

Wind power is a clean, renewable energy resource that does not pollute our air with dirty fossil fuel emissions contributing to global warming. By reducing greenhouse gas emissions, properly sited wind farms will help prevent bird populations from becoming extinct.

Major Threats to Birds:

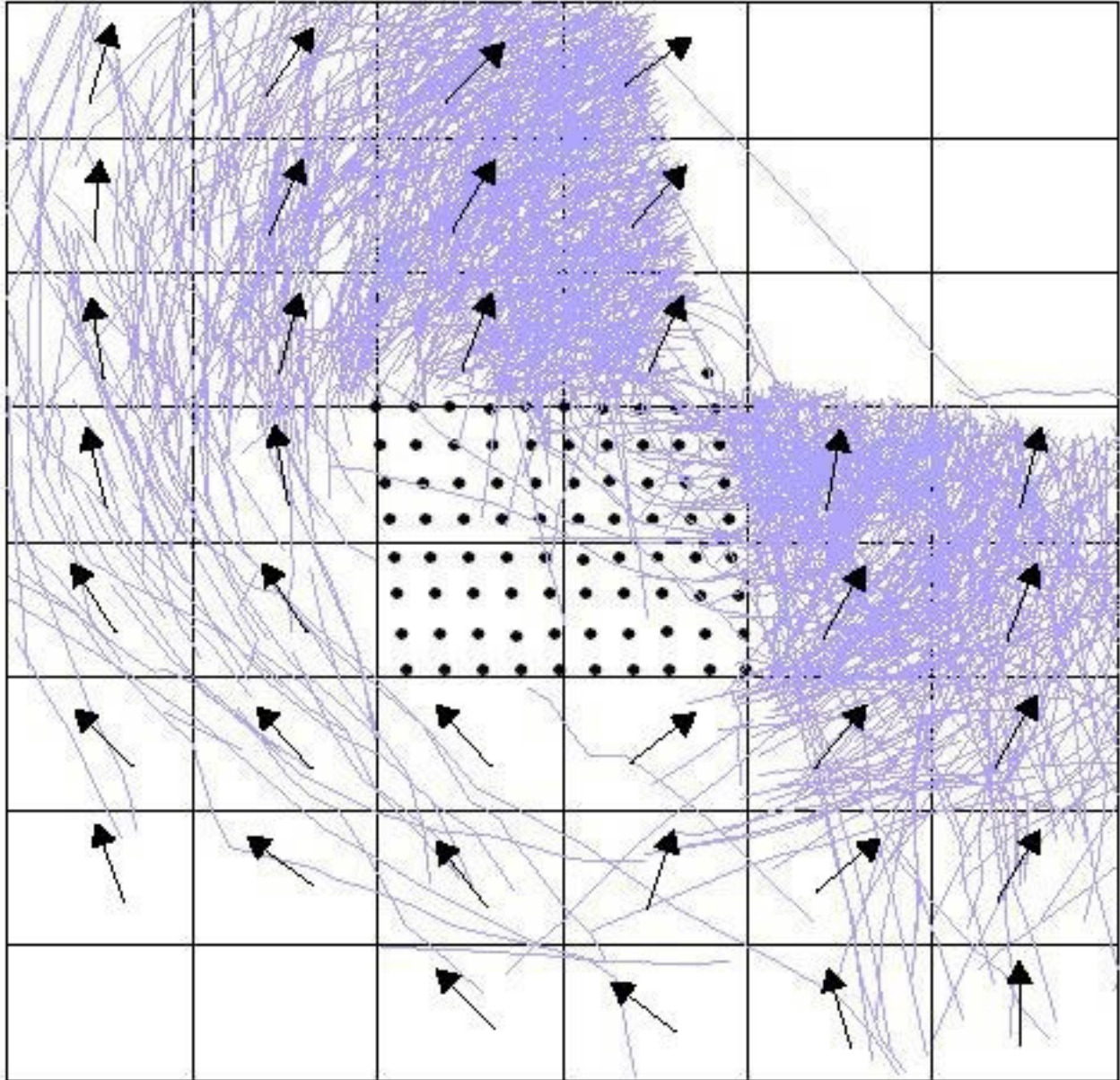
- **Global Warming** - A recent study indicates that 15-37 percent of all bird species could face extinction due to global warming by the year 2050.¹
- **Mercury Contamination** - Scientists recently discovered high levels of mercury in songbirds, which was not previously expected.² Coal fired power plants are a primary source of mercury.
- **Acid Rain** - Declines in songbird populations have been linked to acid rain.³ Coal fired power plants are a primary source of acid rain.
- **Hunters** - During duck hunting season, hunters are allowed to kill up to 7 sea ducks per day in Nantucket Sound, which amounts to an estimated 10,000 ducks per year.⁴
- **Aircraft** - 6,000 bird strikes are reported each year to the Federal Aviation Administration, however, roughly 80% go unreported.⁵
- **Buildings and Windows** - For every 10,000 bird fatalities, 5,500 are caused by collisions with buildings and windows.⁶
- **Cats** - For every 10,000 bird fatalities, 1,000 are caused by cats.⁶

