

Summary statement regarding outcome of the further work for NEWREP-A agreed at SC 66a

Government of Japan

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The purpose of this summary statement is to explain key outcomes and results of additional works/analyses conducted by the proponent of NEWREP-A in relation to the items agreed at the International Whaling Commission (IWC) Scientific Committee (SC) 66a. Outcomes/results obtained through the additional works/analyses which have been conducted at this juncture will be further refined and polished to be presented for scientific review and examination at the SC66b.

1. Background

At the Expert Panel Workshop in February 2015 and the subsequent SC66a meeting in May/June 2015, the draft proposal for NEWREP-A was reviewed in accordance with the guidance provided in the “Annex P” adopted by the IWC SC. Some of the purposes of the review was to provide advice to the IWC on five items enumerated in the first operative paragraph of Resolution 2014-5, including evaluation on whether the design and implementation of the program, including sample size, are reasonable in relation to achieving the program’s stated research objectives as well as whether the elements of the research that rely on lethally obtained data are likely to lead to improvements in the conservation and management of whales. Following the review of the NEWREP-A proposal at the SC66a, SC recommended the proponent to conduct additional works especially concerning the items below before the initiation of the program.

(1) Clarification of the rationale for the lethal research methods and the expected contribution to the conservation and management of whales [in relation to the Items (a) and (b), operative paragraph 1 of Resolution 2014-5]

The SC66a agreed that “additional work needs to be done to evaluate the level of improvement that might be expected either the SCAA or in RMP performance by improved precision in biological parameters” that can be gained through lethally obtained data (Rep. of SC66a (Rep. of SC66a, p.94).

(2) Verification of the utility and feasibility of non-lethal means for achieving the objectives of the program reasonably equivalent to lethal means [in relation to the Item (c), operative paragraph 1 of Resolution 2014-5]

The SC agreed that “it will not be able to determine whether non-lethal means can be used to achieve certain objectives until the recommended field experiments, laboratory work and analyses are conducted.” (Ibid. p.95)

(3) Clarification of the reasonableness of the scale of the proposed sample size for the lethal component [in relation to the Item (d), operative paragraph 1 of Resolution 2014-5]

The SC noted the possibility that the proposed sample size could be too small in order to acquire scientifically significant results (Ibid. p.96).

(4) Other matters the SC considers relevant to the program [in relation to the Item (e), operative paragraph 1 of Resolution 2014-5]

The SC recommended further focused collaboration on the development of ecosystem models, prey studies and evaluation of non-lethal techniques (Ibid. p96).

2. Key Outcomes and Results of Additional Works/Analyses by the Proponent

The following is a brief summary of the outcomes and results of the additional works/analyses in response to the SC66a's recommendations.

(1) The rationale for the lethal research methods and the expected contribution to the conservation and management of whales

- Following the Expert Panel Workshop in February 2015, in response to the recommendation 1 of the Expert Panel (Item 2.1.2 listed in Table 1, SC/66a/Rep/6, pp. 36-37), in which the Panel recommended the proponent to evaluate the level of improvement that might be expected either in the SCAA or in RMP performance by improved precision in biological parameters using simulation studies including updated *Implementation Simulation Trials*, the proponent conducted additional simulations under the SCAA framework. During the SC66a, the proponent presented the extent of contribution by the age data to be derived from NEWREP-A to the estimation performance for annual recruitments, which are important quantities in whale population dynamics (SC/66a/SP1, SC/66a/SP8). The proponent also showed that data forthcoming from non-lethal ageing methods would be unable to provide adequately precise estimation of these recruitments (Rep. of SC66a, p. 95).
- Subsequently, SC66a agreed that “additional work needs to be done to evaluate the level of improvement that might be expected either in the SCAA or in RMP performance by improved precision in biological parameters” (Rep. of SC66a, p.94). In response to this, in addition to the above-mentioned simulation under the SCAA, the proponent has conducted further simulations on the basis of the RMP/IST process in order to evaluate the extent to which RMP-related performance (reflected, e.g. by catch and risk indicators) can be improved by the use of age data as provided by NEWREP-A.
- Information on recruitment potentially improves the performance of Management Procedures because it provides earlier warning of positive or negative stock trends than is indicated by survey estimates of overall abundance. Age data provides such advance information on recruitment for the Antarctic minke whale populations under study.
- In the simulations mentioned above, abundance estimates as well as catch-at-age data were generated for a future period, based on age-structured models of the minke whale populations under study in NEWREP-A for several future recruitment scenarios. Following that, the RMP's normal CLA and a version of this CLA modified to take account of the catch-at-age information were applied to these generated data every five years so that their

risk and catch performances could be compared (IWC, 1992).

