

SC/67b/RP24

SDDNA - Collaborative analysis of WNP
minke whale stock structure using
Japanese microsatellite DNA database



INTERNATIONAL
WHALING COMMISSION



PROJECT PROPOSAL REQUEST

1. PROPOSAL TITLE

Collaborative analysis of WNP minke whale stock structure using Japanese microsatellite DNA database and spatially explicit population structure analyses.

2. BRIEF OVERVIEW OF THE PROPOSAL AND ITS EXPECTED OUTCOME

The objective is to help address the recommended 'analysis 2' from the report of the workshop on Western North Pacific common minke whale stock structure (SC_67B_REP-05) in support of the next inter-sessional meeting on WNP common minke whale stock structure. This specific aspect of the work will apply spatially explicit population structure analyses that provide greater power than the program STRUCTURE together with geographic context. The data will be analysed as a total dataset (not based on any assignment in STRUCTURE), but also include temporal subdivision to assess possible seasonal changes in patterns of connectivity. The latter aspect may be critical to understanding the true pattern of structure, but it will also be the most time-consuming, requiring extensive replication of the analyses. The results of these analyses will provide an assessment of structure in the context of biogeography using methods that have considerably more power than the program STRUCTURE, and using an approach that will consider temporal patterns of movement.

3. RELEVANT IWC SCIENTIFIC COMMITTEE GROUPS OR SUB-GROUPS

This work comprises recommended analyses directly relevant to the implementation review for WNP common minke whales, and directly relevant to the work of SDDNA and RMP. It is part of the ongoing assessment of stock structure in the WNP management areas.

4. TYPE OF PROJECT (PLEASE TICK)

Research project	
Modelling	
Workshop/meeting	
Database creation/maintenance	
Compilation work/editing (e.g. on whalewatching regulations, SOCER, etc.)	
Other (please specify below)	X

Analytical work on existing databases to contribute to the assessment of WNP common minke whale stock structure, as recommended in SC_67B_REP-05.

5. BRIEF DESCRIPTION OF THE PROPOSAL AND ITS CONNECTION WITH SCIENTIFIC COMMITTEE RECOMMENDATIONS (DO NOT EXCEED 1500 WORDS)

(A) BACKGROUND, RATIONALE, AND RELEVANCE TO THE PRIORITIES IDENTIFIED BY THE IWC SCIENTIFIC COMMITTEE:

Following the consideration of SC_67B_REP_05 by the SDDNS working group and RMP subcommittee, a small working group was established to consider the strategy for completing DNA analytical work recommended in SC_67B_REP_05. It was determined that given the number of recommended analyses, it would be necessary for the work to be shared among labs in order for it to be completed in time for the next inter-sessional workshop on WNP common minke whale stock structure, in preparation for the start of the implementation review. This work will be directly relevant to the SC priority for the assessment of populations under the revised management scheme.

(B) SPECIFIC OBJECTIVES OR TOR AND DELIVERABLES/OUTCOMES:

The objective is to analyse the microsatellite DNA databases generated by Japanese researchers for all available WNP common minke whale samples using spatially explicit analytical methods for the assessment of population structure, and to include analyses on sub-sets divided into temporal periods. The analytical methods will include TESS (see <http://membres-timc.imag.fr/Olivier.Francois/tess.html>), Geneland (<http://www2.imm.dtu.dk/~gigu/Geneland/>) and BAPS (<http://www.helsinki.fi/bsg/software/BAPS/>) with an emphasis on TESS and Geneland run in R Studio. Expected outcomes are the clearer resolution of major and minor stocks in the WNP region, and the facilitation in combination with additional planned stock structure analyses (to be undertaken by Japanese colleagues and as described in SC_67B_REP_05) of subsequent management implementation analyses.

