

An aerial photograph of the ocean showing the dark, curved tails of several whales as they surface. The water is a deep blue-green color, and white foam is visible around the tails where they break the surface.

proteus

Migratory connectivity in the ocean

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PROTEUS HORIZON SCAN WEBINARS

A series of webinars for Proteus Partners sharing information and insights into the latest trends and developments in biodiversity and ecosystem services policy, initiatives, data and tools.



LOGISTICS

- **Scheduling:** AM & PM sessions
- **Rules:** Chatham House rule for discussion, but presentation is recorded
- **Topics:** Your suggestions are welcome!



1. Introduction to migratory connectivity and migratory marine species

- What is migratory connectivity?
- Importance of migratory marine species
- Conservation status
- Threats

2. Offshore activities and migratory connectivity

- Threats from offshore activities
- How to mitigate threats
- Challenges

3. Questions and discussion



An aerial photograph showing a sea turtle swimming in clear, deep blue water. The turtle is positioned in the lower-left quadrant of the frame. To the right, a vibrant coral reef extends from the bottom edge towards the top right, displaying various shades of green, yellow, and brown. The water's surface is textured with small waves and ripples.

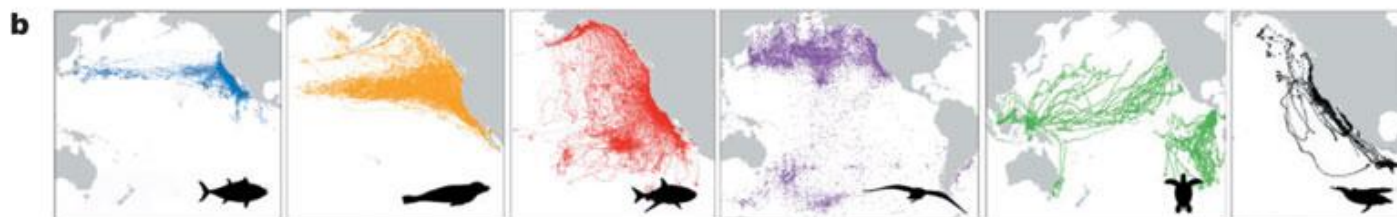
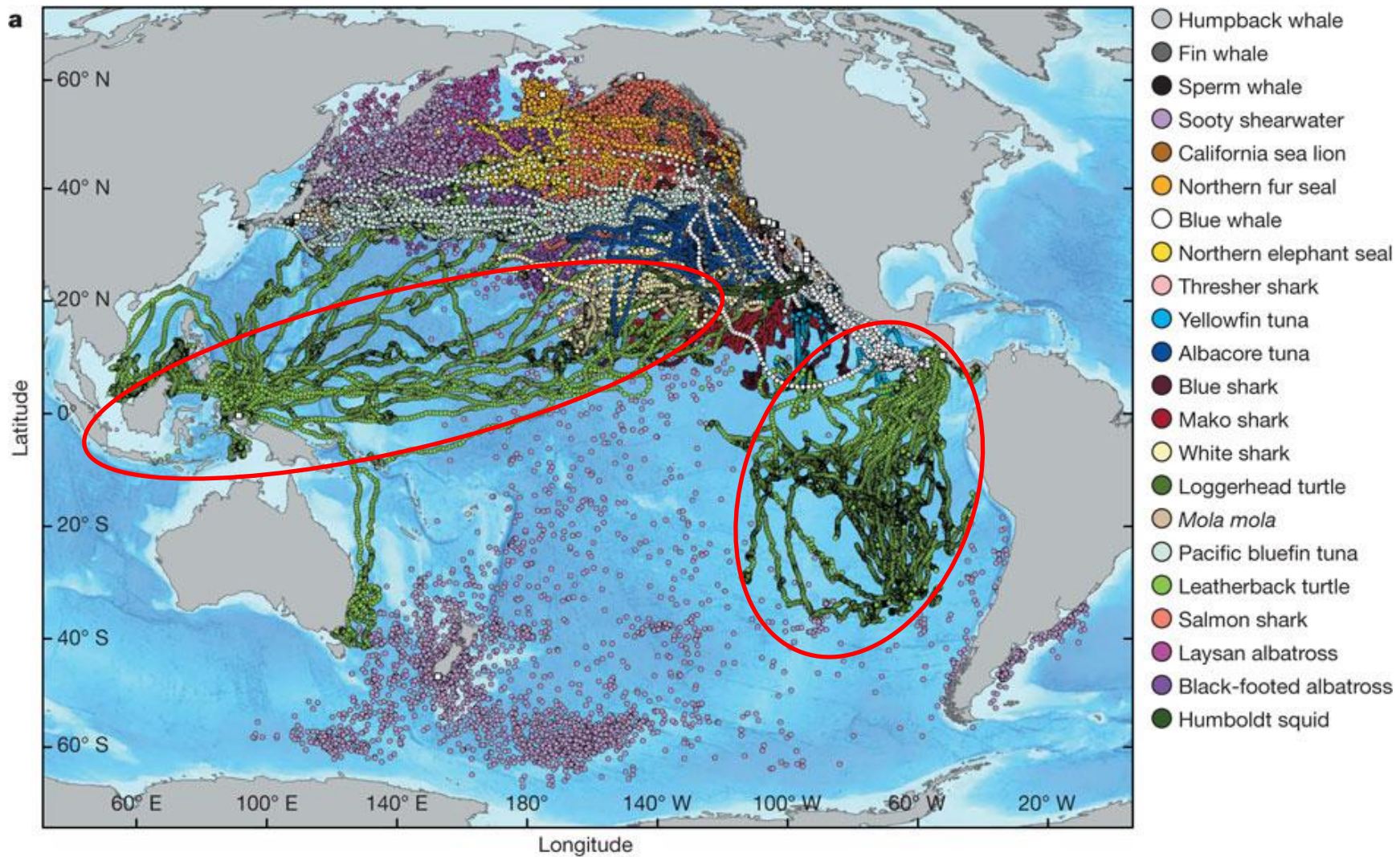
Introduction to migratory connectivity and migratory marine species

