

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

*Hosted by the Avian Displacement Guidance Specialist Committee
of the New York Environmental Technical Working Group (E-TWG)*



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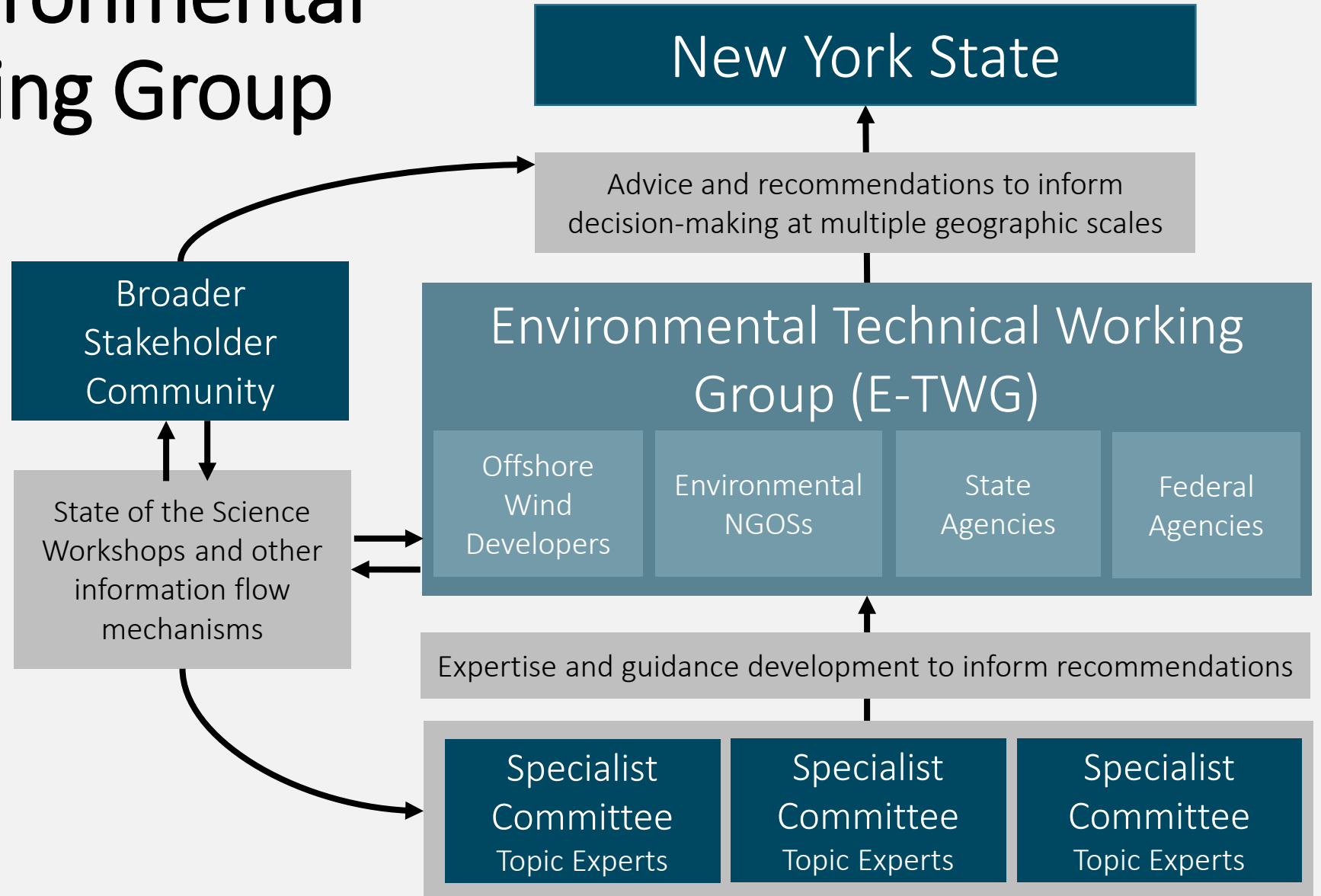
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New York's Environmental Technical Working Group

