



The impact of sand extraction near Sylt on common scoter (*Melanitta nigra*)

Miriam J. Brandt*, Ansgar Diederichs*, Jörg Rasmus**, Georg Nehls*
e-mail: m.brandt@bioconsult-sh.de
*BioConsult SH, **GFN

INTRODUCTION

Almost 40 % of the global population of common scoter (*Melanitta nigra*) winters along the German and Danish North Sea coastline. The conservation of common scoter is one of the main objectives of the Wadden Sea National Park of Schleswig-Holstein. However, within this protected area sand extraction takes place in a 9 km² area for coastal protection since 1984. Plans to increase its size by another 55 km² raised the question of how this would affect the common scoter population and whether the National Parks' objectives might be compromised. Therefore we were commissioned by local authorities to study the potential impact of further sand extraction on habitat suitability for common scoters.

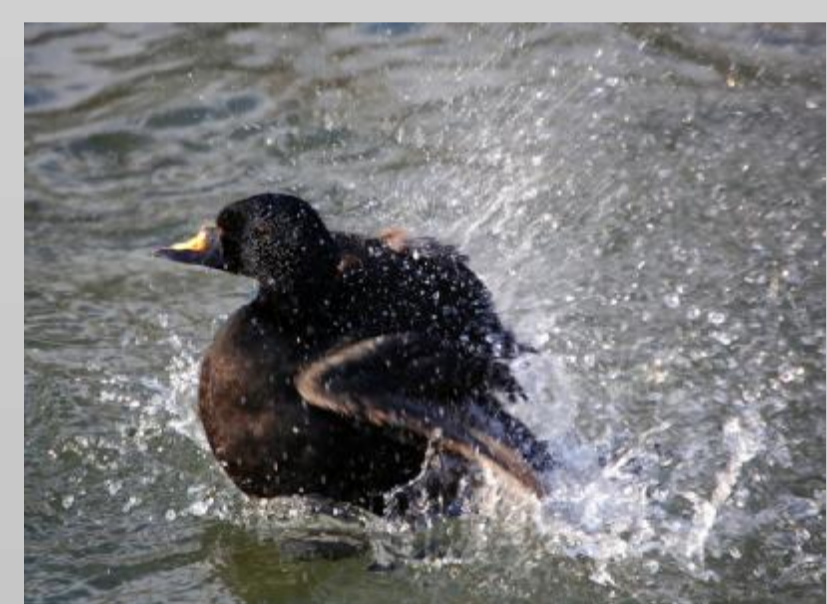


Sand extraction ship



METHODS

Between 2007 and 2008 the area was surveyed by plane once every month, and scoters present within this area were counted and mapped. Densities were calculated using the strip transect method. To test whether sand extraction already negatively effected habitat use by common scoter, we tested for differences in densities between impact area, reference area and planning area, using simple non parametric statistics. Based on density estimates within the study area we calculated the range of the number of common scoter individuals that could be affected by habitat loss due to further sand extraction.



RESULTS AND DISCUSSION

Scoter densities were highest in November and January (Fig. 1). Two high density areas (HDA) were observed (Fig. 2): one off the northern tip of Sylt and a second west of the southern end. Distribution was limited to shallow waters with most animals being observed at water depths of less than 16 m.

