

# Joint SNCB<sup>1</sup> Interim Advice On The Treatment Of Displacement For Red-Throated Diver (2022)

**This note supersedes the SNCB advice on treatment of displacement for red-throated divers presented in the Joint SNCB Interim Displacement Advice Note 2017. Please refer to the original Advice Note for all other aspects.**

**This joint SNCB interim displacement advice note on red-throated diver will be reviewed and, if necessary, updated when new information or approaches are brought to light.**

## 1. Background

Birds showing avoidance reactions to Offshore Wind Farms (OWFs) may not only avoid the footprint of the OWF itself, but also a larger surrounding area. The area avoided must therefore be considered, alongside the OWF site footprint itself, in any assessment of the displacement of birds. For most species, the SNCBs recommend a standard 'displacement buffer' of 2km from the edge of the footprint. The recommendation does not apply to divers and sea ducks which are sensitive to offshore development and associated boat and helicopter traffic and avoid a larger area (e.g. Percival 2010; Kaiser 2002; Percival 2014; Petersen *et al.* 2006; Fox & Petersen 2006; Petersen *et al.* 2013). Previous advice has been that a displacement buffer for these species should be 4km (Joint SNCB Interim Displacement Advice Note, 2017).

**More recent evidence indicates that red-throated divers (*Gavia stellata*) avoid a much larger area.** For example, displacement distances of up to 8km from the OWF were recorded in the Greater Wash (Webb *et al.* 2017), up to 11.5km in the Outer Thames Estuary (APEM 2021), and up to 10-20km in the German North Sea (Heinänen *et al.* 2016; Zydalis *et al.* 2016; Mendel *et al.* 2019; Heinänen *et al.* 2020; Vilela *et al.* 2020) (see Table 1). It is worth noting that the evidence for black-throated diver and great northern diver is very scant and does not currently support displacement distances beyond 4km of an OWF.

Displacement will not be 100% throughout the distance over which the effect occurs but there will likely be a gradation, with decreasing effects at increased distance from an OWF. That is to say that red-throated diver densities might be expected to increase at increasing distances from an OWF. While displacement within the OWF footprint may be close to 100%, the rate of change in displacement up to and beyond 4km appears to vary, perhaps between regions and survey platforms (see Table 1). For example, in the German North Sea, using both visual aerial and boat-based surveys, Mendel *et al.* (2019) reported a 94.5% decrease in red-throated diver density within 3km from OWFs, decreasing to 83.7% at 10km. Using a combination of digital aerial survey and telemetry data, Heinänen *et al.* (2020) reported similar displacement rates, i.e. >90% within 5km from OWFs. In the UK, Webb *et al.* (2017) estimated a 83% decrease in density within the Lincs, Lynn & Inner Dowsing OWF based on visual and digital aerial surveys, decreasing to 55% at 4km and 34% at 8km. Estimates reported by Percival *et al.* (2010) using boat-based surveys indicated a 95% displacement rate within the Kentish Flats OWF site, decreasing to 63% at 3km.

## 2. SNCB advice on buffer distance

**For non-breeding red-throated diver, a pragmatic displacement buffer of at least 10km is recommended for use in site characterization, impact assessments and post-consent monitoring where a plan or project is within 10km of a Special Protection Area (SPA) designated for non-breeding red-throated diver. Where a plan or project is further than 10km from a SPA designated for non-breeding red-throated diver, a standard displacement buffer of 4km should continue to be used. For other diver**

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<sup>1</sup> SNCB – Statutory Nature Conservation Bodies in this case comprising Natural Resources Wales (NRW), the Department of Agriculture, Environment and Rural Affairs / Northern Ireland Environment Agency (DAERA/NIEA), Natural England (NE), NatureScot (NS), and the Joint Nature Conservation Committee (JNCC)

**species and sea ducks, a standard displacement buffer of 4km should continue to be used (in line with the Joint SNCB Interim Displacement Advice Note, 2017).**

A 10km buffer may not always be necessary in all directions from a wind farm. Discussions around where a 10km buffer is required and where it may be possible to reduce the buffer size should be held with the relevant SNCB(s).

The SNCBs have previously accepted an estimate of red-throated diver displacement at 100% up to 4km, an approach that recognises that displacement may occur up to and beyond 10km but is not 100%. Where a plan or project is within 10km of a SPA designated for non-breeding red-throated diver however, it is necessary to make a more detailed assessment, considering the details of displacement up to, and potentially beyond, 10km with an appropriate gradient agreed with the relevant SNCB which must take account of any local evidence supporting a known displacement rate.

