

# Offshore Bird Movements



# Information gap on offshore movements of ESA Listed Species



**Red Knot**  
*Threatened*



**Piping Plover**  
*Threatened*



**Roseate Tern**  
*Endangered*

# Nanotags: A new tracking technology

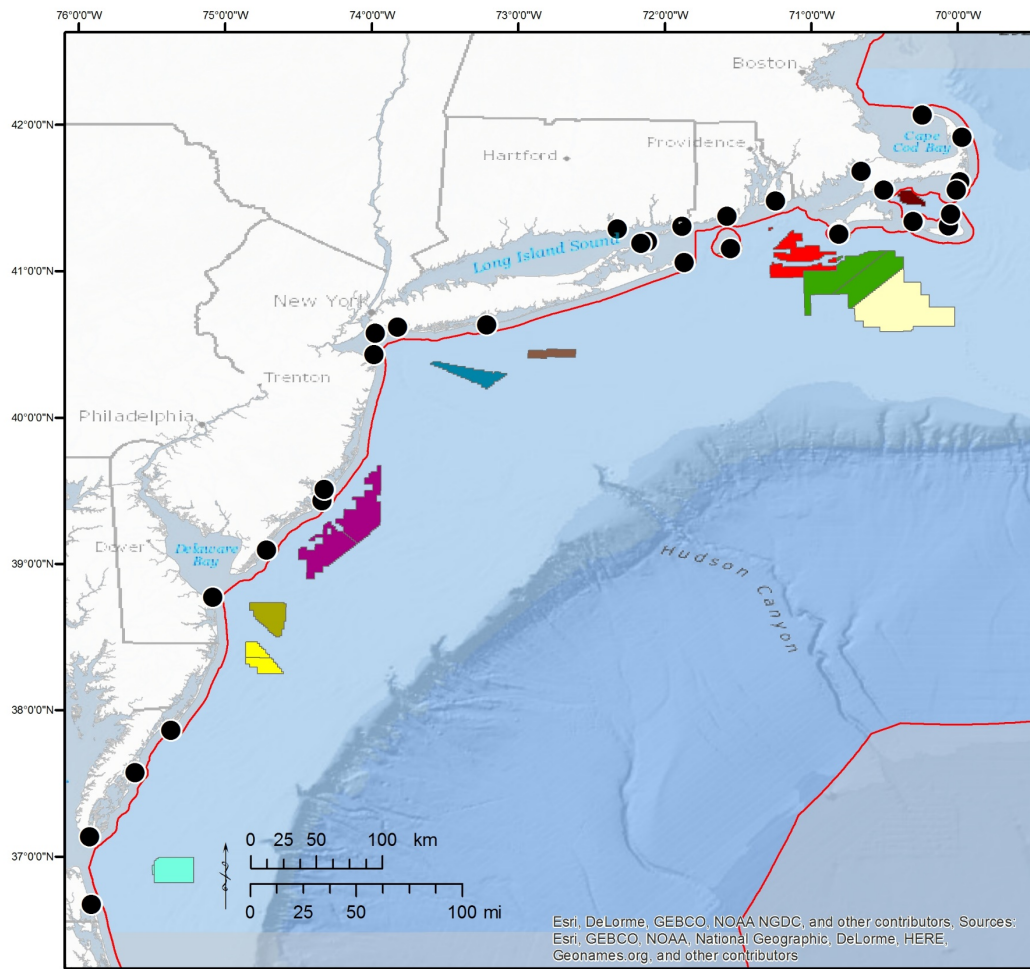


Nanotag transmits VHF signals every 5 seconds



# Antennas track nanotags within 20 km





### Legend

#### BOEM Wind Lease Areas

- MA OCS-A 0478
- RI/MA OCS-A 0486 and 0487
- MA OCS-A 0500 and 501
- NY OCS-A 0512
- NJ OCS-A 0498 and 0499
- DE OCS-A 0482
- MD OCS-A 0489 and 0490
- VA OCS-A 0483 and 0497