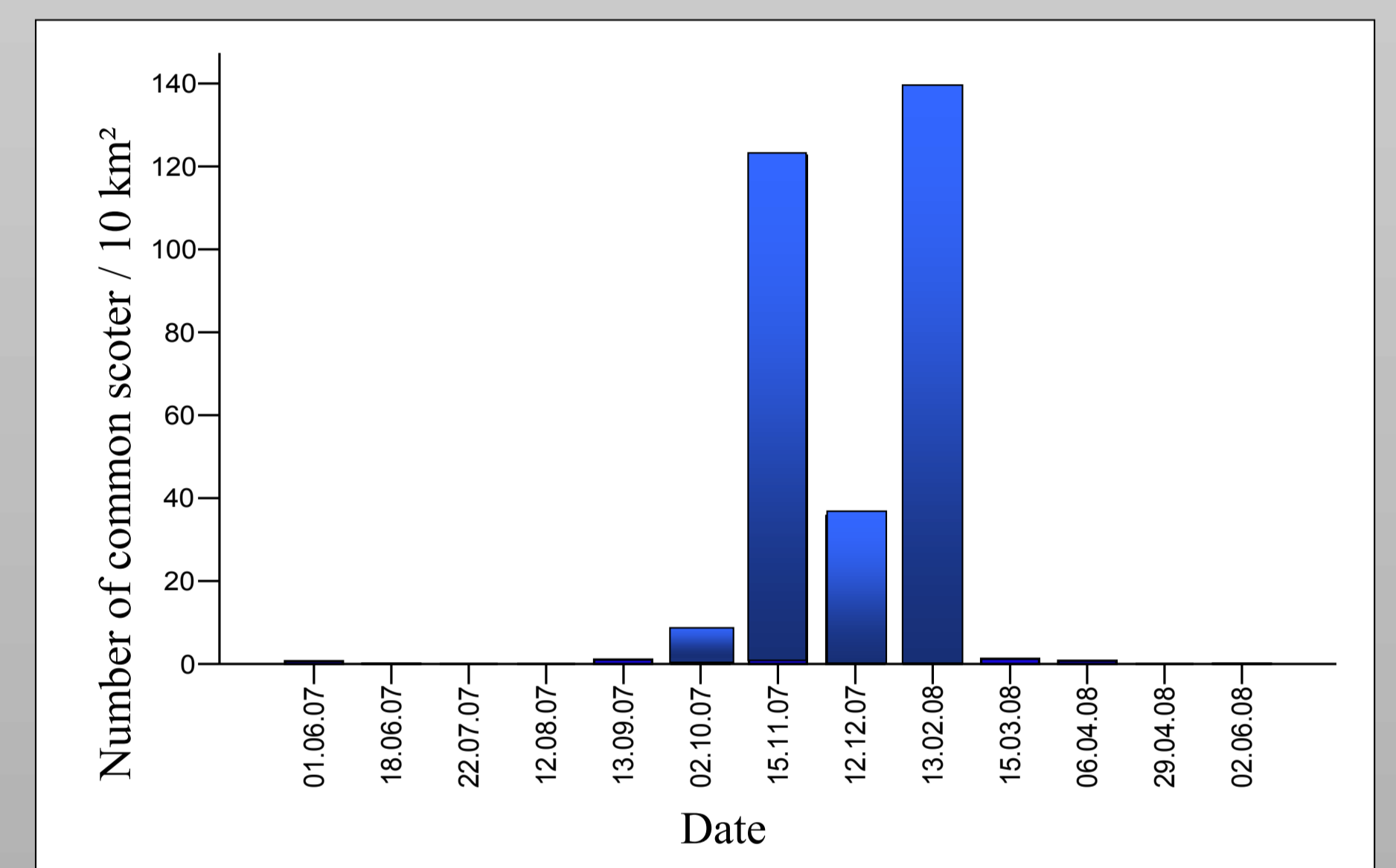


Fig. 1: Common scoter density at different months.

Within the impact area (IA) scoter occurrence was significantly less than in the reference area (RA) and planning area (PA) (Fig. 2). This is probably caused by higher water depths resulting from sand extraction, as diving to these depths might no longer be energetically efficient, and also by the destruction of benthic food resources, making this area less suitable as a feeding ground. Densities in PA did not significantly differ from those in RA and thus PA has to be considered important scoter habitat.

