

SC/66a/SP/4

Application under Procedure B of the Data
Access Agreement - Analysis of the
lethal-take sample size calculations in the
JARPN II research proposal

William de la Mare, John McKinlay



INTERNATIONAL
WHALING COMMISSION

Application under Procedure B of the Data Access Agreement

(a) **Title Analysis of the lethal-take sample size calculations in the JARPN II research proposal.**

(b) *Investigators:*

William de la Mare, Australian Antarctic Division, Channel Highway, Kingston, Tasmania, Australia, 7050.

John McKinlay, Australian Antarctic Division, Channel Highway, Kingston, Tasmania, Australia, 7050.

To be advised, Institute of Cetacean Research.

(c) *Objectives and rationale of the study* as specified by the Scientific Committee along with the appropriate reference to the report(s) of the Scientific Committee. This will include the reasons why the proposed analyses are important and how they fit into previous work.

Objectives:

Data will be used to:

1. Examine the magnitudes of effect sizes likely to be detectable, for given levels of power, using typical statistical models used for analyses of JARPN II lethally sampled biological data for stomach content and pollutant studies.
2. Assess alternate models as more appropriate candidates (c.f. 1 above) for capturing JARPN II data structure and heterogeneity, with a view to determining sample size requirements for given power and biologically relevant effect-size estimates.

Rationale:

The International Whaling Commission Scientific Committee (IWC SC) will carry out a review of the data and results obtained by the Japanese Whale Research Program under Special Permit in the North Pacific-Phase II (JARPN II) during 2008-2013. The review is planned for early 2016. We wish to conduct analyses that may assist the panel in their consideration of lethal-take sample sizes, with the following rationale.

In 2009, the Expert Workshop reviewing the JARPN II programme made several recommendations in relation to assessing lethal-take sample sizes (IWC, 2010), with a view to clarify the utility of the data for their stated purpose. To our knowledge, much of this suggested work remains incomplete and the utility of the data remain in question. Lethal-take sample sizes under the JARPN II programme were reduced for some species in 2014, and may continue to be varied from the original research proposal into the future. Any link between this variation and programme objectives is unclear at the present time.

Work presented by the applicants to the Expert Panel review of NEWREP-A, Japan's Southern Ocean Scientific Permit proposal, demonstrated that required lethal-take sample sizes in that program were substantially under-estimated if the statistical objectives set out in NEWREP-A were to be achieved (de la Mare and McKinlay

2015, SP/F15/SP02). The Expert Review Panel recognised the worth of this work in their recent report (IWC 2015, p31), recommending to Japan that further work be undertaken to estimate required sample sizes. We wish to apply similar methods to JARPN II data in order to ascertain the types of effect size that might reasonably be expected to be detected, given observed sample sizes, sampling patterns, timeframes, and levels of variability in the data.

We consider it important to provide the Scientific Committee and its Expert Panels with robust scientific advice in relation to lethal-take sample sizes. We therefore request access to appropriate, disaggregated data from JARPN II to undertake this analysis.

- (d) *Data to be used* will include a general description of all data to be used as well as data held by ICR. For the ICR-held data, the precise requirements will be given, including the level of disaggregation.

The complete JARPN and/or JARPN II data on all whale species, including all biological data collected from lethal-take sampling from the JARPN II program, are requested for each whale taken. In reference to the document “Preliminary data description in preparation for the JARPN II Review Workshop” (SC/66a/SP/3), these data are described in the following 6 tables:

- II-1. BIOLOGICAL DATA - Common minke whale (Offshore component)
- II-2. BIOLOGICAL DATA - Sei whale (Offshore component)
- II-3. BIOLOGICAL DATA - Bryde’s whale (Offshore component)
- II-4. BIOLOGICAL DATA - Sperm whale (Offshore component)
- II-5. BIOLOGICAL DATA - Common minke whale (Coastal component-Sanriku)
- II-6. BIOLOGICAL DATA - Common minke whale (Coastal component-Kushiro)

The data need to be fully disaggregated as data records for each whale sampled. Where data are missing or not measured for a particular whale, the missing data-field should be left blank. A data description will be needed to link the names of data fields in the records for each whale to descriptions of variables. Coding applied to any variables (e.g. indicator variables, categorical variables with abbreviated levels) should be clearly explained, and explanatory notes giving codes and descriptions should be provided. Units of measurement should be provided where applicable.

- (e) *Description of the methods* likely to be used. The level of detail must be in accordance with the level of novelty of the proposed methods and the particular research questions they will address. References to similar analyses should be included where available.

Standard statistical methods including the usual methods of exploratory data analysis, generalised linear models and mixed model extensions will be used. Multivariate methods may be required in an analysis of feeding behaviour. A simulation framework will be used to assess model sensitivities and aggregate behaviour.

- (f) *Schedule of the work*: this should include estimated times for the various analyses to be carried out and an indication of which investigators will collaborate on individual components. If the project is a long-term project, annual progress reports will be required by ICR and the Scientific Committee.

The analyses should be completed within the time scheduled under Data Agreement, Procedure B for submission to the 2016 Periodic Review of JARPN II.

- (g) *Output of the research*: this will follow the rules for publication agreed at the Scientific Committee meeting and given below. ICR may consider requests for less stringent conditions (e.g. presentations at non-IWC scientific meetings, publications, etc.). Such requests should be detailed here.

The analyses will be presented to the 2016 Periodic Review of JARPN II, with the required annotation, according to the Data Agreement, Procedure B. Co-authorship will be offered and the results of analyses will be made available for comment prior to submission to the Periodic Review.

References

de la Mare, W.K. and McKinlay, J. 2015 Random-effects invalidate NEWREP-A statistical power analyses. Submission to “NEWREP-A Special Permit Expert Panel Review Workshop”, 7-10 February 2015, Tokyo, Japan. SP/F15/SP02

International Whaling Commission. 2010. Report of the expert workshop to review the ongoing JARPN II programme. *J. Cetacean Res. Manage.* 11 (Suppl. 2): 405-449.

International Whaling Commission 2015 Report of the Expert Panel to review the proposal by Japan for NEWREP-A, 7-10 February 2015, Tokyo, Japan. IWC SC/66a/Rep/6

Institute of Cetacean Research. 2015. Preliminary data description in preparation for the JARPN II Review Workshop. IWC SC/66a/SP/3