Radar studies conducted by Denmark's National Environmental Research Institute (reverse) indicate that wind farms have no adverse impact on bird populations, concluding that most birds avoid wind turbines, thereby reducing the probability of a collision to less than 1 percent.⁷ Jack Clarke, director of public policy and government relations at the Massachusetts Audubon Society states that the Denmark studies are quite credible. Moreover, Mass Audubon, after conducting their own 4-year study concluding the endangered Roseate Terns and Piping Plovers avoid Horseshoe Shoal completely, has given conditional support for the Cape Wind project. In a Boston Globe article, Clarke stated "the project would not pose a threat to avian species."⁸

Altamont Pass: Altamont Pass in California is poorly sited and uses out-dated technology. Newer wind turbines, like the ones proposed for Nantucket Sound, stand taller (which is above the flight path of raptors and other endangered birds) making them more efficient. One new turbine can generate the same amount of electricity as 7-10 older ones, thereby reducing the number of turbines needed in a given area. Newer turbines have also incorporated a new tubular (monopole) tower design, which unlike the older lattice tower design, does not offer places for birds to nest.⁹

1. Thomas et al. 2004. Extinction risk from climate change. *Nature* 427: 145-148.
2. "Higher levels of mercury seen polluting region", by Beth Daley, Boston Globe, March 8, 2005.
3. Hames et al. 2002. Adverse effects of acid rain on the distribution of the Wood Thrush *Hylocichla mustelina* in North America. *Proceedings of the National Academy of Science* 99(17): 11235-11240.
4. MassWildlife Migratory Bird Regulations for 2005-2006 Season.
5. Cleary, Dolbeer and Wright. 2005. FAA Report on Wildlife Strikes to Civil Aircraft in the United States 1990-2004.
6. Erickson et al. 2002. Summary of Anthropogenic Causes of Bird Mortality
7. Christensen et al. 2004. Visual and radar observations of birds in relation to collision risk at the Horns Rev offshore wind farm. Annual status report 2003. Commissioned by Elsam Engineering A/S. National Environmental Research Institute. 48 pp.
8. "Audubon review supports wind farm", by Beth Daley, Boston Globe, March 29, 2006.
9. Smallwood, K. S. and C. Thelander. 2004. Developing methods to reduce bird mortality in the Altamont Pass Wind Resource Area. Final Report to the California Energy Commission, Public Interest Energy Research – Environmental Area, Contract No. 500-01-019. Sacramento, California. 531 pp.

Radar Map of Bird Avoidance Behavior at Horns Rev



This figure shows all individual flight-tracks of birds recorded by radar at the Horns Rev offshore wind farm during the 2004 spring migration. The arrows show the average flight direction in each grid cell coverable by radar.

Image courtesy of the National Environmental Research Institute in Denmark