(C) METHODOLOGICAL APPROACH/WORK PLAN/ADMINISTRATIVE DETAILS

The genotype databases (for 16 loci and for 26 loci) are in excel files together with information on date, year and location, and can therefore be easily subdivided according to temporal periods and management areas as required. Latitude/longitude location data will be required for each sample. Initial analyses will be on the complete 26-locus database. This will then be subdivided by temporal period (testing various combinations of months) and run again. The results of these analyses will determine the extent and nature of further analyses on the 16 locus dataset. It is expected that TESS and Geneland will be the most informative, but BAPS will also be tested and applied further if it provides useful additional inference. In order to facilitate the very time-consuming replication of analyses for different temporal periods, we will likely introduce some coding in R to automate the

process. We will plan for the work to be undertaken by research intern Fatih Sarigoel using computing facilities in Rus Hoelzel's lab at Durham University. However, the available timeframe for preparing this request has not allowed time to complete all of the logistical assessments required (such as preparation of the database by our Japanese colleagues, permission for access, visa for Fatih Sarigoel who is a Turkish national, etc.). Therefore, while I am confident we could complete the work in time for the next intersessional meeting, and that the funding requested would be sufficient, alternative arrangements for the completion of the analytical work may be necessary (and possible alternative students have been identified who could do the work well if the timeframe excludes Fatih). Although funding is not requested here, we would be pleased to host Mioko Taguchi for a period of training on these methodologies.

(D) SUGGESTIONS FOR OUTREACH

Outputs will include reports for the planned inter-sessional workshop and subsequent SC meeting, together with a lay description of the implications of the study for use by the IWC directorate.

6. TIMETABLE FOR ACTIVITIES AND OUTPUTS

Specify the timetable for project activities and expected outputs separately. For projects with multiple distinct elements please indicate interim goals and timeframes. Add as many rows as you need to the tables below. If publications are an expected output please note whether you will submit the manuscript to the IWC's Journal of Cetacean Research and Management.

Activity to be undertaken	Key person(s)	Start(mm/yy)	Finish (mm/yy)
Computer based analyses using established software packages for the analysis of genetic data.	Fatih Sarigoel supervised by Rus Hoelzel	6/18	8/18

Expected outputs	Completion date (mm/yy)
Spatially explicit analyses of stock structure for WNP minke whale populations including temporal analyses; presented as a paper for the upcoming workshop on the WNP common minke implementation review.	12/18

7. RESEARCHERS' (OR STEERING GROUP) NAME(S) AND AFFILIATION

Please, also specify if the project team has any direct connection (e.g. same research group or institute, collaborator on common project) with people involved or likely to be involved in taking the funding decision (e.g. IWC SC heads of delegations, SC convenors, etc.). Add as many rows as you need to the table below.

Name	Affiliation	Connection with decision
Rus Hoelzel	Durham University	Supervision
Fatih Sarigoel	Durham University	Analytical work

8. TOTAL BUDGET

Breakdown into: (1) salaries/wages (include name/position of each individual and breakdown of time and duties i; (2) travel/subsistence expenses (breakdown by person and justification) unless for IPs for workshops where a total estimate based on an average for the total number of IPs is acceptable; (3) services (e.g. aircraft/vessel time, consultancy fees, ARGOS fees, etc.); (4) reusable capital equipment (e.g. reusable equipment such as a hydrophone, cameras, etc. Note that this equipment will have to be registered at the IWC Secretariat and will remain property of the IWC at the end of the project), (5) expendable capital equipment (e.g. consumables, tags, stationery), (6) shipping costs, (7) insurance costs, (8) in kind co-funding (specify whether other funding is available for personnel/name, equipment, venues, etc.). Note that "Overheads" are not admissible. Add as many rows as you need to the table below.

Type	Detailed description	Cost in GB pounds
(1) Salaries (by person)	2 months work at Durham University scale 6, point 26, including associated overheads (superannuation and National Health)	£6,247
(2) Travel/subsistence (by person or est. total for IPs)		
(3) Services (by item)		
(4) Reusable equipment		
(5) Consumables		
(6) Shipping (by Item)		
(7) Insurance (by item)		
(8) Co-funding		
(9) Other		
Total		

9. DATA ARCHIVING/SHARING

Analytical work as outputs and input files would be provided to our Japanese colleagues to use as they found useful, and a paper or papers(as appropriate following analyses) presenting and interpreting the data would be completed in time for the intersessional workshop.

10. PERMITS (PLEASE TICK)

Do you have the necessary permits to carry out the field work and have animal welfare considerations been appropriately considered?	N/A
Do you have the appropriate permits (e.g. CITES) for the import/export of any samples?	N/A

If 'Yes' please provide further details and enclose copies where appropriate:

Appendix 2 – DRAFT SCORING SHEET

If a project presents multiple primary objectives which are achieved using sub-projects, a sheet should be used to evaluate each single sub-project. Note that not all criteria are equally applicable depending on the nature of the project (e.g. field work versus workshops).

