



Presents

# Offshore Wind Impacts and Consequences



**NOOA is a single-issue coalition comprised of environmental, fishing, and community organizations and Tribal Nations.**

**Our mission is to protect the oceans, the Great Lakes, and nearby communities from the negative impacts of industrialization by offshore-wind "farms" and the nearshore and onshore infrastructure necessary to support and deliver electricity to the grid.**

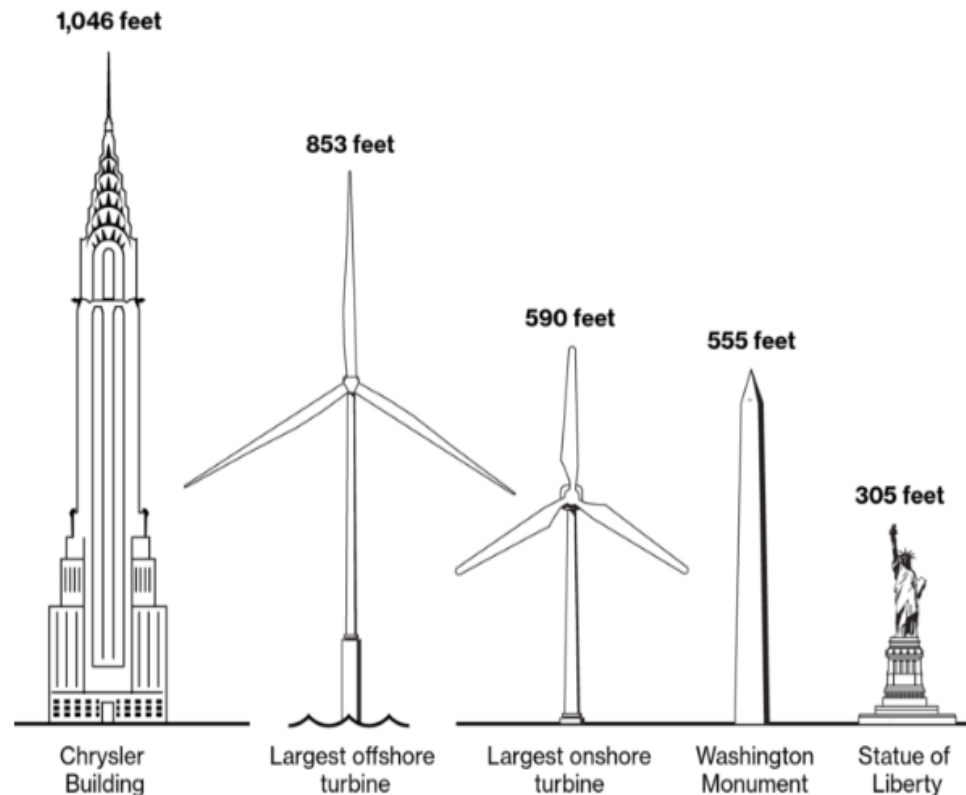
**We work to educate the public, to mobilize affected communities, dialogue with government officials, engage the media, and strategically litigate to end the threat of offshore wind proliferation.**

# Offshore Wind Turbines Exceed 1000 ft.

## East Coast

### Monumental Turbines

The biggest offshore wind turbines are as tall as skyscrapers



## West Coast



# Many Lease Areas Owned by Foreign Wind Companies, Foreign Pension Plans and Global Investment Firms

## East Coast Projects

### Vineyard Wind

Jointly owned by a Danish Infrastructure Company and a Spanish Utility.

### Revolution Wind

Partially owned by a Danish multinational energy company

### Empire Wind

Owned by Equinor Wind, a Norwegian company

## West Coast Projects

### Equinor/Atlas Wind

Norwegian company, partially owned by British Petroleum.

### Golden State/Central California Offshore Wind

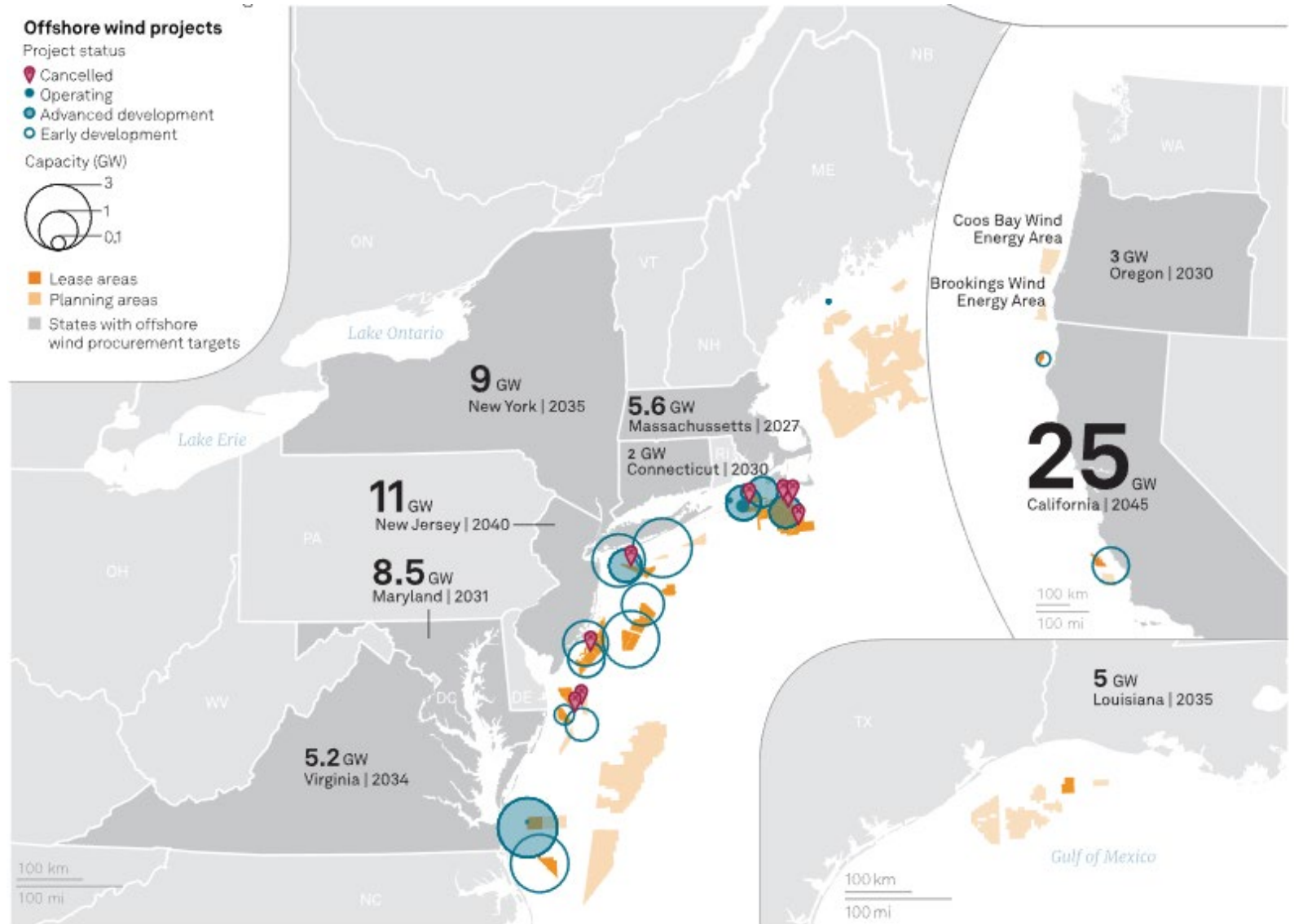
Canadian Pension Plan, Portugal & French Utility Companies

