within the organisation of the revised Schedule if the first issue is covered under new *Para. 1* that deals with Areas, e.g. so that the full paragraph reads:

Commercial whaling catch limits shall be set by *Small Area* (or combinations thereof) as defined in the Revised Management Procedure (RMP) specified in Appendix 3. However, such catches may only be taken within Exclusive Economic Zones or other waters within 200 miles of the coast.

The second issue could be dealt with under the ‘Operational Matters’ section, for example by modifying *Para. 17* to read:

Contracting Governments shall ensure that all whales are fully utilised to the extent possible. The meat and products of whales are to be used exclusively for local consumption.

Note that this concept is presently included in the new *Para. 8* relating to aboriginal subsistence whaling.

Monaco’s comments: *replace penultimate sentence in new para 10 (a) by: ‘They shall be adjusted downwards to account for mortalities (whether human-induced or otherwise) as specified in paragraph 10 (b) and 10 (c)’ (new). The new para 10 (c): ‘In the event of a massive die-off (biological and/or human-induced) larger than 1% of a stock or 500 animals – whichever is smaller – the Commission shall order a temporary cessation of catch limits on that stock. A catch limit integrating this event shall immediately be recalculated by the Scientific Committee: it shall remain in effect for the remainder of the catch limit period. Given the magnitude of a die-off, the Commission may determine, by simple majority vote, that catches are prohibited until further notice.’*

Background info: At present, the RMP includes the concept of reviewing catch limits earlier than the normal 5-year period and establishing new catch limits for a further 5-year period. The RMP wording states:

In some cases, it may be appropriate to carry out an *Implementation Review* earlier than 5 years after the previous *Implementation (Review)*. This would be warranted, for example, if important new evidence on stock identity becomes available, if major advances are made in methodology of calculating absolute abundance estimates, if major changes occur in the areas covered by the abundance surveys, or if other evidence becomes available to the Scientific Committee suggesting that the premises on which the previous *Implementation (Review)* was conducted are no longer appropriate.

The concept of a massive die-off could also specifically be included in this section of the notes to the RMP (at present it would be included as part of the ‘other evidence becomes available’ clause). The RMP has been tested and found to be robust for ‘catastrophic events’ of a certain magnitude and frequency (irregular episodic events when the population is halved). If the Commission wishes to add specific words to the Schedule, it may need to consider the precise details of the wording suggested by Monaco and the details in the RMP to ensure overall consistency (e.g. with respect to ‘the remainder of the catch limit period’ and a new 5-year period). It may also be appropriate for the Scientific Committee to consider including ‘trigger values’ in the RMP notes.

Given past discussions on passing Resolutions (by simple majority) that commit the Commission to a Schedule amendment, the Commission may wish to review the appropriateness of including a phrase in the Schedule that effectively allows it to be modified by a simple majority vote.

Italy’s comment: *It is our understanding that the RMS would not override the provisions of any sanctuaries designated in the Schedule, and that commercial whaling will remain prohibited in sanctuary areas. However, we would prefer that this aspect be made explicit in the RMS text, so that there is no room for doubt or differences of opinion. We therefore propose to add one sentence to the end of para 10(a) – ‘No catch limits, other than zero, may be listed in Table 1 for areas which lie within sanctuaries designated in accordance with Article V(1)(c) of the Convention.’ We do not think this makes a change of substance to the current draft but we do believe that it improves clarity and transparency.*

Background info: This issue has been addressed by specific wording in the new *Para. 4*

Notwithstanding any *Small Areas* defined above and irrespective of any catch limits shown in Table 1, commercial whaling is prohibited in the following areas designated as Sanctuaries

Japan’s comment: change the words ‘..populations and seasons...’ to read ‘species, management areas and times’. This has been done.

UK: Proposed the following alternative wording for para 10(a). New text is shown underlined: ‘Commercial whaling shall only be permitted for those populations and seasons for which catch limits are in force and shown in Table 1. These catch limits shall have been calculated by the Scientific Committee on the instruction of the Commission, and based on advice provided in accordance with the RMP and specified in Appendix 1. They shall be adjusted downwards to account for human-induced mortalities as specified in paragraph 10(b). Commercial catch limits for all populations in all areas and seasons not **shown** in Table 1 are zero. The Commission shall set such catch limits as specified in Table 1 on an annual or biennial basis. In a situation where the specified catch limit for a population or area or season, as listed in Table 1, has been exceeded, over and above any rollover provision agreed by the Commission, the catch limit for that population will automatically revert to zero until such time as the Commission, on advice from the Infractions or Review Committee decides otherwise.