### **3. Advice on siting distance from SPAs in the Southern North Sea**

In light of the latest empirical evidence on the extent of red-throated diver displacement from OWFs, it is recommended that a distance of 10km is maintained between an OWF site and the Outer Thames Estuary and Greater Wash SPAs. This distance has also been recommended in a review of ornithology constraints for future offshore wind leasing by The Crown Estate (MacArthur Green, 2019).

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#### **Authors**

This advice note was prepared by the Marine Industry Group for ornithology (MIG-Birds), with contributions from the Joint Nature Conservation Committee, Natural Resources Wales, Natural England, NatureScot, and the Department of Agriculture, Environment and Rural Affairs / Northern Ireland Environment Agency



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**Table 1. Summary of displacement evidence for red-throated diver in the North Sea (updated from Allen *et al.* 2019)**

Wind farm (country)	Survey method <sup>1</sup>	Displacement extent	Displacement magnitude within OWF	Displacement magnitude in buffers	Time frame <sup>2</sup>	Reference
Horns Rev I (DEN)	VAS	2-4km	100%	-	1999-2005	Petersen <i>et al.</i> (2006)
Nysted (DEN)	VAS	0-2km <sup>3</sup>	-	-	1999-2005	Petersen <i>et al.</i> (2006)
Alpha Ventus (GER)	Boat + VAS	-	100%	-	2000-2008; 2010-2012	Mendel <i>et al.</i> (2014)
Multiple North Sea (GER)	Boat + VAS + DAS	16.5km <sup>4</sup>	-	<ul style="list-style-type: none"> <li>• Effect of OWFs alone: 3km = 94.5%; 10km = 83.7%</li> <li>• Effect of both OWFs &amp; vessels<sup>5</sup>: 3km = 70.8%; 10km = 44.5%</li> </ul>	2000-2013; 2015-2017	Mendel <i>et al.</i> (2019)
Kentish Flats (UK)	Boat	3km	95%	500m = 87%; 1km = 76%; 2km = 61%; 3km = 63%	2001-2009	Percival (2010)
Kentish Flats (UK)	Boat	OWF footprint	89-94%	No significant decrease up to 3km	2001-2013	Percival (2014)
Multiple North Sea (GER)	VAS + DAS	8.5-10.2km	-	-	2001-2018	Vilela <i>et al.</i> (2020)
Thanet (UK)	Boat	OWF footprint	73%	No significant decrease up to 2km	2004-2012	Percival (2013)
Lincs, Lynn & Inner Dowsing (UK)	VAS + DAS	8km	83% <sup>6</sup>	4km = 55%; 8km = 34%	2004-2016	Webb <i>et al.</i> (2017)

Wind farm (country)	Survey method <sup>1</sup>	Displacement extent	Displacement magnitude within OWF	Displacement magnitude in buffers	Time frame <sup>2</sup>	Reference
Horns Rev II (DEN)	VAS	13km (though 5-6km suggested by authors)	-	-	2005-2007; 2011-2012	Petersen <i>et al.</i> (2014)
London Array (UK)	DAS	2-4km	-	-	2009-2014	APEM (2015)
London Array (UK)	DAS	11.5km	55%	2km=39%, 4km=36%, 6km=35%, 8km=41%, 10km=40%, 11.5km=12.6%	2009-2016	APEM (2021)
Alpha Ventus (GER)	Boat	1.5-2km	90%	-	2010-2013	Welcker & Nehls (2016)
Liverpool Bay (UK)	DAS	3.8km <sup>7</sup>	-	-	2011; 2015 <sup>5</sup>	Burt <i>et al.</i> (2017)
Multiple North Sea (GER)	DAS	20km	-	-	2016	Heinänen <i>et al.</i> (2016)
Multiple North Sea (GER)	Telemetry	20km	-	-	2016	Zydelis <i>et al.</i> (2016)
Multiple North Sea (GER)	DAS + Telemetry	10-15km	>90%? (using telemetry); see Fig. 2 in paper	5km buffer = >90% (using DAS)	2016-2017 (DAS) <sup>5</sup> ; 2015-2017 (telemetry) <sup>5</sup>	Heinänen <i>et al.</i> (2020)

<sup>1</sup>Boat = boat-based surveys; VAS = visual aerial surveys; DAS = digital aerial surveys

<sup>2</sup>All studies include pre- and post-construction surveys, unless otherwise stated

<sup>3</sup>Not found to be statistically significant

<sup>4</sup>A statistical change was found up to 16.5km but greatest changes were observed within 10km

<sup>5</sup>Post-construction data only

<sup>6</sup>Assuming all displaced birds re-distribute within the survey area

<sup>7</sup>Displacement extent measured from the centre of the OWF