

Site fidelity and temporal consistency of red- throated divers (*Gavia stellata*) during migration, moult & wintering

Kleinschmidt B.^{1,2}, M. Dorsch², R. Žydelis³, S. Heinänen³, J. Morkūnas⁴, C.Burger², G. Nehls² & P. Quillfeldt¹

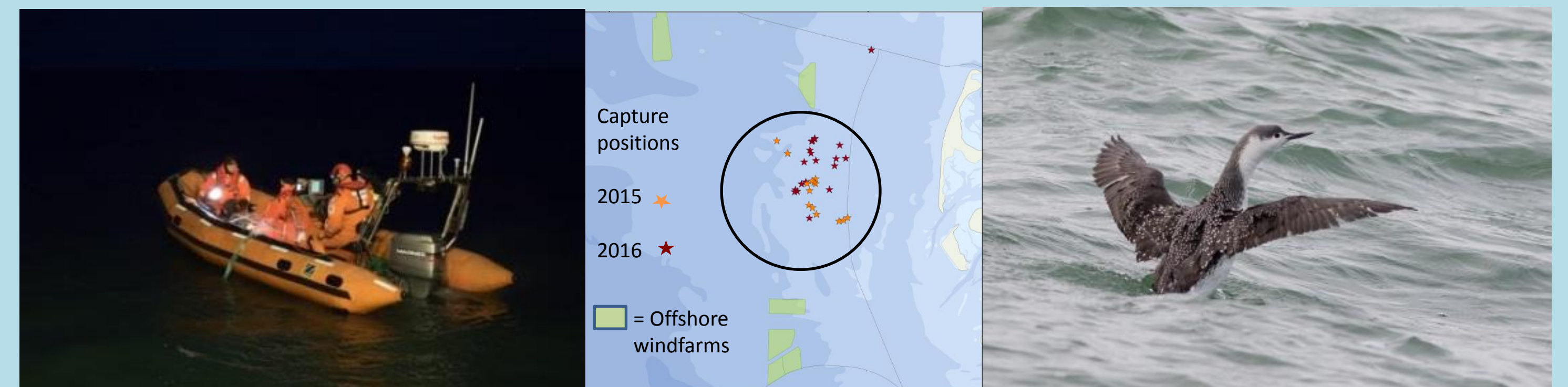