Background info: The present wording states that ‘catch limits shall be based on calculations carried out by the Scientific Committee..’ – it is not clear what the effect of the first suggested change to the wording is, compared to the present wording.

The second point of the suggested wording is that catch limits are set on an annual or biennial basis. The Commission may wish to consider the fact that the RMP was specifically designed to fulfil the objectives set by the Commission - in addition to the over-riding priority assigned to the conservation objectives, another objective was stability of catch limits. The RMP has been extensively tested with both a 5-year and a longer interval and is robust to these. One practical implication of this part of the RMP development process is that it would enable the Scientific Committee to establish a workplan that meant that instead of having to review every management stock every year, it could arrange to carry out more thorough reviews every 5 years on a staggered basis. Should information become available that may cause it to revise its recommendations within the 5-year period, it has established a procedure to have an early *Implementation Review*, as discussed above. In addition, the Commission can already review any provision of the Schedule and change it by consensus or voting each year, irrespective of the wording in the Schedule. One alternative the Commission may also wish to consider is wording similar to that used for aboriginal subsistence whaling, i.e.

Catch limits may be reviewed at any time by the Commission in light of the advice of the Scientific Committee.

The final point refers to the process to be followed in the event of a quota over-run.. The RMP has rules associated with *Carry-over* and *phase-out* (RMP Section 3.1 and Note 11)

Aboriginal Subsistence Whaling Catch Limits

7. Notwithstanding the provisions for commercial whaling, catch limits for aboriginal subsistence whaling to satisfy aboriginal subsistence need shall be established in accordance with the following principles:
 - (a) For stocks at or above MSY (Maximum Sustainable Yield) level, aboriginal subsistence catches shall be permitted so long as total removals do not exceed 90 per cent of MSY.
 - (b) For stocks below the MSY level but above a certain minimum level, aboriginal subsistence catches shall be permitted so long as they are set at levels which will allow whale stocks to move to the MSY level.¹

This section has been edited and re-organised to try to include the general rules for aboriginal subsistence whaling first, followed by individual paragraphs for the different fisheries. It tries to apply the same wording and conditions to each instead of repeating them in each sub-paragraph as was the case in the old Schedule. Note that old Para. 13 (a) (3) has been

8. Catch limits for aboriginal subsistence whaling are as given in Paragraphs 9 - 12 below. Such catches are permitted only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines. Where catch limits are set for more than one year, these shall be reviewed annually by the Commission in light of the advice of the Scientific Committee.
9. The taking of **bowhead whales from the Bering-Chukchi-Beaufort Seas stock** by aborigines is permitted, provided that for the years 1998, 1999, 2000, 2001 and 2002, the total number of bowhead whales landed shall not exceed 280. For each of these years, the number of bowhead whales struck shall not exceed 67, except that any unused portion of a strike quota from any year (including 15 unused strikes from the 1995-97 quota) shall be carried forward and added to the strike quotas of any subsequent years, provided that no more than 15 strikes shall be added to the strike quota for any one year.
10. The taking of **gray whales from the Eastern stock in the North Pacific** is permitted, but only by aborigines whose traditional aboriginal subsistence and cultural needs have been recognised or by a Contracting Government on behalf of such aborigines. For the years 1998, 1999, 2000, 2001 and 2002, the total number of gray whales taken shall not exceed 620 and the number taken in any one year shall not exceed 140.
11. The taking of **minke whales and fin whales off Greenland** is permitted, provided that:
 - (a) The number of fin whales taken west of 52°20'N shall not exceed 19 in each of the years 1998, 1999, 2000, 2001 and 2002.
 - (b) The number of minke whales taken east of 52°20'N shall not exceed 12 in each of the years 1998, 1999, 2000, 2001 and 2002, except that any unused portion of the quota for each year shall be carried forward from that year and added to the quota of any subsequent years, provided that no more than 3 shall be added to the quota for any one year.
 - (c) The number of minke whales taken east of 52°20'N shall not exceed 175 in each of the years 1998, 1999, 2000, 2001 and 2002, except that any unused portion of the strike quota for each year shall be carried forward from that year and added to the strike quota of any subsequent years, provided that no more than 15 strikes shall be added to the strike quota for any one year.
12. For the seasons 2000 to 2002 the taking of 2¹ humpback whales each season is permitted by Bequians of St Vincent and The Grenadines, but only when the meat and products of such whales are to be used exclusively for local consumption in St Vincent and The Grenadines.

removed thus removing the reference to '1990 at the latest..' It should be noted that this whole section will need to be revised with the adoption of any future AWMP. The question of taking calves is now dealt with under *Para. 14*.

