

NORWAY - PROGRESS REPORT ON MARINE MAMMALS 2015

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I INTRODUCTION

This report summarizes Norwegian research on pinnipeds and cetaceans conducted in 2015 and conveyed to the compilers. The research presented here was conducted at, or by representatives and associated groups of,

The Institute of Marine Research (IMR);

University of Tromsø (UIT);

The Norwegian Polar Institute (NP);

University of Tromsø – The Arctic University of Norway/ Department of Arctic and Marine Biology (UArMB);

Norges Arktiske Universitet, Forskningsgruppe for arktisk luftfotogrammetri (AARB).

II RESEARCH BY SPECIES 2015

PINNIPEDS

Harp seals *Phoca groenlandica*

The use of traditional photo aircrafts to assess seal populations in remote areas, such as the West Ice, is expensive, and has also become more difficult to operate during recent years. Few airports are available in the area. Costable Point in East Greenland, Akureyri in Iceland and one primitive landing strip on the island Jan Mayen. The latter is not even always available. The Greenland airport is the main base – due to the ice conditions this arrangement requires that fuel for the operation is shipped to Costable Point the autumn before the surveys are carried out. With funding from the Norwegian Research Council (NRC), IMR has now started experiments with alternative (and cheaper) methods to perform photo based aerial surveys of seals in the West Ice. Two research survey have been carried out to the West Ice, the first in March 2014 using KV *Sealhound*, the second in March 2015 using MS *Rjerdhøg*. The aim of the surveys was to test the usefulness of UAVs (Unmanned Aerial Vehicles), operated by the Northern Research Institute (Norut), to perform aerial photographic surveys of **harp** and **hooded seal** whelping patches on the drift ice. Two drones were tested: One small (wingspan 2.10 m) with electronic motor and one larger (wingspan 3.80 m) petrol-driven UAV. Digital cameras were used, and the largest UAV was also instrumented with thermal infrared (IR) camera. Both aircrafts were launched by a mechanical launcher from the ship deck. The smaller UAV could be landed on KV *Sealhound's* helicopter platform, while the larger had to be landed on ice floes, preferably at least 80 m long and 20 m wide. Both UAV's fly along predefined transects and altitudes, but changes can be implemented throughout the flight using satellite based communication. The UAV's are landed manually. The main aim of the investigations in 2014 was to explore various survey altitudes and camera settings to obtain an optimal altitude and camera set up for photographing seal pups. Simultaneous use of digital and IR cameras enabled exploration of combinations of those to detect and classify seals. Experience obtained from using the UAVs, and the quality of the images taken, were promising. Both harp and hooded seals, including pups, were easily identified on the images taken at an altitude of 300 m (the usual altitude for photographing during traditional surveys). Images from the IR camera did not improve the photo analyses. In 2015, we aimed also to test UV-cameras. Unfortunately, however, the largest UAV (including the equipment) was lost due to technical problems. Nevertheless, the experience obtained during the two surveys show that it is necessary to develop a system that enables us to land a relative large UAV on the helicopter platform. The ice conditions in the West Ice seal whelping patches usually implies small and uneven ice floes which