1) Department of Animal Ecology and Systematics, Justus Liebig University Giessen, Giessen 35392, Germany, Email: b.kleinschmidt@bioconsult-sh.de; birgit.kleinschmidt@gmx.net; 2) BioConsult SH, Husum 25813, Germany; 3) DHI, Hørsholm 2970, Denmark; 4) Klaipeda University, Klaipeda, Lithuania
www.divertracking.com

Background & Motivation

- Red-throated diver is a strictly protected migratory species
- Breeding in arctic regions
- Wintering in temperate coastal waters
- Eastern part of the North Sea represents an important area within winter & spring season
- Movement ecology mostly unknown
- A better understanding of site fidelity and timing of movements is crucial for conservation implications

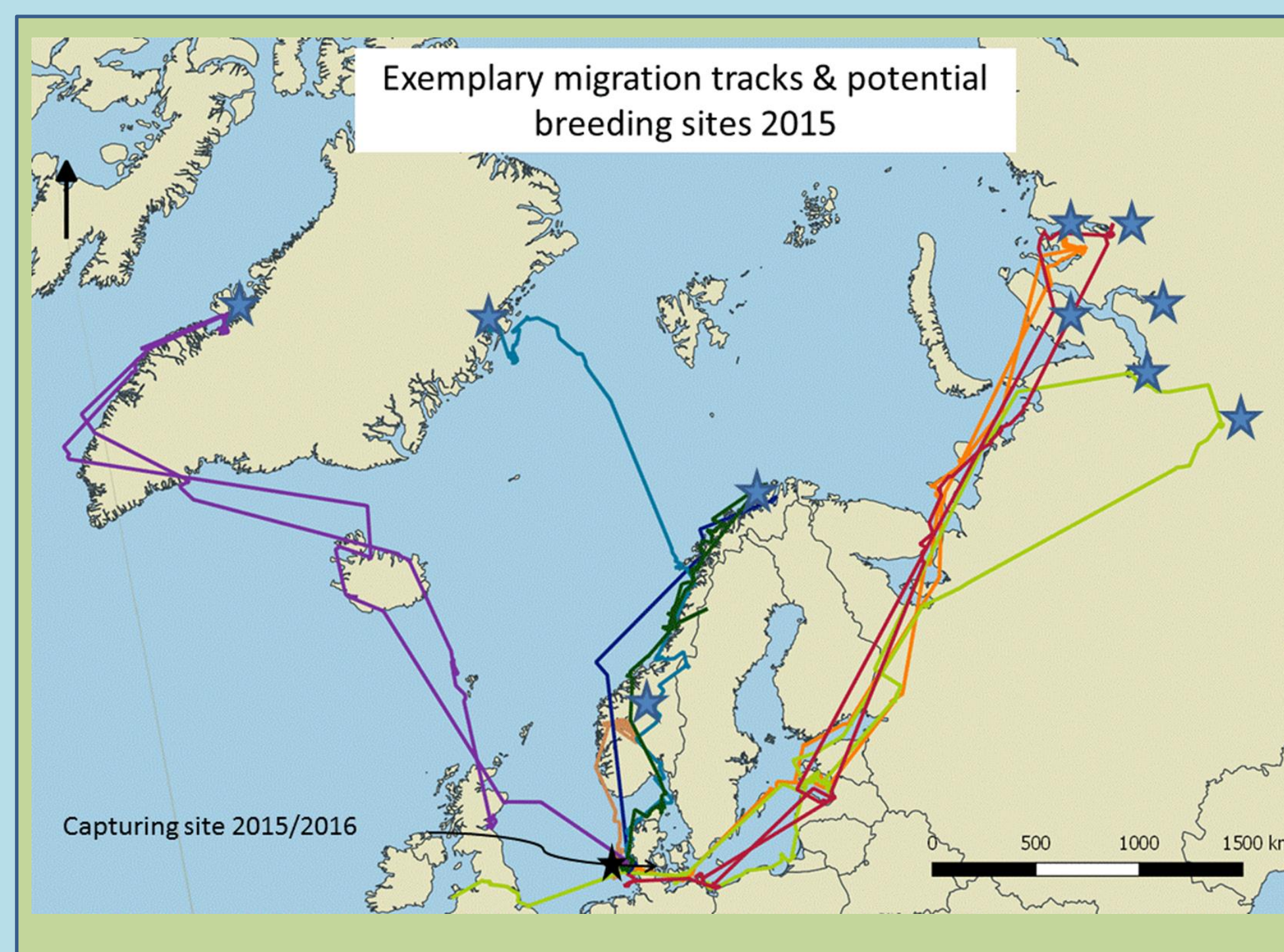
Methods

- In winters 2015 & 2016 red-throated divers were captured in German North