Guidance for Pre- and Post-Construction Monitoring to Detect Changes in Marine Bird Distributions and Habitat Use Related to Offshore Wind Development in the United States

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U.S Offshore Wind

- Key component of state and federal plans to minimize climate change
- Target of >39 GW by 2040
- 10 lease sales and 27 active commercial wind leases so far
- Developers planning on 10.3 GW by 2026
- Two commercial-scale projects under construction with installation beginning 2023

New York has been working with stakeholders since 2017 to ensure environmentally responsible offshore wind development

Informing Decision Making With Expert Stakeholder Engagement

Clear need for collaborative approaches to:

- Standardize data collection methods
- Ensure that monitoring is designed to have the power to answer effects questions
- Pursue research and monitoring activities to a), detect effects from offshore wind development, and b) understand impacts to populations and ecosystems
- Fill gaps in guidance for how to conduct pre- and post-construction monitoring of marine bird species.

Avian Displacement Guidance Committee

Co-chaired by BOEM and USFWS and made up of subject matter experts

Goals: Inform pre- and post-construction monitoring and research approaches for detecting and characterizing displacement, attraction, and macro- to meso-avoidance of marine birds at OSW facilities in U.S. waters

Uses of guidance:

- Referenced and/or incorporated into future national OSW-wildlife guidance developed by regulatory agencies
- Used by OSW developers for site-specific monitoring plan development
- Used by state and federal agencies and other stakeholders in meeting regulatory responsibilities

NEW YORK STATE OF OPPORTUNITY. NYSERDA

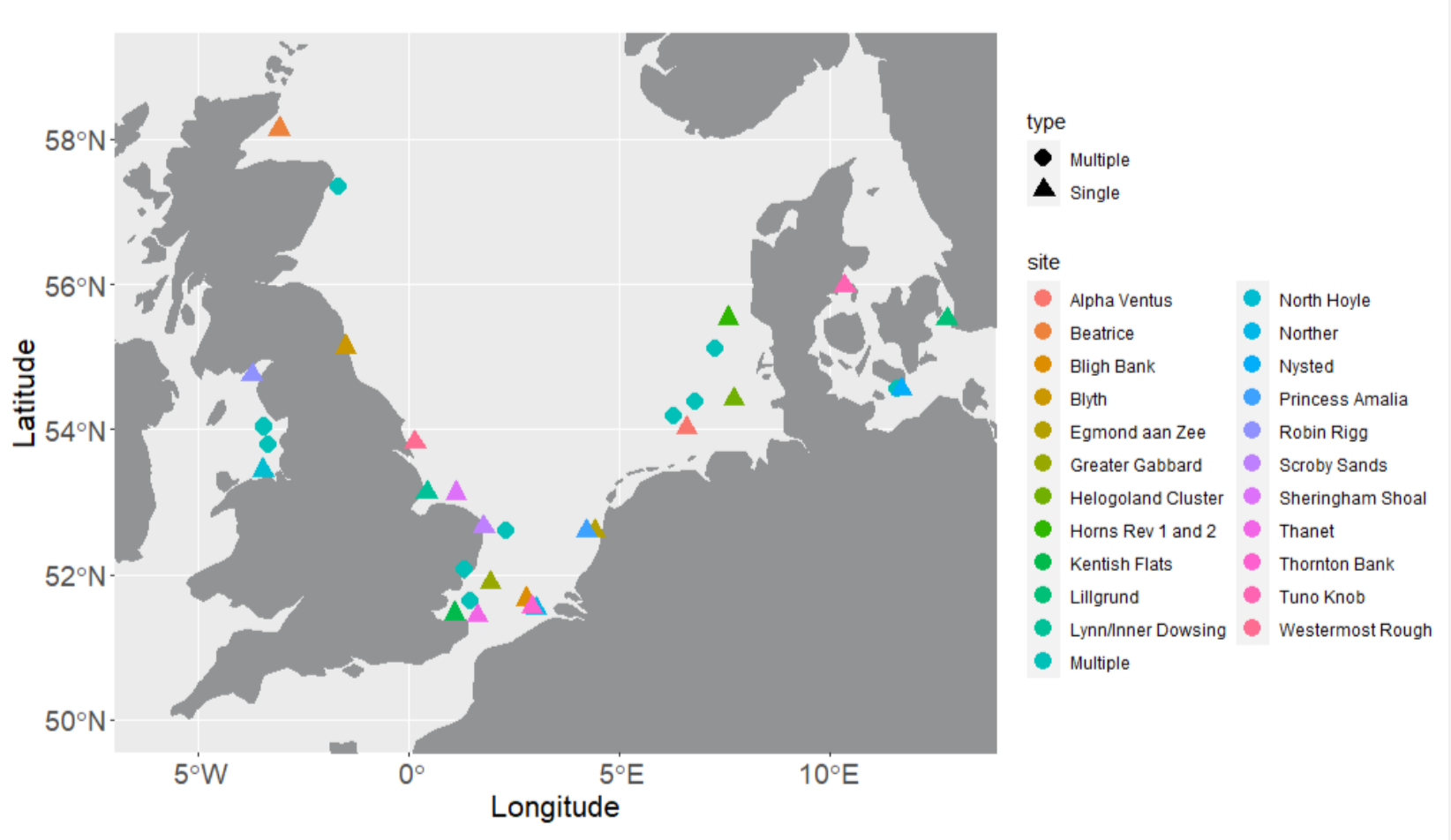
bri Biodiversity Research Institute innovative wildlife science

