

# U.S. Fish and Wildlife Service Trust Resources and Responsibilities



Intergovernmental Renewable Energy Task Force Meeting for the Gulf of Maine  
May 19, 2022

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**U.S. Fish & Wildlife Service**

# U.S. Fish and Wildlife Compliance Responsibilities

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***Migratory Bird Treaty Act (MBTA)*** - prohibits the take (killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by USFWS → 1,093 species

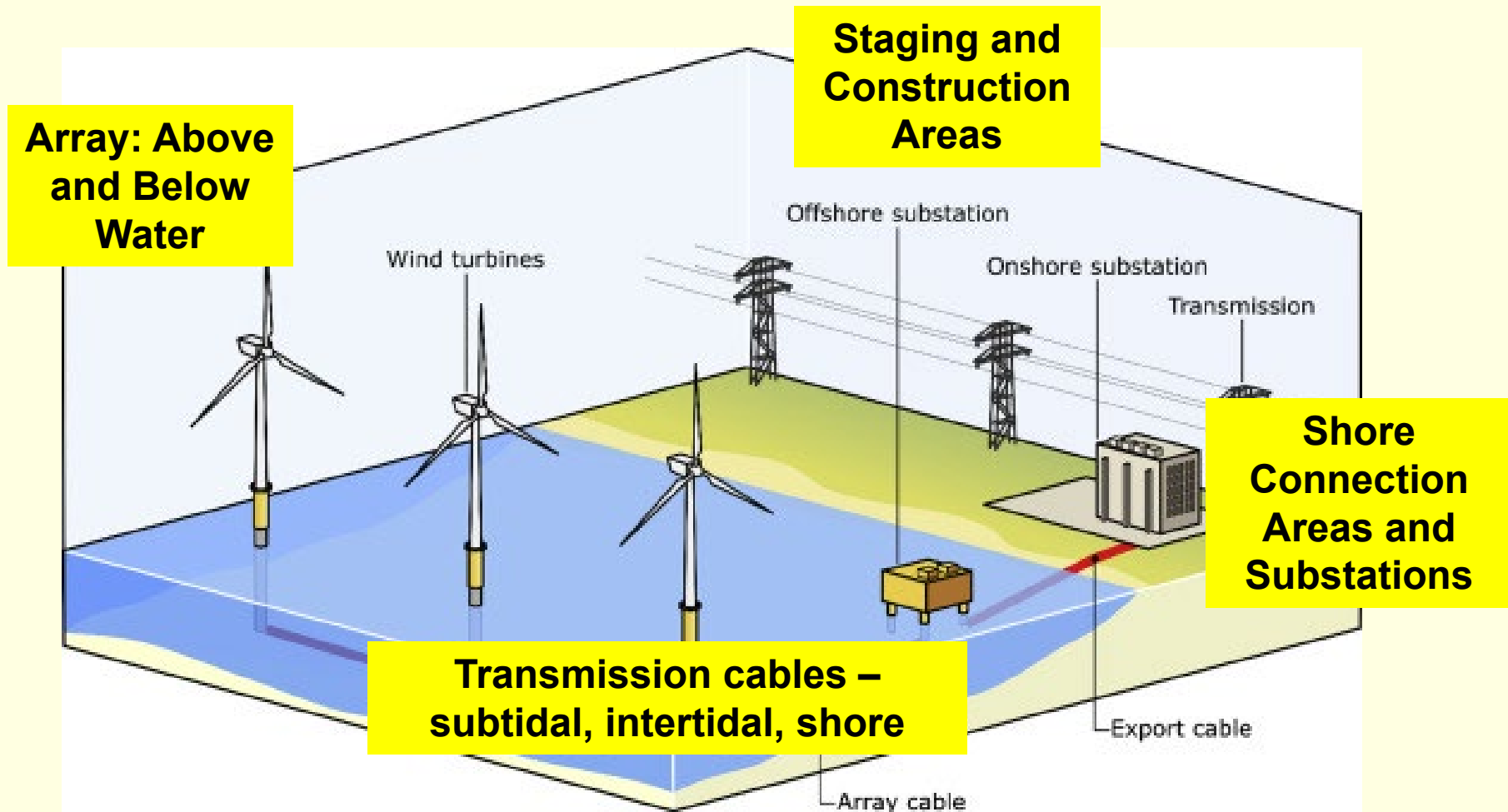
***Endangered Species Act (ESA)***- protect and recover imperiled species and the ecosystems on which they depend → USFWS responsibility for listed birds and non-marine mammals (e.g., bats)

***National Environmental Policy Act (NEPA)*** - Assessment of whether an activity will "Have significant impacts on... migratory birds; and other ecologically significant or critical areas"

***Bald and Golden Eagle Protection Act (BGEPA)*** – prohibits taking of Bald and Golden eagles, their parts, nests, or eggs, without a permit



# Project Impact Areas to Consider



Underlying diagram from Nikitas et al. 2019



# Potential Effects of Offshore Wind Facilities

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## Direct

- Collision
  - Hard to document in marine systems
- Displacement from breeding, feeding, or resting areas
  - Dynamic food resources make this difficult to monitor

## Indirect

- Energetic costs of avoidance (flight time and energetic cost)
- Displacement of prey base
- Noise/vibration may interfere with communication, foraging, or predator detection



# Endangered Species Act Listed Birds in the Gulf of Maine



## Roseate Tern:

- 360 pairs nesting on 5 islands
- Migrating birds from Nova Scotia, routes unknown



## Piping Plover:

- 125 pairs nesting in Maine, 13 pairs in NH
- Migrating birds from Nova Scotia, routes unknown