IWC SCIENTIFIC COMMITTEE PROPOSALS FOR FUNDING - REVIEW CRITERIA - TEST				
TITLE OF THE PROJECT/sub-projects:				
PRINCIPAL INVESTIGATOR:				
Key criteria	Explanation of scoring	Score	Supporting Remarks	
<i>Relevance to Scientific Committee priorities</i>				
1	How well aligned are the scientific outcomes of the project/activity with the current SC priority areas?	1 - Not aligned/poorly aligned (e.g. too vague or generic reference to general SC priorities) 2 - Reasonably aligned (e.g. some aspects may be vague or links are not clear) 3 - Well aligned (e.g. outcomes clearly deliver in the most part on priority areas, may also address longer term or potential future issues). 4 - Closely aligned (e.g. of interest for multiple sub-groups or delivers on specific SC high priority topics/recommendations in the immediate or short term).		
2	To what extent will the outcomes of the project/activity contribute to improvements in the conservation and management of cetaceans?	1 - Not at all 2 - Poorly 3 - Reasonably or over the longer term 4 - Well or over the medium term 5 - Excellently or to almost immediate effect		
Note: if in each of the two above key criteria under this section the project does not score singularly at least 2 points, do not proceed in further evaluation. Of course, proposals within a sub-group would only be developed if in their estimation scores were of 4 or above.				
<i>Approach and methodology</i>				
3	What degree of scientific merit/value is there in carrying out the work?	1 - Not demonstrated or of low scientific value 2 - Useful/basic scientific value 3 - Very good scientific value 4 - Excellent/innovative scientific value		
4	Is the proposed methodology scientifically sound and feasible in terms of field and analytical methods?	1 - Feasibility unrealistic & poor methodology or not properly addressed 2 - Feasibility & methodology acceptable but would benefit from some substantial amendments		

		3 - Feasibility & methodology good, some small changes beneficial 4 - Feasibility & methodology excellent or a highly promising innovative approach to an important question facing the Committee		
5	What is the likelihood of success based on the proposed overall approach and methodology?	1 - No chance of success 2 - Low chance of success/better approaches available 3 - Medium chance of success/some changes to the approach necessary 4 - High chance of success/little or no changes to the approach necessary		
5a	Are objectives of the research likely to be achieved within the proposed time-frame?	1 - No or unlikely 2 - Partially or potentially ambitious 3 - Yes with some minor suggestions 4 - Yes		
5b	Are any proposed intermediary targets timely and achievable?	1 - No or unlikely 2 - Partially 3 - Probably 4 - Yes		
5c	Is the proposed time-frame/work necessary (e.g. can the project produce results in a shorter time period)?	1 - No or unlikely 2 - Partially 3 - Probably 4 - Yes		
5d	Is the sample size adequate to achieve the stated objectives?	1 - Not demonstrated/not properly addressed 2 - No or unlikely (too low/too high) 3 - Probably (additional analysis needed) 4 - Yes		
6	Is the project likely to affect adversely the population(s) involved?	1 - Not properly addressed/ unknown 2 - Yes severely 3 - Possibly at a low level 4 - No		
6a	IF YES , are analyses provided on simulations of the effects using different time-frames for the project if applicable?	1 - No 2 - Partially 3 - Yes		
Note: if in each of the above key criteria under this section the project does not score singularly at least 2 points, do not proceed in further evaluation. Of course, proposals within a sub-group would only be developed if in their estimation scores were of 3 or above.				
Project team and Project management				

7	To what extent does the team have the relevant expertise, experience, and balance?	1 – Poor or not demonstrated 2 – Sufficient 3 - Very good 4 - Excellent		
8	Contingency plan: To what extent have potential problems/risks been considered and appropriate mitigation proposed?	1 – Poor or not demonstrated 2 – Sufficient but could be improved 3 - Fully or requiring only minor suggestions or not applicable		
Value for Money				
10	Does the project represent good value for money?	1 – No or significant amendments would be needed 2 – Yes but with some minor amendments 3 – Yes		
11	Have sufficient links been made to the wider research community/other organisations/capacity building.	1 – No 2 – Some but significant amendments needed 3 – Yes but with some minor additions 4 – Yes or not applicable		