## Threats for divers in German marine areas - how effective are SPAs in the light of fisheries and growing marine industries

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Considerable numbers of Red-throated and Black-throated Divers use the German sections of North Sea and Baltic Sea for wintering and staging during spring migration. Growing pressure from shipping, construction of offshore wind farms and aggregate extractions on habitats of divers and other seabirds resulted in conservation action, i.e. a number of marine areas has been designated as SPA. In this paper, threats for divers from the marine industries in German waters are roughly quantified and compared to the protection gained from the SPAs.

Based on aerial surveys, diver densities at sea are known throughout German waters, and from the area used already today (or in future) by marine industries the numbers of divers affected by human pressures can be calculated. Considerung the total area already used or planned for industrial purposes, no less than 5770 Red-throated Divers may be confronted with habitat loss due to avoidance of wind farms and disturbance from shipping and aggregate extraction. This refers to c. 22% of the German spring population. In the Black-throated Diver, which occurs mainly in the Baltic Sea, the number of affected individuals would be 830 (c. 21% of the German spring population). In addition to habitat loss, bycatch in gillnets is a major factor influencing diver populations in Germany, as estimated numbers of 420 Red-throated and 265 Black-throated Divers are killed annually.

A total of 17 SPAs has been designated in German coastal and offshore waters. Though most of them host divers, two are of considerable importance: "Eastern German Bight" in the North Sea and "Pomeranian Bay" in the Baltic Sea. In spring, these SPAs are used in average by 3580 and 1450 divers, respectively. According to the ordinances of these SPAs neither wind farms nor shipping, aggregate extractions and gillnet fishery are excluded. However, wind farms placements inside SPAs are currently impeded as subsidies for renewable energies at sea are currently only available outside Natura 2000 sites.

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