

SC/68A/RP/07

E - Meetings/Workshops Cetacean
Diseases of Concern – Morbillivirus,
Brucella, Herpesviruses and Toxoplasma
and their interactions with other
immunosuppressive stressors



INTERNATIONAL
WHALING COMMISSION



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PROJECT PROPOSAL REQUEST

1. PROPOSAL TITLE

Cetacean Diseases of Concern – Morbillivirus, Brucella, Herpesviruses and Toxoplasma and their interactions with other immunosuppressive stressors.

2. BRIEF OVERVIEW OF THE PROPOSAL AND ITS EXPECTED OUTCOME

This activity will be a focussed session at SC 68b in which participants and SC members will

1. Review the current state of knowledge on the individual and population level impact of key infectious diseases on cetaceans; Morbillivirus, Brucella, Herpesvirus and Toxoplasmosis including the importance of co-infections.
2. Identify gaps in our knowledge on their pathological effects, transmission routes, and epidemiological consequences
3. Determine the potential interactions with other stressors, particularly with contaminants and biotoxins where concomitant exposure is relatively common. Since these stressors also act on the immune system it is important to understand exactly how that may affect their susceptibility to infection

PLEASE NOTE – A project for a session focussing on morbillivirus and brucella was approved last year (2018). At this year's meeting, it was clear that we should expand this to include two other major pathogens of concern, toxoplasma and herpesvirus. This request is for a re-allocation of an underspend in E from the cumulative impacts workshop held last year.

3. RELEVANT IWC SCIENTIFIC COMMITTEE GROUPS OR SUB-GROUPS

Cetacean diseases of concern are a standing topic for E and it was clear from the discussions this year that morbillivirus continues to impact cetacean populations. There has been a good deal of progress made over the last 20 years or so, since the virus was identified, on understanding its pathogenesis and epidemiology. However, some of this knowledge has not yet been disseminated to the wider community. We feel a focused session would provide an excellent opportunity to review the knowledge base and identify gaps which those working on this disease or facing new or recurrent epidemics might assist in filling.

Similarly, Brucella is known to cause abortion in cetaceans and three different groups have been recognized according to their preferred host. Brucellosis in some dolphins and porpoises appears to cause a severe chronic disease, with clinical and pathological signs indicating abortions, male infertility, neurobrucellosis, cardiopathies, bone and skin lesions, strandings, and death. As with Morbillivirus the knowledge of the impact of this disease has been increasing and it would be very timely to collate that information and discuss the knowledge gaps.

In further discussions, it was clear that the focus session should be expanded to include two other pathogens of concern, namely toxoplasma and herpesvirus. These infections seem to be increasingly found as coinfections. Many new herpesvirus species and serotypes (including zoonotic strains) have recently been isolated from cetaceans and their virulence and impact is often not known. In addition, knowledge about toxoplasma and its pathogenicity is becoming a major issue in some regions of the world where infection appears to be more common but again whether it is causing

morbidity or mortality is unclear. It is therefore imperative that we bring together experts in these pathogens to discuss knowledge gaps and current research efforts.

In addition, we have identified in the Cumulative Effects workshop last year that interactions are critical when stressors act through the same pathway. We propose to determine how factors that affect immunity, particularly contaminants and biotoxins are likely to affect the epidemiology of these important cetacean infections. The impact of climate change on disease occurrence and its potential interactions with other stressors will also be discussed.

4. TYPE OF PROJECT (PLEASE TICK)

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

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:
<p>SC has identified Morbillivirus, Brucella, Herpesvirus and Toxoplasma as major diseases of concern for cetaceans. Our proposed focussed session will bring together members of SC with IPs who have expertise in this area to exchange knowledge, ideas, priorities for research and progress our understanding of the potential impacts of these diseases and their interactions with other stressors (focussing on another priority topic of cumulative effects) on populations of cetaceans</p>
(B) SPECIFIC OBJECTIVES OR TOR AND DELIVERABLES/OUTCOMES:
<p>The objective of the focussed session are</p> <ol style="list-style-type: none"> 1. Review the current state of knowledge on the individual and population level impact of key infectious diseases on cetaceans; morbillivirus, brucella, herpesvirus and toxoplasmosis including the importance of co-infections. 2. Identify gaps in our knowledge on their pathological effects, transmission routes, and epidemiological consequences 3. Determine the potential interactions with other stressors, particularly with contaminants and biotoxins where concomitant exposure is relatively common. Since these stressors also act on the immune system it is important to understand exactly how that may affect their susceptibility to infection <p>The deliverable will be a report to SC with a view to publishing the findings as a review paper in a peer reviewed journal</p>
(C) METHODOLOGICAL APPROACH/WORK PLAN/ADMINISTRATIVE DETAILS
<p>This would be a focussed session at SC 68b (2020) and would require the attendance of five IPs (see below). Funding for three was secured last year, we are now requesting re-</p>

allocation of funds so we can bring in two more as experts on toxoplasma(s) and herpesviruses.