The change in description of fin and minke whale stocks is because the old NMP stock boundaries will no longer be defined in the Schedule. 52°50'N represents the old management stock boundary between the West Greenland and Central management stocks for minke whales and the West Greenland and East Greenland/Iceland management stocks of fin whales.

The reference to meat/products is included here as well as *Para. 8* because the taking refers to 'Bequians' but the local consumption applies to all the islands.

Sperm Whale Catch Limits^J

13. Catch limits for sperm whales are zero.

III. OPERATIONAL MATTERS

14. The hunting of whales shall be undertaken so that the hunted whale does not experience unnecessary suffering and so that people and property are not exposed to danger.
15. It is forbidden to strike, take or kill suckling calves or any whale accompanied by a calf in any commercial or aboriginal subsistence whaling operation.
16. The use of the cold grenade harpoon is forbidden in commercial whaling operations.^Σ
17. The taking, killing or treating of sperm whales, killer whales and baleen whales (except minke whales), by factory ships or whale catchers attached to factory ships, is forbidden.
18. Contracting Governments shall ensure that all whales are fully utilised to the extent possible.

This is a simplified version of current Paras 16 and 17. References to review this at some time in the future appear redundant as the Commission can always review any provision at any time.

This paragraph has been included following Sweden's suggestion during the Monaco meeting.

This unites all the paragraphs relating to calves. Neither the RMP nor the new AWMP is specific as to the age or length of animals caught, merely the number. If the Commission wishes to retain this concept, the USA has also suggested that a more pragmatic approach may be to establish minimum size limits rather than the more-difficult-to-monitor question of whether the animal is suckling or not.

This attempts to simplify the text with respect to cold grenade harpoons. The species concept is retained in the footnote with respect to objections.

This replaces current Paras 8 and 10(d).

This has been incorporated to capture the spirit of the paragraphs that were developed to prevent the waste that occurred in whaling in the early years. It is not specific as to precise mechanisms as the primary focus of whaling (e.g. fats versus meat for human consumption) has changed.

Ireland's proposal with respect to local consumption could be dealt with here (see notes on *Para 5*).

^J *Secretariat note:* Note that the RMP can only be applied to baleen whales.

^Σ Japan and the Russian Federation have lodged objections to this paragraph with respect to minke whales.

IV. SUPERVISION AND CONTROL

This is discussed elsewhere.

VI. INFORMATION REQUIRED

Scientific information

- A. The following information required for the RMP shall be provided by Contracting Governments for all whaling operations and for all human-induced mortalities as specified in paragraph 7:
- (a) date of capture, striking or discovery;
 - (b) species;
 - (c) sex;
 - (d) position of capture or striking to the nearest minute of latitude and longitude
 - (e) number of whales struck but lost.

The above information shall be verified as outlined in Chapter V and a set of verified records shall be submitted to the Secretariat at the end of each season.

- B. Contracting Governments shall arrange for the collection, archiving and analysis of such biological samples, tissue samples, specimens and data from whaling operations as the Commission may from time to time decide **taking into account** the advice of the Scientific Committee and with due regard to the most recent version of the *'Guidelines for Data Collection and Analysis under the Revised Management Scheme (RMS) Other than those Required as Direct Input for the Catch Limit Algorithm (CLA)*. The results of the analyses of these collections shall be reported to the Commission in a timely fashion. The following samples and/or information shall be provided:
- (a) The length of all animals caught shall be obtained, measured in a straight line parallel to the whale from the tip of the upper jaw to the notch of the flukes. These data shall be reported to the Secretariat at the end of each season and included in the IWC database.
 - (b) Where possible, at least one earplug (or bulla) shall be collected from each whale caught. The resultant age estimations and the identity of the reader shall be reported to the Secretariat sufficiently in advance (normally one year) of the next *Implementation Review* and included in the IWC database.
 - (c) Where possible, both ovaries shall be collected from each female caught. Corpora counts shall be reported to the Secretariat within one year of the close of the season and included in the IWC database.

The numbering for this section will need to be modified in accordance with any agreement on Section IV

This has been modified slightly to accommodate information from non-whaling operations ('..or discovery') and to include information on struck but lost animals which is also relevant to aboriginal subsistence operations. The latter point was previously referred to in Para 25(a)(2).

This now uses the words suggested by the USA.