Tom Vierus / Ocean Image Bank

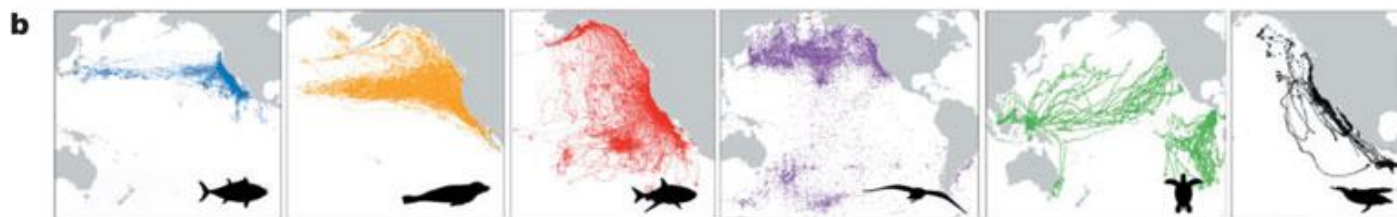
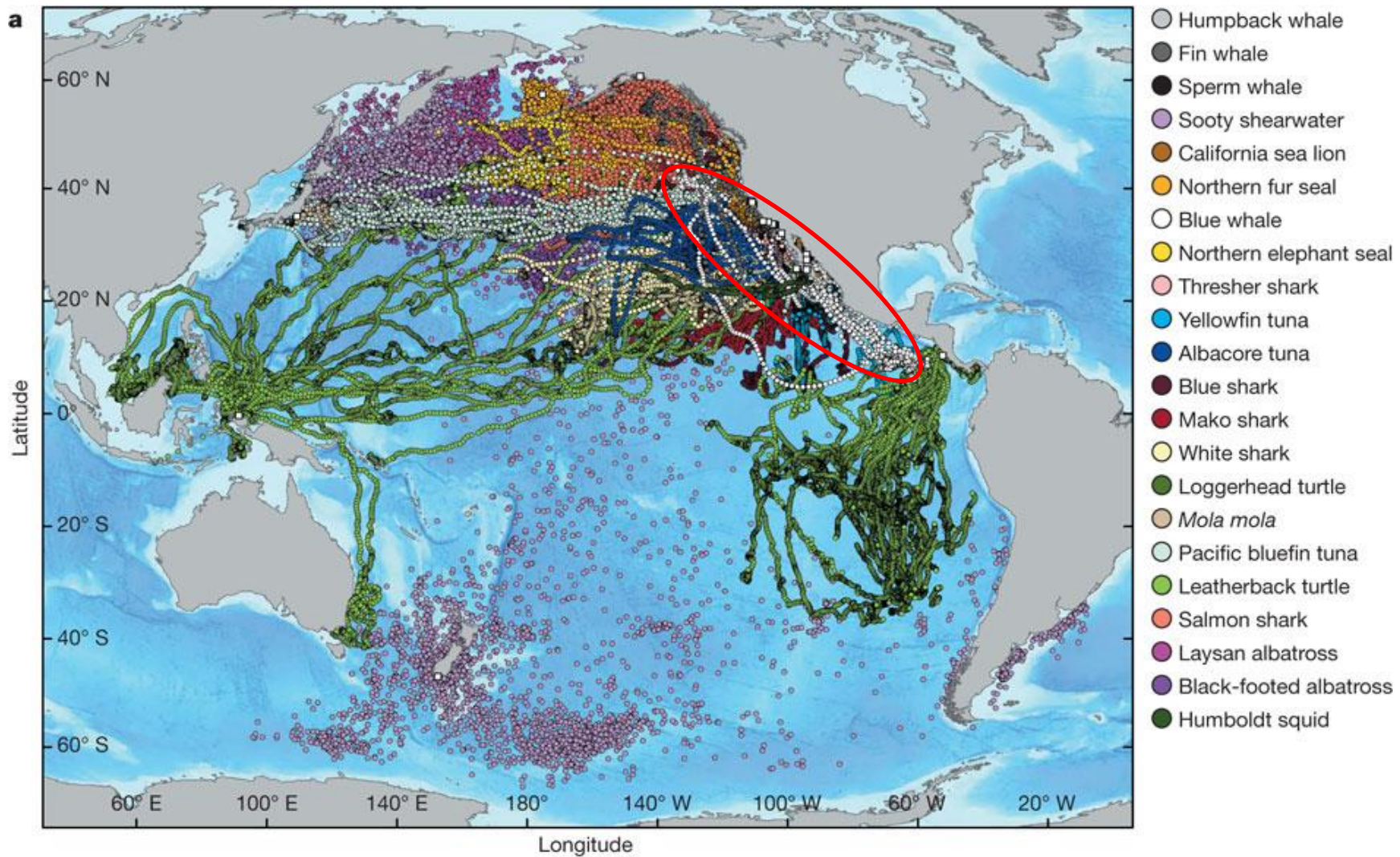
MIGRATORY CONNECTIVITY

- Migratory connectivity = connectivity through migratory species
- Migratory marine species can cover vast distances on their migratory routes
- Migratory marine species migrate to utilise resources and conditions across time and space





Block et al. 2011



Block et al. 2011

IMPORTANCE OF MIGRATORY MARINE SPECIES

- Ecosystem health
- Cultural significance
- Economic benefits



CONSERVATION STATUS OF MIGRATORY MARINE SPECIES

21% of migratory marine species are threatened with extinction

- Turtles 85%
- Seabirds 27%
- Marine mammals 15%
- Cartilaginous fish 26%
- Bony fish 11%