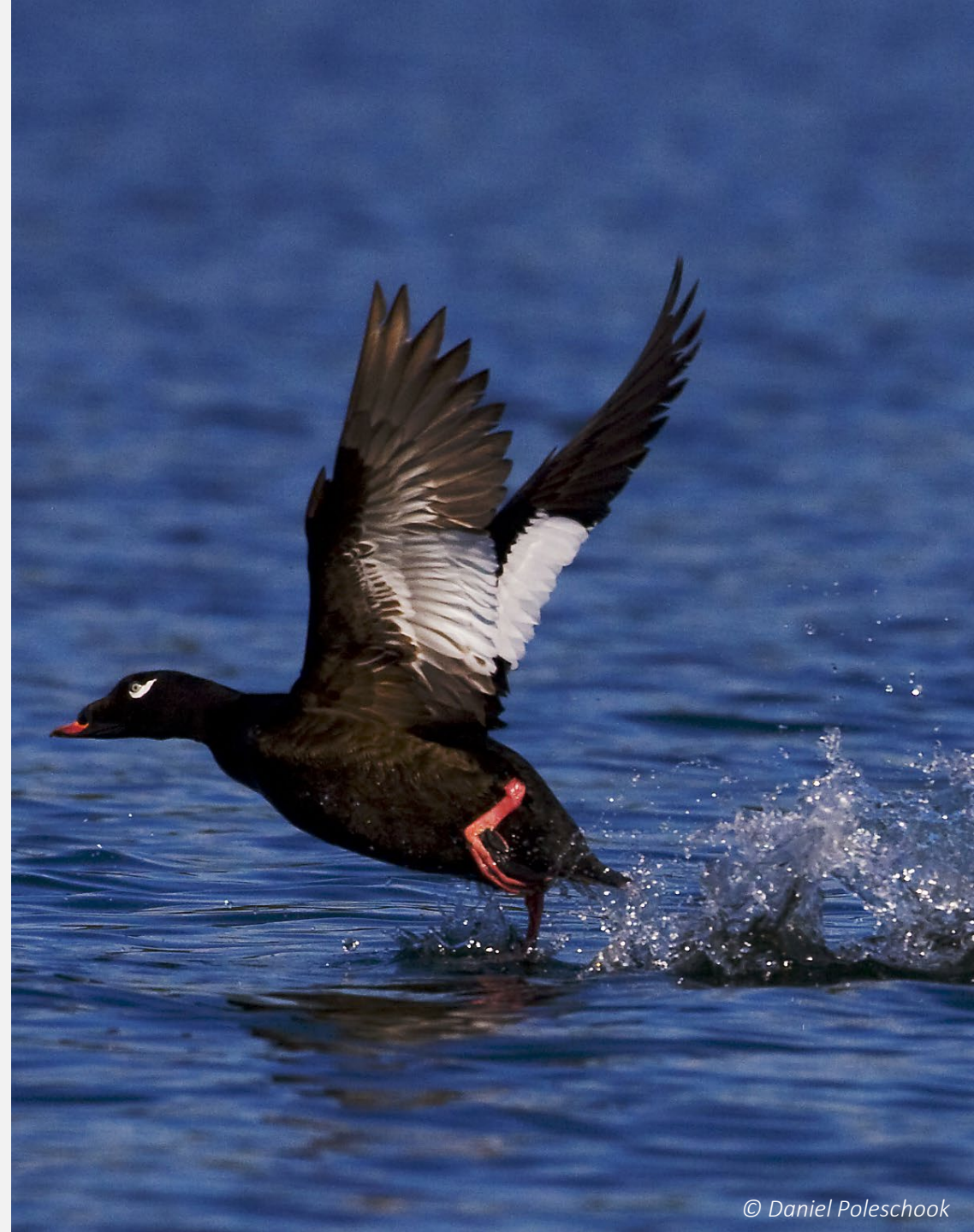
Goals

- Improve the state of knowledge
- Reduce risk to natural resources;
- Reduce risk for offshore wind developers