- (d) If sufficiently trained personnel are present, the presence, length and sex of foetuses shall be recorded. If it is not possible for such personnel to be present, these data should still be recorded where possible, and the lack of trained personnel noted. These data shall be forwarded to the Secretariat at the end of the season and included in the IWC database.
- (e) Lactation shall be recorded and reported to the Secretariat at the close of the season and included in the IWC database.
- (f) At least 5cm² of skin shall be collected from each whale caught and, where possible, a sample of tissue from the foetus should be collected. Long term archiving of all samples with appropriate identifying information is the responsibility of the harvesting nation. A list of archived samples shall be forwarded to the Secretariat at the end of each season.

Scientific Permits

C. A Contracting Government shall provide the Secretary with proposed scientific permits before they are issued and in sufficient time to allow the Scientific Committee to review and comment on them. The proposed permits should specify:

- (a) objectives of the research;
- (b) number, sex, size and stock of the animals to be taken;
- (c) opportunities for participation in the research by scientists of other nations; and
- (d) possible effect on conservation of stock.

Proposed permits shall be reviewed and commented on by the Scientific Committee at Annual Meetings when possible. When permits would be granted prior to the next Annual Meeting, the Secretary shall send the proposed permits to members of the Scientific Committee by mail for their comment and review. Preliminary results of any research resulting from the permits should be made available at the next Annual Meeting of the Scientific Committee. These results must include at least the information required under Paras. A and B above.

Operational matters

- D. For all whaling operations, Contracting Governments shall report to the Commission the methods used to kill each whale, other than a harpoon.
- E. All Contracting Governments shall report to the Commission the following information for all commercial whaling operations:
- (a) The name and gross tonnage of each factory ship.
 - (b) A list of the land stations which were in operation during the period concerned,
 - (c) For each catcher ship attached to a factory ship or land station:
 - (i) the dates on which each is commissioned and ceases whaling for the season;
 - (ii) the number of days on which each is at sea on the whaling grounds each season;
 - (iii) the gross tonnage, horsepower, length and other characteristics of each; vessels used only as tow boats should be specified.
- F. The information required under paragraph E should also be recorded together with the operational information specific in the log book format shown in Appendix 3, and forwarded to the Commission at the end of each season.

The information to be included here depends to a large extent on discussions on Supervision and Control. The Scientific Committee has indicated the information it needs on the new logbook form.

Submission of Laws

- G. A Contracting Government shall transmit to the Commission copies of all its official laws and regulations relating to whales and whaling and changes in such laws and regulations.

Appendix 1 – Definitions
(a) Names of Whales, (b) General Terms

to be developed

Appendix 2

The Revised Management Procedure (RMP) for Baleen Whales^N

1. DEFINITIONS

Regions are non-overlapping major ocean areas. For species found in or migrating to higher latitudes, these will normally be the Arctic and adjacent waters, the North Atlantic and adjacent waters, the North Pacific and adjacent waters, and the Southern Hemisphere. For species confined to lower latitudes, the *Regions* will normally be the Atlantic, Pacific and Indian Oceans. *Regions* can be combined for species where the interchange is not negligible.

Small Areas are disjoint areas small enough to contain whales from only one biological stock, or be such that if whales from different biological stocks are present in the *Small Area*, catching operations would not be able to harvest them in proportions substantially different to their proportions in the *Small Area*.

Medium Areas correspond to known or suspected ranges of distinct biological stocks.

Large Areas coincide with *Regions*, unless evidence exists to support the selection of one or more areas smaller than a *Region* which fully covers the range of some biological stocks of a species and definitely excludes whales from all other biological stocks of that species in the *Region*.

Residual Areas are all geographical areas in a *Region* which are outside any *Small Areas*. *Medium Areas* comprise unions of *Small* and, where identified, *Residual Areas*. *Large Areas* comprise unions of *Medium* and, where identified, *Residual Areas*.

Combination Areas are disjoint unions of *Small Areas* to which the *Catch Limit Algorithm* is applied when *Catch-cascading* is used.

Management Area is a generic term denoting a *Small*, *Medium*, *Large*, *Residual* or *Combination Area*.

Catch Limit Algorithm is the process (described in Section 4) that is used to calculate a catch limit for a *Management Area*.

Years are consecutive periods of 12 months used for the compilation of time series of catches and abundance data for application of the *Catch Limit Algorithm*. Neither this definition, nor any statement following, should be construed as precluding the possibility of a regulation that a catch limit calculated in such an application may be taken only during a certain part of the *Year*.