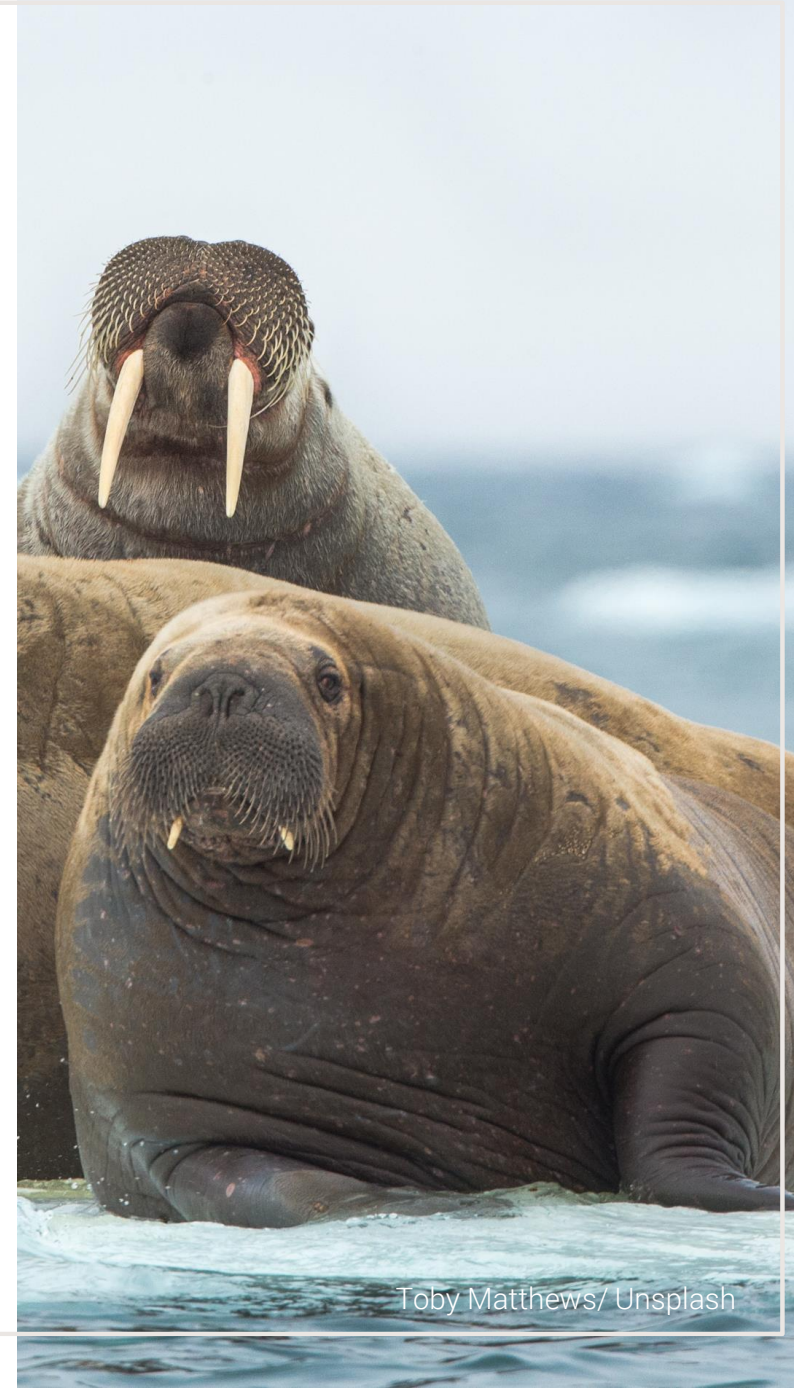
(Lascelles et al. 2014)



Mark Fitz/ Ocean Image Bank

THREATS TO MIGRATORY MARINE SPECIES

- Fishing
- Climate change
- Shipping
- Pollution
- Energy production and mining
- Coastal infrastructure



Toby Matthews/ Unsplash

THREATS TO MIGRATORY MARINE SPECIES

- Exposed to variety of threats
- Governance gaps and cooperation
- Cumulative impacts
- Long living, slow to mature





Offshore activities and migratory marine species

Hannes Klostermann/ Ocean Image Bank

THE GLOBAL ECONOMY RELIES ON THE OCEAN

- ~ 90% of goods globally are transported by sea.
- Generates \$2.5 trillion worth of goods and services
- Supports the livelihoods of millions of people
- G20 collectively make up 45% of the world's coastline
- Contributes a major share of global energy generation potential
- Threatened by human-induced climate change and other human activities – threatening ecosystems, biodiversity and the global economy that are heavily reliant on them