#### BOEM Wind Planning Areas

- MA Wind Energy Area
- NY Proposed Commercial Lease

#### U.S. Federal Waters

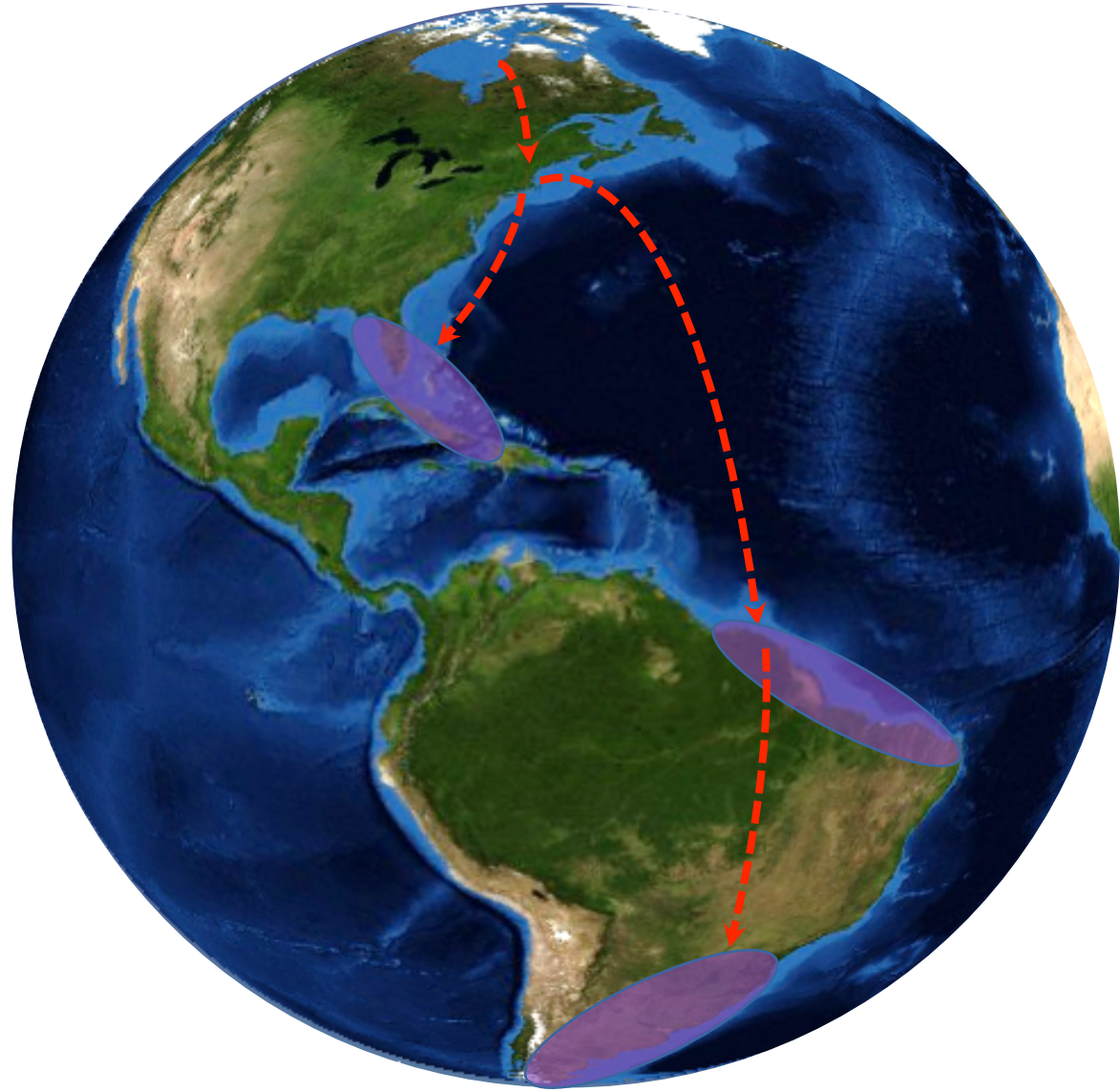
- 3 - 200 nautical mile boundary

#### State Wind Lease Areas

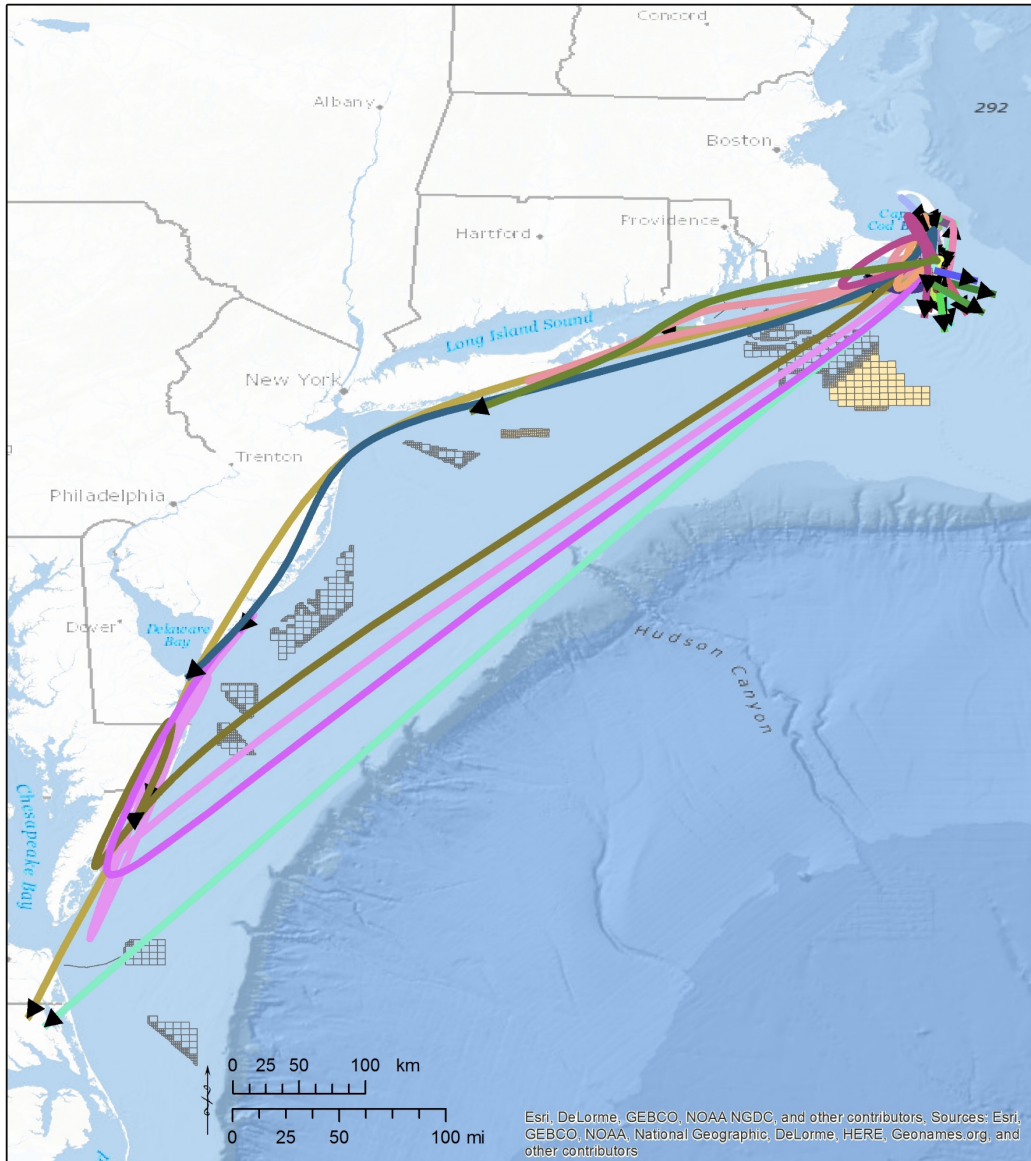
- Block Island Renewable Energy Zone

- BOEM Automated Radio Telemetry Stations

# Red Knot



# Routes of Red Knots Tagged on Cape Cod, MA



## Legend

Estimated departure tracks by tag location

➔ Massachusetts (n=76)