Catch-cascading is the process by which a catch limit calculated for a *Combination Area* is distributed among the *Small Areas* that make up the *Combination Area* in proportion to the calculated relative abundances in those *Small Areas*. When *Catch-cascading* occurs, the relative abundances for *Small Areas* within the *Combination Area* shall normally be calculated from the same estimates of absolute abundance as were used for the application of the *Catch Limit Algorithm* to the *Combination Area*. The calculated relative abundance in a *Small Area* shall be an appropriate form of weighted average of the available abundance indices for that *Small Area*, with the statistically appropriate weighting, except that each estimate shall also be further weighted by the factor 0.9^n , where n is the number of years that have elapsed between the *Year* to which the estimate refers and the *Year* of the *Catch Limit Calculation*.

Catch-capping is the process by which *Catch Limits* calculated for *Small Areas* are adjusted by reference to those calculated for either *Medium* or *Large Areas* containing those *Small Areas*. It consists of the following rules. If the sum of the catch limits calculated for those *Small Areas* that make up a *Medium* (or *Large*) *Area* exceeds the catch limit calculated for the *Medium* (or *Large*) *Area*, then both the *Small* and *Medium* (or *Large*) *Area* catch limits shall apply in such a way that the maximum catch allowed in each *Small Area* is the appropriate *Small Area* catch limit and the maximum catch allowed in the *Medium* (or *Large*) *Area* is the *Medium* (or *Large*) *Area* catch limit. This definition does not preclude the possibility of applying *Catch-capping* to overlapping *Medium Areas*.

^N *Secretariat note:* The RMP given in Appendix 2 is that published in JCRW 1 (Suppl): 251-258, but does not include the annotations which are actually notes to the Scientific Committee on the practical implementation of the RMP.

An *Implementation* involves the designation of the *Management Areas* and their boundaries and the selection of *Catch-cascading* and/or *Catch-capping* options for a particular species and *Region*. These designations and/or selections may be changed in a subsequent *Implementation Review*.

A *Catch Limit Calculation* is the process by which catch limits for a species in a *Region* are calculated for all *Small* (and where appropriate *Medium* or *Large*) *Areas* within that *Region*, as specified in Sections 3.3, 3.4 and 3.5, by application of the *Catch Limit Algorithm* as described in Section 4. This algorithm uses historic catch data and estimates of absolute abundance for each *Management Area* that meet the requirements of Section 3.2.

2. IMPLEMENTATIONS AND IMPLEMENTATION REVIEWS

Implementations and *Implementation Reviews* are conducted by the Scientific Committee on a *Regional* basis. They involve the delineation of *Small Areas* and, where appropriate, *Medium* and *Large Areas*. A selection between possible options for *Catch-cascading* and/or *Catch-capping* is made during an *Implementation (Review)*, which includes the designation of *Combination Areas* as may be appropriate. This process is described as an *Implementation* on the first occasion it takes place for a species in a *Region*; subsequent revisions are termed *Implementation Reviews*. An *Implementation (Review)* shall take account of the available biological and operational data, including in particular those data pertaining to stock-identity. An *Implementation (Review)* is conducted by species or other suitable taxonomic unit below the species level. Such taxonomic units should be treated separately for the purpose of *Catch Limit Calculations* (see Section 3) where the extent of geographical separation is sufficient to make this feasible. In the following text, 'species' should be taken to refer to taxonomic units below the species level where appropriate.

3. CATCH LIMIT CALCULATIONS

3.1 Scope and period of validity

Catch limits pertain to the first *Year* commencing after their calculation by the Scientific Committee, and for each of the following four *Years*. A catch limit is calculated for each *Small Area* in a *Region* for each of these five *Years*. The five catch limits calculated for each *Management Area* shall be equal, except where adjustments are made under the phaseout rule specified in section 3.4. A *Catch Limit Calculation* involves the (re)calculation of catch limits for all *Small Areas* and, where appropriate, *Medium* or *Large Areas* in the *Region*. At the request of the Commission, the first of these catch limits calculated may alternatively refer to the *Year* in which the calculation takes place, and for each of the following four *Years*.

Where appropriate, a carry-over provision may be attached to the set of five catch limits calculated for a *Small Area*, and shall operate as follows. Where a catch limit for a *Small Area* is not reached in any one *Year*, the shortfall may be added to the catch limit for the same *Small Area* in any of the remaining years of validity of the *Catch Limit Calculation*. Any unused carry-over remaining at the end of the fifth *Year* of validity of the *Catch Limit Calculation*, or at the beginning of the first *Year* of validity of a new *Catch Limit Calculation*, whichever is the sooner, lapses.^{11A}

3.2 Data requirements

3.2.1 Catch history

Time series of catches by sex shall be compiled for each of the *Management Areas* specified within the region, using the best available information. These catch histories shall cover a period beginning not later than the *Year* of the first recorded or estimated catch and ending with the *Year* preceding the first *Year* for which catch limits are to be calculated.