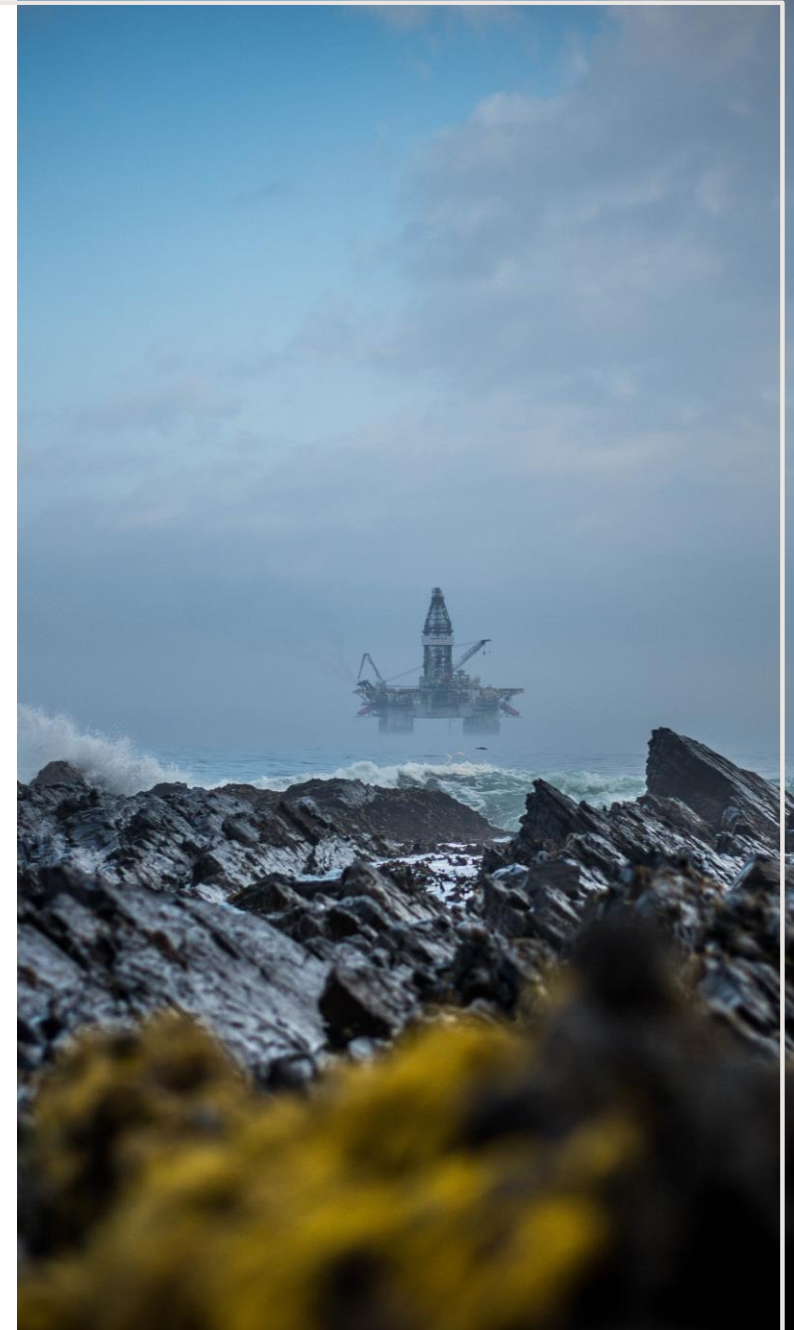
Source (WEF, 2022)



THREATS AND IMPACTS FROM OFFSHORE EXTRACTIVES

Threats:

- Habitat loss, degradation and fragmentation
- Noise pollution
- Oil spills/leaks
- Seismic activity
- Sedimentation plumes
- Invasive alien species
- Shipping
- Coastal infrastructure