## Red Knot

- Migratory shorebird documented using coastal islands



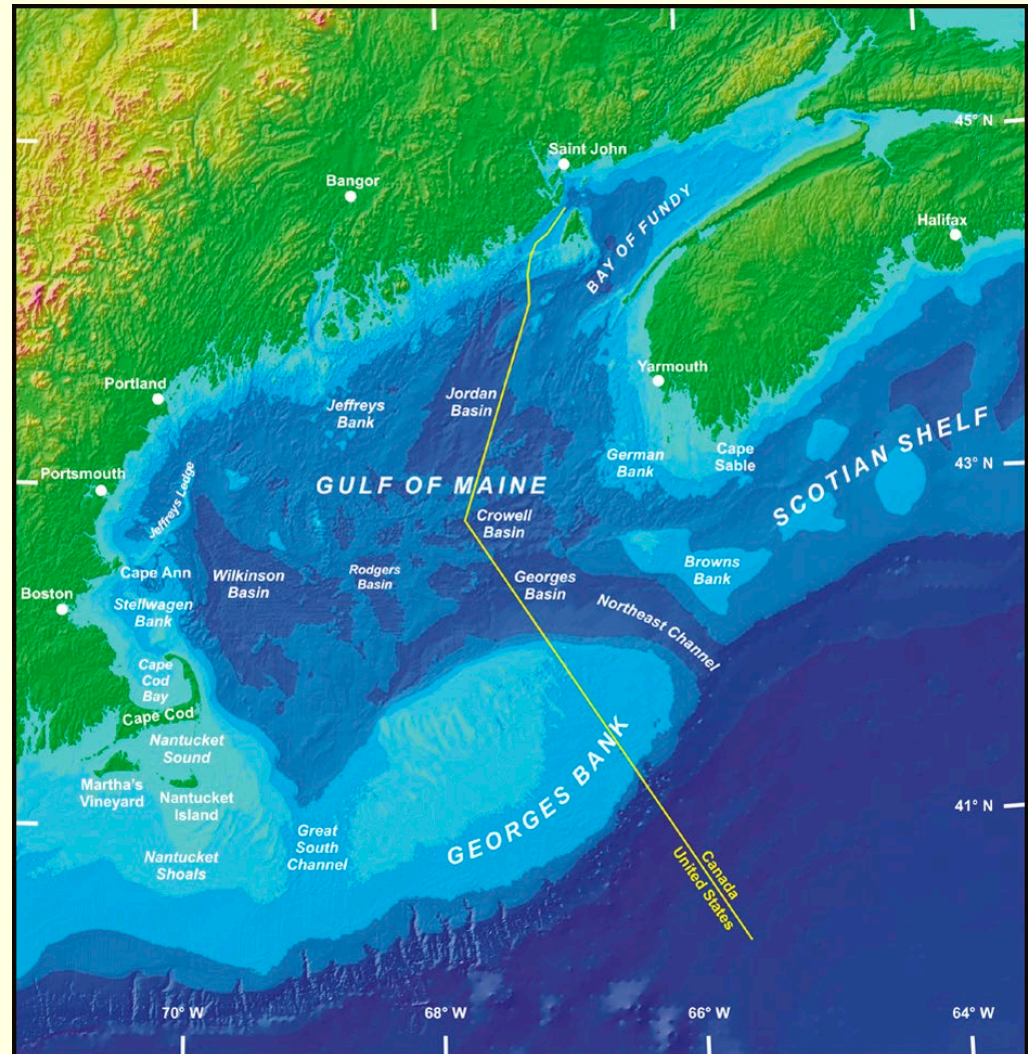
# Seabirds in the Gulf of Maine (GOM)

- Maine has 4,600 islands, and 382 are Nationally Significant Nesting Islands
- 15 Species of seabirds nest in Maine (~155,000 breeding birds)
- USFWS and conservation partners intensively manage 13 islands in GOM
  - Intensively managed colonies
  - Long-term datasets on colony size, reproductive parameters, feeding rates, diet composition, survival and recruitment rates
  - Limited data on foraging habitat or migratory corridors
- Distribution of forage fish is very dynamic
  - Sea surface temperature, topography of sea floor, salinity, primary productivity, currents, weather patterns, and water depth