If there are catches known to have occurred in the *Region*, but the *Small Area* in which they were taken is not known, they shall be assigned to the *Small Area* in which they are considered most likely to have been taken. *Pro rata* allocations are allowed. Where the sex ratio of catches is not accurately known, the best available estimate of the sex ratio shall be used to divide the catches; in the absence of any information, a 50:50 sex ratio shall be assumed. Unspecified catches of whales shall be allocated to species using the best available information on the species composition of the catch. Known or estimated numbers of whales struck and lost shall be added to the catches. If the timing of catches is uncertain, they shall be assigned to *Years* according to the best available information. No catches known to have occurred in the *Region* shall be omitted from the *Catch Limit Calculation* on grounds of uncertainty over their location, timing, sex ratio or other details. All known removals from a *Region* shall be included in the catch series.

3.2.2 Absolute abundance estimates

Absolute abundance data to be used in the calculation of catch limits shall have been obtained by direct methods, such as sightings surveys, and collected and analysed using methods approved by the Scientific Committee. *Management Areas* to which the *Catch Limit Algorithm* is applied should normally be surveyed at intervals not exceeding six years. The methods shall be such as to provide estimates of whale abundance that have acceptable levels of bias and precision. They shall also permit estimation of the variance of each estimate and of their variance-covariance matrix, or alternative variance-related statistics where appropriate.

Data for any sightings survey to be used to calculate abundance estimates for the purposes of conducting a *Catch Limit Calculation* shall be documented and provided to the Secretariat in computer readable data files before a specified time in advance of the Scientific Committee meeting during which the data are to be used. All such data should be archived by the Secretariat in an appropriate database such that abundance estimates can be calculated for any specified *Small Area*. Data should be in a fully disaggregated form so that estimates can be recalculated appropriately if the boundaries of *Management Areas* are altered. Once lodged with the Secretariat, these data shall be available to accredited scientists as defined in the Scientific Committee's Rules of Procedure.

Estimates of absolute abundance are required for each *Management Area* to which the *Catch Limit Algorithm* is to be applied under the procedures described in Section 3.3. For each such *Management Area*, a time series of absolute abundance estimates shall be calculated, along with an estimate of their variance-covariance matrix, or alternative variance-related statistics where appropriate. The approximate distributional properties of the abundance estimates shall also be determined. Care should be taken to avoid substantially underestimating the variance (or alternative variance-related statistic) of each abundance estimate used for input into the *Catch Limit Algorithm*.

The absolute abundance estimate for a given *Year* should ideally be calculated from data collected in that *Year*. Data collected in different *Years* may be used, for example to account for parts of the area that were not covered in that *Year*, to pool results from surveys conducted over consecutive or nearly consecutive *Years* in order to reduce variance, or to provide estimates of calibration factors, provided that appropriate statistical methods are used.

Data from surveys conducted in different *Years* or at different times of year may only contribute to a single abundance estimate if adequate precautions are taken to avoid substantial double counting of whales due to migration or other factors. In the calculation of an absolute abundance estimate for a *Management Area* in a given *Year*, parts of the Area for which there are no absolute abundance estimates available at any time meeting the above specifications shall be treated as having an absolute abundance of zero.

The absolute abundance estimates should pertain to the total number of whales aged one year and above in the *Management Area*, regardless of any size limits that may be in force or the selectivity or otherwise of any past or present exploitation. Animals aged less than one year shall be excluded where possible.

The only estimates of abundance acceptable for use in the *Catch Limit Algorithm* are those obtained in accordance with the most recent version of the '*Requirements and Guidelines for Conducting Surveys and Analysing Data Within the Revised Management Scheme*'.⁰

3.3 Options for determination of catch limits

Catch limits shall always be set at the *Small Area* level and they shall be set for each *Small Area* in a *Region*. In addition, where *Catch-capping* is invoked at the *Medium* or *Large Area* level, corresponding catch limits will be set for those *Medium* or *Large Areas*. Catch limits for all *Residual Areas* within a *Region* shall be set at zero.