U.S. Fish & Wildlife Service

BOEM Bureau of Ocean Energy Management

Literature Review to Inform Recommendations

- Levels of displacement and avoidance for Europe
- Potential sources of variation in response
- Aspects of study design that may influence statistical power



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1-3. Rationale, purpose of guidance, definitions of key terminology

4. Key research questions

5. Selecting focal taxa

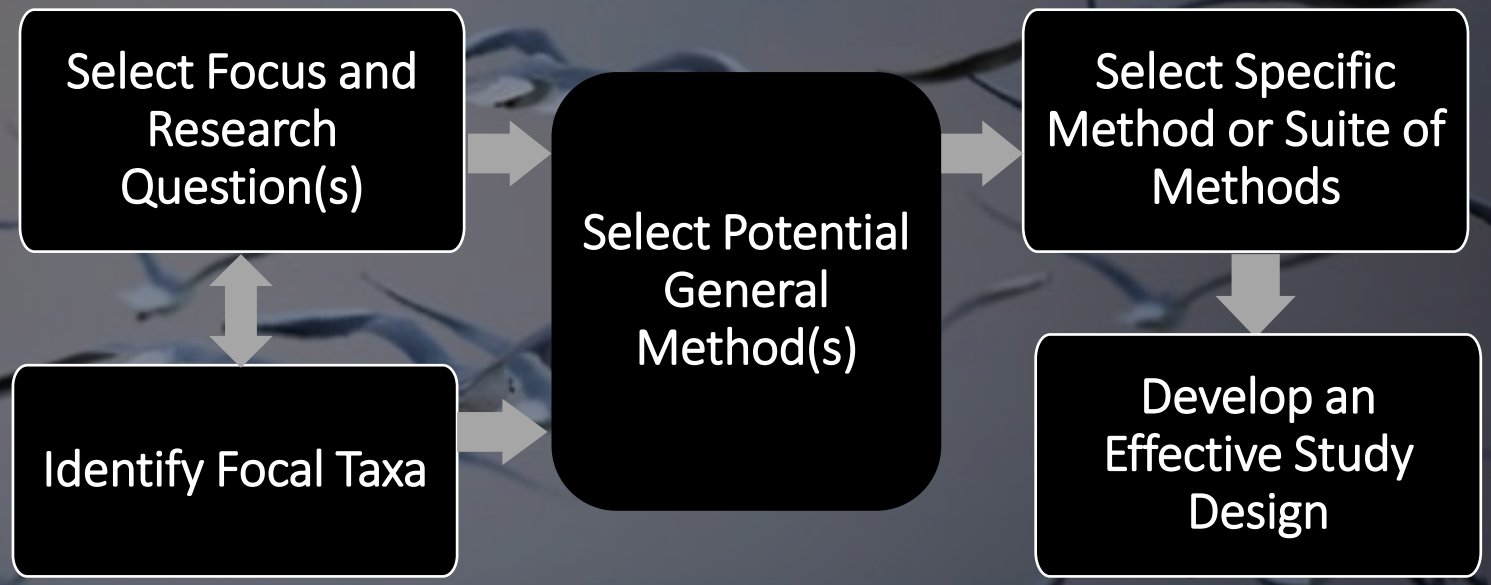
6. Selecting appropriate methodologies

7. Study design recommendations

8. Reporting, data consistency and transparency

9. Recommendations specific to conducting surveys

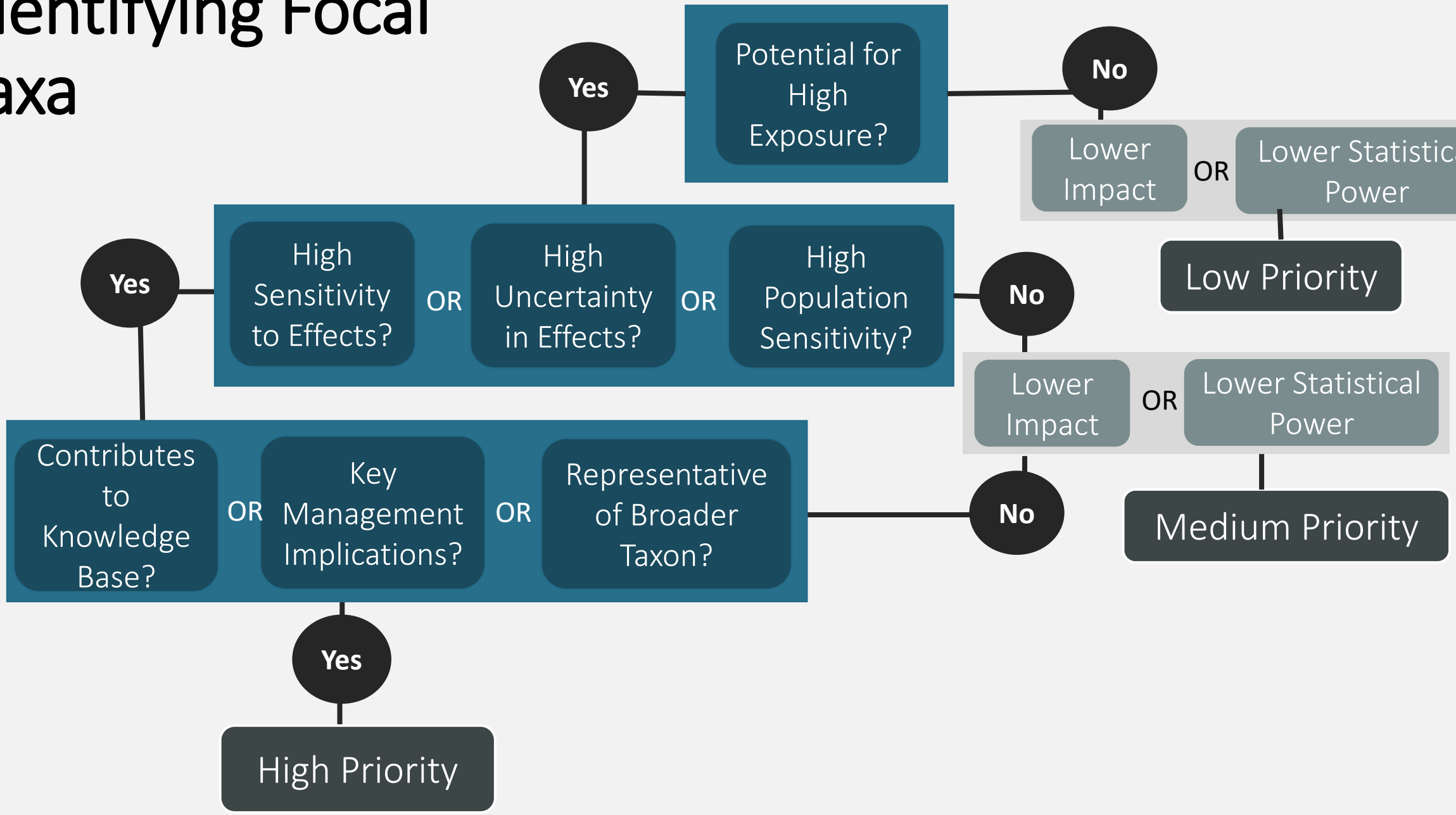
10. Recommendations for future guidance and analysis



