Science, Service, Stewardship

Protected Resources in Atlantic Wind Energy Areas
An overview of Endangered and Threatened Species, Habitat, and Conservation Goals

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Purposes of the Endangered Species Act (ESA)

"The purposes... are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered and threatened species, and to take such steps as may be appropriate to achieve the purposes..."

Section 2(b) of the Endangered Species Act

2,270 species are listed as threatened or endangered under the ESA

1,620 of those species are found in the United States

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NMFS ESA Jurisdiction 151 Species

31 Marine Mammals

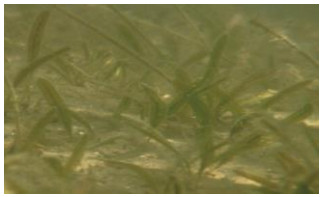
26 Sea Turtles & Other Marine Reptiles
(Including DPSs)

66 Marine & Anadromous Fish
(Including ESUs)

27 Marine Invertebrates

3

1 Marine Plant



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Recovery

ESA Goal: species are no longer at risk of extinction

- Actions:
  - develop and implement Recovery Plans (section 4)
  - coordinate with states (section 6)
  - conduct interagency consultations (section 7)
  - encourage conservation and create agreements with foreign countries to provide for conservation of listed species (section 8)
- Status
  - 49 completed recovery plans
  - 17 plans under development

Recovery criteria must be objective, measurable, and appropriate based on species biological needs and threats

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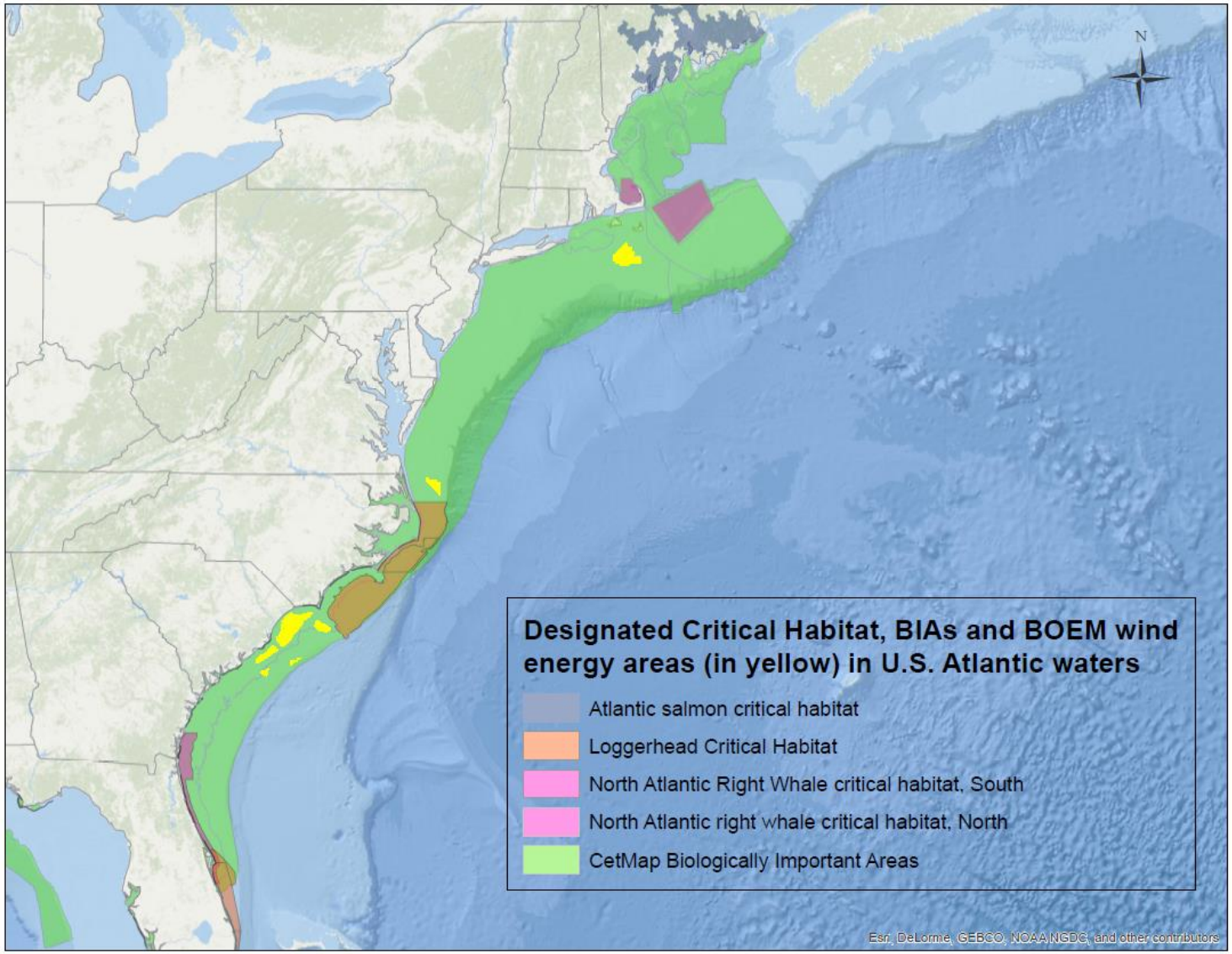
Map of Wind Energy Areas



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Recovery Progress: Sea Turtles

- Listing
- Fisheries bycatch and direct harvest of eggs and animals
- Wide distributions that cross international jurisdictions and multiple life stages across vast habitats
- Diet variations
- Threats are widespread across nesting and in-water habitats.