Catch limits for the total number of whales that may be taken in a season in each *Small Area* will be calculated by:

- (a) application of the *Catch Limit Algorithm* to the *Small Areas* or, where appropriate, to *Combination Areas*, in which case *Catch-cascading* occurs; and
- (b) where appropriate, by adjustment of the *Small Area* catch limits calculated, with or without *Catch-cascading*, under (a) by either

⁰ *Secretariat note:* In Resolution 1996-6 (see Background Document 1 to the RMS Intersessional Meeting), the Commission agreed to accept as a component of the RMS the '*Requirements and Guidelines for Conducting Surveys and Analysing Data within the Revised Management Scheme*' (Annex K, RIWC 47, 227-35). Since then, the Guidelines have been revised slightly by the Scientific Committee and the most recent version is that given in Background Document 4 to the RMS Intersessional Meeting.

(1) application of the *Catch Limit Algorithm* to one or more of the *Medium Areas*, followed by *Catch-capping* of the *Small Area* catch limits; or

(2) application of the *Catch Limit Algorithm* to one or more of the *Large Areas*, followed by *Catch-capping* of the *Small Area* catch limits.

Catch limits for the total number of whales that may be taken in a *Year* in *Medium* or *Large Areas*, as required when *Catch-capping* is invoked, will be calculated by application of the *Catch Limit Algorithm* to those *Medium* or *Large Areas*.

The decision for any particular species or *Region* on whether or not *Catch-capping* is to be applied, and if so whether it should be applied at the *Medium* or *Large Area* level, and whether or not *Small Areas* are to be combined for the purposes of *Catch-cascading*, will be made on the basis of biological evidence available to the Scientific Committee, and, where necessary, the results of computer simulation trials conducted by the Scientific Committee. Where computer simulation trials are carried out, they shall, as far as possible, encompass the full range of plausible hypotheses (regarding, for example, stock identity) consistent with existing biological data.

3.4 Phase-out rule

The catch limits for a *Small Area* calculated under Section 3.3 shall be adjusted downwards when the time series of absolute abundance estimates used for the application of the *Catch Limit Algorithm* to the *Small Area* (or, if *Catch-cascading* has been applied, to the *Combination Area* containing it) does not include an absolute abundance estimate pertaining to a *Year* not more than eight years prior to the *Year* to which the catch limit pertains. Under these circumstances, the catch limit for the *Small Area* shall be reduced by 20% of the unadjusted catch limit for that *Small Area* and *Year* for each year in excess of eight years that has or will have elapsed since the *Year* of the most recent such abundance estimate. This rule shall also be invoked in a *Small Area* included in a *Combination Area* for *Catch-cascading* if the data used for the derivation of absolute abundance estimates for input to the *Catch Limit Algorithm* do not contain any survey effort in that *Small Area* within this eight year period.

3.5 Adjustments for recent sex ratios in the catch

If the proportion, P_f , of female whales in the total catch taken from a *Small Area* in the most recent five *Years* prior to the *Catch Limit Calculation* for which the catch data are available exceeds 50%, the catch limits for the *Small Area* calculated according to the procedure described in sections 3.3 and 3.4 shall be adjusted downwards by the ratio $0.5/P_f$. However, should the Scientific Committee decide it to be more appropriate, this adjustment ratio shall be determined from the proportion of females in the total catch taken from a union of *Small Areas*, and applied to the catch limit for each *Small Area* in the union. Further, the sex ratio adjustment shall be waived if the Scientific Committee agrees that the catches taken in the most recent five *Years* for which the catch data are available are too few to provide a useful indication of the expected future sex ratio of the catch.

4. CATCH LIMIT ALGORITHM

The nominal catch limit for a *Management Area* shall be calculated using the algorithm defined below if at least one estimate of absolute abundance as defined in Section 3.2 is available for the *Area* in question. Otherwise, the nominal catch limit for the *Management Area* shall be zero.

4.1 Input data

The input data for application of the *Catch Limit Algorithm* for any *Management Area* shall include the time series of annual catches as detailed in Section 3.2.1 and the time series of absolute abundance estimates, along with their variance-covariance matrix or other appropriate variance-related statistics and a specification of the distributional form of the absolute abundance estimates, as specified in Section 3.2.2.

4.2 Population model

The following population dynamics model²⁷ shall be used:

$$P_0 = P_T / D_T$$

$$P_{t+1} = P_t - C_t + 1.4184\mu P_t(1 - (P_t / P_0)^2)(0 \leq t < T)$$

where:

P_t is the population size in numbers at the beginning of *Year t*;

C_t is the catch in numbers in Year t ;

D_T is the ratio of the population size at the beginning of Year T to the population size at the beginning of Year zero, known as the stock depletion;

Year zero is the first Year of the catch series used in the *Catch Limit Calculation* (as specified in Section 3.2.1);

Year T is the first year for which a catch limit is to be calculated in the current *Catch Limit Calculation*;

μ is the productivity parameter.

