Cetacean abundance in the inshore waters of the Falklands Islands

Marina Costa[1], Maria Isabel Garcia Rojas[1], Scott Baker[2], Sonja Heinrich[3]

1 South Atlantic Environmental Research Institute, PO Box 609, Stanley Cottage, Stanley, FIQQ 1ZZ, Falkland Islands

2 Hatfield Marine Science Center, Oregon State University, 2030 SE Marine Science Drive

Newport, OR 97365

3 Sea Mammal Research Unit - Scottish Oceans Institute, East Sands, St Andrews, Fife, United Kingdom

The coastal waters of the Falkland Islands support year-round resident populations of Commerson's (*Cephalorhynchus commersonii*) and Peale's (*Lagenorhynchus australis*) dolphins as well various migratory baleen whale species (mainly sei whales, *Balaenoptera borealis*) during the summer. While the cetacean fauna in the offshore waters has been studied for three years from vessels of opportunity, no systematic surveys have been conducted nearshore. This study was supported by the UK Government's Darwin Plus Funding scheme and the Falkland Islands Government to provide the first ever abundance estimates for cetaceans in the waters within 10km from the Falkland Island archipelago (~19,314km2). Aerial surveys with a fixed wing aircraft were conducted during nine days from March to May 2017 using two trained observers and one data recorder. Software distance 6.2. was used to design the survey resulting in 217 parallel transects and to analyse the sighting data. Survey effort on transects with sea state of Beaufort ≤4 was 4,255 km. A total of 6 species were recorded of which there were 195 sightings of Commerson's dolphins, 55 of Peale's dolphins, 68 of sei whales, 8 of fin, 2 of minke whales and 1 of blue whale, in addition to 58 sightings of unidentified baleen whales. Detection probabilities were estimated excluding sightings correspondent to the longest perpendicular distances (400m for Commerson's dolphins and baleen whales and 350m for Peale's dolphins). After calculating effective strip width of 268m, 245m and 346m for Commerson's dolphin, Peale's dolphin and baleen whales respectively, the following estimates of abundance were obtained for Commerson's dolphins: 5,789 *(*CV=0.18) with group size of 3.52 (CV=0.07, range 1-16), Peale's dolphins: 1,896 (CV=0.33) with group size of 3.89 (CV=0.14, range 1-21), baleen whales (combined): 546 (CV=0.18) with group size of 1.21 (CV=0.05, range 1-3). We are currently exploring potential issues due to availability bias using aerial drone footage to estimate dolphin surfacing rates. This project provides valuable baseline data to evaluate population trends, contributes to the IUCN Red List Species assessment, the Falklands Species Action Plan, as well as ongoing marine spatial planning activities.

Word count: 338