### Invenergy/Even Keel Wind

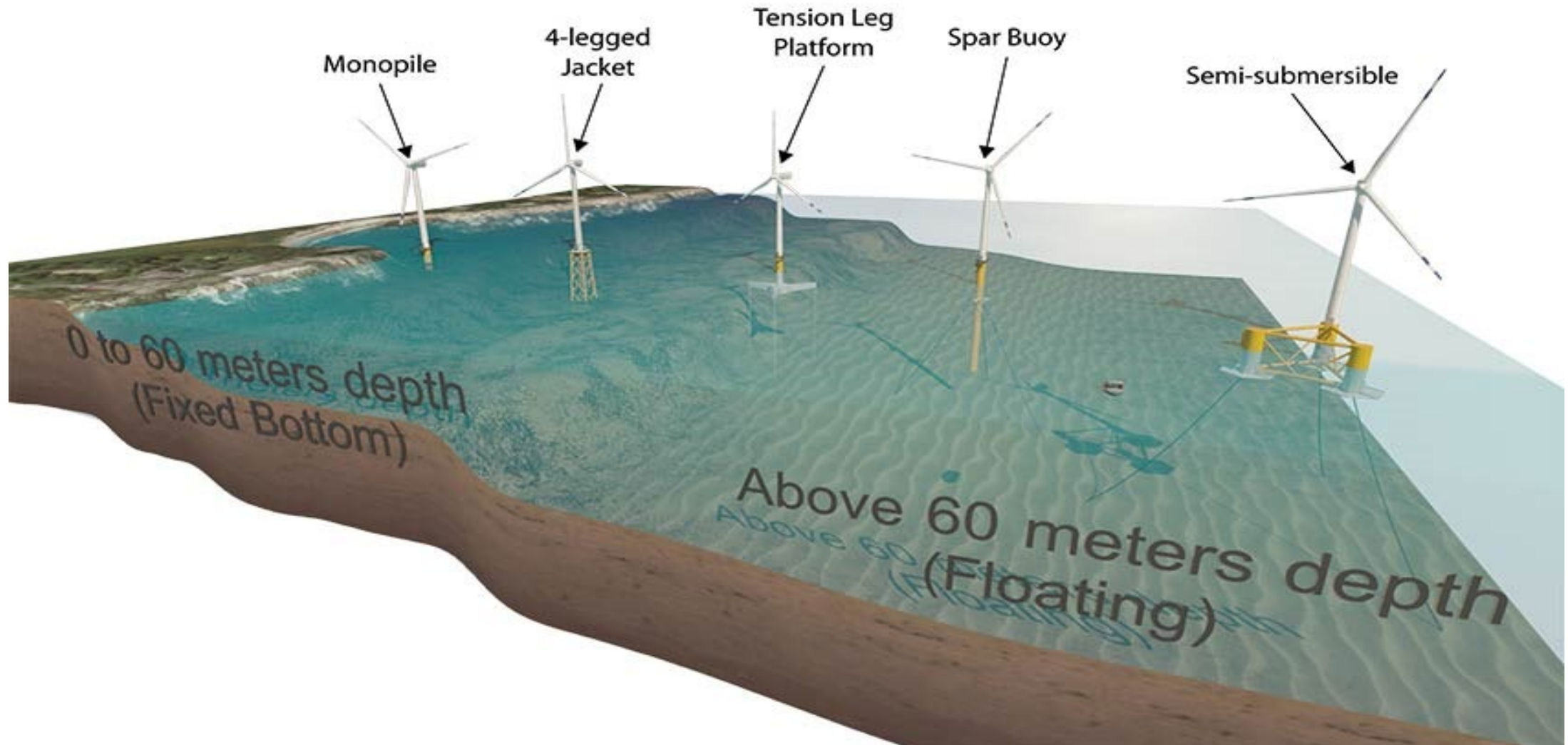
Major investor International Firm Blackstone

# United States Offshore Wind Development

## East Coast & West Coast



# Different Types of Offshore Wind Turbines





# **Most Wind Lease areas are in the worst possible locations.**

**On major cetacean migration routes**

**Over prime fishing grounds and lobster/shellfish beds**

**In world renowned diverse marine ecosystems**

**On nationally important migratory bird flyways**

A silhouette of a wind turbine stands against a vibrant sunset sky with streaks of orange and red. At the base of the turbine, the skeletal structure of an oil drilling rig is visible. The overall scene suggests a juxtaposition of renewable and fossil fuel energy sources.