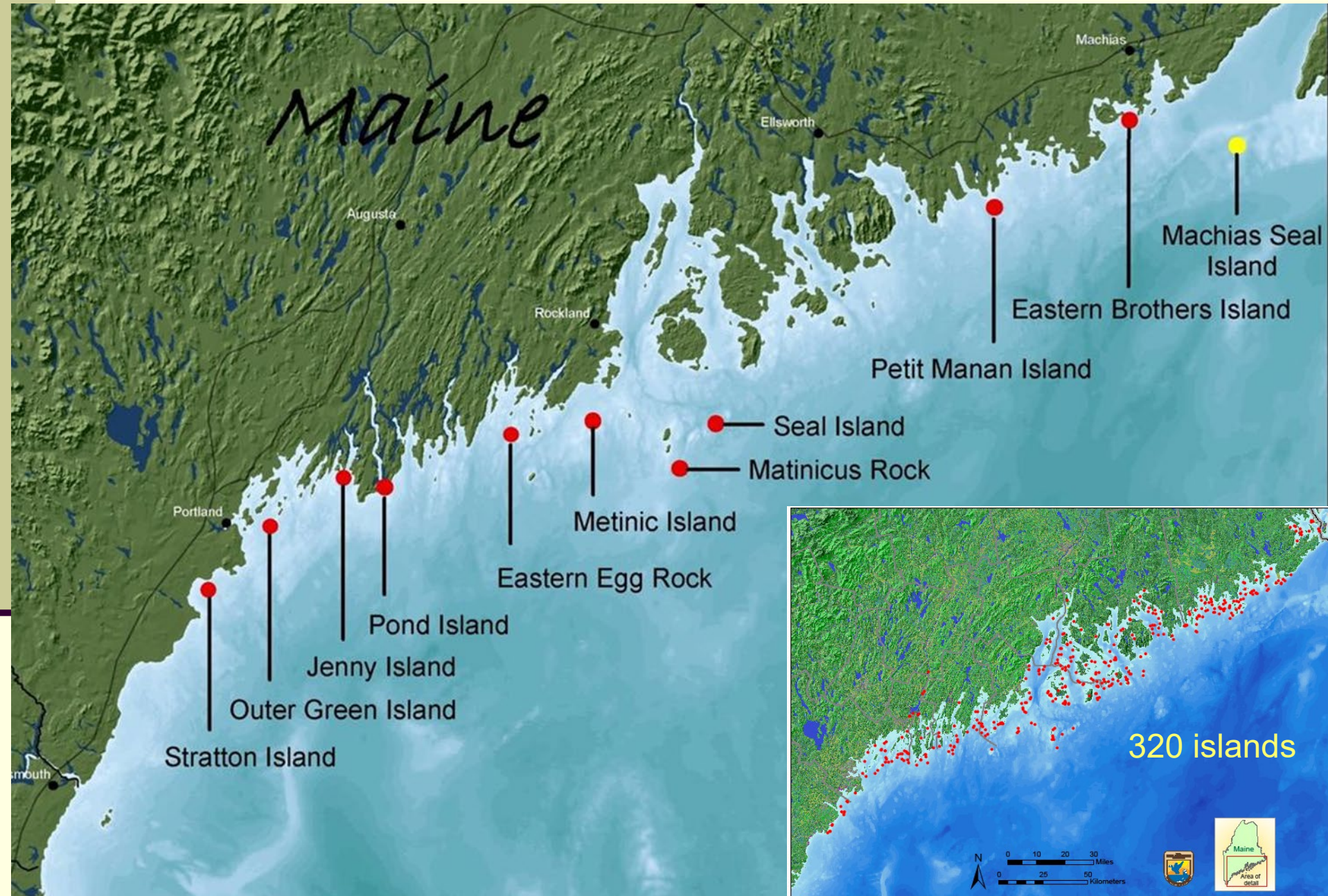


# Orientation and Complexity of Coastline

- Research has shown some birds fly from Nova Scotia directly over the Gulf of Maine
- Distance from the mainland and habitat conditions on an island will affect bird and bat use
- Birds and bats are routinely found much farther from mainland than observed in other regions



# Intensively Managed Seabird Restoration Islands





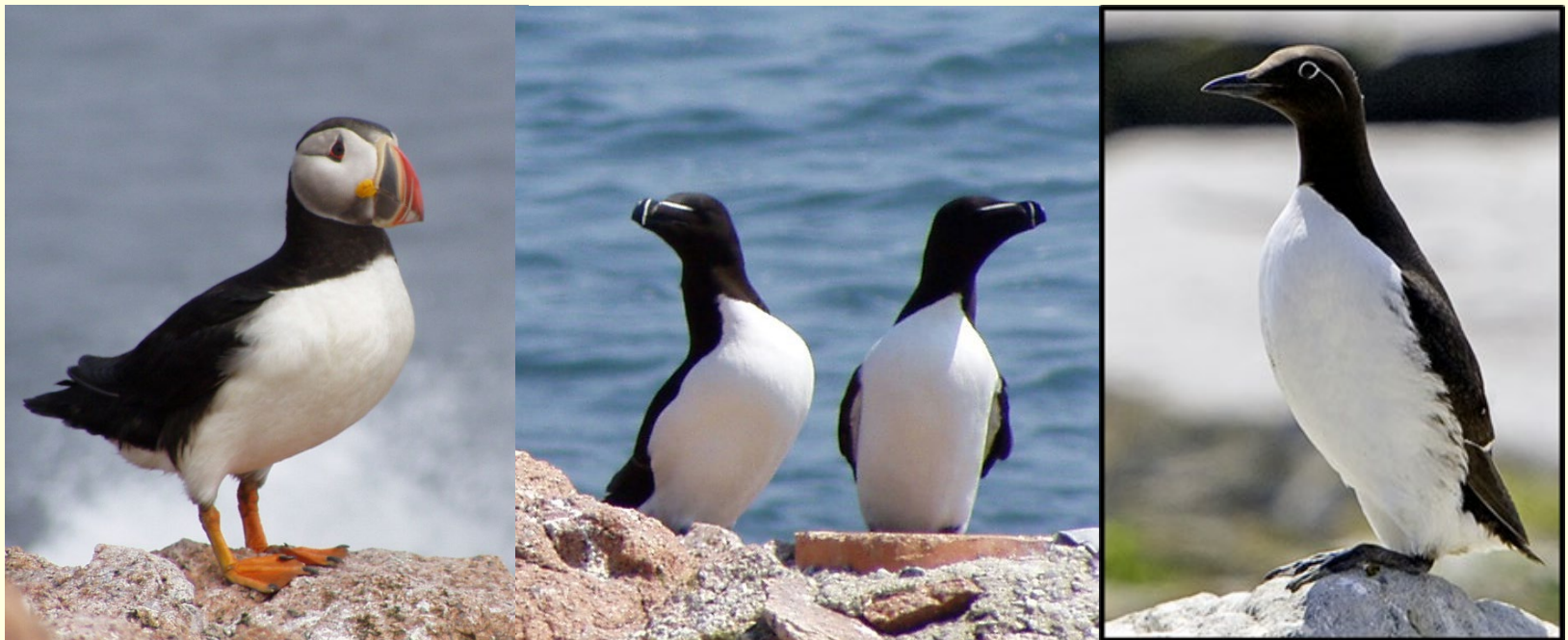
# Common, Arctic, and Roseate Terns

- 98% of terns nest on 12 managed colonies (80% on 6 islands)
- 95% of Roseate Terns in Maine nest on 3 islands
- 96% of Arctic Terns in lower 48 states breed on 4 Maine Coastal Islands National Wildlife Refuge (MCINWR)
- Monomoy is largest Common Tern colony in the world



# Atlantic Puffin, Razorbill, and Common Murre

- 90% of Atlantic Puffins in the US breed on 3 MCINWR islands
- 85% of Razorbills in the US breed on 4 MCINWR islands
- Common Murre only breed on one island in eastern US



