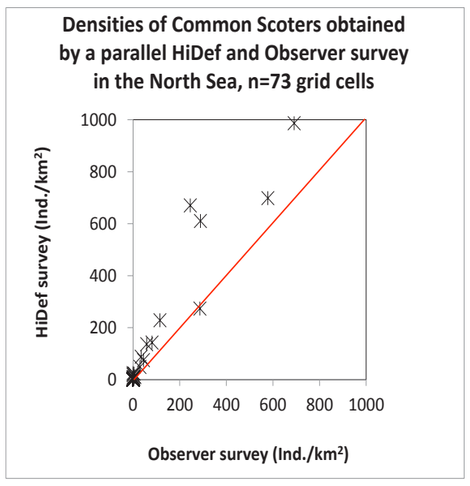
Anne-Cécile Dragon, Thilo Liesenjohann, Caroline Höschle, Felix Weiß, Ansgar Diederichs, Georg Nehls

AERIAL HIGH-DEFINITION VIDEO SURVEYS TO MONITOR MARINE WILDLIFE

- high-resolution video
- reliable and reproducible data
- >100 flights of experience
- approved by legal authorities

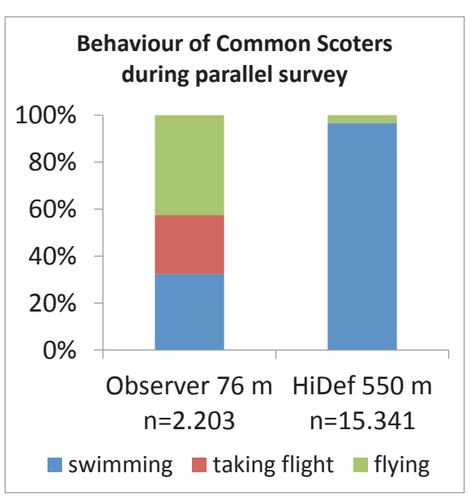
Offshore wind farm construction and other human activities at sea legally require assessment of the impact on marine life. BioConsult SH uses HiDef's transect-based survey method to provide reliable expertise to industrial partners and authorities.

LESS DISTURBANCE, BETTER FOCUS



Prerecorded video footage yields accurate counts of flocks and pods, whereas traditional observer-based surveys underestimate the size of large flocks.

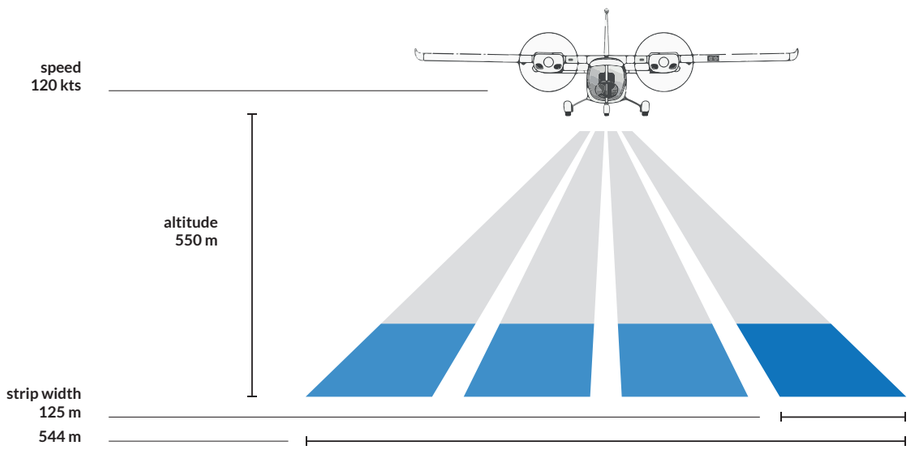
Identification and documentation of observation records is not limited by lack of time. Observer bias is thus minimised.



High flight altitude minimises wildlife disturbance and fascilitates the study of undisturbed behaviour at sea.

In wind farm areas flight safety requires a minimum altitude above the typical altitude of observer-based surveys.

GOOD VIEWS FROM ABOVE



High-resolution videos ensure accurate identification of species across the entire strip width. Unlike traditional observer-based surveys, no distance correction needs to be applied (Buckland et al. 2005).