**OIL KEEPS WIND AFLOAT**

**AND SUBSIDIES ARE THE DRIVING FORCE.**



# PRECONSTRUCTION



# Survey Vessels Use Multiple SONAR Technologies to Survey the Ocean Floor

High Resolution Geophysical (HRG) surveys use high decibel levels to “picture” the seafloor

None of the permitting agencies require monitoring or verification of decibels levels or frequencies used

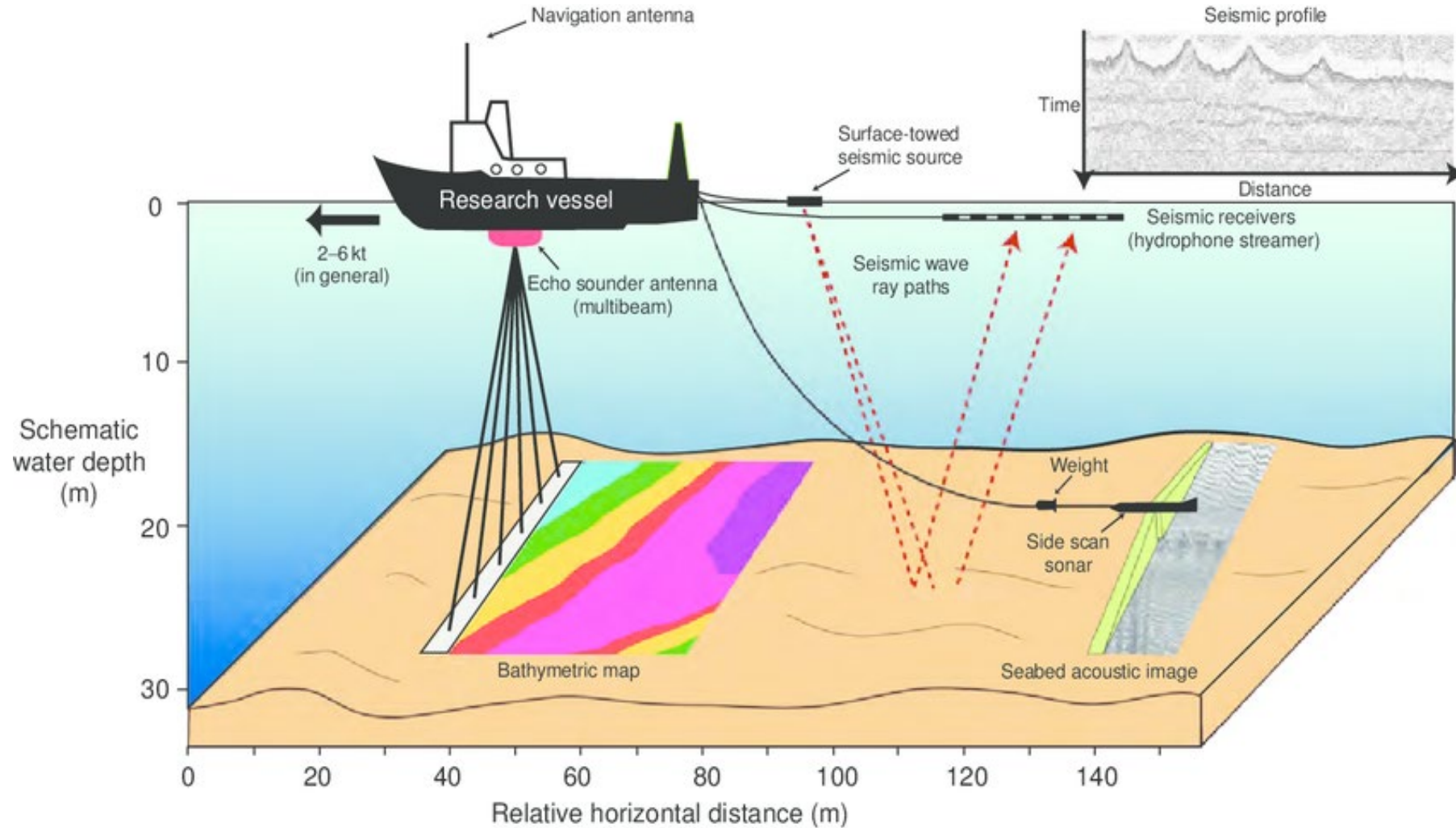
Sound travels underwater 4 times faster and farther, increasing impacts to wildlife

HRG Source	Highest Source Level (dB re 1 $\mu$ Pa)
Boomers, Bubble Guns (4.3 kHz)	176 dB SEL 207 dB RMS 216 peak
Sparkers (2.7 kHz)	188 dB SEL 214 dB RMS 225 peak
CHIRP Sub-Bottom Profilers (5.7 kHz)	193 dB SEL 209 dB RMS 214 peak

HRG Source	Highest Source Level (dB re 1 $\mu$ Pa)
Multibeam echosounder (100 kHz)	185 dB SEL 224 dB RMS 228 peak
Multibeam echosounder (>200 kHz)	182 dB SEL 218 dB RMS 223 peak
Side-scan sonar (>200 kHz)	184 dB SEL 220 dB RMS 226 peak

# High Resolution Geophysical (HRG) Surveys Negatively Impact Both Nearshore (State) and Offshore (Federal) Waters



# Lethal Impacts to Marine Life from HRG Site Surveys in both Lease Site & Cable Route Areas

## Up to 240 Decibels

- Level allowed by California Coastal Commission for use by Wind Energy Companies

## 160 Decibels Causes

- Swim bladder expansion damaging surrounding organs & internal bleeding
- Gas emboli (bubbles) & hearing cell damage
- Disorientation, altering of feeding, mating and migration habits

## Over 207 Decibels Kills Fish

- Atlantic Cod
- Salmon and Tuna

## Over 217 Decibels Kills Larvae & Phytoplankton

- Larvae is the base of the food chain and crucial to marine ecosystem survival.



# Permitted HRG Site Survey Decibel Levels of 228 dBs are Unimaginable for Humans



Decibels	Sound Source
10	a pin dropping
20	rustling leaves, ticking watch
30	whisper
40	babbling brook, quiet library
50	light traffic, refrigerator
60	conversational speech, sewing machine
70	dishwasher, toilet flushing
80	vacuum cleaner, garbage disposal
90	shouting, lawn mower, MRI machine
100	subway train, blow dryer
110	rock band, leaf blower, jackhammer
120	thunder, screaming baby
130	stadium crowd, ambulance siren
140	jet engine at takeoff
150	cap gun, balloon popping
160	handgun, fireworks
170	shotgun
180	rocket launch