THREATS AND IMPACTS FROM OFFSHORE RENEWABLES

- Threats
 - Habitat loss, degradation and fragmentation
 - Noise, vibrations and electromagnetic waves
 - Collisions
 - Invasive alien species
- Supporting activities e.g. shipping, port development

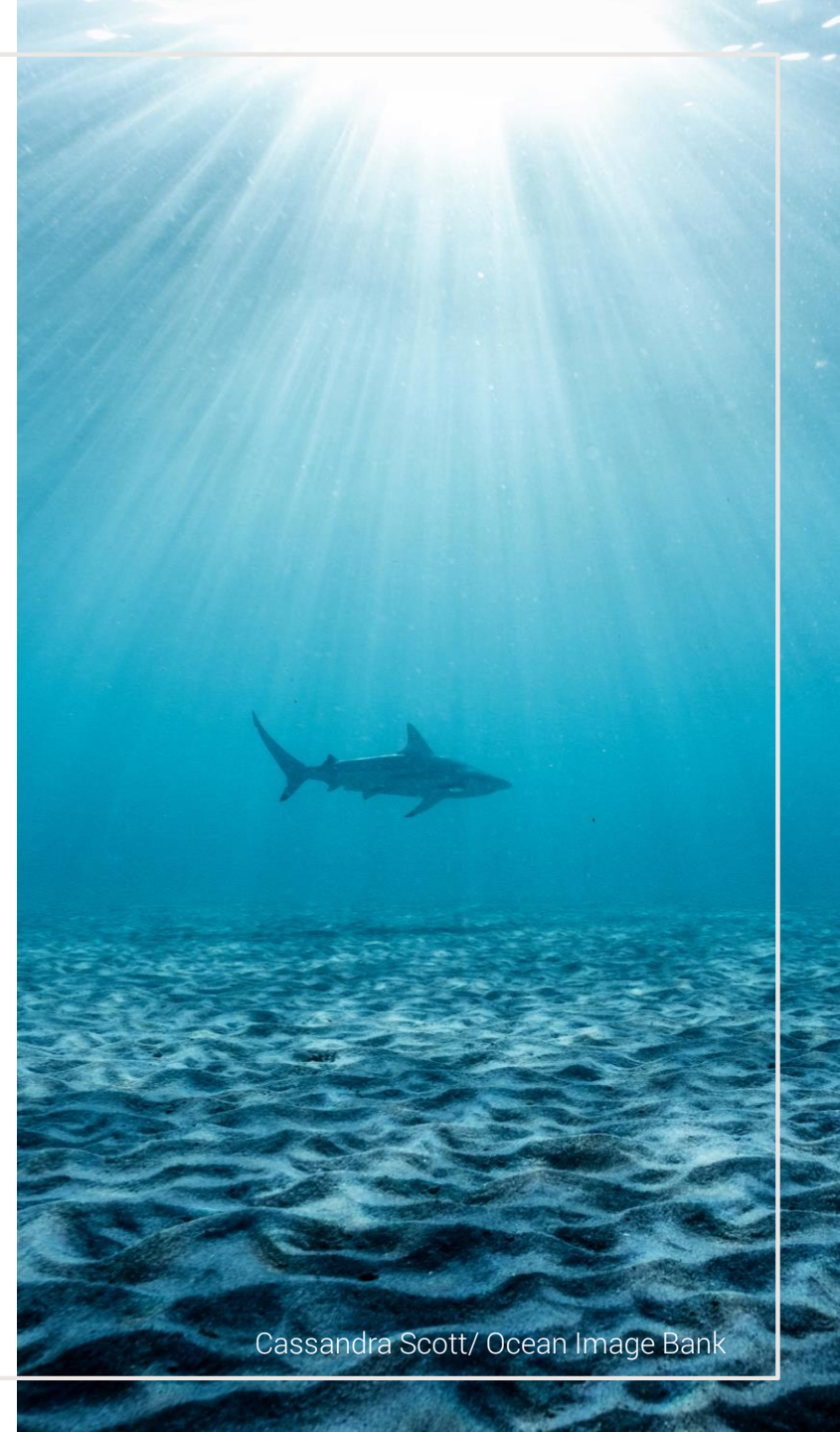


IMPACTS FROM OFFSHORE ACTIVITIES

- Avoidance/displacement
- Reduced fitness
- Prey disturbance
- Collisions and injury

Potential positive impacts?