Sea EEZ using night lightning technique
- Red-throated divers were equipped with implantable satellite transmitters

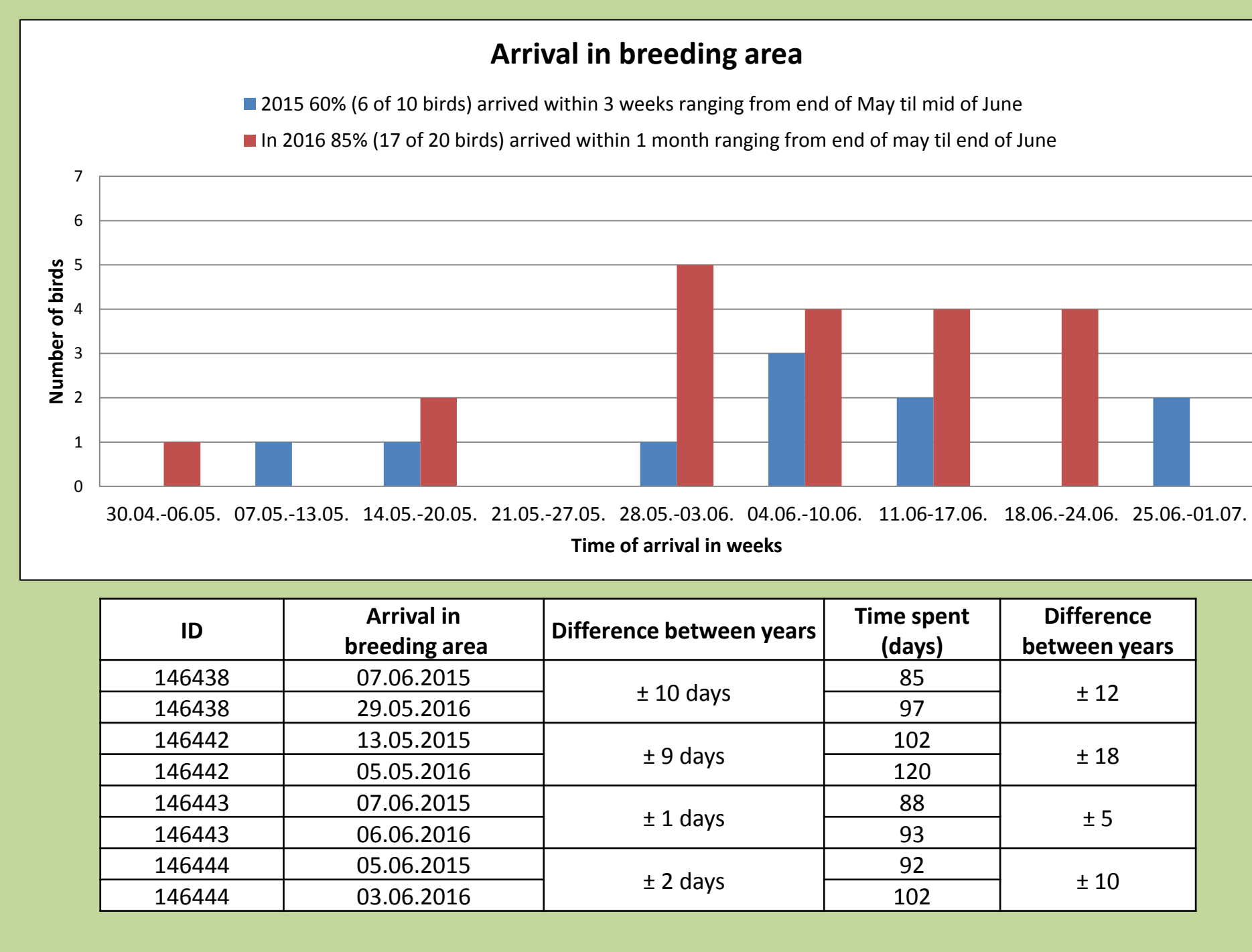


Results 27 birds were tracked from wintering sites to breeding grounds, 11 birds were tracked from wintering to