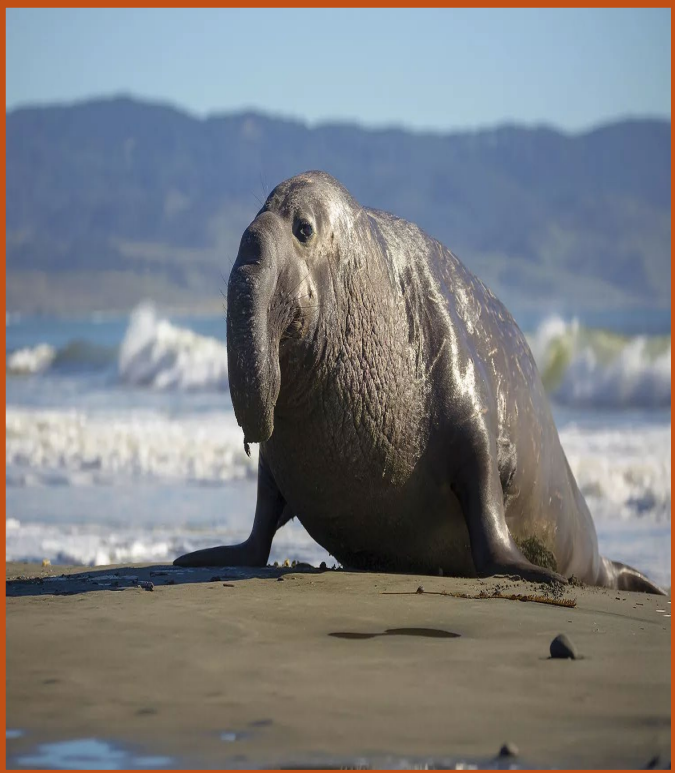
# HRG Site Surveys Using High Decibels Cause Significant Behavior Changes

- Affects hearing, resulting in susceptibility to vessel strike and entanglement
- Displacement from migratory routes
- Breeding behavior changes
- Disruption of communication
- Disruption of feeding
- A deaf whale is a dead whale





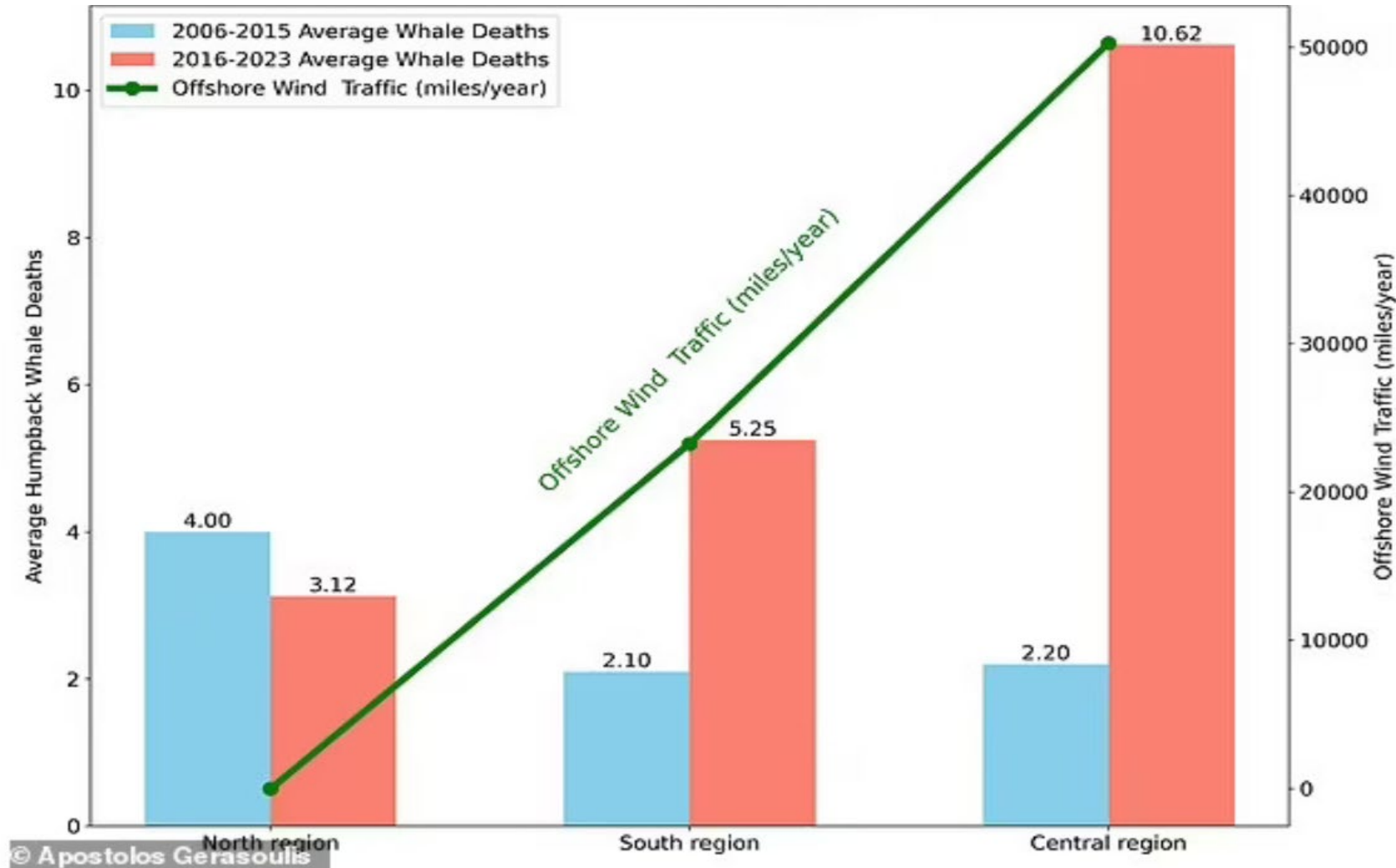
**Incidental Harassment Authorizations (IHAs) are being granted to Offshore Wind Companies**



**IHAs allow harassment levels that can lead to mortality**



# East Coast Humpback Whale Deaths Before (2006-2015) and After (2016-2023) Offshore Wind Traffic



**Rutgers Professor Emeritus Dr. Apostolos Gerasoulis statistically links offshore wind traffic to dead whales on the East Coast**