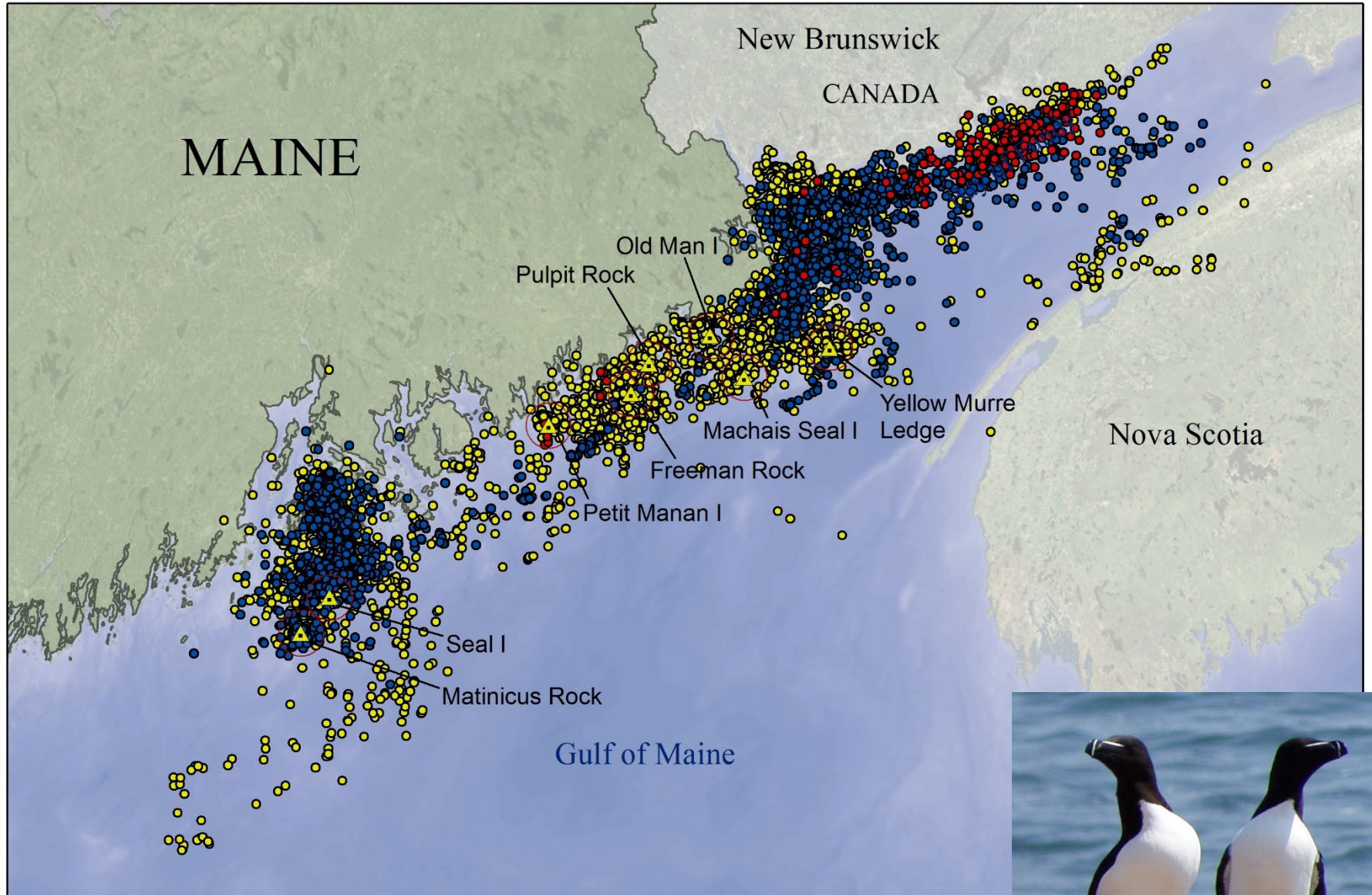
# Foraging Habitat

- Very little information on foraging habitat or migration pathways
  - Small size of birds and foraging behavior limit use of technology
- Marine ecosystem is highly dynamic
  - Location of foraging habitat frequently changes
- Abundance and distribution of forage fish are influenced by many factors:
  - Sea surface temperature, topography of sea floor, salinity, primary productivity, currents, weather patterns, and water depth
- Birds must return to colony to feed chicks. Inability to access productive foraging grounds may lead to colony abandonment