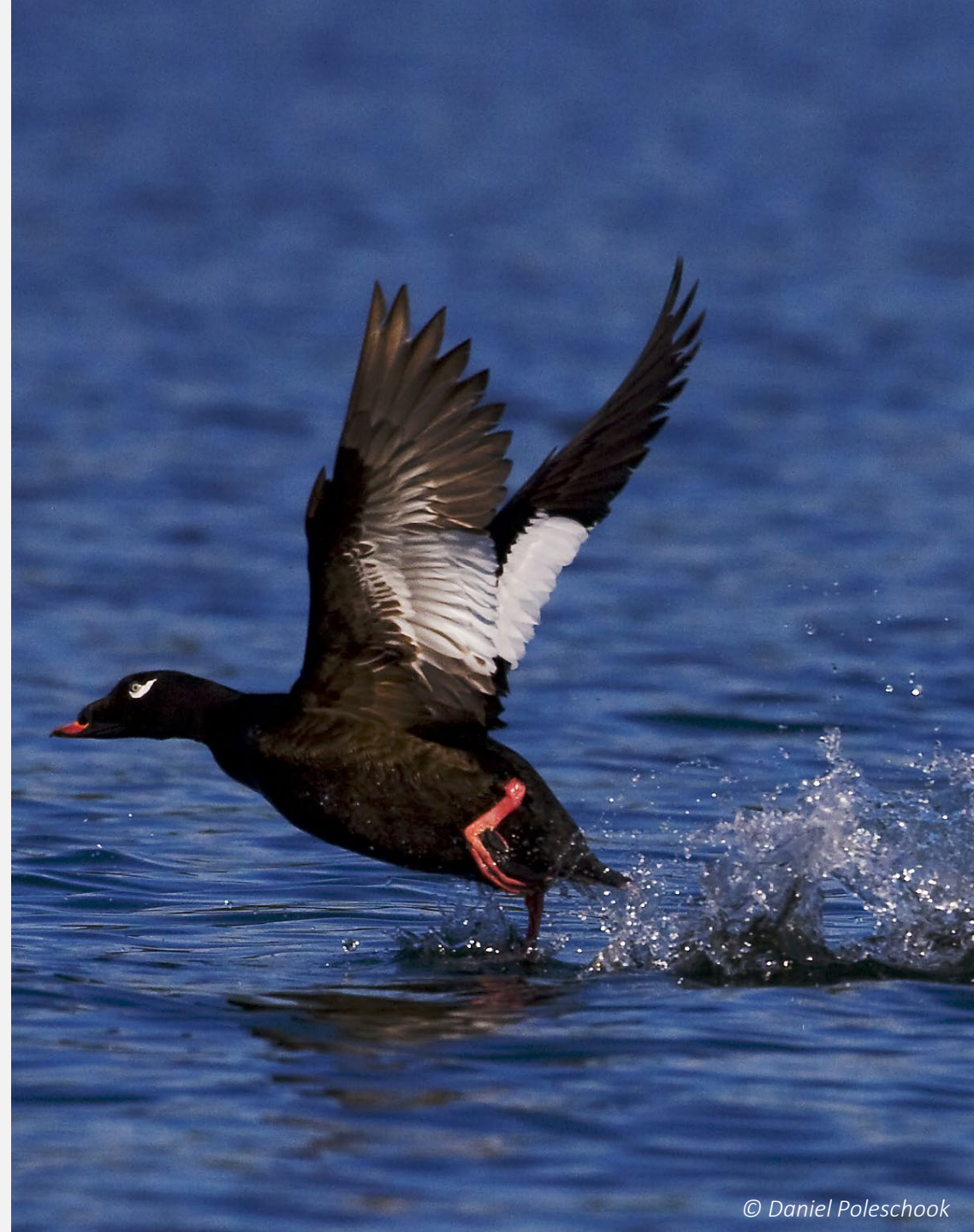
Meeting Agenda

- Background
- Intended end uses for committee products
- Overview of draft recommendations document
- Questions and feedback
- Wrap up & next steps



Ground Rules

- Contribute – your perspectives are important
- Share time – lots to cover and many people around the table
- Integrate ideas and pose questions
- Use chat and raise hand functions in Zoom



Workgroup Members

Member	Affiliation
Caleb Spiegel (Co-chair)	U.S. Fish and Wildlife Service
Tim White (Co-chair)	Bureau of Ocean Energy Management
Ally Sullivan	Total Energies
Aonghais Cook	British Trust for Ornithology
Arliss Winship/Jeff Leirness	NOAA NCCOS
Brad Pickens	U.S. Fish and Wildlife Service
Carina Gjerdrum	Environment and Climate Change Canada
Chris Haney/Garry George	National Audubon Society
Dave Pereksta	Bureau of Ocean Energy Management
Emily Silverman	U.S. Fish and Wildlife Service
Evan Adams	Biodiversity Research Institute
Holly Goyert	Biodiversity Research Institute
Jennifer Stucker	WEST
Julia Willmott	Normandeau
Juliet Lamb	The Nature Conservancy
Kim Peters/Brita Woeck	Ørsted
Martin Scott/Zack Johnson	HiDef