their moulting site, 9 birds were tracked from wintering to wintering, 5 birds were tracked for more than a full annual cycle

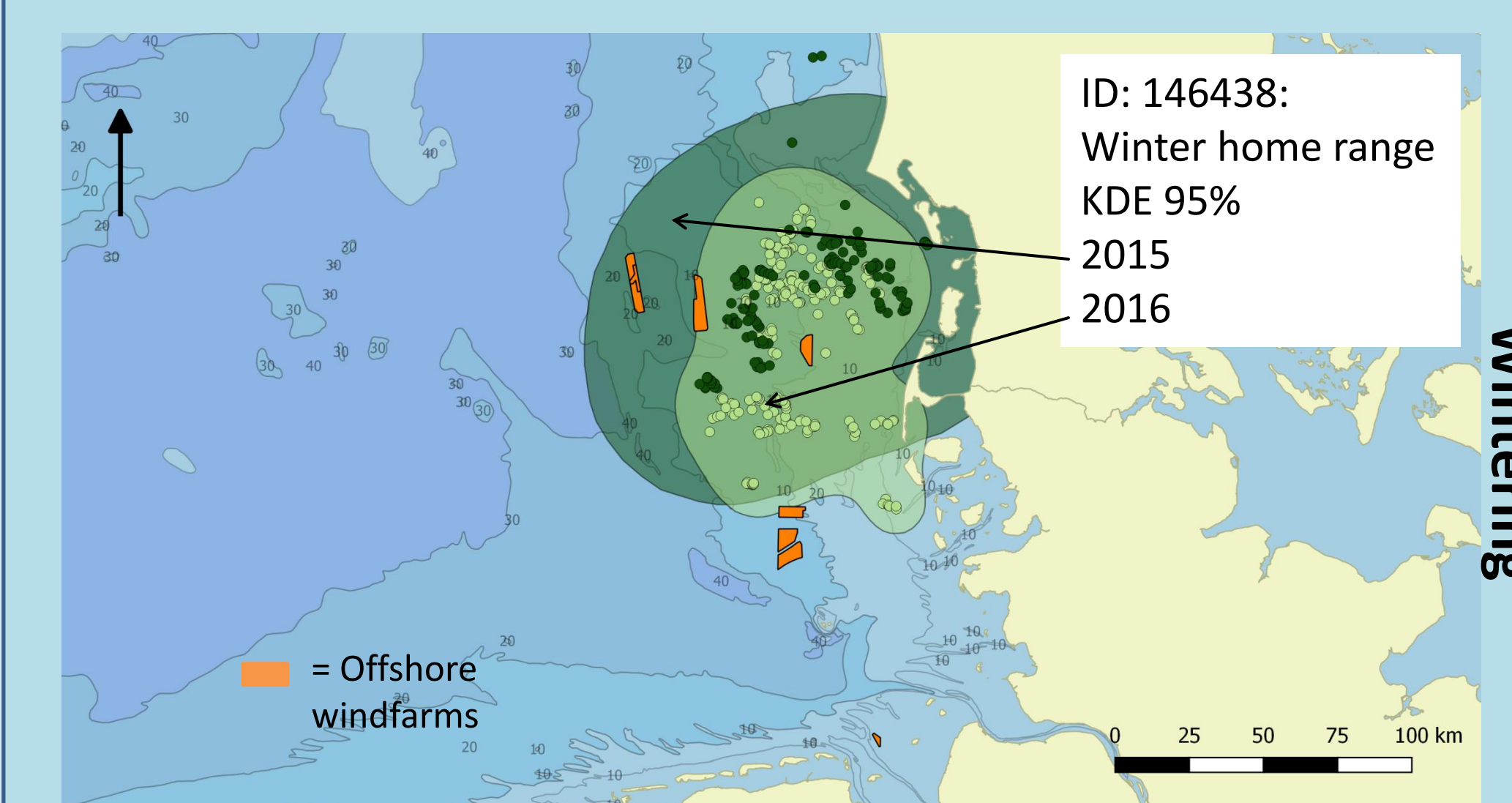
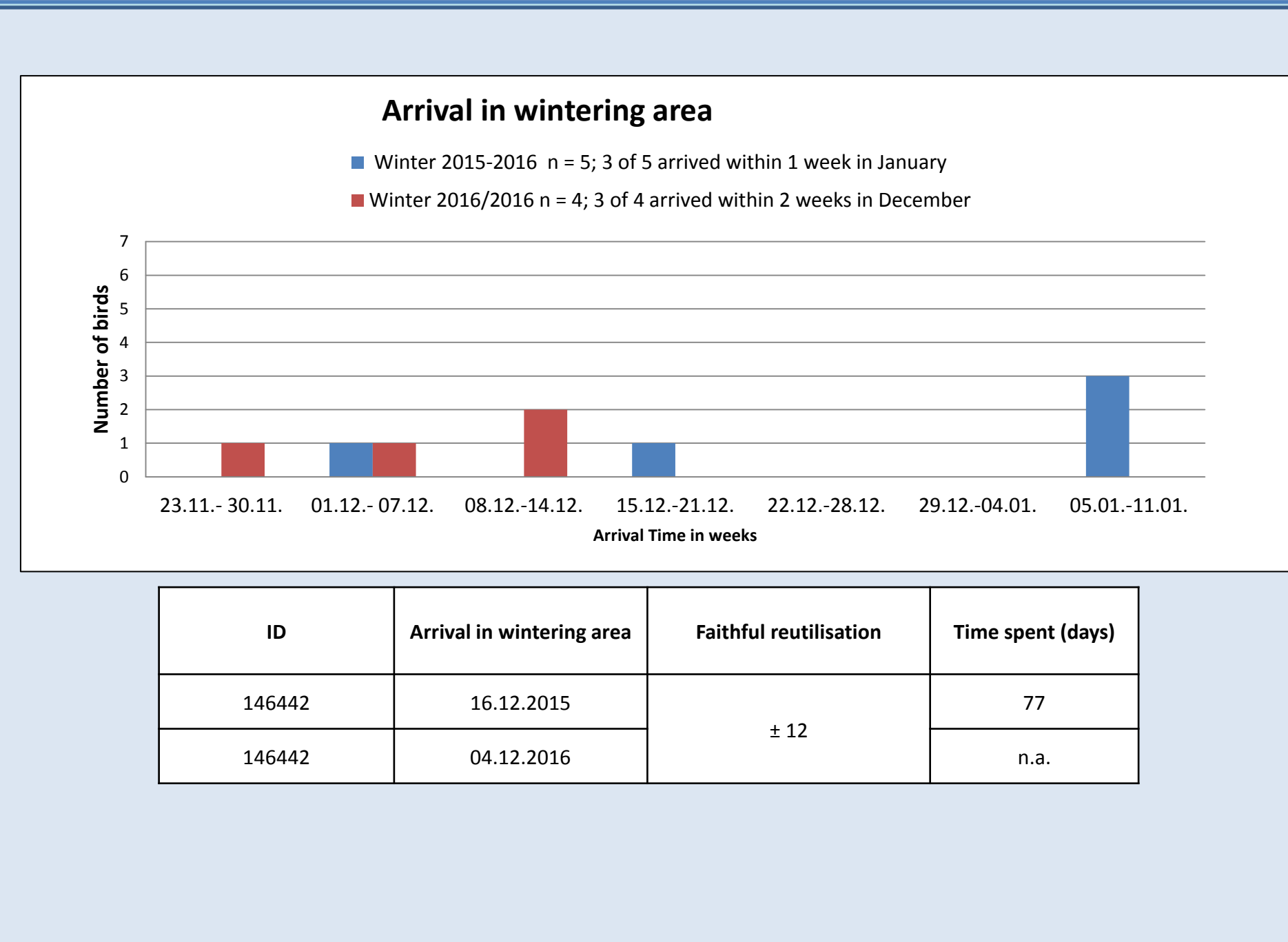
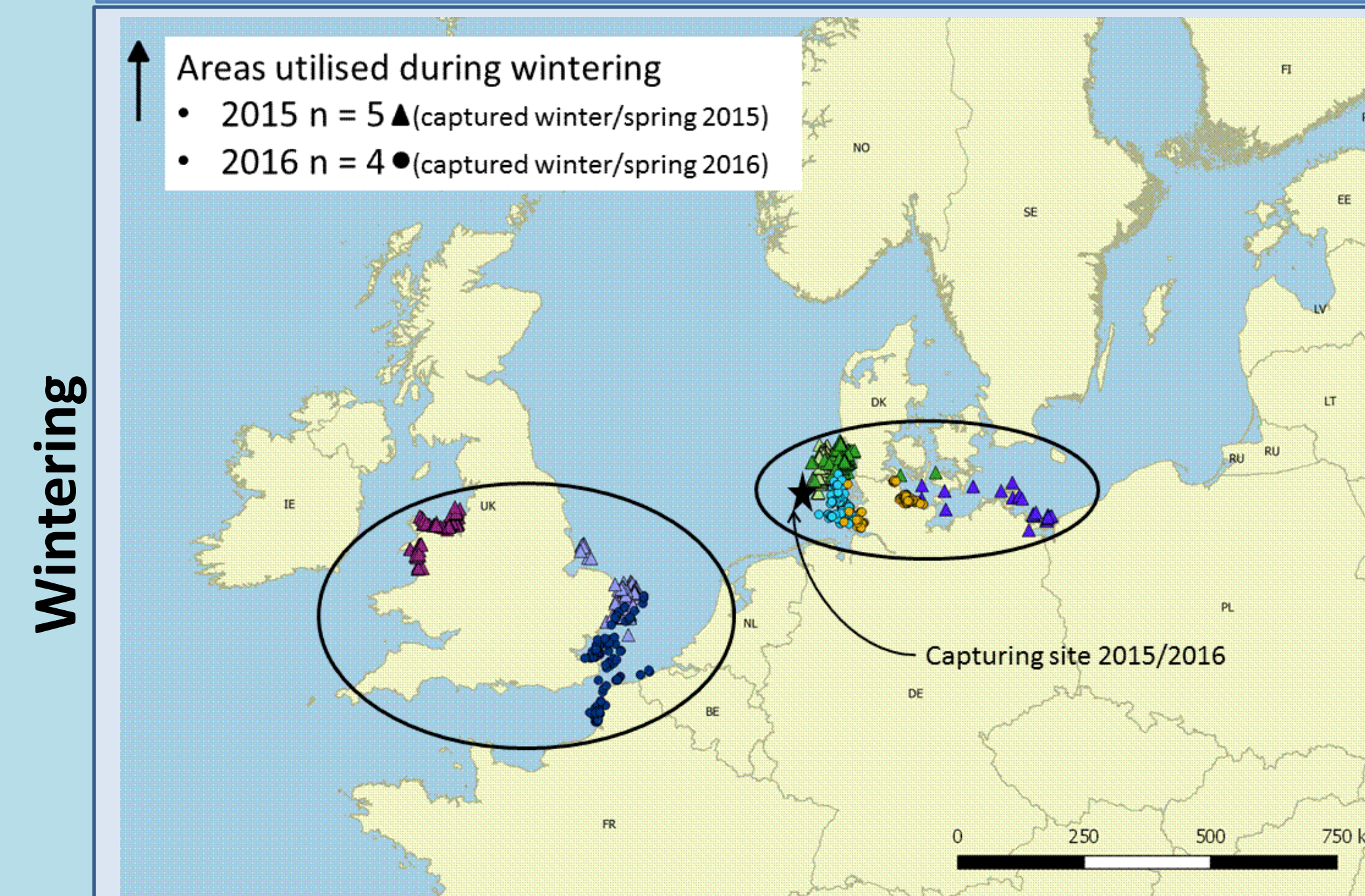
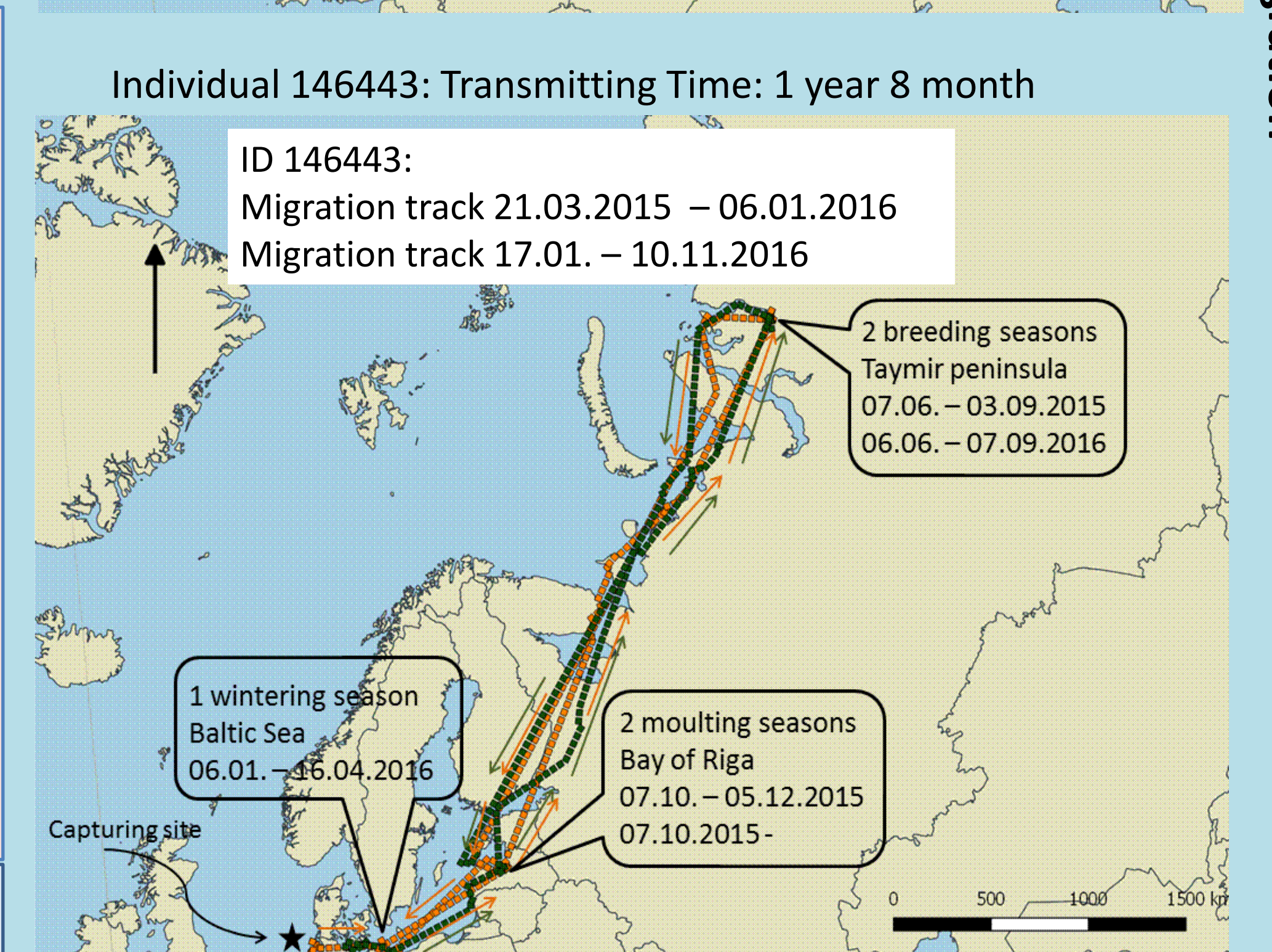
