

Offshore Wind Farms Around the World And Assessment of Bird Collisions

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Operating Offshore Wind Farms Sept. 2009

NATION	# OF WIND FARMS
BELGIUM	1
DENMARK	7
FINLAND	1
GERMANY	3
IRELAND	1
ITALY	1
NETHERLANDS	5
NORWAY	1
SWEDEN	4
UK	9
TOTAL	<hr/> 33

Operating Offshore Wind Farms

Sept. 2009

NATION	# OF WIND FARMS	≥ 3 mi
BELGIUM	1	1
DENMARK	7	3
FINLAND	1	0
GERMANY	3	0
IRELAND	1	1
ITALY	1	1
NETHERLANDS	5	2
NORWAY	1	1
SWEDEN	4	2
UK	9	6
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TOTAL	33	17 (51.5%)

Offshore Wind Farms Under Construction (Completed by 2012)

NATION	# OF WIND FARMS
CHINA	1
DENMARK	5
GERMANY	4
SWEDEN	1
UK	8
TOTAL	<hr/> 19

Offshore Wind Farms Under Construction (Completed by 2012)

NATION	# OF WIND FARMS	≥ 3 mi
CHINA	1	0
DENMARK	5	2
GERMANY	4	3
SWEDEN	1	0
UK	8	6
TOTAL	<hr/> 19	<hr/> 11 (57.9%)

Wind Farms by 2012

NATION	OPERATING	UNDER CONSTRUCTION	≥ 3 MI
BELGIUM	1	0	1
CHINA	0	1	0
DENMARK	7	5	5
FINLAND	1	0	0
GERMANY	3	4	3
IRELAND	1	0	1
ITALY	1	0	1
NETHERLANDS	5	0	2
NORWAY	1	0	1
SWEDEN	4	1	2
UK	9	8	12
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TOTAL	33	19	28

"God breathed, and the Armada was scattered" – Elizabeth I, 1588



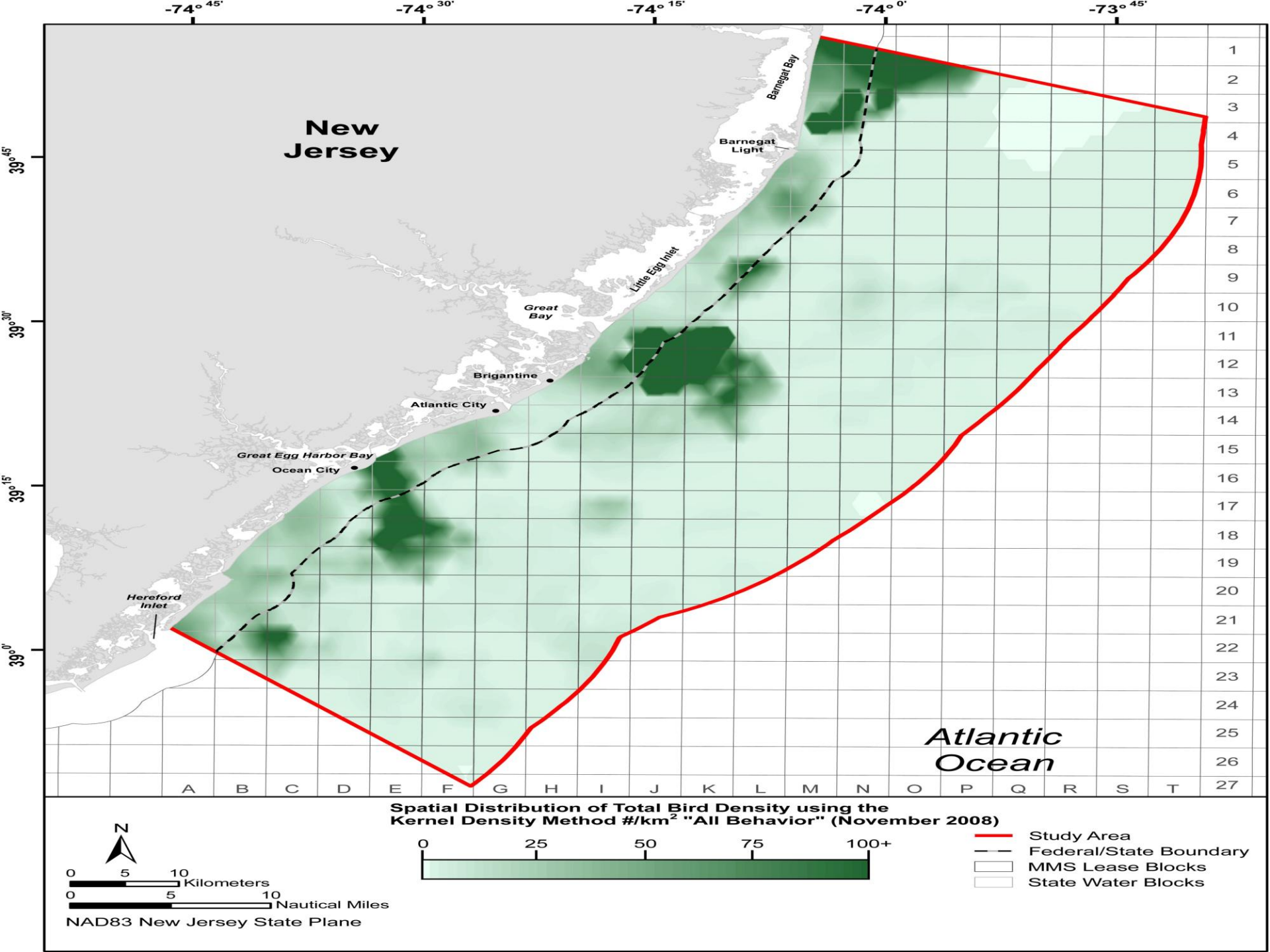
Where are the Infamous Bird Killers?

- **Zeebrugge, Belgium** – Turbines along eastern breakwater in Zeebrugge harbor
 - Located between tern nesting beach and primary foraging site
 - Closest turbine just 20 m from beach
- **Smola Wind Farm, Norway**
 - Located on island archipelago off coast of Norway

NEITHER IS "OFFSHORE." BOTH ARE ADJACENT TO OR ON THE COASTLINE

GOOD NEWS ABOUT OFFSHORE WIND FARMS AND BIRDS

- **Truly offshore wind farms are minor bird killers**
- **Most development interest is 10-20 mi. offshore**
- **Few birds \geq 8 mi. from LAND on Atlantic OCS**
- **No need for towers and transmission lines**



TAKE-HOME MESSAGES ABOUT OFFSHORE WIND FARMS AND BIRDS

- Literature confuses “offshore” with “coastal” – and so do scientists!
- bird abundance is orders of magnitude greater along coast than offshore
- must classify wind farms into 3 categories instead of two: terrestrial, COASTAL, and offshore
- 3 different levels of impact – not just 3 geographic locations
- Offshore wind farms have so far not been shown to be bird-killers
- Proven bird-killers are “shore-hugging”
- Must read the fine print to distinguish between truly “offshore” and “coastal” wind farms

QUESTIONS???