Shilo Felton	Renewable Energy Wildlife Institute

Background

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.

Background

- BOEM Guidelines for Providing Avian Survey Information for Renewable Energy Development on the Outer Continental Shelf (2020) – focused on recommendations for site characterization
- Site characterization surveys vs. pre- and post-construction surveys to detect effects of OSW development - not the same!
- Atlantic Marine Bird Cooperative (AMBC) submitted letter to BOEM in 2021 providing recommendations and technical comments on improving the guidelines, including creating new guidance for surveys focused on detecting effects
- Committee developed additional recommendations on when existing data is sufficient for site characterization (separate document)



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ATLANTIC MARINE BIRD
COOPERATIVE

Potential Effects to Seabirds from Offshore Wind Development

Avoidance
Wind farms alter movement behavior of birds at multiple scales

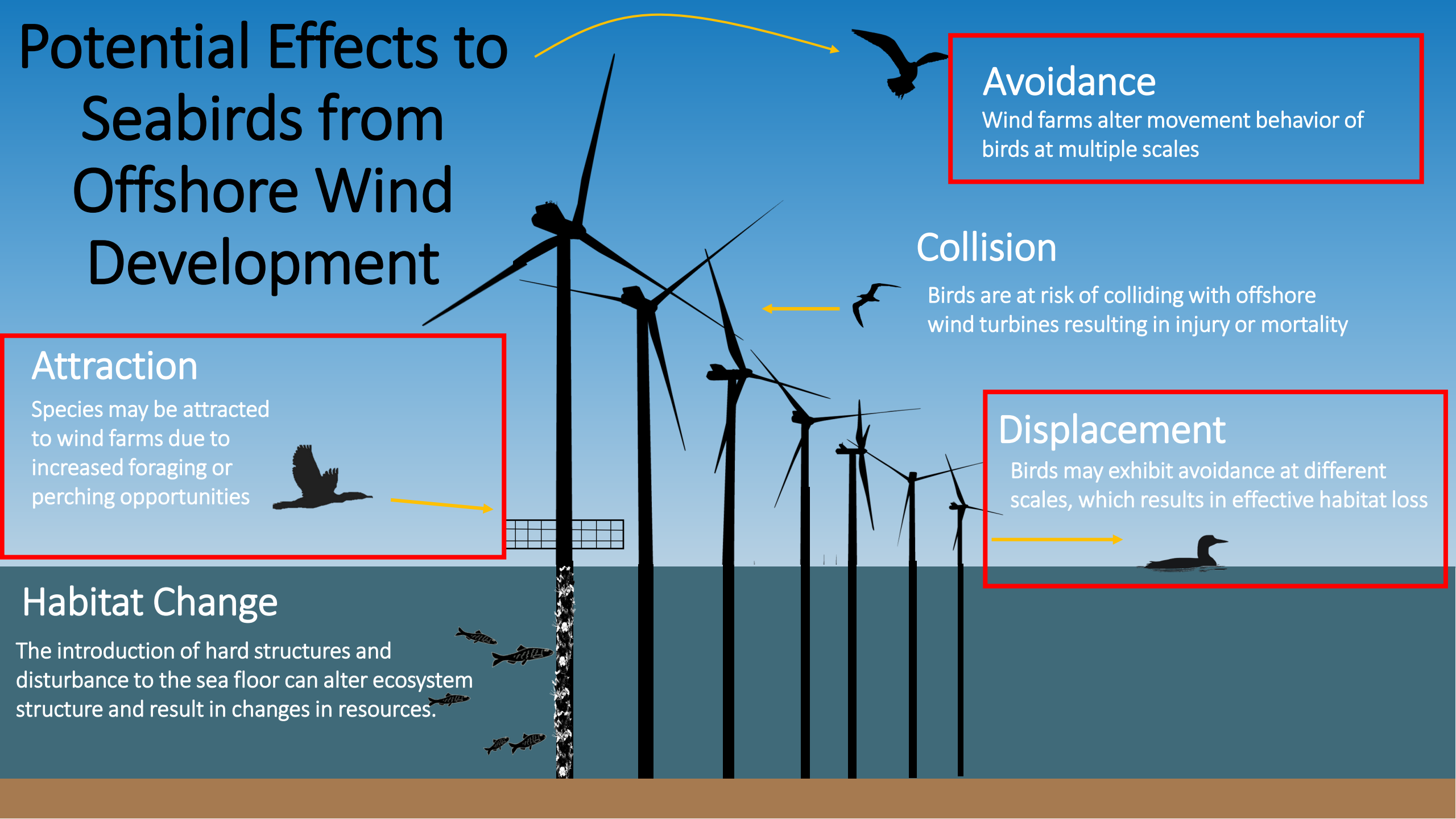
Collision
Birds are at risk of colliding with offshore wind turbines resulting in injury or mortality