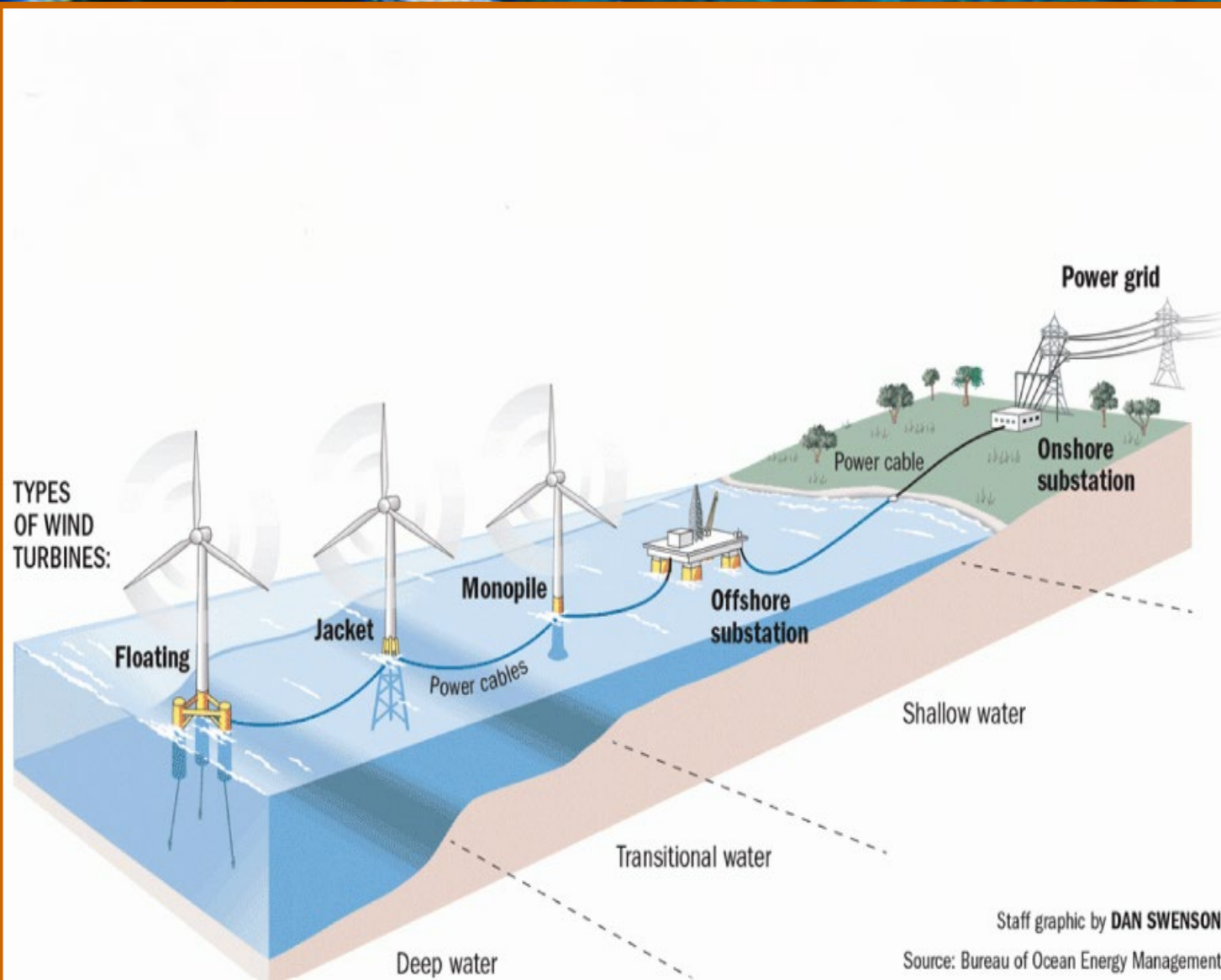


**WONDERLAND OR WASTELAND?**

# CONSTRUCTION



# How Offshore Wind Works



Mid-Water cables are strung between floating turbines

Vulnerable to damage from the ocean environment

Whale entanglement likely in wind areas

Electromagnetic Field and Heat emissions



# **CABLE CONCERNS**

**Exposure to Electromagnetic Fields (EMF) from Operational Cables Affects Marine Species**

**Migration  
Breeding  
Feeding**

**Studies show low- level EMFs negatively impact humans**

**Cable failure and cable exposure negatively impact marine environments**

**Destruction of bottom habitat due to “jet plow” trenching**

**Onshore/beach habitat severely impacted by cable landings**




**Industrial ports are planned to be built in all coastal areas adjacent to offshore wind areas.**

# Industrial O & M Ports – Crucial Infrastructure



ECO Edison – First US Flagged, Jones Act Compliant SOV Vessel

- Service Operation Vessels 250-300 ft.
- Crew Transfer Vessels, up to 100 ft.
- Additional or rebuilt piers needed
- Dredging
- Additional breakwater may be needed
- Marine facilities such as bulkheads, platforms, riprap, gangways, and cranes
- Onshore facilities such as a control room, office space, commercial warehouse, a workshop, a crew areas, and crew parking.



## **Build Out Cost Analysis**

**The National Renewable Energy Laboratory reports**  
Funding would come from local, state and federal governments, private investment firms, developers, manufacturers and port owners.

**The cost of 1 Gigawatt (GW) of offshore wind is \$5 Billion, making the 25 GW goal of Offshore wind at a cost of \$125 Billion**

A composite image showing an offshore oil rig on the left and wind turbines on the right, set against a sunset sky over the ocean.

**GREEN?**

A photograph of a large whale, possibly a humpback whale, lying on a sandy beach with waves crashing nearby.

**SUSTAINABLE?**

A photograph showing large stacks of solar panels, likely in a storage or manufacturing facility.