# Maine Coastal Islands National Wildlife Refuge

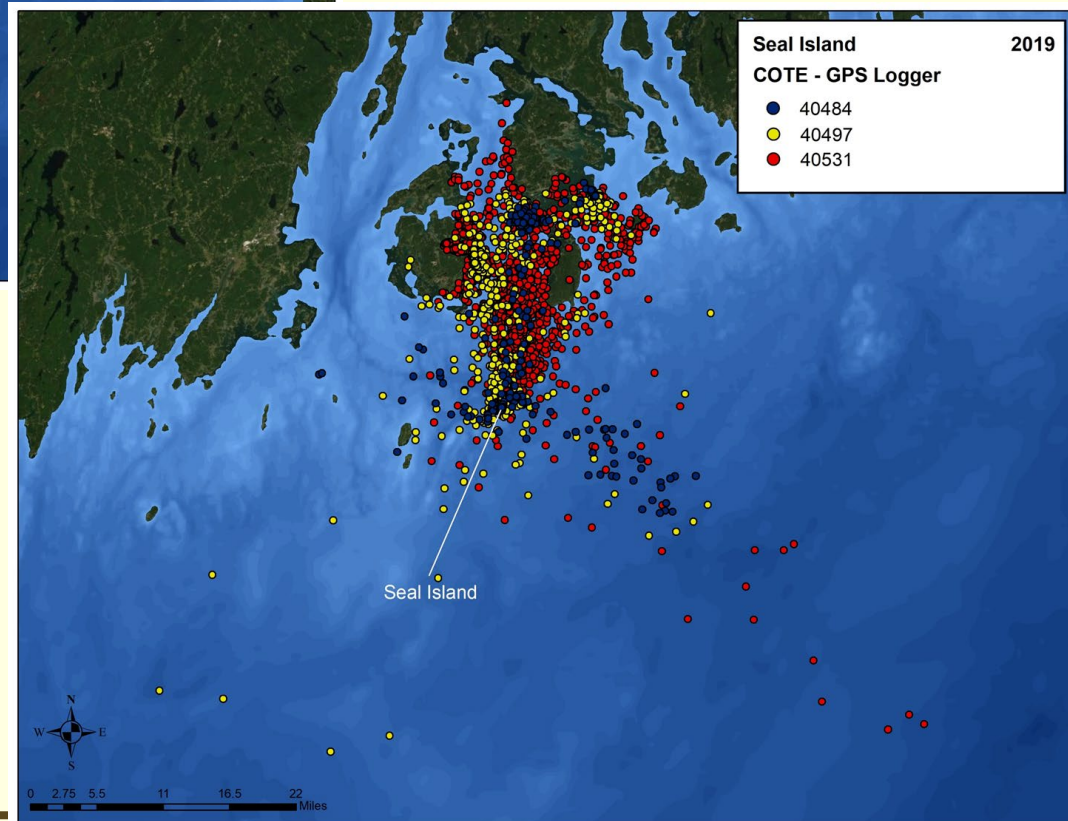
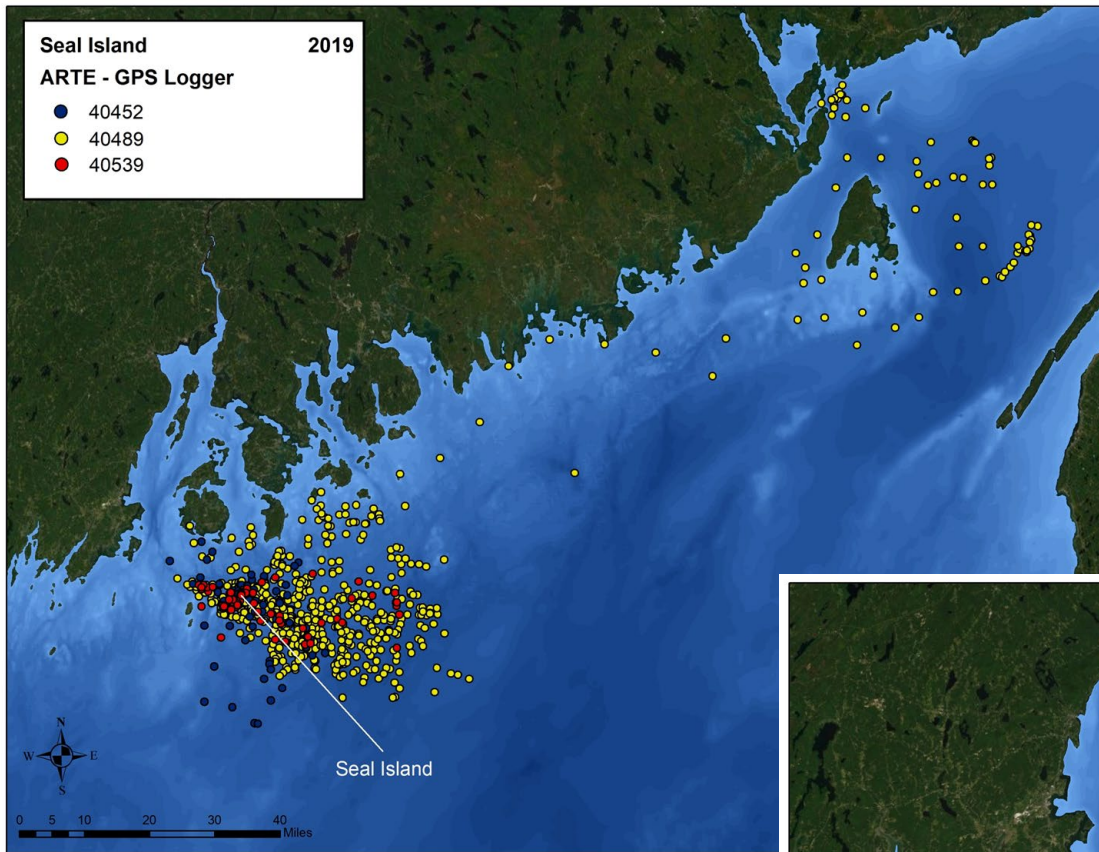