Attraction
Species may be attracted to wind farms due to increased foraging or perching opportunities

Displacement
Birds may exhibit avoidance at different scales, which results in effective habitat loss

Habitat Change

The introduction of hard structures and disturbance to the sea floor can alter ecosystem structure and result in changes in resources.



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



Purpose and End Uses

- Caleb Spiegel, U.S. Fish and Wildlife Service
- Kim Peters, Ørsted
- Zara Dowling, Lead of the Bird and Bat Subcommittee for the Regional Wildlife Science Collaborative



RWSC

Regional Wildlife Science Collaborative
for Offshore Wind

Linkages to RWSC and Science Plan



RWSC Science Plan:

- Lists existing best practices and standards for data collection and management, including ***Draft Guidance for Pre- and Post-Construction Monitoring to Detect Changes in Marine Bird Distributions and Habitat Use Related to Offshore Wind Development***
- Lists other data types and methodologies for which best practices and standards are missing and need to be developed collaboratively (as ETWG, BOEM, and FWS are doing with the avian displacement guidance)

RWSC will require that these best practices and standards be used for projects collaboratively funded by RWSC

RWSC will strongly encourage partners and participants who fund data collection and research to use these best practices and standards (and will provide draft contract language and other tools to assist with uptake)

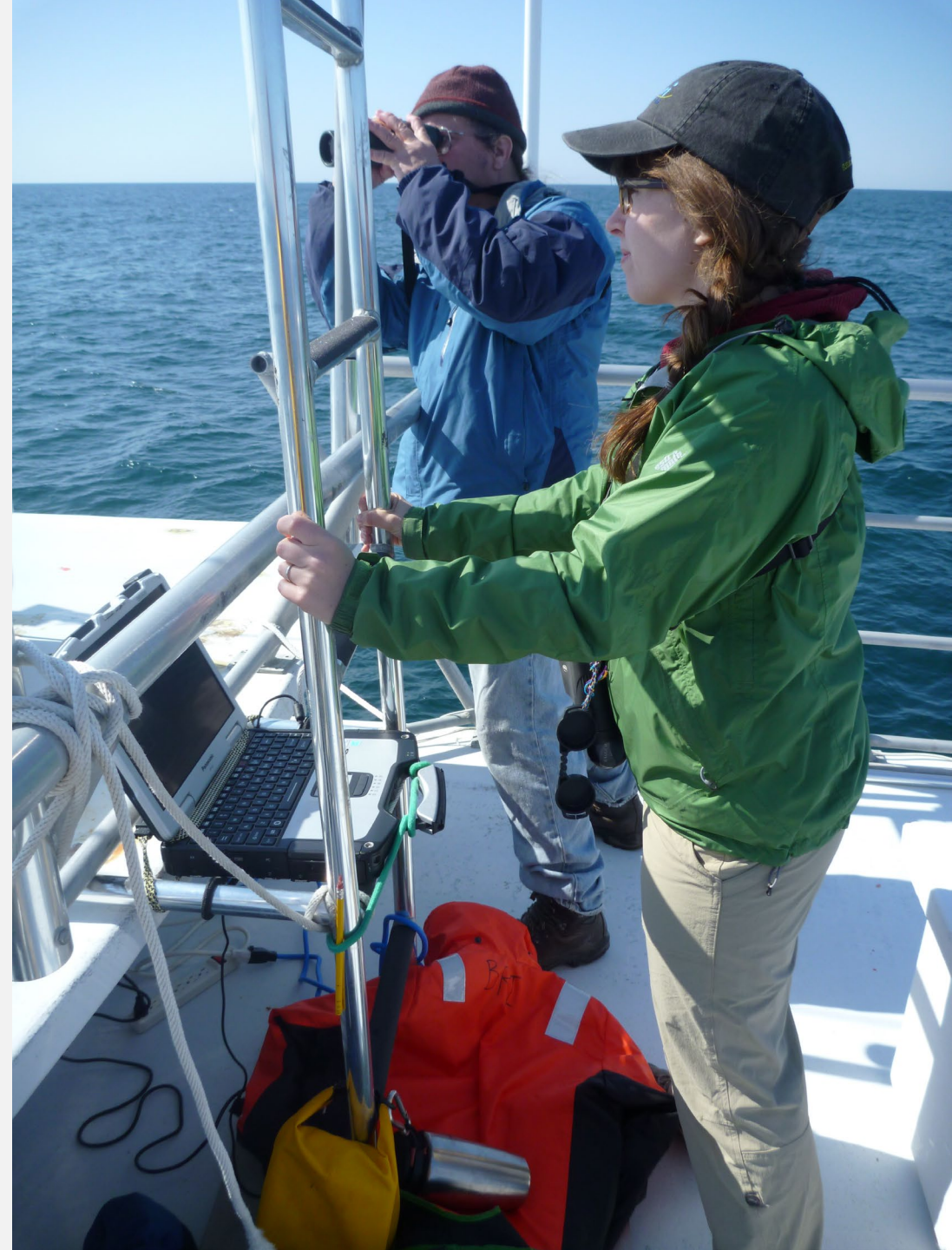
RWSC

Regional Wildlife Science Collaborative
for Offshore Wind

Opportunities for Public Feedback

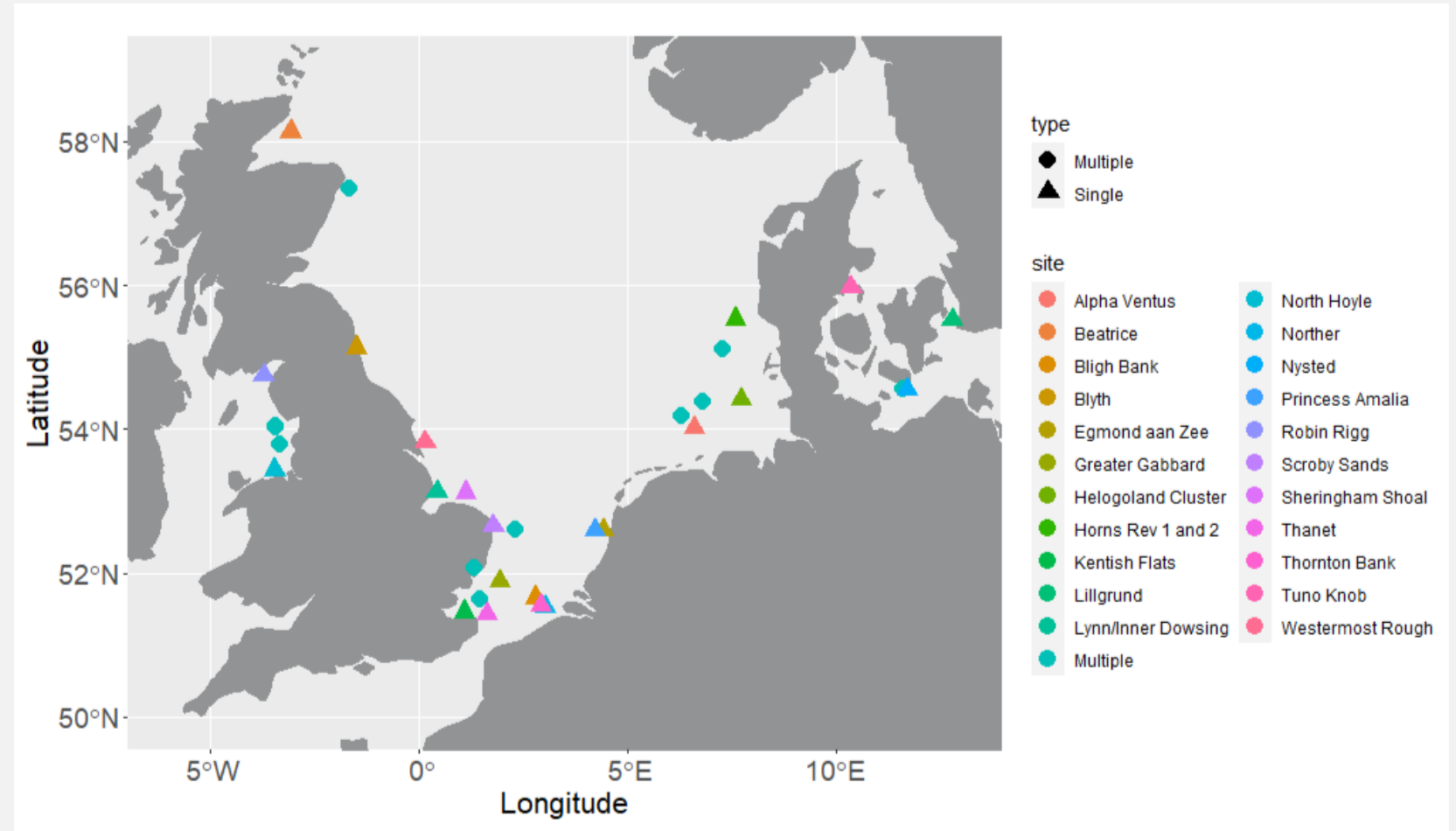
- This meeting
 - Zoom chat (anytime)
 - Verbal input (after we review the contents of the document)
- Online survey open until November 13 via group webpage:
nyetwg.com/avian-displacement-guidance