## BOEM Wind Energy Areas

Lease

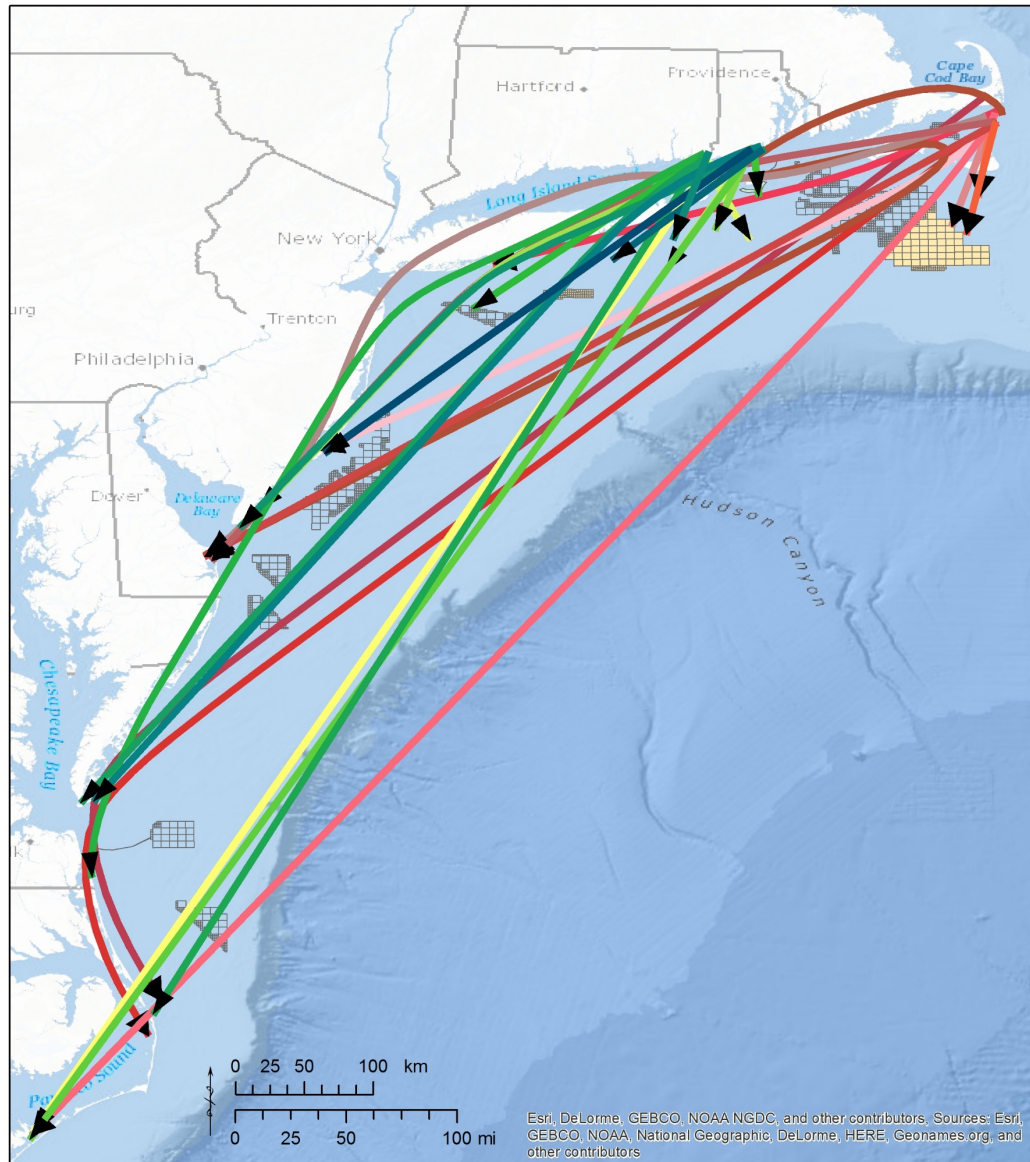
Planning



# Piping Plover



# Routes of Piping