- 2015  
5 Razorbills
- 2014  
1 Razorbill
- 2013  
10 Razorbills



1 = 1,760,271

# GPS tagging of Common and Arctic terns



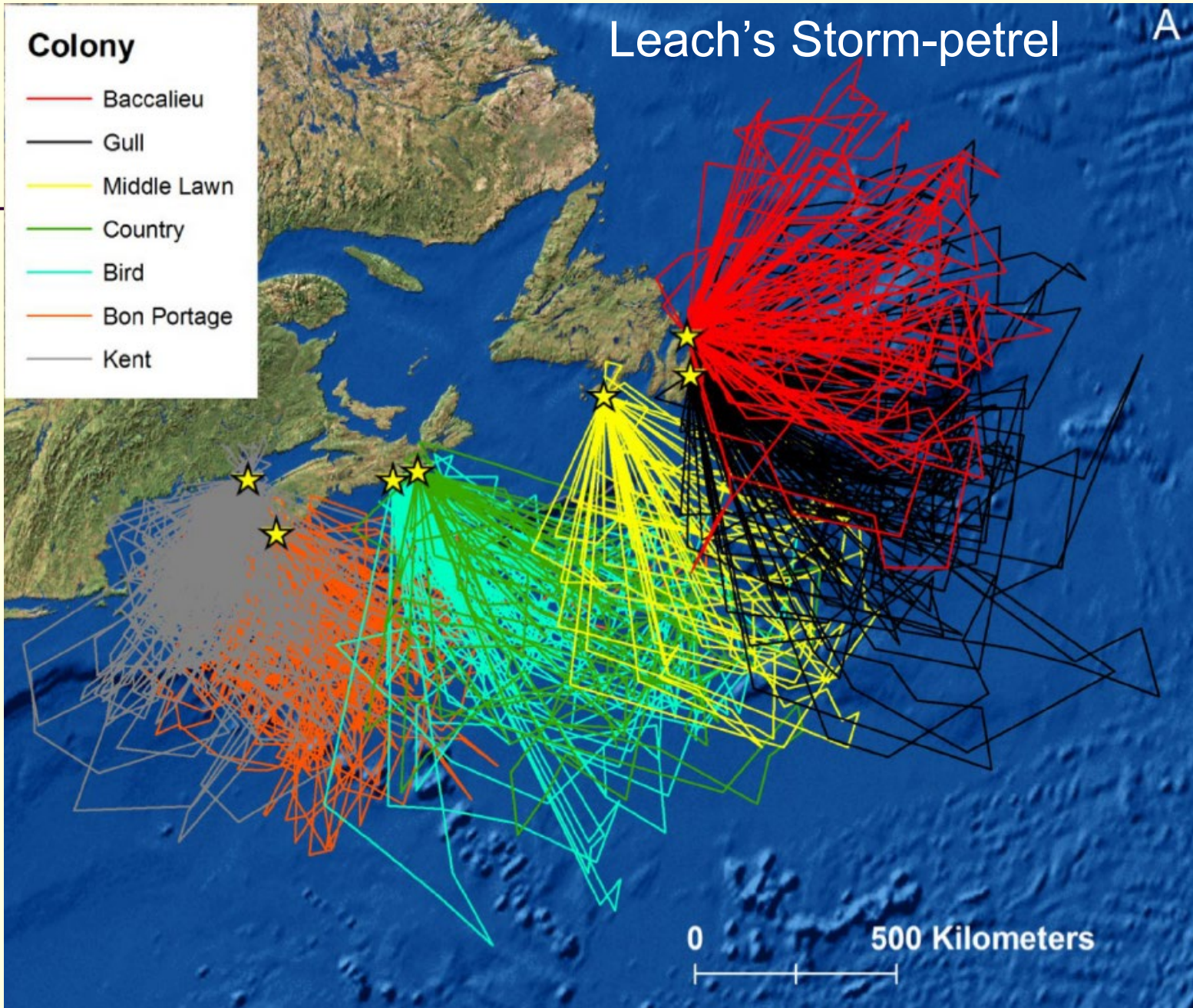
Travel up to 50km from colony to forage



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# Leach's Storm-petrel

A