- Habitat creation
- Refuge effects



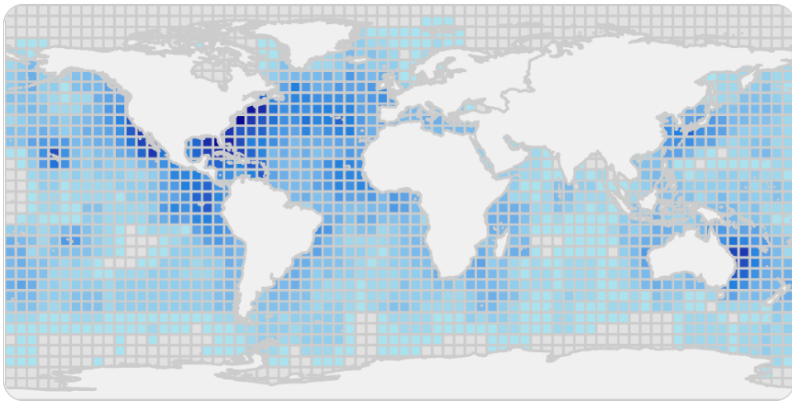
HOW CAN PROTEUS PARTNERS MITIGATE THREATS?

- Mitigation hierarchy
- Mitigating threats at each stage of operation
- Impact assessments that reflect changes in time and space
- Impact assessments that consider impact connectivity
- Work with specialists e.g. marine mammal observers



WHAT DATA IS AVAILABLE?

MiCO Migratory
Connectivity
in the Ocean



MiCO (Migratory Connectivity in the Ocean)

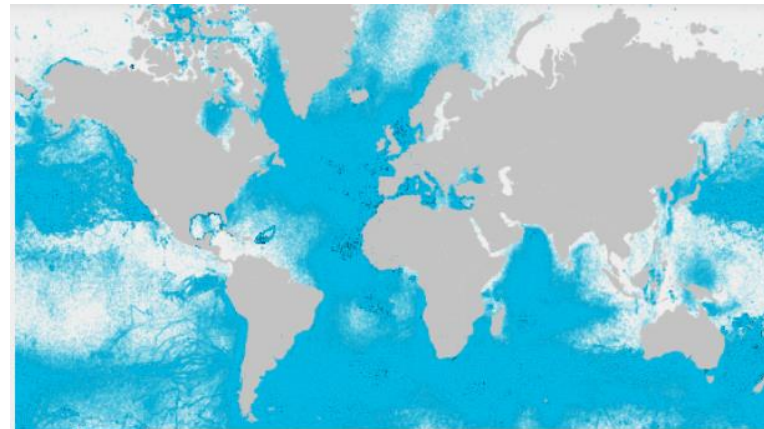
A dark blue banner for AVISTEP. On the left, the text reads "AVISTEP" with a small bird icon, followed by "The Avian Sensitivity Tool for Energy Planning". Below this are two buttons: "Get Started" and "Learn More". At the bottom left is the BirdLife International logo. On the right is a circular image of the Earth from space, showing the Americas and surrounding oceans.

AVISTEP (Avian Sensitivity Tool for Energy Planning)