- These RMP/IST-like simulations have shown that the modification of the RMP's CLA to include information from catch-at-age data can safely provide additional catch compared to the existing CLA given a period of good recruitment, while also increasing the lowest depletion level which would result under the CLA when there is a period of poor recruitment.

(2) Utility and feasibility of non-lethal means for achieving the objectives of the program

- The proponent holds the position that, provided that catches are sustainable, the reasonable approach is to examine the utility and feasibility of non-lethal methods based on the currently available scientific and technical knowledge, and if deemed unfeasible, to initiate lethal sampling in the meantime while continuing feasibility studies on non-lethal methods on an ongoing basis. The proponent will implement a feasibility study for non-lethal methods for verifying their utility from the first year of the program. See Section 4 of the new research plan for detail as well as the proponent's preliminary response (SC/66a/SP1, p.5).

(3) Reasonableness of the scale of lethal samples

- After the Expert Panel Workshop in February 2015, in response to the recommendation 26 by the panel (Item 4.2.1 listed in Table 1, SC/66a/Rep6, pp. 36-37) to provide a thorough power analysis of sample sizes required to detect change in ASM and to follow the other recommendations on this item, the proponent updated its analysis to evaluate the statistical power so as to assess the reasonableness of the proposed sample size (333) necessary to detect a specified change in the age-at-sexual maturity (ASM) while taking account of sampling errors in catch-at-age, age-reading errors and over-dispersion. This updated analysis indicated that consideration of those errors would not affect the reasonableness of the proposed sample size (333).
- The results have already been presented to and evaluated during SC66a. SC agreed that "the simulation generally followed the approach suggested by the Panel" (Rep. of SC66a, p. 96).
- Meanwhile, during the course of discussion at SC66a, it was suggested that the estimated sample sizes are "likely to be too small" and a further source of variation, that from the cohort random effect, in the ASM should be incorporated in the power simulation analyses (Rep. of SC66a, p. 96).
- Subsequently, taking account of the suggestion, the proponent conducted re-analysis and the results indicate that the point estimate of the cohort random effect is zero.
- These results therefore do not lead to any strong reason to change the sample size. Therefore, the proponent concluded that the proposed sample size (333) may be now regarded as reasonable.

(4) Other matters the SC considers relevant to the program

- The proponent will implement a CCAMLR-type krill survey under NEWREP-A, as this is important for understanding the Antarctic ecosystem, and will explore cooperation with other researchers and/or research institutes outside the program as well. The proponent has been making efforts to enhance such international cooperation and has provided information on the outline of possible plans for krill surveys both under and outside of NEWREP-A to the CCAMLR-EMM (Working Group on Ecosystem Monitoring and Management at CCAMLR), which have proved of interest to the participants to the Working Group and promoted constructive discussions among them. (See Section 8 of the research plan for details.)

3. Conclusion and Future Plan

- As explained above, the proponent has completed, to an objectively reasonable level, the key elements of the additional works/analyses concerning the items agreed at SC66a. The results of these additional works/analyses have demonstrated that i) information derived from the lethal sampling under NEWREP-A will contribute to the improvement of the conservation and management of whale stocks to the extent described in paragraph 3 of 2(1) above, and ii) the proposed sample size (333) remains reasonable even when various uncertainties are taken into account.
- In particular, regarding the outcome i) above, it was quantitatively demonstrated that the modified CLA that incorporates age information obtained through NEWREP-A improves the RMP performance for the Antarctic minke whale populations under study. This indicates that obtaining age data from earplugs, which can be achieved only through lethal methods and, which SC agreed is the most accepted long-standing method for ageing whale species including Antarctic minke whales (SC/66a/Rep06, p.17), will make an important contribution to the conservation and management of Antarctic minke whale stocks.
- In accordance with the agreement at the SC66a, the proponent will provide full description of the results of these additional works/analyses for review at the next SC meeting in 2016.

References

IWC (1992). Report of the Third Comprehensive Assessment Workshop on Management

Procedures. p. 271-304. Reports of the International Whaling Commission 1990.

Report of the Scientific Committee 66a, 22 May-3 June 2015.

SC/66a/SP1. Proponents' preliminary response to the Report of the Expert Panel to review the proposal for NEWREP-A.

SC/66a/SP2. Addendum to the Proposed Research Plan for New Scientific Whale Research Program in the Antarctic Ocean (NEWREP-A).

SC/66a/SP8. Proponents additional responses to the Report of the Expert Panel to review the proposal for NEWREP-A

SC/66a/Rep06. Report of the Expert Panel to review the proposal by the Government of Japan for NEWREP-A, 7-10 February 2015, Tokyo, Japan