**RENEWABLE?**

**DON'T BUY THE LIES!**



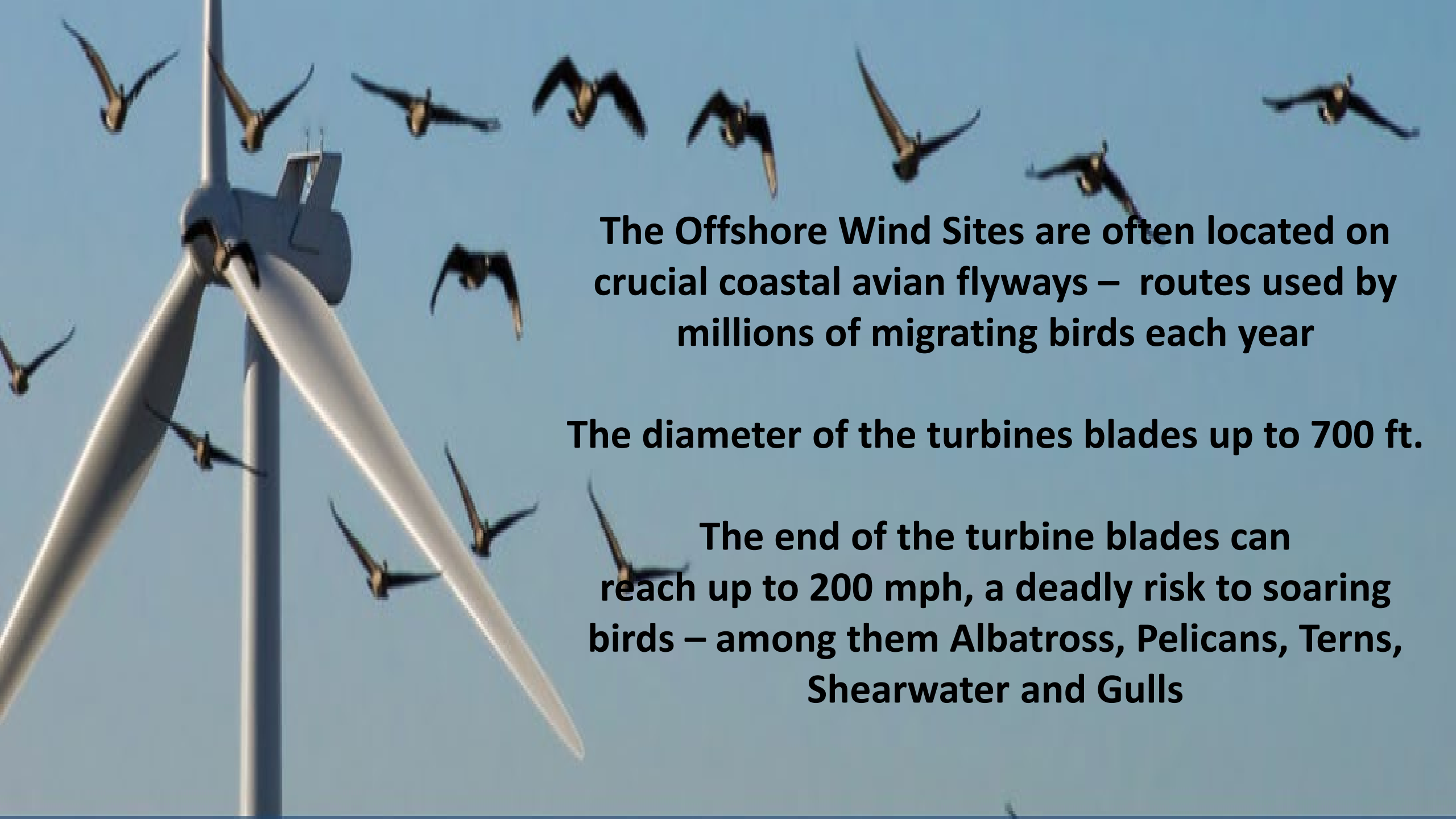
# OPERATIONS





# Each Offshore Wind Turbine...

- Sheds enough BPA to contaminate millions of liters of water
- Is a major source of Sulfur hexafluoride (SF<sub>6</sub>) atmospheric emissions, (the most potent greenhouse gas & 23,500 times more than CO<sub>2</sub>).
- Leaks hundreds of gallons of oil and pollutants into the ocean yearly
- Blades are deposited into landfills at the end of its life-span (7-20 years)
- Is supported by industrial operations ports contributing to air, water, noise and light pollution
- Will pollute beaches if they fail and break into the ocean



**The Offshore Wind Sites are often located on crucial coastal avian flyways – routes used by millions of migrating birds each year**

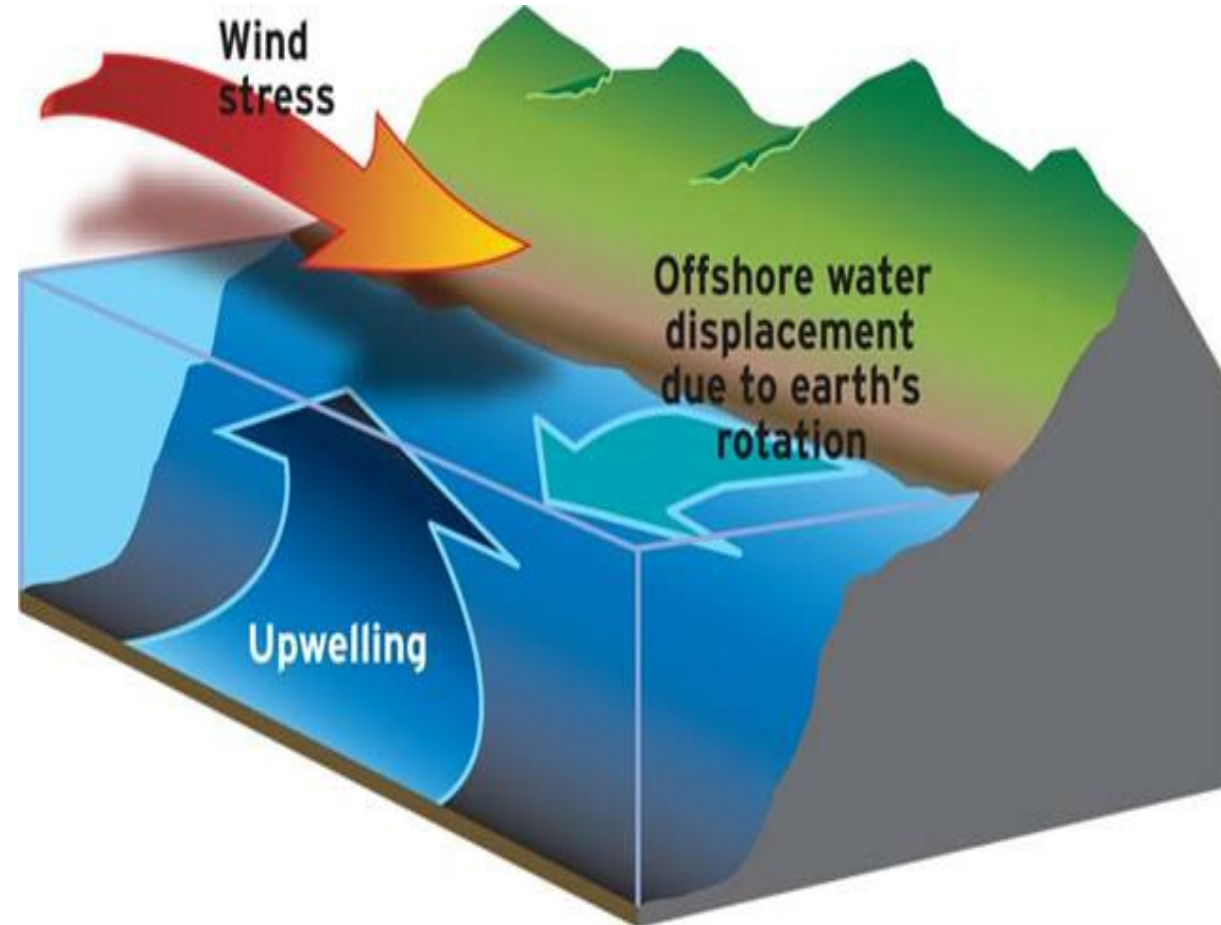
**The diameter of the turbines blades up to 700 ft.**