Reviewing the Guidance Document



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



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

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

4. Key research questions

5. Selecting focal taxa

6. Selecting appropriate methodologies

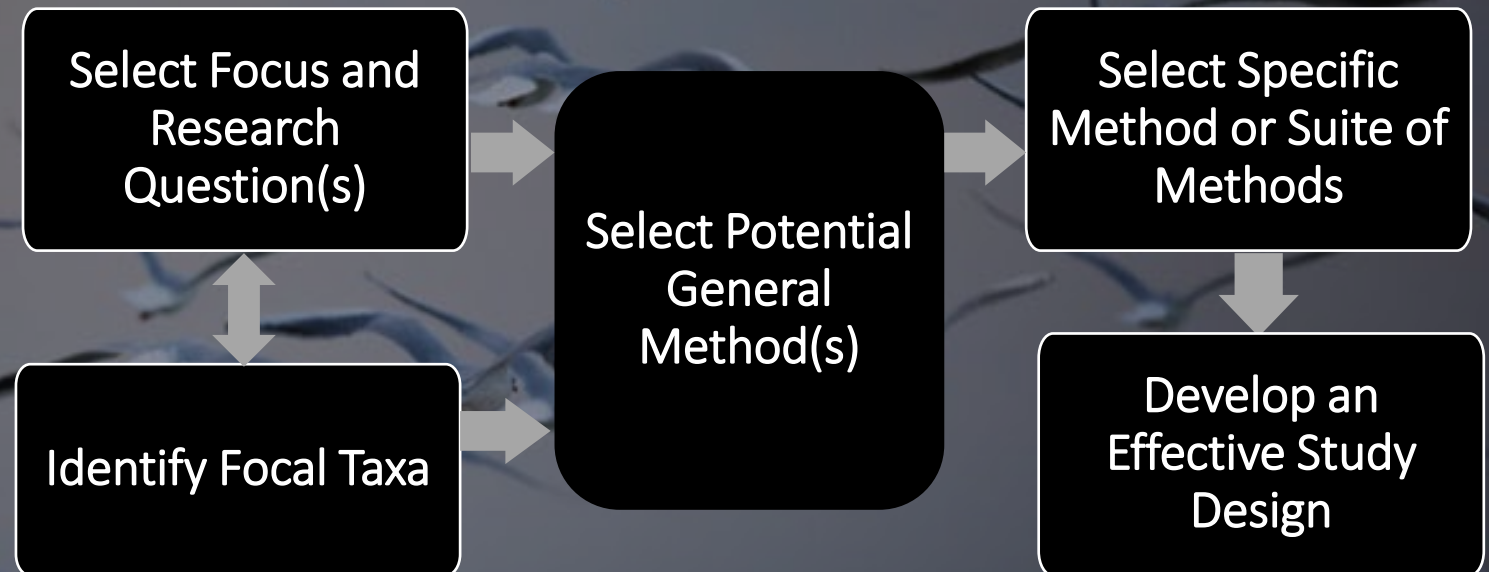
7. Study design recommendations

8. Reporting, data consistency and transparency

9. Recommendations specific to conducting surveys

10. Recommendations for future guidance and analysis

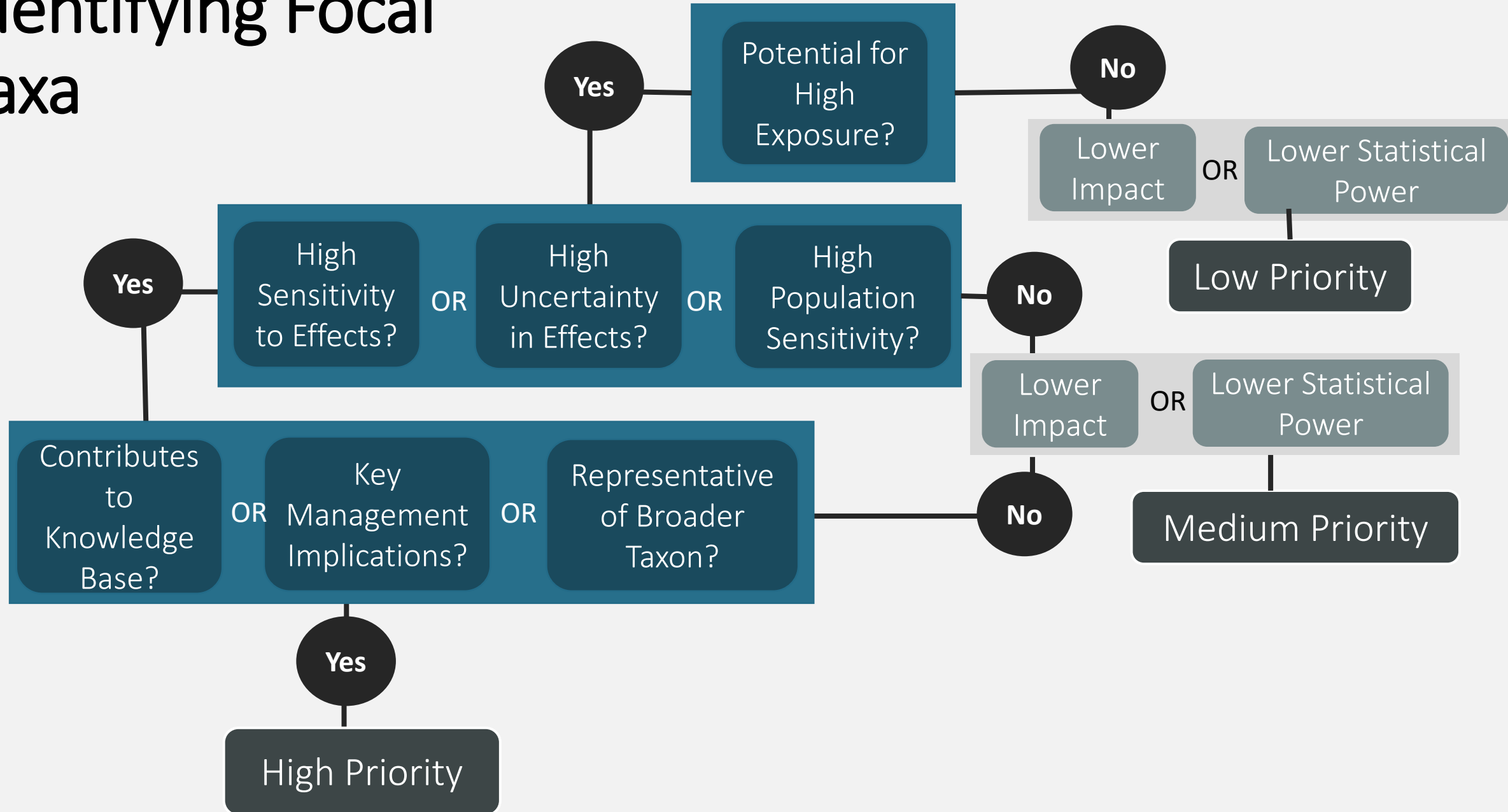
Appendices (guidance development methods, glossary, lit review, rubric for assessing study plans)



