

NORWAY - PROGRESS REPORT ON MARINE MAMMALS 2017

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I INTRODUCTION

This report summarizes Norwegian research on pinnipeds and cetaceans conducted in 2017 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);

The Norwegian Polar Institute (NP);

The Arctic University of Norway, Færøingsgruppe for arktisk marin systematologi (UAF-AMSE);

University of Oslo - Centre for Ecological and Evolutionary Synthesis (CEES).

II RESEARCH BY SPECIES 2017

PINNIPEDS

The use of traditional photo aircrafts to assess **harp** and **hooded seal** populations in remote areas, such as the West Ice, is expensive, and has also become more difficult to operate during recent years. 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, including the use of UAVs (Unmanned Aerial Vehicles) or drones. Manual analysis of images obtained in aerial photographic surveys is extremely time consuming and costly, and involves subjective human interpretation by trained experts. For this reason, the UAV project, also aims at developing methodology for automating the process of counting seals from aerial images. This will be achieved through the development of new image analysis and pattern recognition techniques tailored to detect seals in digital color images. Techniques including machine learning and deep neural networks are applied, and the preliminary results are very promising. This part of the work now occurs in the IMR project REDUS which is running in close cooperation with the Norwegian Computing Center, Oslo. (IMR)

In 2008 and 2010, satellite based tags were deployed on 18 **hooded seals** (9 adult females, 3 adult males, 6 juveniles) in the Greenland Sea. The main goal was to assess and define the ecological niche of the species and to better understand how changes in physical conditions might affect its distribution or behaviour. Overall, foraging occurred most commonly in relatively shallow areas with high sea surface temperatures, corresponding to continental shelf areas with Atlantic Water masses. All age and sex classes overlapped spatially to a degree, but the different age and sex groups did show differences in the bathymetry of their foraging areas as well as showing vertical segregation by the water column. When foraging, pups dove in the upper part of the water column, but in relatively deep areas compared to the adults. Adult females foraged relatively shallowly in deep water areas too, while males foraged close to the bottom in shallower areas. Despite considerable changes in ice cover, the current migration patterns of hooded seals seems not to be very different from observations made in the early 1990s. (NP – IMR)

In a recent study of a study of selection and foraging response of **harbour seals** in an area (Porsangerfjord, Finnmark, Norway) of changing prey resources, the foraging behavior of seals was investigated by assessing their preference and foraging response to the seasonal dynamics of prey distribution. The movement and dive patterns of individual seals were tracked with GPS devices. Foraging locations were compared to the availability of potential prey species in the fjord. Results