**The end of the turbine blades can reach up to 200 mph, a deadly risk to soaring birds – among them Albatross, Pelicans, Terns, Shearwater and Gulls**

# UPWELLING

The process in which deep nutrient rich cold water rises to the surface

- 
- Turbines block downwind upwelling
  - Upwelling efficiency diminished by 15%
  - Reduction of zooplankton in water column
  - Food availability for all species reduced
  - Ocean warmed in affected area



# Offshore Substations



- **Highly visible, located close to shore**
- **West Coast floating technology not yet developed**
- **Select substations proposed to use EPA disallowed “once through cooling”**
- **Millions of gallons of superheated & chlorinated water discharged into the ocean**



# Impact on Commercial and Recreational Fishing

- Loss of Fishing Grounds
- Navigational Hazards
- Loss of Fishing Opportunities
- Increased Ship Traffic and Competition

# The Offshore Wind Industry Will Negatively Impact Our Current Thriving Economies





# Soaring Cost of Offshore Wind Energy

California's rate is now ~ \$40/Mwh  
Floating Offshore~ \$145/Mwh

*NREL 2022 Cost of Wind Energy Review*



# Environmental NGOs Co-opted by Wind Industry Donations & Marketing Misinformation



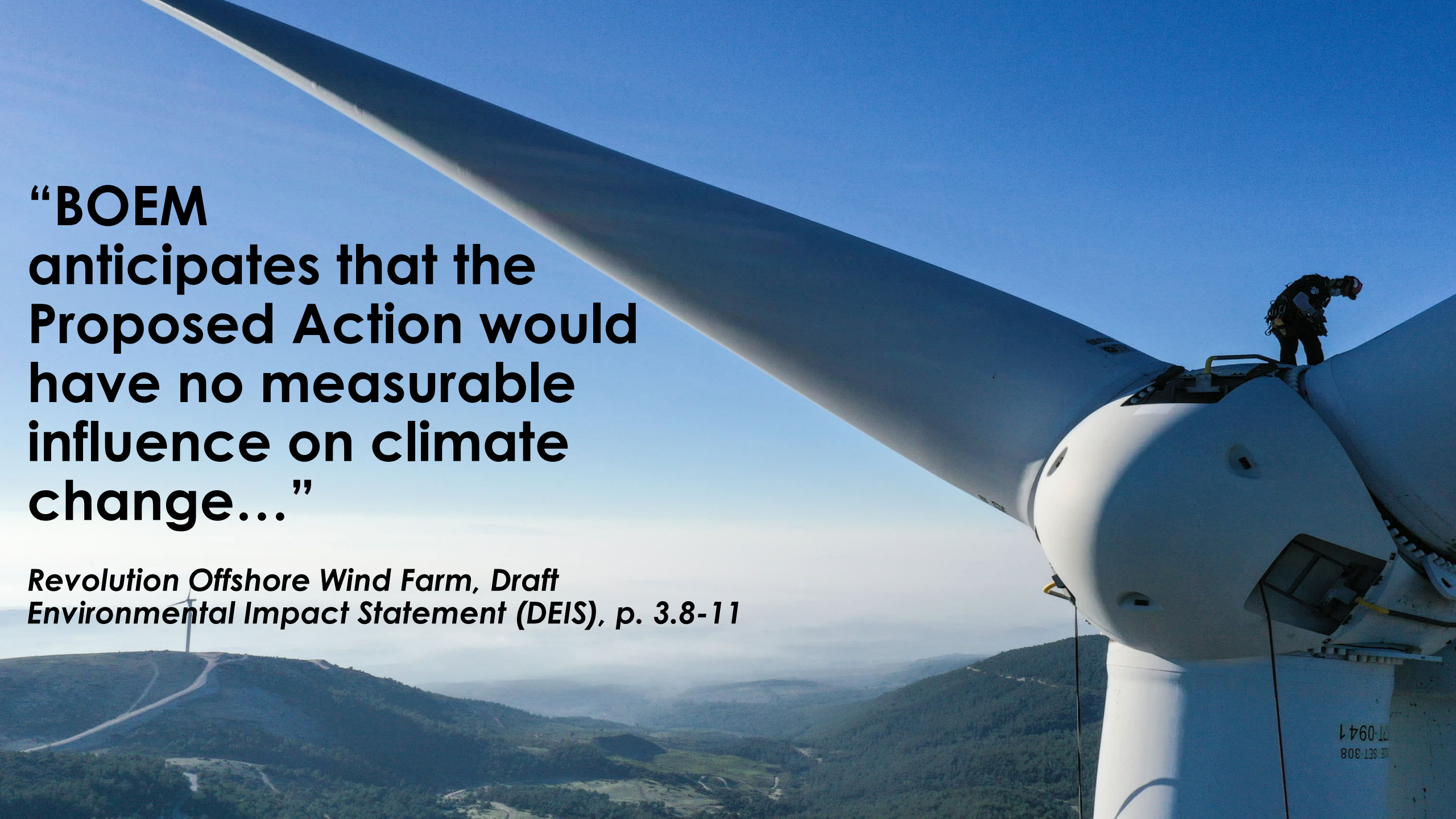
**SIERRA  
CLUB**



**ATLANTIC MARINE  
CONSERVATION SOCIETY**

Promoting Marine Conservation Through Action





**“BOEM  
anticipates that the  
Proposed Action would  
have no measurable  
influence on climate  
change...”**

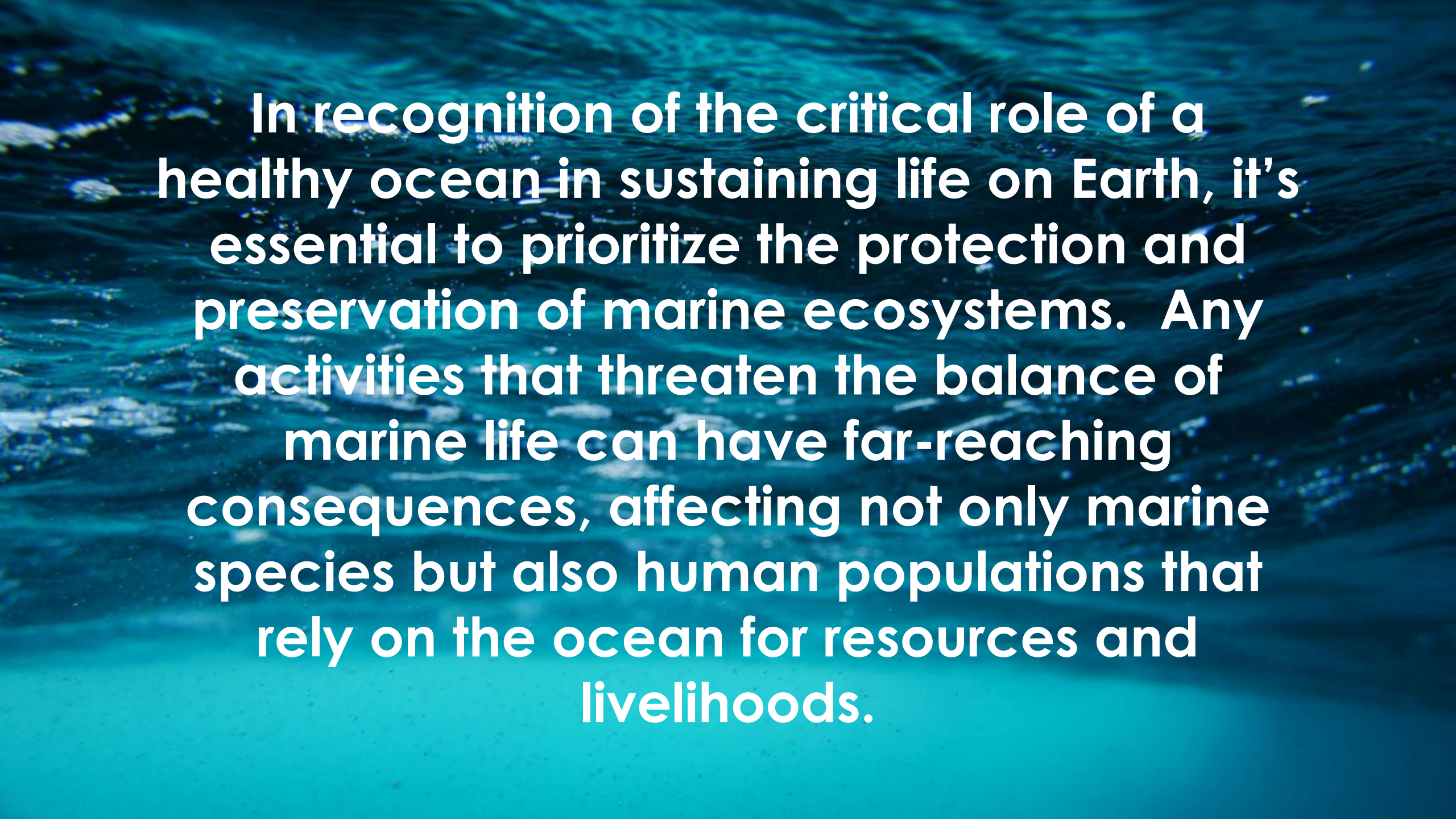
*Revolution Offshore Wind Farm, Draft  
Environmental Impact Statement (DEIS), p. 3.8-11*

17-0941  
DE SET 308

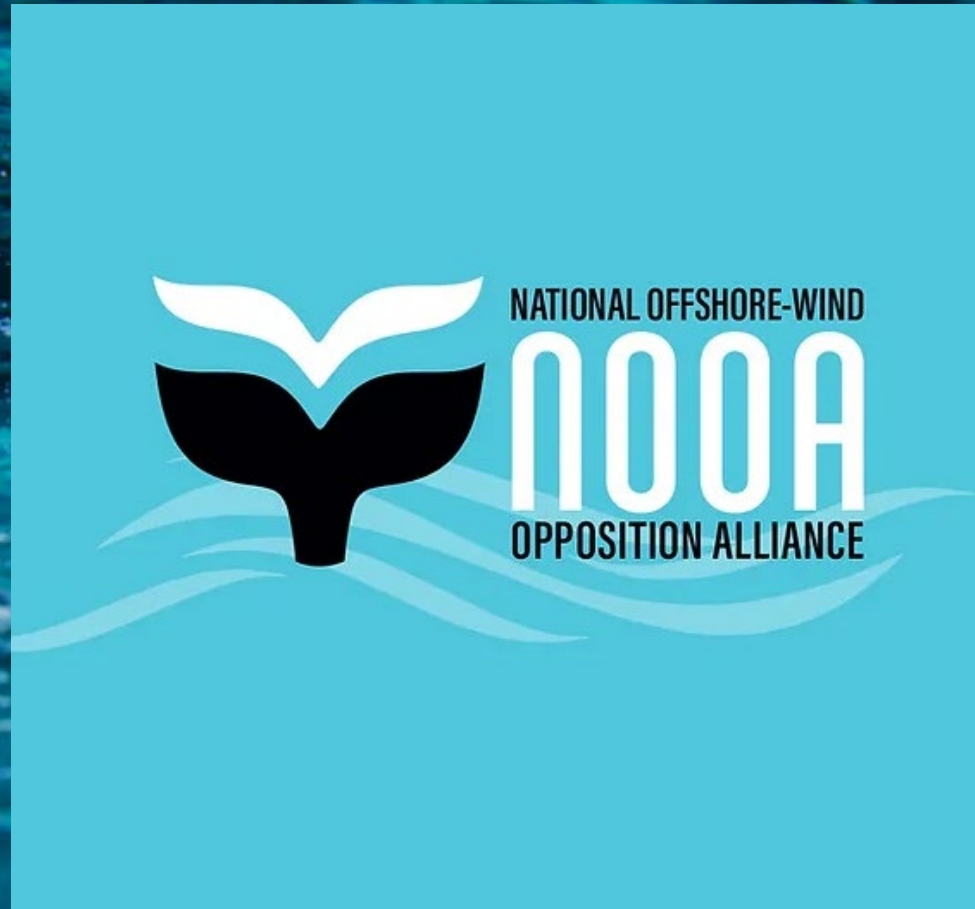


**SUNSET vs SUN SET**

**CHOOSE YOUR FUTURE!**



**In recognition of the critical role of a healthy ocean in sustaining life on Earth, it's essential to prioritize the protection and preservation of marine ecosystems. Any activities that threaten the balance of marine life can have far-reaching consequences, affecting not only marine species but also human populations that rely on the ocean for resources and livelihoods.**



Visit [www.noodoneocean.org](http://www.noodoneocean.org) for more information about this national alliance.