Insights from Avian Onshore Collisions for Offshore Risk Assessment and Future Research Priorities

Jennifer Stucker, Todd Mabee, Sally Yanuzzi, Peter Kappes, Tracy Brunner, Melinda Conners

Introduction

Collisions of birds with offshore wind turbines are difficult to document and thus poorly understood. We reviewed the current state of knowledge in a global review of bird collisions and avoidance rates at offshore wind facilities (OWFs) and summarized known fatalities of offshore bird species found at onshore wind facilities.

Methods

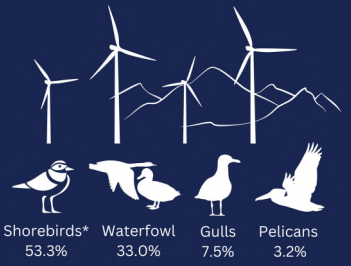
- Literature review of publicly available information from 2008-2023, querying keyword combinations of ‘offshore,’ ‘wind,’ ‘avian,’ ‘bird,’ ‘seabird,’ ‘collision,’ ‘avoidance,’ and ‘marine’.
- Onshore collision avian fatality data from WEST’s Renew database (1996-2022).

Results

- Terns (46.9%) and gulls (27.0%) comprised most known collisions at OWFs
- Most available macro-avoidance estimates were for waterfowl whereas most meso- and micro-avoidance estimates were for gulls.
- Of the nearly 17,000 onshore fatalities recorded in Renew (U.S. and Canada), 1,200 (7.0%) were from offshore guilds.

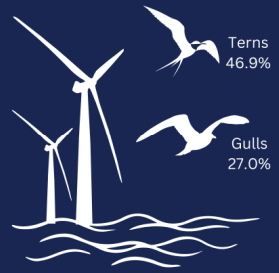
Onshore wind bird fatality data may help predict **offshore fatalities**, but **life history** and **habitats** are **key** for accurate insights.

Land-based fatalities of offshore guilds in the U.S. and Canada*



*No red knot or piping plover have been documented as fatalities in the Renew database

Fatalities of offshore guilds at offshore wind farms globally[1]



[1]25.0% were unidentified birds

OFFSHORE WINDPOWER

The content of this poster was initiated while under contract with Ørsted

Tables

Table 1. Fatalities by offshore bird guilds at land-based wind farms in the U.S. and Canada.

Bird Guild	Species	Fatalities	Fatalities (Percent)
Shorebirds	**16**	**642**	**53.3**
Waterfowl	**24**	**397**	**33.0**
Dabbling ducks[a]	*11*	*285*	–
Diving ducks[a]	*6*	*28*	–
Geese[a]	*5*	*79*	–
Mergansers[a]	*1*	*3*	–
Sea ducks[a]	*1*	*2*	–
Gulls	**8**	**90**	**7.5**
Pelicans	**2**	**39**	**3.2**
Tropicbirds/Frigatebirds	**2**	**14**	**1.2**
Cormorants	**1**	**10**	**0.8**
Petrels	**1**	**5**	**0.4**
Terns	**3**	**4**	**0.3**
Loons	**1**	**3**	**0.3**
Shearwaters	**1**	**1**	**0.1**
Grand Total	**59**	**1,205**	**100**

[a] Sub-groups of the waterfowl guild; fatalities and species count are included in waterfowl guild totals.

Source: Renew database [17].

Discussion

- Our global summary of offshore wind collision and avoidance rates from offshore guild fatalities at onshore facilities provides a comprehensive and unique review.
- Results from this review, combined with site-specific data from future offshore wind projects, can be used to inform predictions of bird collisions at future OWFs.

For more information:
syannuzzi@west-inc.com

WEST