Addressing Key Research Questions

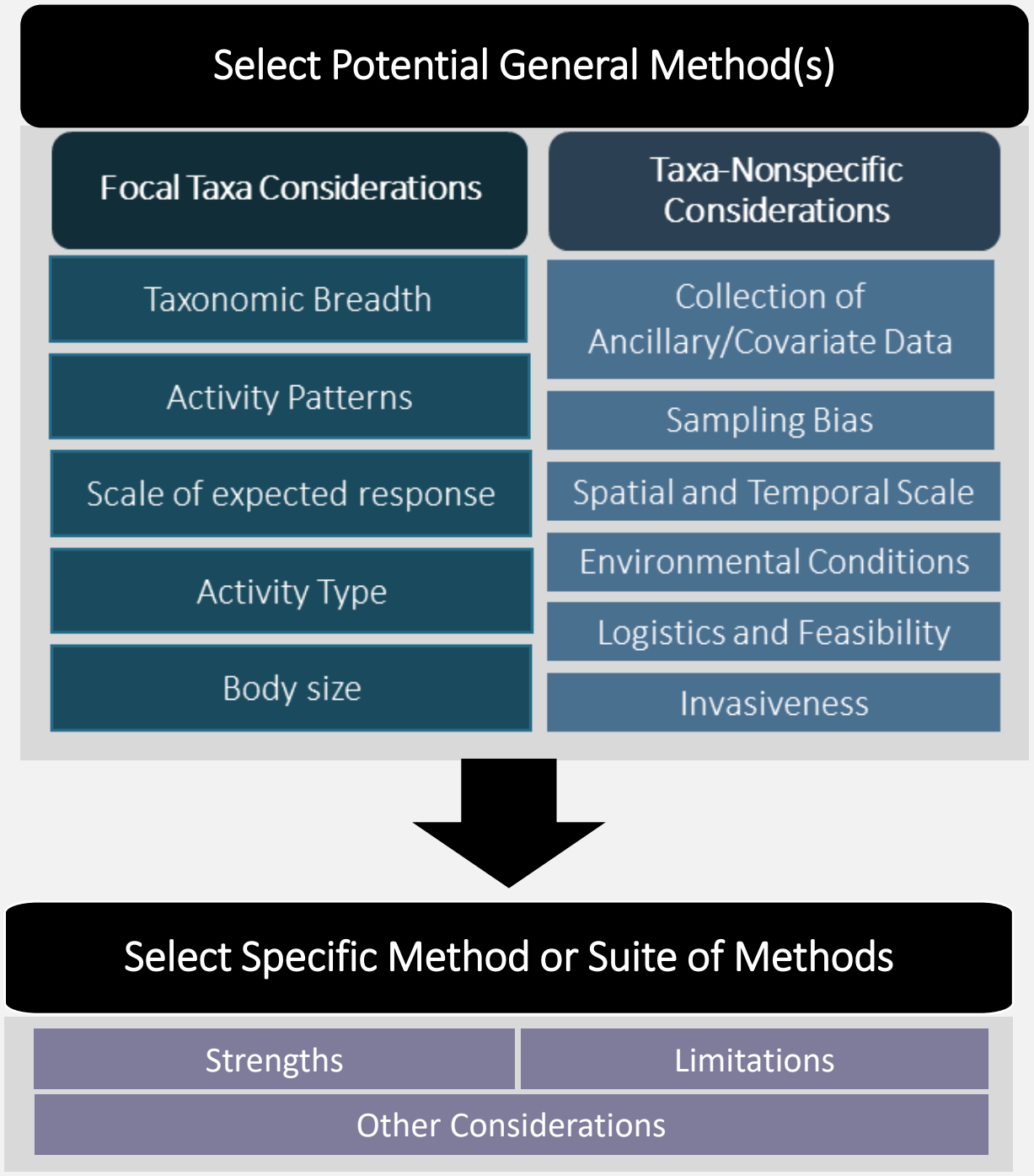
Research Question	Project Phase
Are **changes in distributions and habitat use** (e.g., displacement/attraction) of marine birds occurring, and if so, what is the magnitude and distance from the offshore wind facility at which they occur?	Pre-construction, Operations
Do the **occurrence, magnitude, and distance of changes in habitat use vary temporally** (e.g., does habituation occur)?	Pre-construction, Construction, Operations
Are there **changes in foraging or roosting activities** of marine birds in relation to the wind facility?	Pre-construction, Operations
Is there **nocturnal attraction** of marine birds to offshore wind-related lighting?	Pre-construction, Construction, Operations
Are **macro-scale changes in movement behavior** of marine birds occurring, and if so, at what magnitude and distance from the offshore wind facility does this behavior extend?	Pre-construction, Operations
Are **meso-scale changes in movement behavior** of marine birds occurring, and if so, at what magnitude and distance from the turbines does this behavior extend?	Operations