Plovers from MA and RI



## Legend

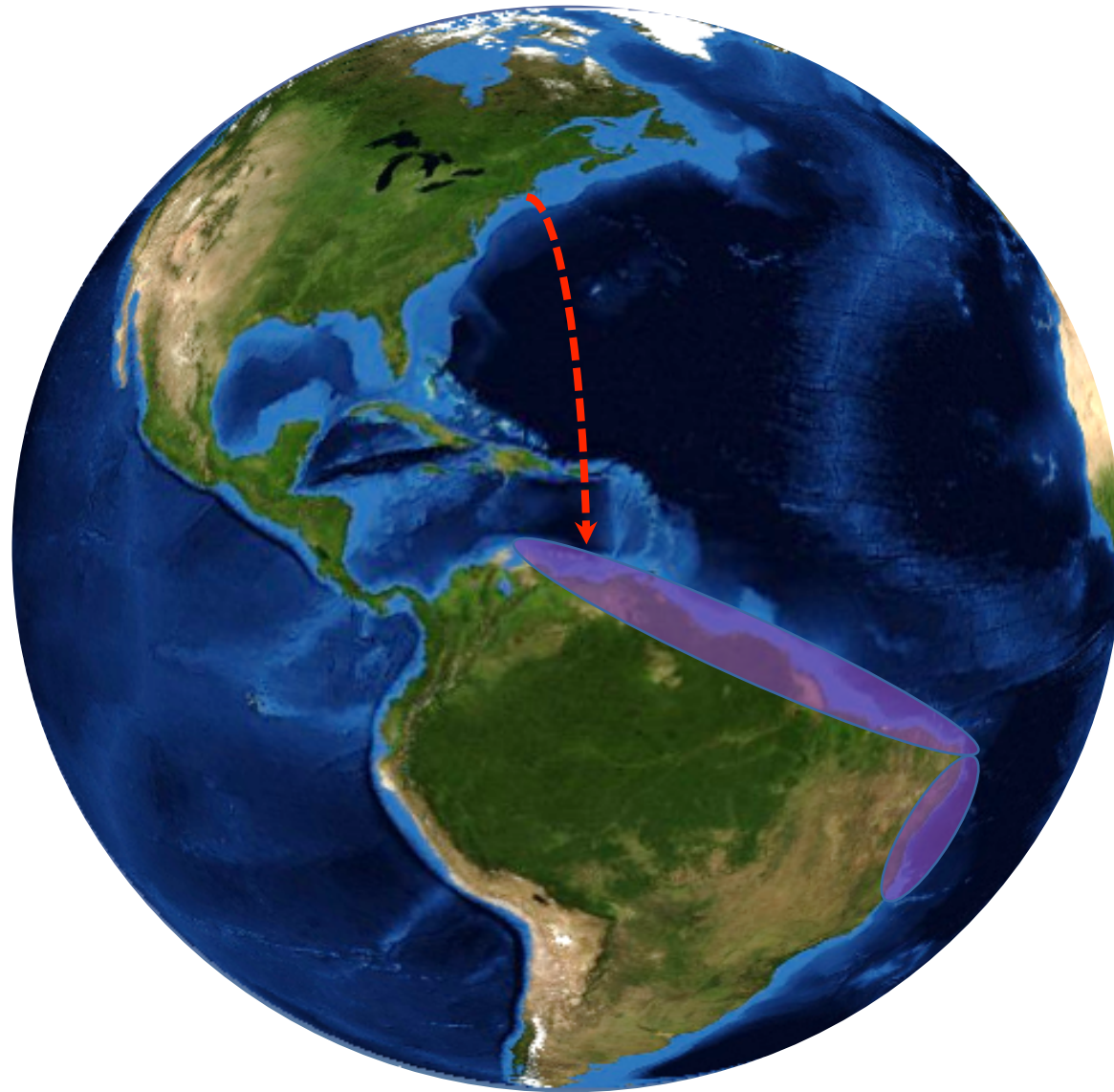
### Estimated departure tracks by tag location