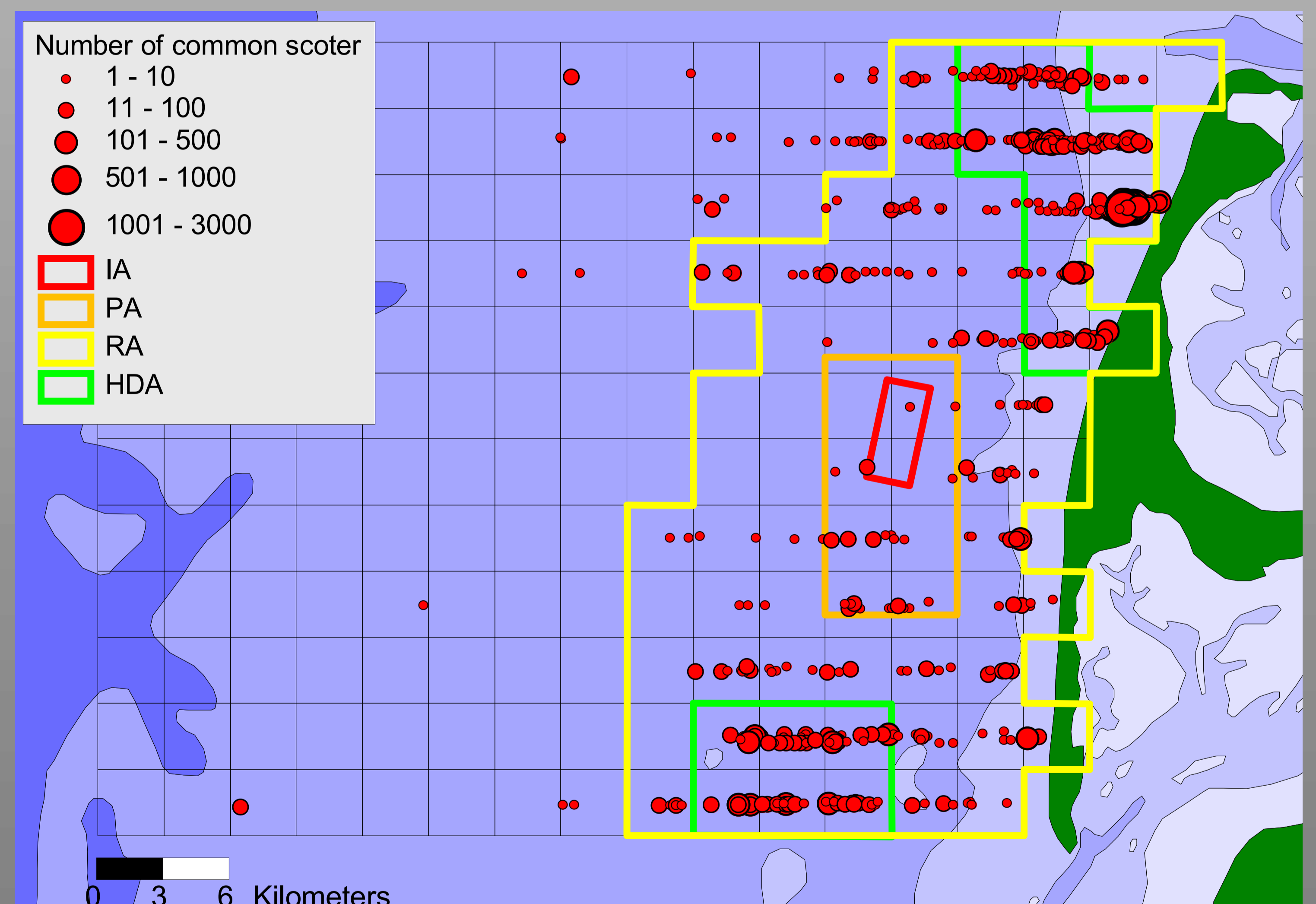


Fig. 2: Cumulative map of common scoter distribution. Demarcated areas used for statistical analysis are framed in different colours: impact area (IA, red) where sand extraction already took place, planned area (PA, orange), high density area (HDA, green), reference area (RA, yellow). Numbers of individuals in the flock are shown in different point sizes.

We calculated that sand extraction already caused habitat loss for between 180 and 1170 scoters, and that expansion would cause further habitat loss for 1120 to 7140 individuals (depending on whether or not one includes density hotspots for calculating scoter density within the reference area). We therefore conclude that sand extraction compromises scoter conservation. For future sand extraction we recommend using already existing sites, and if expansion is necessary, moving to areas further offshore.



CONCLUSIONS

Our investigation showed, that the increase in sand extraction would lead to a substantial reduction in scoter numbers. Based on these findings, the appropriate assessment judged the plan of this extension to be a significant impact in relation to the conservation targets of the protected area.