

NSW DPE Solitary Islands surveys 2022-23 – Cetaceans Permit Application

Supplementary Form A – Whales and Dolphins (cetaceans)

Part 4

- A. The equipment and methods used to comply with the EPBC Act Regulations.
 - R2Sonic Multibeam Sonar 2202 (200-400khz)
 - Smith-MacIntyre Sediment Grab
 - Towed Video System – CSIRO built
 - RV Bombora 43ft Stebercraft Fibreglass Monohull with twin Diesel Engines
- B. What steps will be taken to minimise impacts on cetaceans.
 - All onboard staff are MMO trained
 - Adhere to whale approach rules as per Australian Regulations and RV Bombora (DPE vessel) Safety Management System
 - Towed video/grab equipment retrieved from the water at earliest possible time and not re-deployed until cetaceans have departed from the vicinity
- C. The objectives and purposes of the action.
 - To avoid any potential for physical impact of mobile equipment on cetaceans within the vicinity of the vessel

Part 5

- A. A copy of the research proposal.
 - see accompanying documents **Final Contract DNP Solitary Islands.pdf**; **Approach to Market.pdf** (Detailed Proposal Page 20)
 - A summary of the proposal's field and research components are provided below:
- a) Coasts and Marine Team (NSW DPE) will use our R2Sonic (2022) MBES system setup with POSMV (positioning; motion) and G2 MarineStar (Fugro) satellite corrections installed onboard RV Bombora to acquire high-resolution multibeam bathymetry and backscatter across the priority areas (~140 km²) identified within the Solitary Islands AMP by DAWE/PA. MBES data will be acquired in Hypack and processed in Qimera (QPS) using CUBE modelled surfaces to identify and flag outliers (IHO Order 1B) with cleaned soundings and 5m gridded output products. Total Horizontal Uncertainty and Total Vertical Uncertainty for the final bathymetry surfaces will be reported in the AusSeabed Survey Report, DPE Rigor Statement and metadata statements provided when the data is issued online.
- b) Towed video (n=48 x 200m transects) will be completed using CMT's tethered fibre optic video tow-fish with forward looking video and acquisition software (CSIRO), downward digital stills (Canon) with dual laser pointers and Ultra-Short Base Length system to provide tow fish positioning. Images and acquisition data will be quality controlled before being made available online via AODN (or alternatively NSW's SEED AWS) for annotation within Squidle+. Annotations for approximately 25 random points on 50 random images from each transect will be completed by CMT (Ingleton, Sutherland, Doszpot) using Squidle+ supported by IMOS/AODN and UTas. Images and annotation sets will be made publicly accessible via the Squidle+ platform.
- c) Sediment samples (n=40-50) will be obtained using CMT's Smith MacIntyre grab with USBL positioning and grab image capture (GoPro). Samples will be split into 2 x polyethylene bags (analysis + archival samples) and kept at <4C until they are processed and analysed for

particle sizes (%mud, sand, gravel) and Total Organic Carbon. Carbonate content (shell) could also be analysed at additional cost.

- a. Data will be imported into ArcGIS and additional 3D spatial layers derived from the bathymetry. These will be used to then define 'landform' typology (Linklater et al 2019) and create, at a minimum, reef and non-reef areas (shape files) within the confines of the survey. Backscatter and sediment samples will then be used to align features with soft sediment types along with towed video to validate boundaries and to characterise the biological communities/features across the survey area.
- B. The names of the researchers and institutions involved in or supporting the research.
- Coasts and Marine Team, Waters Wetlands and Coasts Science, New South Wales Department of Planning and Environment.
 - i. Dr Tim Ingleton Senior Scientist/Research Scientist
 - ii. Dr Brad Morris Scientist
 - iii. Michael Sutherland Scientist
 - iv. Neil Doszpot Technician
 - Andrew Williams, Senior Project Officer, Science Economics and Insights, NSW Department of Planning and Environment
 - Kate Maltby, Senior Marine Parks Officer, Marine and Island Park Branch, Parks Australia.
- C. Relationship of the researchers to the permit applicant, including any funding being provided by, or to, the permit applicant
- Scientists/technicians of NSW DPE within the Coasts and Marine Team
 - Kate Maltby is providing oversight of the contract with NSW DPE on behalf of Parks Australia and the Director of Parks.