Addressing Key Research Questions

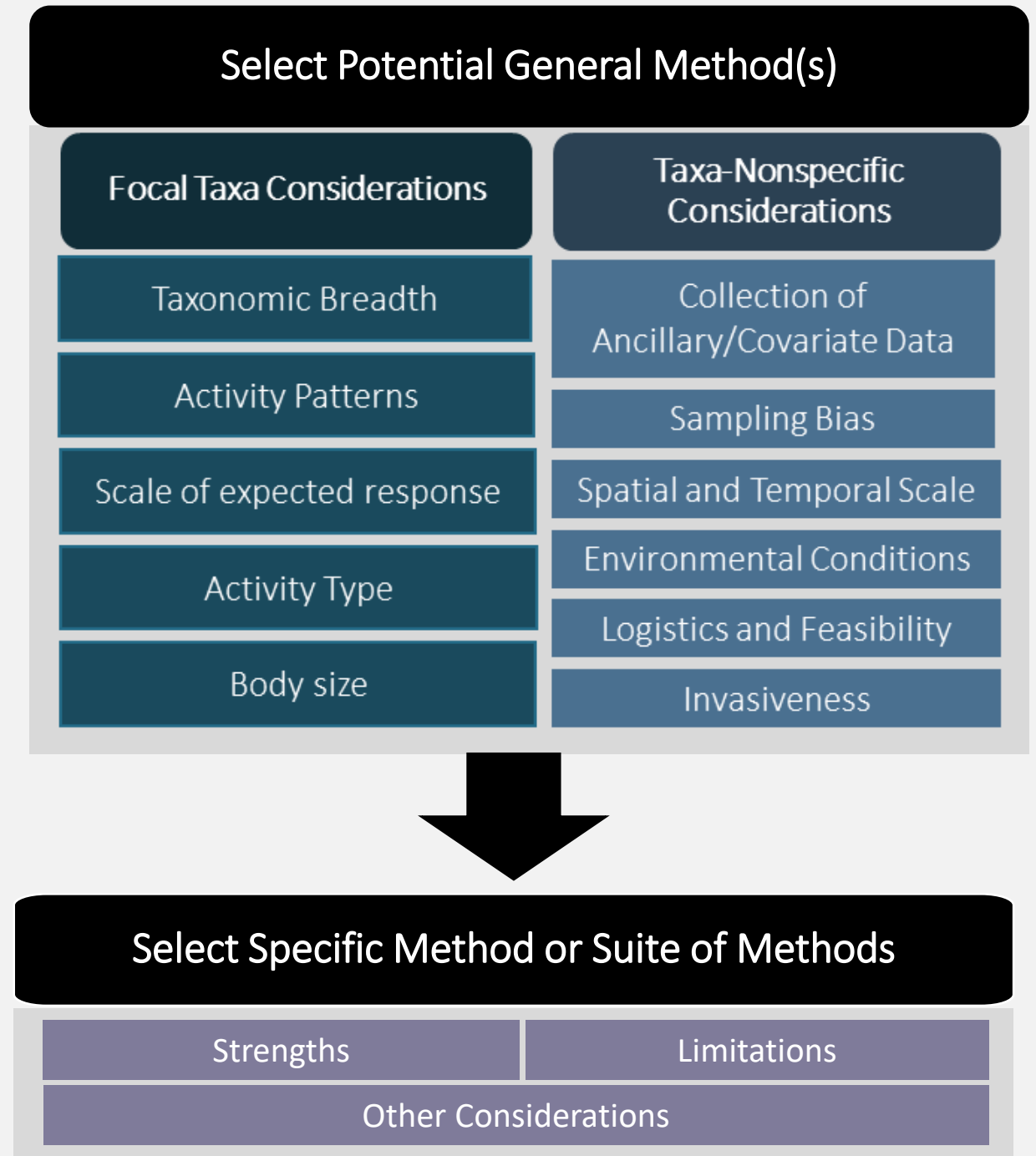
Research Question	Project Phase
Are changes in distributions and habitat use (e.g., displacement/attraction) of marine birds occurring, and if so, what is the magnitude and distance from the offshore wind facility at which they occur?	Pre-construction, Operations
Do the occurrence, magnitude, and distance 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 (e.g., 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 collection methods** – best practices, existing guidelines, consistency, QA/QC