Identifying Focal Taxa



Choosing Appropriate Methodologies

- **Observational Surveys**
  - Digital aerial, boat-based
  - *Not recommended: visual aerial*
- **Individual Tracking**
  - GPS, satellite telemetry, automated radio telemetry
    Not recommended: geolocators
- **Remote and Behavioral Observations**
  - Human observers, visual photo/video, thermal photo/video, satellite imagery
  - *Not recommended: passive acoustics*
- **Radar**
  - Marine, 3D, weather surveillance



Developing an Effective Study Design

- **Study design** – evaluate if data types and sample sizes are sufficient to detect effects and ensure that data collection addressed research questions
  - Choice of focal species
  - Sources of variation
  - Spatial and temporal scale

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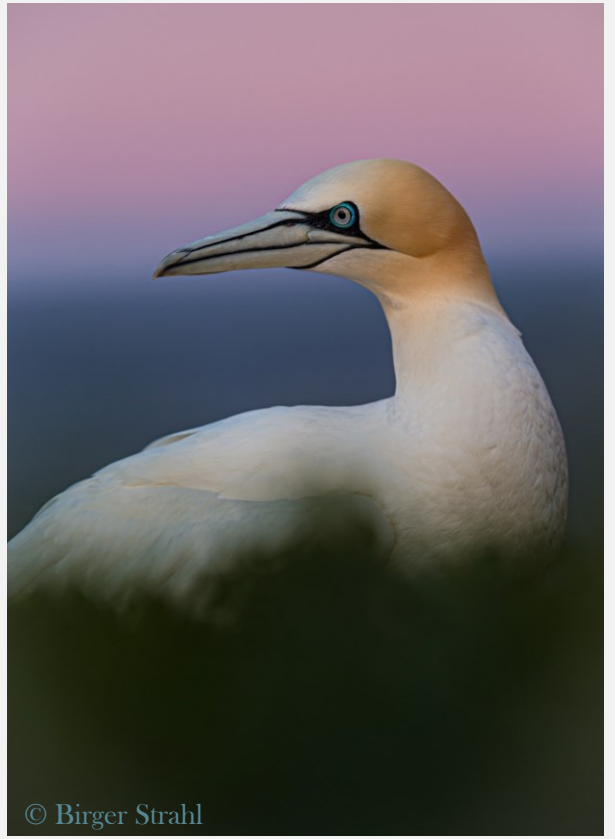
- **Data analysis** –biases, modeling framework, autocorrelation, model complexity, covariates, model performance

Data Consistency and Transparency

- Communication and coordination across groups conducting similar research
- Standardized reporting including study design, results, sources of variation
- Public availability of data
- Contributing derived products to data portals
- Publishing study results
- Implementing formal data sharing agreements

Recommendations for Conducting Surveys to Detect Effects

- Gradient study design
- Spatial and temporal scale
  - Buffer zone size
  - % spatial coverage
  - Number of surveys per year and across years
- Sampling methods
- Platform speed and height
- Surveyor qualifications
- Conditions
- Data collection
- Data review
- Data analysis
- Reporting



Recommendations for Future Guidance and Research

- Shorter term
  - Working to ensure that federal agencies and offshore wind developers use guidelines
  - Support additional analysis to address unresolved study design questions
  - Develop approaches for conducting efforts at multi-project scales for projects in close proximity
- Longer term
  - Develop recommendations for studies of other types of OSW effects to marine birds
  - Develop species distribution modeling frameworks to integrate data across sources to improve understanding of potential cumulative and population-level impacts

Next Steps

http://nyetwg.com/avian-displacement-guidance

- Public webinar and opportunity for stakeholder input in October – more information and registration on website
- Finalization of the guidance by the end of 2023
- Sign up for the E-TWG mailing list for a notification of when the final document is publicly available

Thanks!

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