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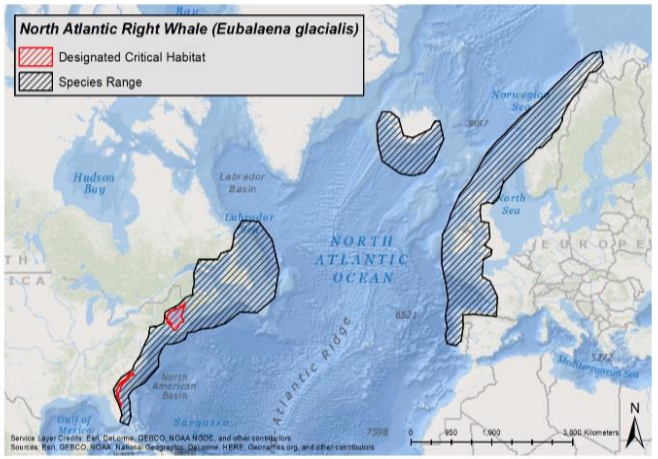
North Atlantic Right Whale



- Original listing December 2, 1970 as endangered
- Critical habitat designated in 1994 and expanded in 2016
- Filter feeders, long lifespan and slow reproduction
- Northwest Atlantic shallow, coastal waters
- 476 individuals (Waring et al., 2016)

Recovery goals (2005):

- Minimize injury or mortality from ship strikes or fisheries interactions
- Protecting essential habitats
- Minimize vessel disturbance
- Continue international ban on hunting and other directed take
- Monitor population size and trends in abundance
- Maximize efforts to free entangled/stranded right whales and acquire scientific information from dead specimens

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Recovery Progress: Sperm Whales

- Originally listed December 2, 1970
- No designated critical habitat
- Largest toothed whale with global distribution except in coldest Arctic waters
- Deep divers that use echolocation clicks to find and feed on squid
- Commercial whaling caused historical population declines
- Recovery goals (2010):
  - Sufficient and viable populations in all ocean basins exist
  - Significant threats are addressed

Courtesy of Howard Goldstein

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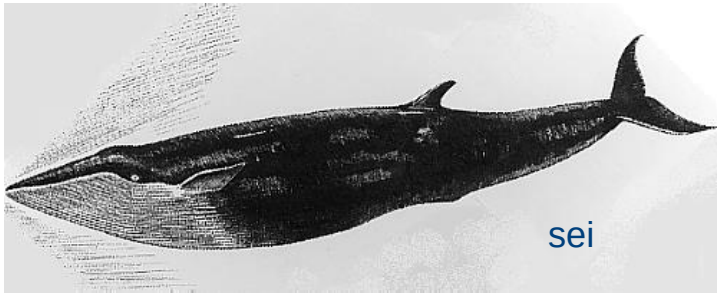
Recovery Progress: Fin, Blue and Sei Whales

- Like other large whales, originally listed December 2, 1970; no designated critical habitat
- These three long-lived baleen whales are found globally in deep, oceanic waters
- Historical declines due to whaling- some legal whaling still occurs
- Feeding area shifts due to overharvesting and climactic oceanographic changes
- Recovery goals (2010, 2011, 1998):
  - Sufficient and viable populations in all ocean basins exist
  - Significant threats are addressed
  - Blue whale has more specific goals



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Recovery Progress: Atlantic and Shortnose Sturgeon

- Atlantic sturgeon listed in February 2012 and shortnose sturgeon was listed in March 1967
  - Critical habitat designations are underway
- Primitive bottom-feeding anadromous fish goes to sea – shortnose not likely offshore, but waiting for more data
- Atlantic sturgeon have 5 DPSs
- Shortnose is the smallest of the three Eastern U.S. species
- Historical declines due to commercial exploitation
- Recovery goal: to delist by implementing recovery tasks

Courtesy of Robert Michelson

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Potential threats from wind energy

Vessel collision

Benthic habitat loss (potential feeding area)– turtles, fishes

Increased fishing pressure around structures-- incidental capture/entanglement

Marine debris

Dredging/bottom-scouring or leveling– turtles, fishes

Spread of non-native species

Potential disruption of oceanographic features (i.e., surface currents)

Turtle escaping a net through a turtle excluding device

http://www.nmfs.noaa.gov/pr/species/turtles/regulations.htm
Recent regulations protecting sea turtles from fisheries interactions

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http://www.nmfs.noaa.gov/stories/2017/02/whale-week-2017.html

Potential threats from wind energy

Water quality (habitat) degradation/contaminants

Noise

- Survey Noise
- Construction Noise
- Operation Noise

Displacement from or attraction to habitat use areas- whales

Areal avoidance during migration, which could lead to energetic loss- whales

Entangled whale
Courtesy of Lyman

Williams et al., 2015

Issue: Human-induced underwater noise

http://cetsound.noaa.gov/

The facts:

- Anthropogenic activities in the ocean produce noise
- Underwater sound can travel long distances
- Increasing number and locations of sources
- Coastal and ocean waters are getting noisier

Environmental Impact:

- Marine animals rely heavily on sound
- Rising background noise limits communication range and ability to sense their environment

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Thank you

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