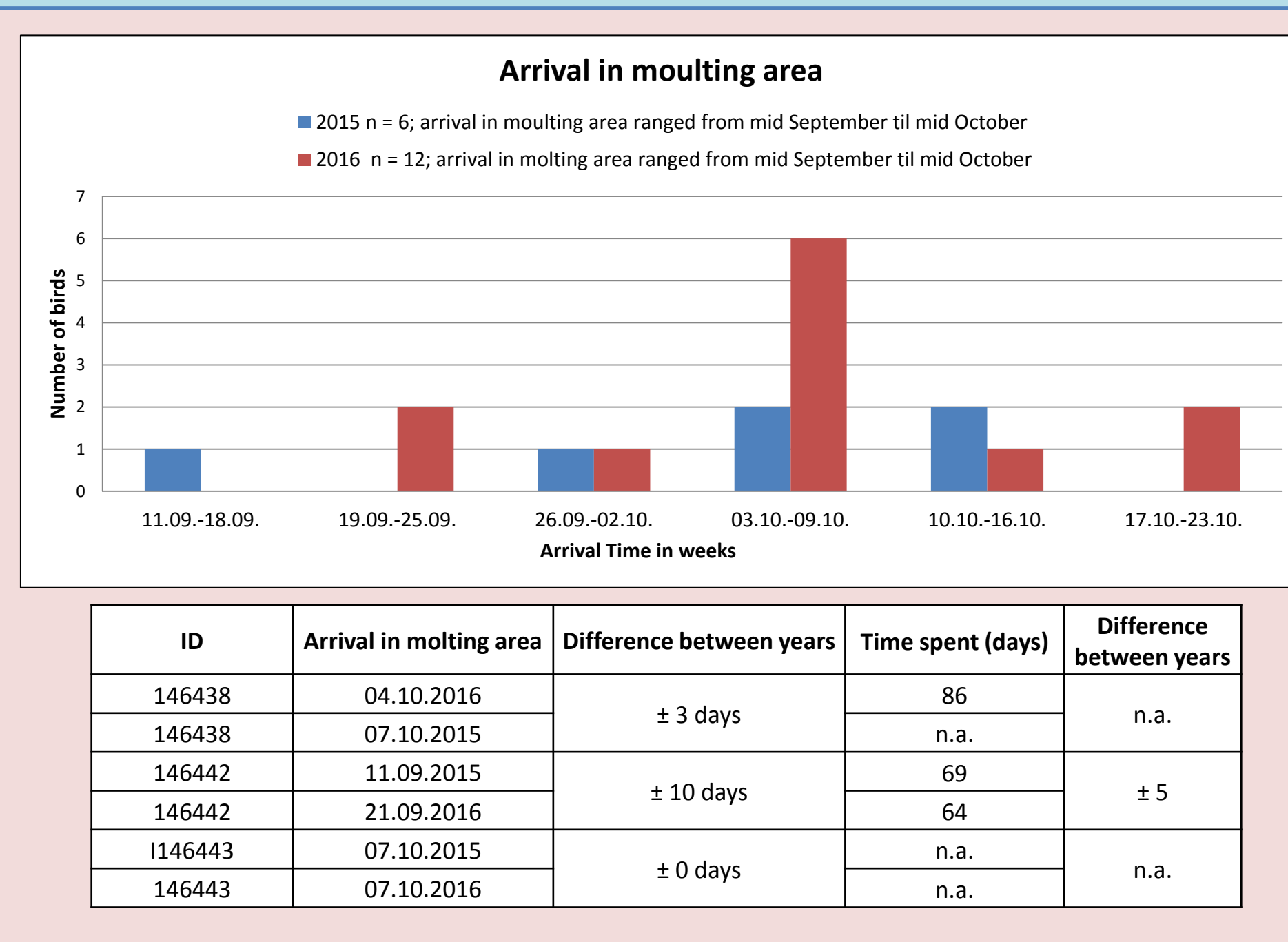
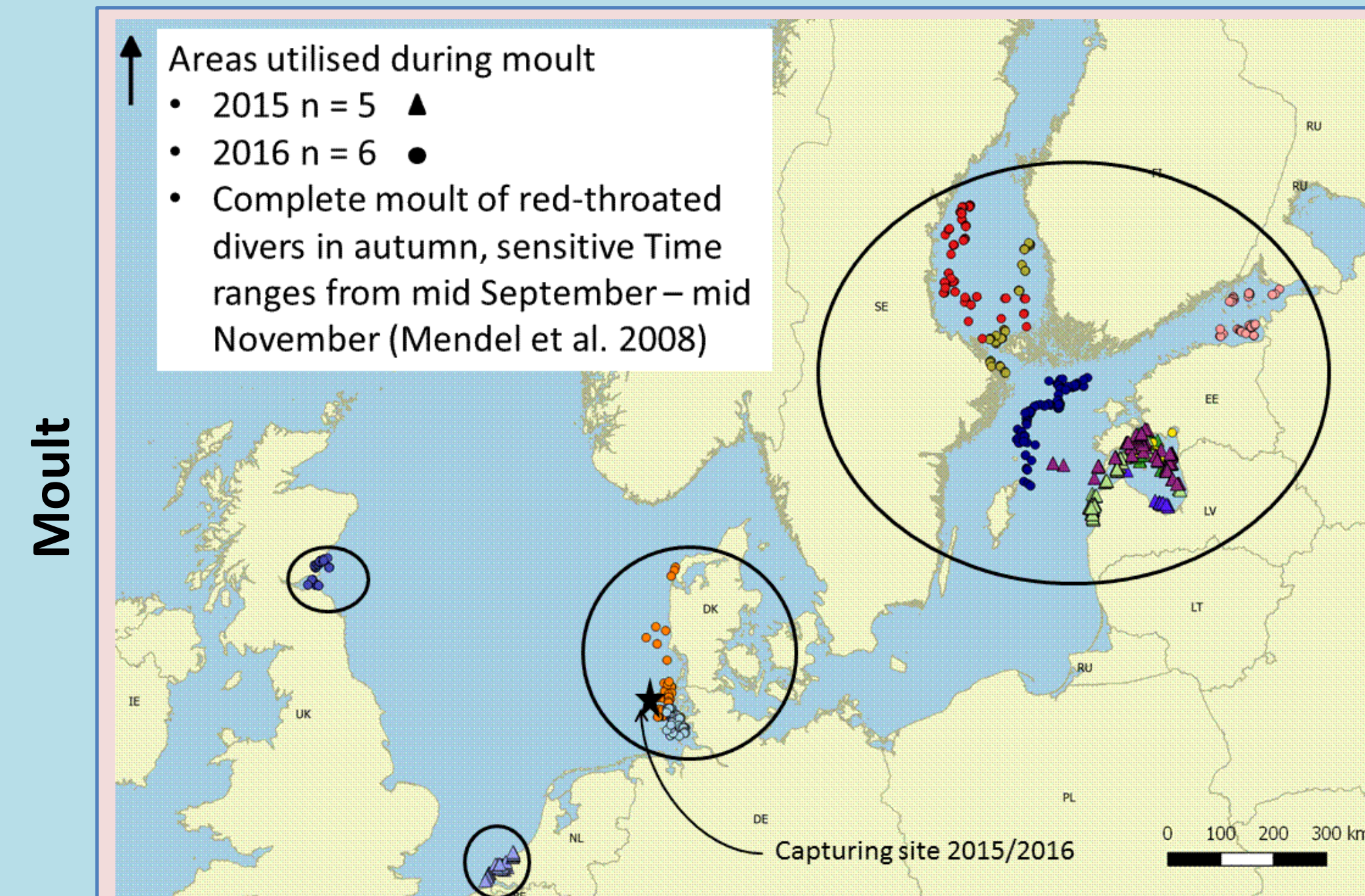
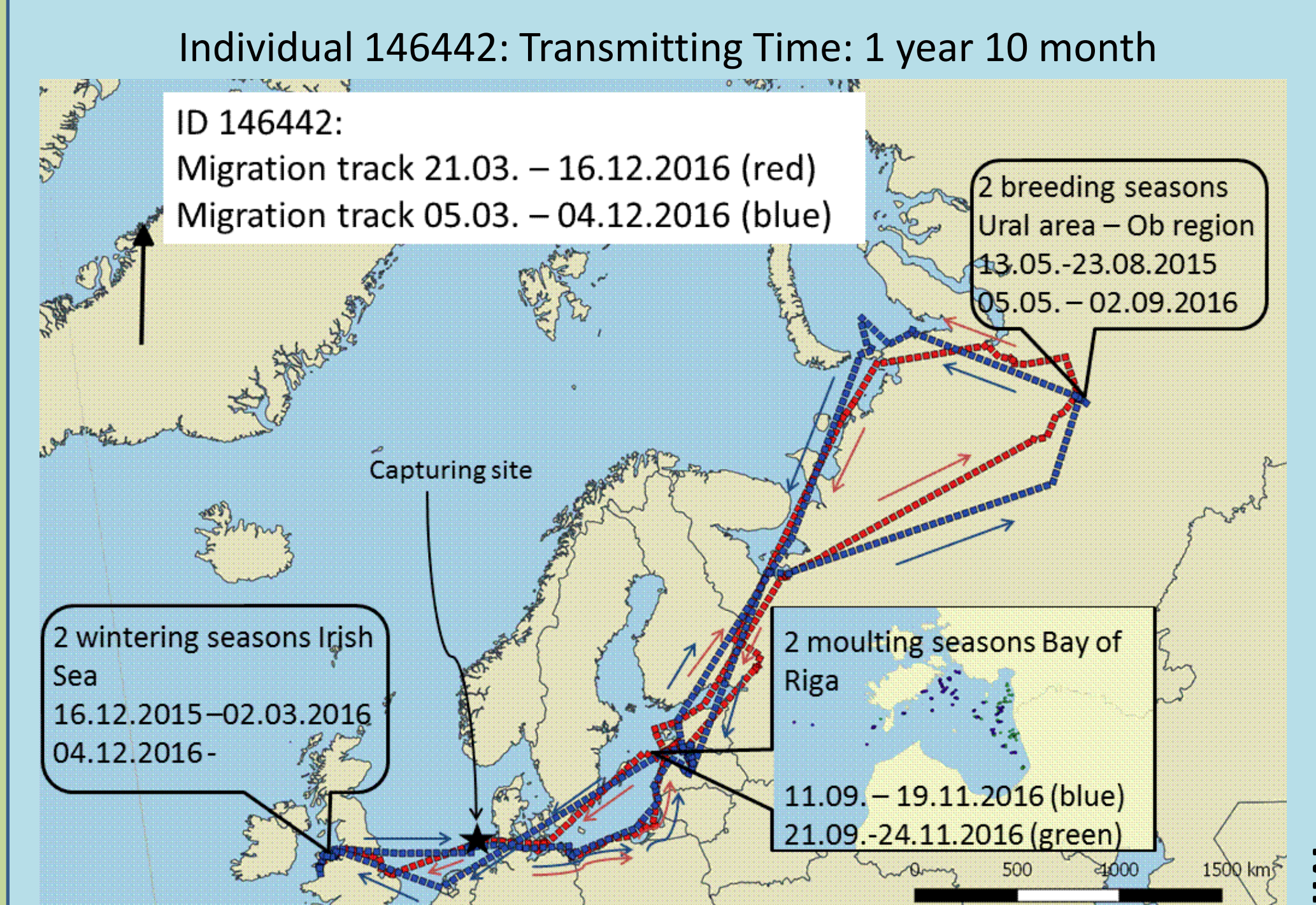
General movements



Timing



Individual movements



Summary & Conclusions

- Temporal pattern of red-throated diver showed variation between individuals and years but similarity for each individual
 - Red throated divers displayed an individual high consistency for migration routes, breeding, wintering & moulting areas
- ➡ Detailed knowledge of movement ecology is crucial for improvement of conservation measures