Provided there have been at least some catches, the population dynamics model is fully determined when the catch series and the values of D_T and μ are specified. If there have been no catches, a nominal catch of one whale in Year zero is assumed.

4.3 Fitting of the model

The annual absolute abundance estimate (if there is one) for each Year t , is assumed to have expectation bP_t where b is the bias parameter. The joint likelihood function of the parameters b , D_T and μ is determined using the absolute abundance estimates, the variance-covariance matrix of the absolute abundance estimates (or alternative variance-related statistics where appropriate) and information on their distributional form.

Unless there are specific indications to the contrary, the absolute abundance estimates shall be assumed to be lognormally distributed with a variance-covariance matrix of the log estimates to be estimated from the data using methods judged appropriate by the Scientific Committee. In this case, the formula for the likelihood is:

$$\text{Likelihood } (D_T, \mu, b) \propto \exp[-\frac{1}{2}(\mathbf{a} - \mathbf{p} - \beta\mathbf{1})' H (\mathbf{a} - \mathbf{p} - \beta\mathbf{1})]$$

where:

\mathbf{a} is the vector of logarithms of estimates of absolute abundance by season;

\mathbf{p} is the vector of logarithms of the modelled annual population sizes: $p_t = \log(P_t)$;

β is the logarithm of the bias parameter: $\beta = \log(b)$;

$\mathbf{1}$ is a vector of ones;

H is the information matrix of the \mathbf{a} vector. If H is non-singular, $H = V^{-1}$ where V is the variance-covariance matrix of the components of \mathbf{a} .

The stock depletion parameter D_T is assigned a prior probability distribution that is uniform from zero to one, and zero outside this range.

The productivity parameter μ is assigned a prior probability distribution that is uniform from zero to 0.05, and zero outside this range.

The bias parameter b is assigned a prior probability distribution that is uniform from zero to 5/3, and zero outside this range.

The above three prior distributions are treated as independent and combined accordingly to determine the joint prior distribution of the parameters D_T , μ and b .

The joint 'posterior' distribution of the parameters D_T , μ and b is defined as follows:

$$\text{Posterior } (D_T, \mu, b) \propto \text{Prior } (D_T, \mu, b) \cdot \text{Likelihood } (D_T, \mu, b)^s$$

where s , the scale parameter, is set equal to 1/16. The presence of the scale parameter represents an intended deviation from a strictly Bayesian approach.

4.4 The catch control law

The internal catch limit, L_T , is the following function of D_T , μ and P_T :

$$L_T = \begin{cases} 3\mu(D_T - 0.54)P_T & \text{if } D_T > 0.54 \\ 0 & \text{if } D_T \leq 0.54 \end{cases}$$

The marginal posterior distribution of L_T is obtained by integration of the joint posterior distribution of (D_T, μ, b) . This requires that, for each value of L_T , the joint posterior distribution of (D_T, μ, b) is to be integrated over the subset of parameter space that corresponds to that value of L_T . The nominal catch limit is equal to the lower 41.02 percentile of the marginal posterior distribution of L_T .

4.5 Computation

All steps in the above algorithm for the calculation of the nominal catch limit shall be performed using a computer program validated by the IWC Secretariat and with sufficient numerical accuracy that the calculated nominal catch limit is numerically accurate to within one whale.

Appendix 3 – Logbook format

Daily Record Sheet^P

Vessel Name		Date		Sheet no.	
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TARGET SPECIES ONLY

	Sighting 1	Sighting 2	Sighting 3	Sighting 4	Sighting 5
Beginning (resumption) of searching					
Time					
Position latitude					
longitude					
Beaufort					

Noon	
Time	
Position: latitude	
longitude	
Beaufort	

On sighting a whale/whales or stopping searching for other reasons					
Time					
Position: latitude					
longitude					
Beaufort					
Species					
School size					
Serial no. of whale(s) caught					
TOTAL SEARCHING DISTANCE					

total whales seen of all species

Species	No. schools	No. animals	Species	No. Schools	No. animals
Blue			Sperm		
Fin			Other (please specify)		
Sei					
Minke					
Bryde's					
Right					
Humpback					

Note: This is an outline form, not necessarily intended to be the final design. This should be decided with a view to data input after the cruise.
It is intended to show the minimum information required.
The more detailed information is for the target species only.
The information on other species is normally taken from the ship's log.

^P Secretariat note: From RIWC 47: 238