# Petrel - GPS Logger

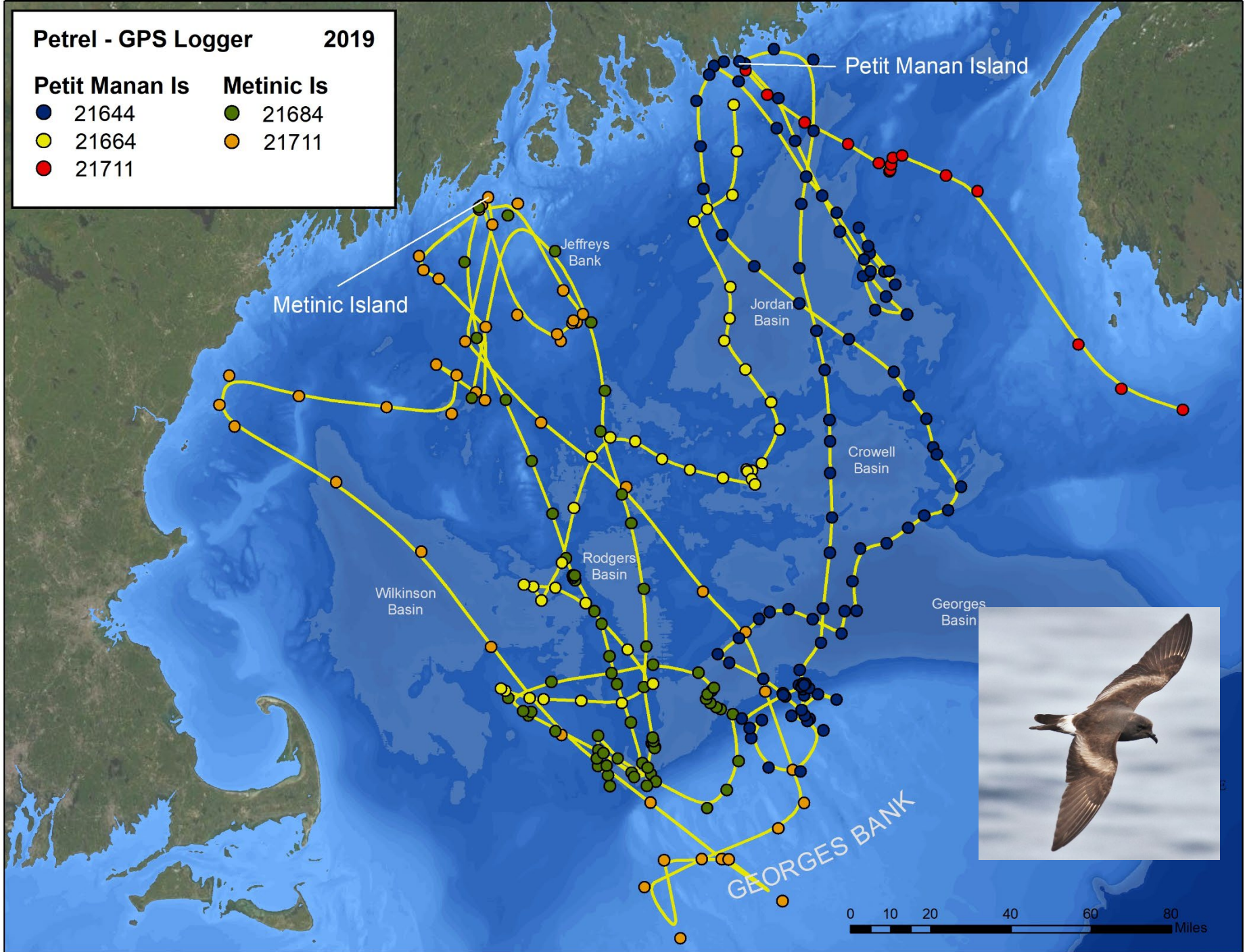
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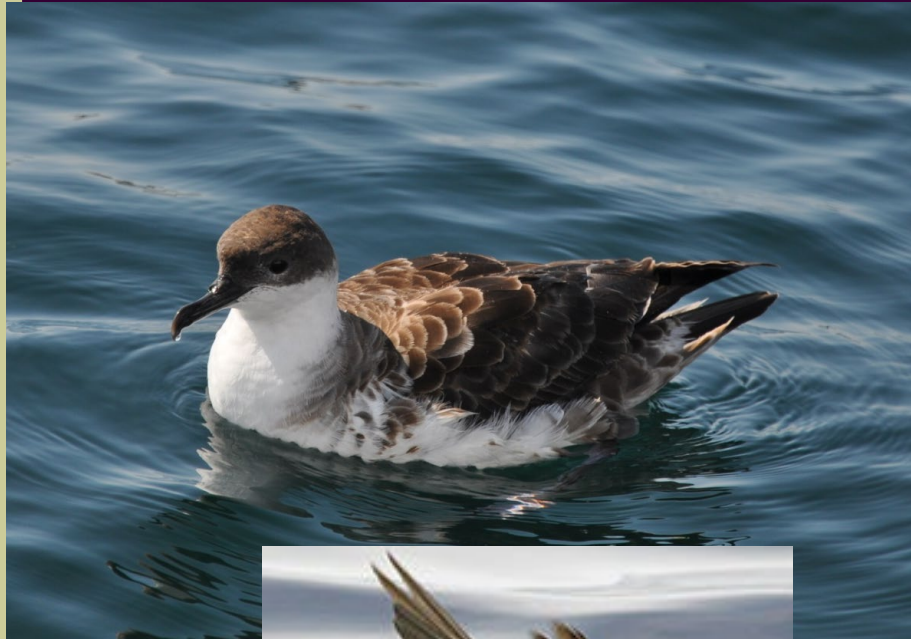
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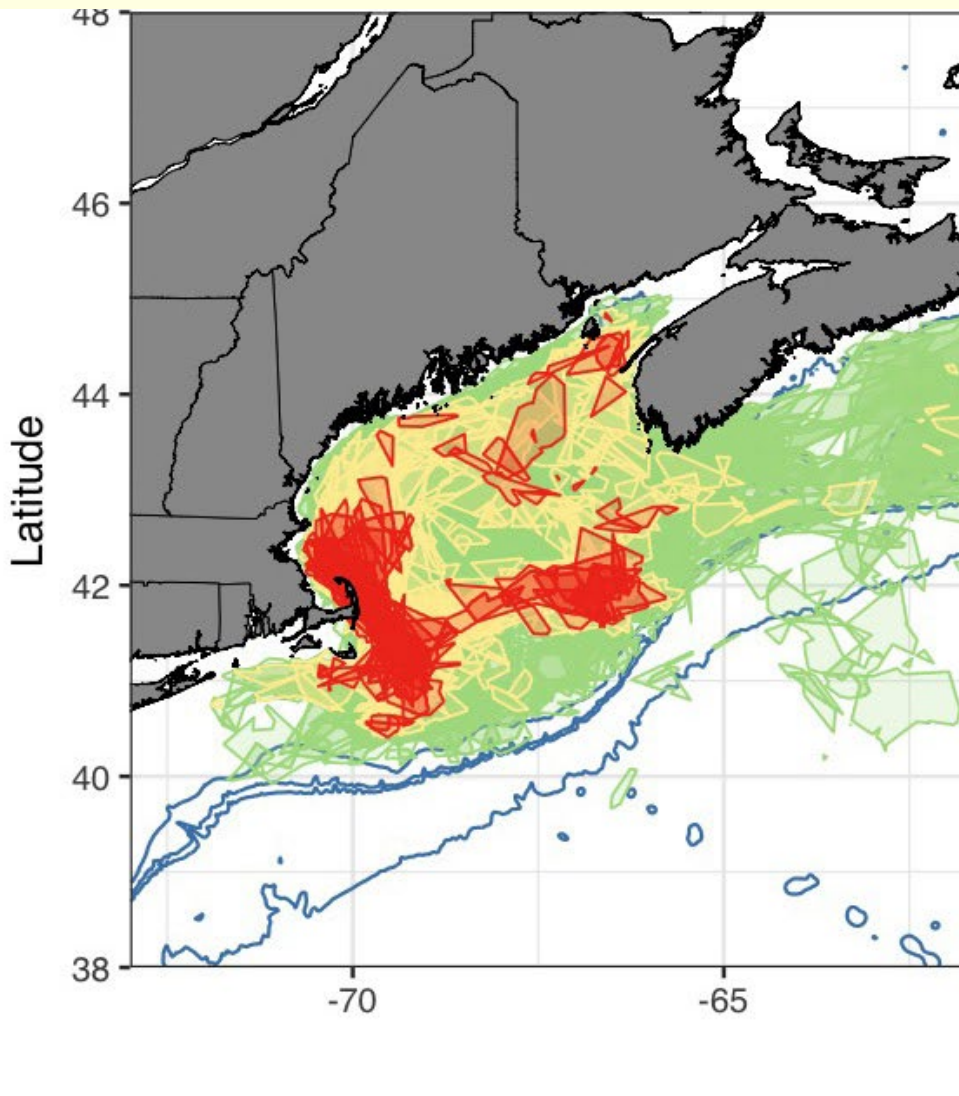
# Gulf of Maine Pelagic Seabird Community is Dominated by Migrants