BioConsult SH uses the HiDef system, developed in the UK, and has carried out more than 100 surveys for seabirds and marine mammals since 2014.


Harbour Porpoise

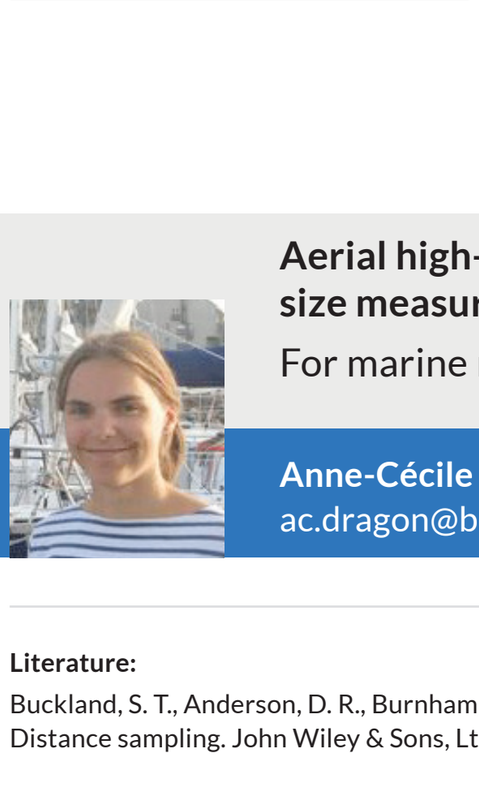

Great Skua

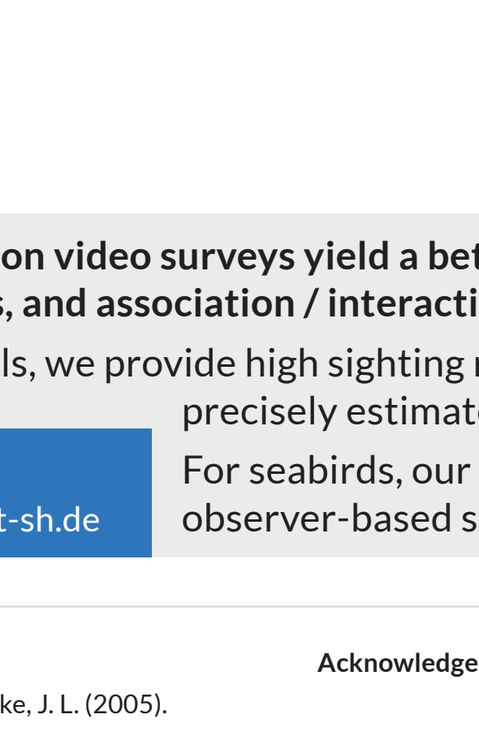

Harbour seal


Northern Gannet


Ocean Sunfish


Basking Shark




Sex ratio of Common Scoters:
1600 males, 1678 females

93% SPECIES-LEVEL IDENTIFICATION

Due to the large strip width and high flight speed an area of 120 km² can be covered per hour. The resulting large sample sizes lead to precise abundance estimates of many marine species.

For seabirds a species-level identification of 93% is achieved by high-resolution imaging with a pixel size of 2 cm.

DETAILED HIGH-QUALITY RESULTS

In contrast to traditional observer-based surveys, HiDef produces precise results for abundance estimates, sex ratio, flight direction, and flight altitude.

Aerial high-definition video surveys yield a better spatial resolution and additional information such as behaviour, size measurements, and association / interaction with other animals.

For marine mammals, we provide high sighting rates of both surfacing and submerged animals, which enable us to precisely estimate animal density offshore.

For seabirds, our analyses reveal a substantial underestimation by traditional observer-based surveys, particularly for sensitive species such as the Common Scoter.

Anne-Cécile Dragon
ac.dragon@bioconsult-sh.de

Literature:
Buckland, S. T., Anderson, D. R., Burnham, K. P., & Laake, J. L. (2005). Distance sampling. John Wiley & Sons, Ltd.

Acknowledgements:

BioConsult SH GmbH & CO KG
Schobüller Str. 36 – 25813 Husum, Germany
www.bioconsult-sh.de – +49 4841 66 329 10