Description of the Action
Permit Supplementary Form - Question 4
Applicant: Anthony Muyt

Equipment and Methods

- The research team will be working from the ice breaker Le Commandant Charcot, which is 492ft long and has a gross tonnage of 31 757 UMS.
- To conduct fieldwork the team will use a 23ft long inflatable zodiac.
- Dr Carlos Olivarria will be using both a compound cross-bow and a PAXARM biopsy rifle for the purpose of obtaining tissue samples. Both of these instruments have been used extensively by Marine Mammal Researchers around the world to conduct non-lethal research.
- The cross-bow system uses a draw string which can be adjusted depending on the pressure required.
- The PAXARM biopsy system uses a modified 0.22 calibre rifle with a blank cartridge.
- Although the body of the dart is different depending on which system is used, the small steel biopsy head is interchangeable between systems.

Steps taken to minimise impacts on Cetaceans

- When conducting small vessel (zodiac) operations around whales for the purpose of photo identification or acoustic monitoring, the vessel will be operated in a way to minimise any disturbance to the animals in accordance with the EPBC Regulations, IAATO (International Association of Antarctica Tour Operators) Cetacean Watching Guidelines and the Australian National Guidelines for Whale and Dolphin Watching 2017.
- If there is any sign of disturbance evident, including avoidance behaviour, changes in direction of travel, surface interval etc. as a direct consequence of our vessel, we will disengage and withdraw from that animal/s.
- Close approach to 15m (cross-bow) or to 20m (PAXARM) will only be undertaken according to best practice and for the purpose of obtaining a biopsy sample. Whale behaviour will be monitored for a period of time prior to any close approach.
- If there is any sign of disturbance evident, including avoidance behaviour, changes in direction of travel, surface interval etc. that appear as a direct consequence of our vessel, we will disengage and withdraw from that animal/s.
- No biopsy samples will be taken from calves.
- Any reaction from the whale as a consequence of the biopsy dart will be recorded.
- In addition to the applicant, Anthony Muyt's extensive experience working around marine mammals (See permit application Q.6 attachment), Dr Carlos Olivarria, who will be deploying the biopsy darts, has over 30 years working with and biopsying cetacean species for genetic analysis. This includes from the largest whale (Blue Whale) to the smallest dolphin (Maui/Hectors Dolphin). Dr Olivarria has worked extensively in Antarctica, mostly under Chilean Antarctic Institute projects, but also on the Ross Sea with the International Whale Commission.

The objectives and purpose of the action

- Determine feeding acoustic behaviour, connectivity to breeding geographies, and impacts of vessels on humpback whales in Antarctic feeding grounds using passive acoustic survey methods
- Generate distribution and migratory pathway information for humpback whales using photo identification
- Define humpback population structure using biopsy sampling methods
- Generate density estimates for large whales in CCAMLR management areas Domain 1 and 9 using distance sampling sightings data