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# Great Shearwater



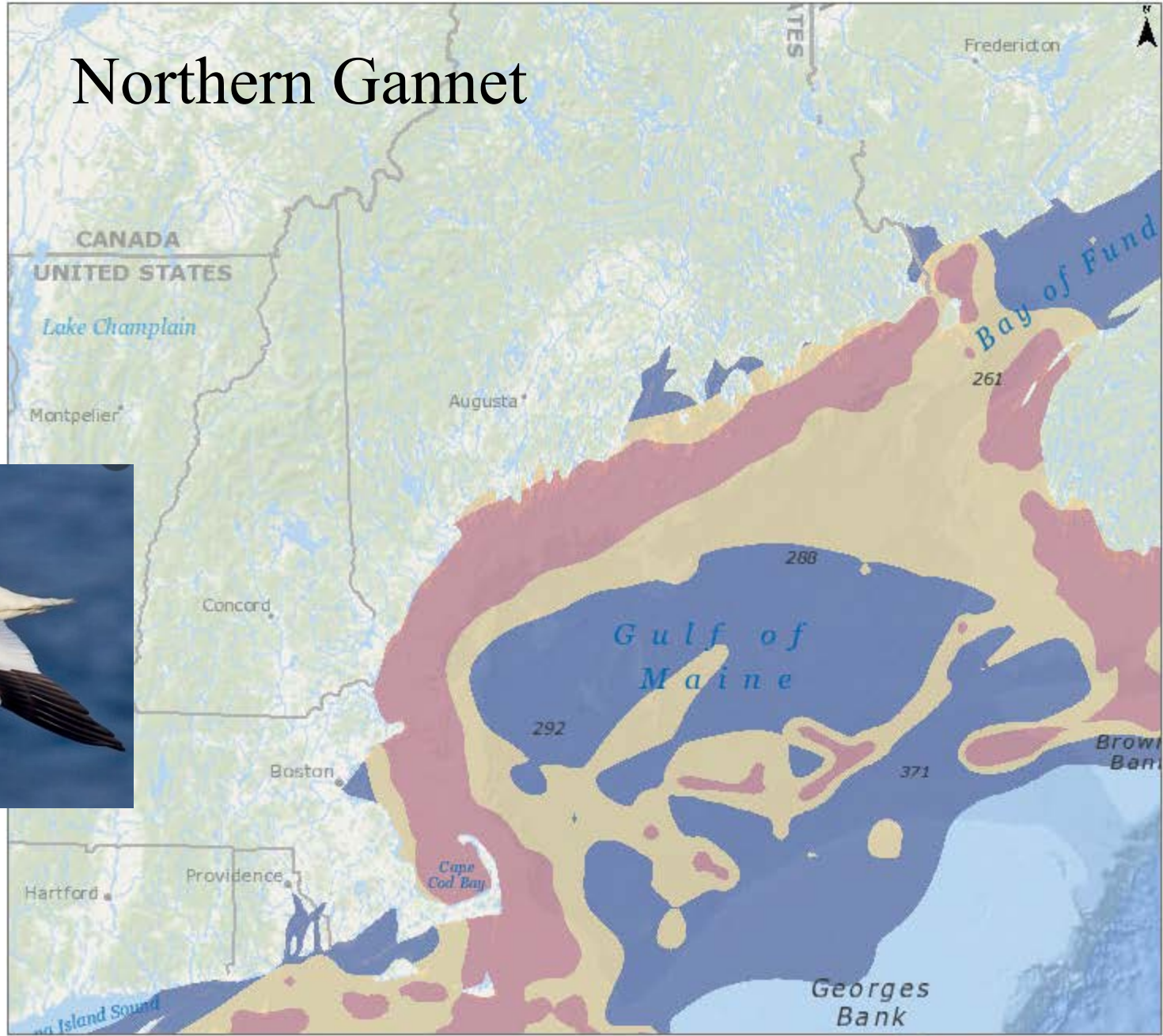
Utilization distributions of Great Shearwaters ( $n = 58$ ) from 2013 to 2018 with kernel density groupings based on entire convex hull dataset: < 25% (red), 25%–50% (yellow), and 50%–95% (green).



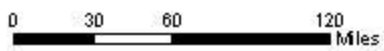
**Northern gannet, fall migration, utilization distribution**

- 50% - Core use areas
- 75%
- 95% - Mean home range

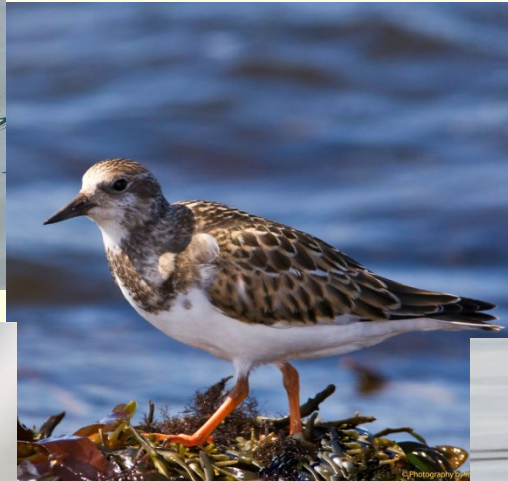
# Northern Gannet



This map was generated using data on the Northeast Ocean Data Portal on 5/17/2022.  
[www.northeastoceandata.org](http://www.northeastoceandata.org)



# Raptors, Sea Ducks, Shorebirds & Passerines....



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= Year-round use of the Gulf of Maine

# Bats

- Northern Long-eared Bat
  - Threatened; proposed Endangered
- Multiple species of bats have declined >90% due to disease (White-nose Syndrome)
- USFWS worked with partners to document bat movements along the coast (acoustic units and nanotags)
- Bats have been detected at all 15 islands and coastal headlands monitored
- Open ocean behavior and use = priority data need



# Challenges Unique to the Gulf of Maine

- Maine supports Nationally Significant Populations of seabirds, with >90% of terns, puffins and razorbills nesting on 12 islands
- Maine has 4,600 coastal islands and ledges, birds may “island hop” among islands
- Breeding seabirds must return to colonies to feed chicks. Thousands of birds are making multiple foraging flights per day
- Gulf of Maine is one of the most productive ecosystems in the world, but it is very dynamic – location of foraging habitat changes frequently
- Little information exists on the habitat characteristics of seabird foraging habitat or migration pathways
- Gulf of Maine is used by tremendous number of birds – year-round
- Environmental conditions in the Gulf of Maine may increase risk of collision (FOG) and challenges associated with research and monitoring



# Priority Information Needs

- Map existing data to identify areas of potential conflict
  - Will also help to identify data gaps
- Survey and map benthic habitat
- Implement monitoring efforts to establish above and below water ecological baselines in the Gulf of Maine
  - Wildlife (bird, bat, turtles, and marine mammals) and fisheries
- Tracking studies of Threatened and Endangered species and vulnerable (e.g., At-risk Species, Birds of Conservation Concern, Species of Greatest Conservation Need) birds, mammals, and fish
  - Identify foraging areas and migration corridors
- Identify impacts of climate change on the abundance, distribution, and phenology of Gulf of Maine wildlife species
  - Gulf of Maine is warming faster than 96% of world's oceans