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- **Data collection methods** – best practices, existing guidelines, consistency, QA/QC
- **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



A Few Key Take-Home Messages

- Study questions and focal taxa should be selected, in part, based on specifics of each study site
- The research question(s) of interest and focal taxa should drive the choice of study methods
- Study methods each have strengths and limitations; often combining multiple approaches will be most effective for answering research questions
- Careful study design is important so that studies have the power to detect effects if they occur
- Data consistency/standardization and data sharing are essential to understanding broader questions such as cumulative impacts across sites
- For observational surveys:
 - Before-After Gradient (BAG) survey designs are strongly recommended
 - Survey buffer areas around wind farm footprints should generally be between 4-20 km; as a rule of thumb, the committee recommends that the buffer zone size equal the maximum expected displacement distance for the focal species of interest, plus 10%.
 - At least 20% spatial coverage is generally recommended for surveys to detect effects, but power analyses should be used to inform this decision

Recommendations for Future Guidance and Research

- **Shorter term**

- Work 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

- **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
- Conduct studies to better understand mechanisms of behavioral change and improve understanding of potential cumulative and population-level impacts

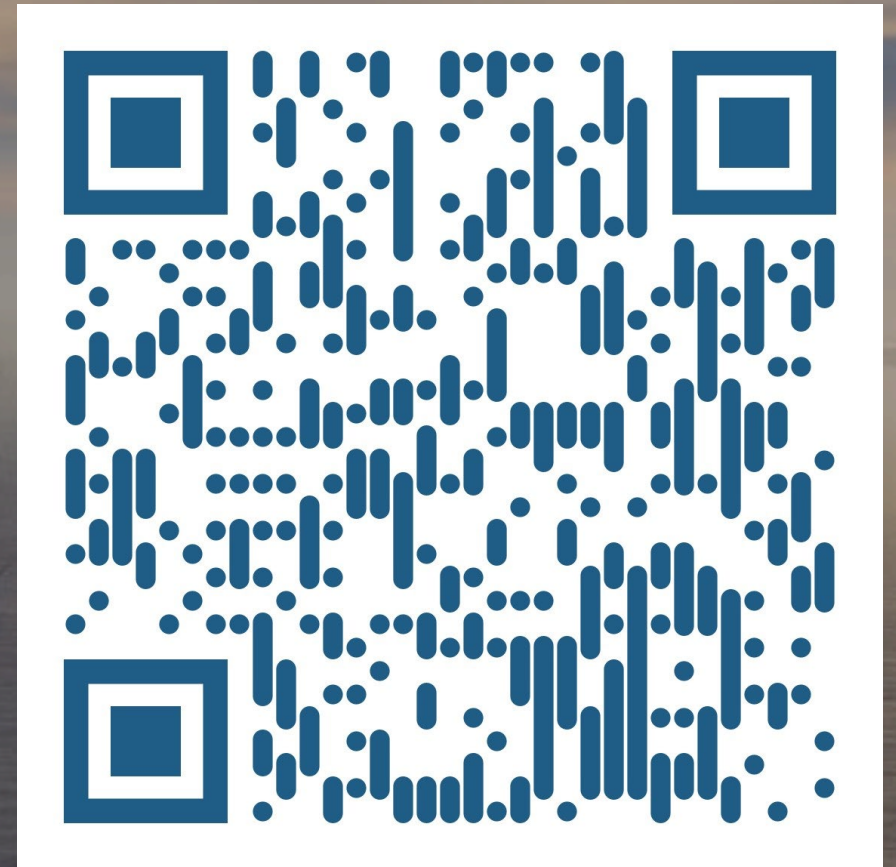
Questions?
Initial
Feedback?



Draft Document and Feedback

- Draft document for review
- Feedback via:
 - Verbal/chat input via this meeting
 - Online survey open until Nov 13

*Document and survey
on nyetwg.com/avian-displacement-guidance*



Next Steps and Timeline

- Following the public feedback period, the committee will review comments and revise the document, with the goal of finalizing by the end of the year
- The final version of the document will be posted on the E-TWG website:
nyetwg.com/avian-displacement-guidance

We will send an email notification to all meeting participants when the final document is publicly available