- Rhode Island (n=16)
- Massachusetts (n=12)

### BOEM Wind Energy Areas

- Lease
- Planning

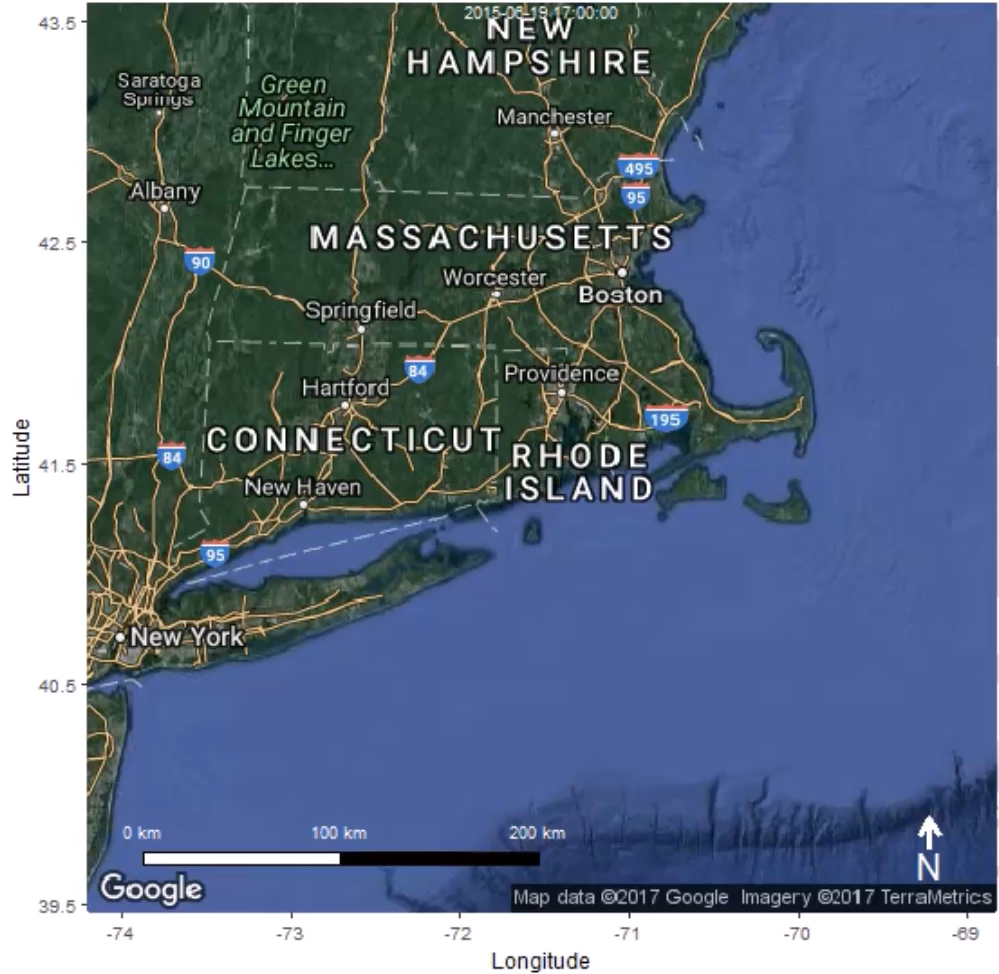
# Roseate Tern



# Movements of 30 Roseate and 30 Common Terns

Great Gull Island 2015

2015-06-19 17:00:00



Projection: Geographical, WGS84; Sources: Movebank 2013; Google Maps

# Current analysis of offshore flights:

- **Altitude**
- **Timing**
- **Demographics**
- **Weather**



# New Tracking Station on Wind Turbine



Thank you!