(D) SUGGESTIONS FOR OUTREACH

The conclusions from the session could be disseminated through various social media outlets and Twitter feeds and a summary of the major points will be highlighted on the IWC websites and other appropriate sites. The finds would also be distributed through to the strandings networks, wildlife disease communities (through societies such as IAAAM), marine mammal scientists (through SMM and ECS) and on MarMam. Fact sheets could be provided showing the geographical distribution of outbreaks and the known impacts on individuals and populations and well as highlighting the data gaps and research needs.

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)
Focussed session – organisation and participation	Sandro Mazzariol and Raphaela Stimmelmayer (pathology and health)	Intersessionally (05/19)	SC 68b
organisation and participation	IP (epidemiology)	Intersessionally (05/19)	SC 68b
organisation and participation	Karen Stockin (strandings and health)	Intersessionally (05/19)	SC 68b
participation	IP – morbilli specialist		SC 68b
participation	IP – Brucella specialist		SC 68b
participation	IP –herpesvirus specialist		SC 68b
participation	IP –toxoplasma specialist		SC 68b

Expected outputs	Completion date (mm/yy)
Report of SC	SC 68b
Publication of findings in peer reviewed journal	12/2021
Outreach to strandings network, vets, marine mammal community	12/2021

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

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) Travel/subsistence (by person or est. total for IPs)	Funds for 3 IPs has already been secured in the two-year budget. However, the cumulative effects workshop, organised by E as a pre-meeting last year, was underspent by £3,817. This would allow us to bring in two additional IPs for as experts on toxoplasma and herpesviruses respectively.	£3,817
(3) Services (by item)		
(4) Reusable equipment		
(5) Consumables		
(6) Shipping (by Item)		
(7) Insurance (by item)		
(8) Co-funding		
(9) Other		
Total		£3,817

9. DATA ARCHIVING/SHARING

Please state your plans for data archiving and sharing. Note that data collected primarily under IWC grants are considered publicly available after an agreed period of time for publication of papers, usually about two years. The work of the IWC depends on the voluntary contribution of data to the various databases and catalogues IWC supports. Please consult the Secretariat (secretariat@iwc.int). All data used in this initiative will already be in the public domain. The data will be shared through the web portal and will be downloadable by users of the portal.

10. PERMITS (PLEASE TICK)

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

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	
Relevance to Scientific Committee priorities				
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.				
Approach and methodology				
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?	<p>1 - Feasibility unrealistic & poor methodology or not properly addressed</p> <p>2 - Feasibility & methodology acceptable but would benefit from some substantial amendments</p> <p>3 - Feasibility & methodology good, some small changes beneficial</p> <p>4 - Feasibility & methodology excellent or a highly promising innovative approach to an important question facing the Committee</p>		
5	What is the likelihood of success based on the proposed overall approach and methodology?	<p>1 - No chance of success</p> <p>2 - Low chance of success/better approaches available</p> <p>3 - Medium chance of success/some changes to the approach necessary</p> <p>4 - High chance of success/little or no changes to the approach necessary</p>		
5 a	Are objectives of the research likely to be achieved within the proposed time-frame?	<p>1 - No or unlikely</p> <p>2 - Partially or potentially ambitious</p> <p>3 - Yes with some minor suggestions</p> <p>4 - Yes</p>		
5 b	Are any proposed intermediary targets timely and achievable?	<p>1 - No or unlikely</p> <p>2 - Partially</p> <p>3 - Probably</p> <p>4 - Yes</p>		
5 c	Is the proposed time-frame/work necessary (e.g. can the project produce results in a shorter time period)?	<p>1 - No or unlikely</p> <p>2 - Partially</p> <p>3 - Probably</p> <p>4 - Yes</p>		
5 d	Is the sample size adequate to achieve the stated objectives?	<p>1 - Not demonstrated/not properly addressed</p> <p>2 - No or unlikely (too low/too high)</p> <p>3 - Probably (additional analysis needed)</p> <p>4 - Yes</p>		
6	Is the project likely to affect adversely the population(s) involved?	<p>1 - Not properly addressed/ unknown</p> <p>2 - Yes severely</p> <p>3 - Possibly at a low level</p> <p>4 - No</p>		

6 a	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		