Seabird Tracking Database

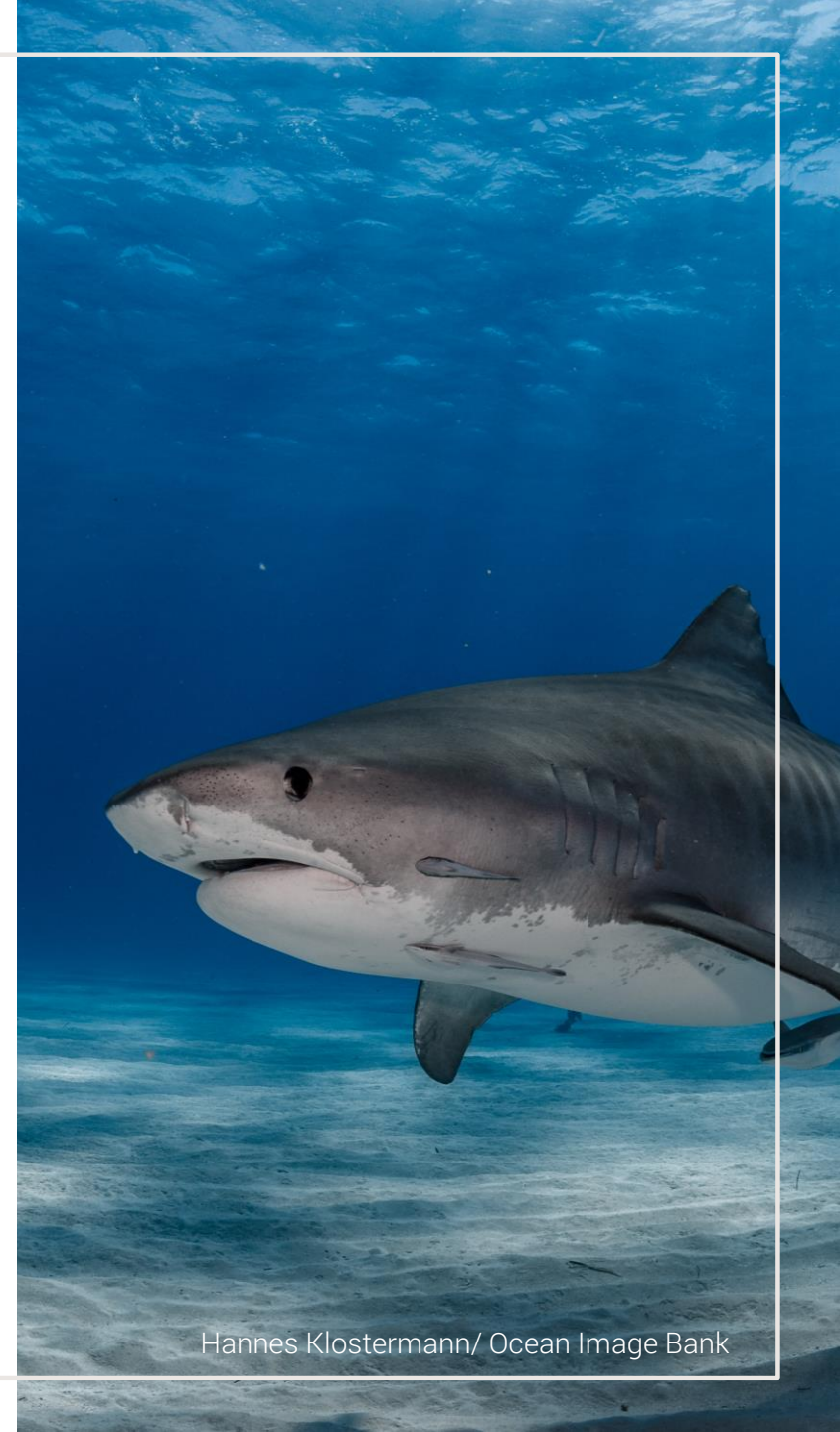
Tracking Ocean Wanderers



Seabird Tracking Database

CHALLENGES

- Gaps in data
- Measuring baselines
- Demonstrating biodiversity gains
- Monitoring connectivity
- Costs



Hannes Klostermann/ Ocean Image Bank



Questions and discussion

ANY QUESTIONS?

DISCUSSION

- What are the challenges your organisation faces in mitigating impacts on migratory marine species?
- What indicators are you using for Biodiversity Net-Gain, is it a challenge to identify them?
- How are you dealing with species that require offsets in different regions / countries to your site?
- What would enable you to do more to mitigate your impacts and realise opportunities?



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Thank you



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