

# Avoiding ecological 'constraints' in wind energy

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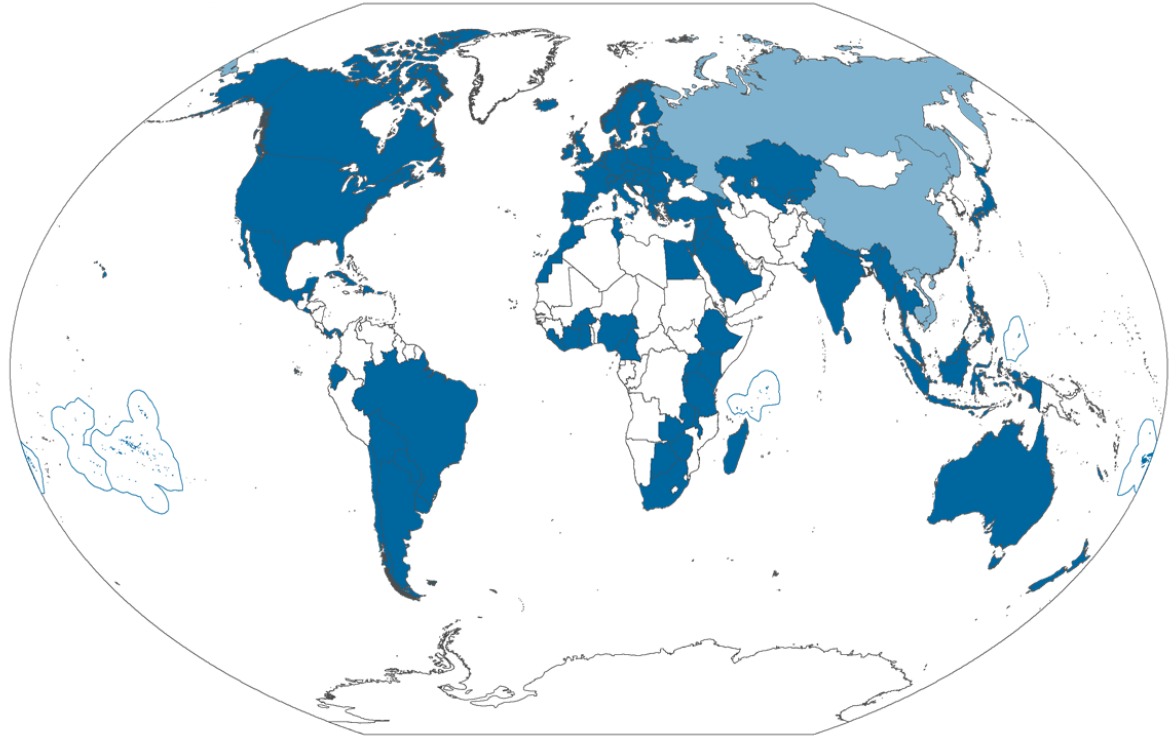
**Genevieve Hayes**  
*Research Assistant,  
BirdLife Global Secretariat*



Partnership for  
**nature** and **people**



# BirdLife International



**120**

Partners

**7,400**

staff

**3**

million  
members

**11**

million  
supporters

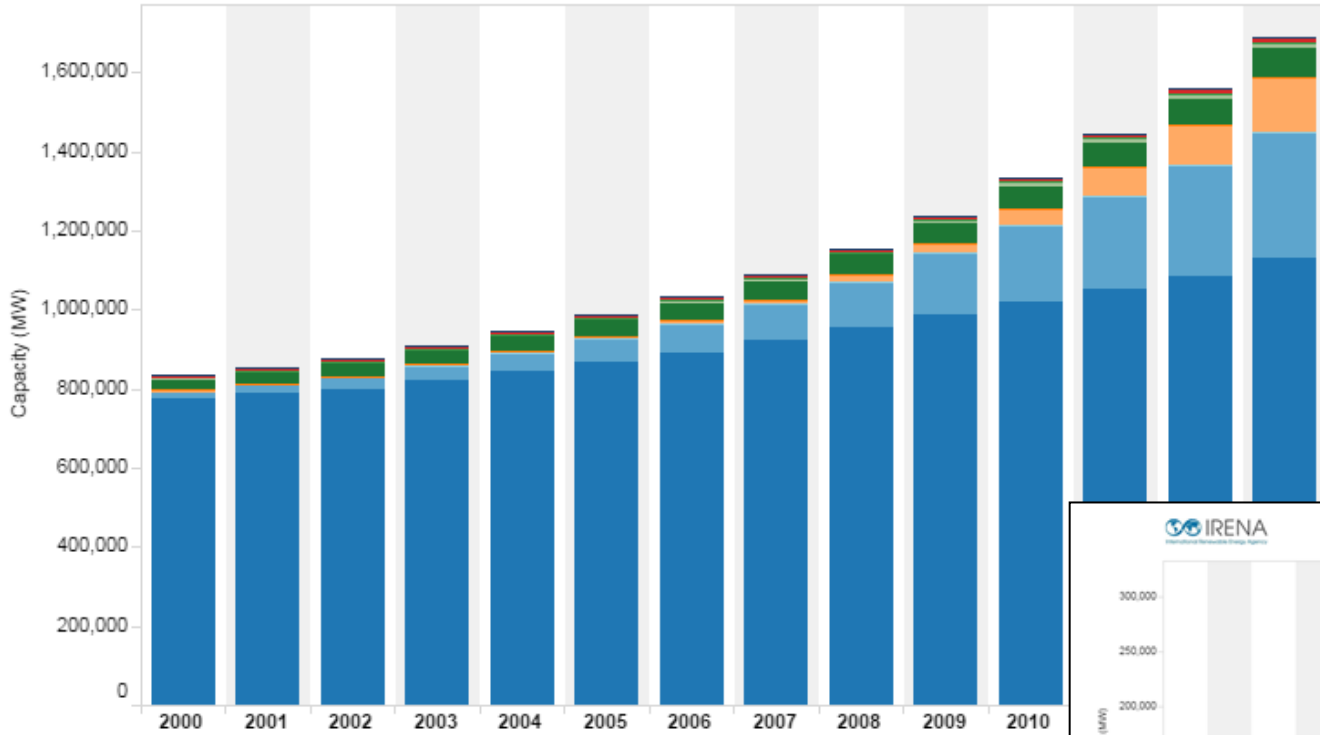
**4**

Million hectare  
of reserve

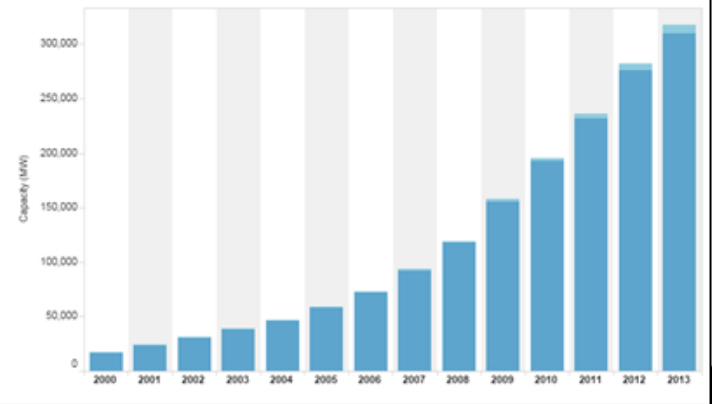
# Background



### Installed Renewable Power Capacity

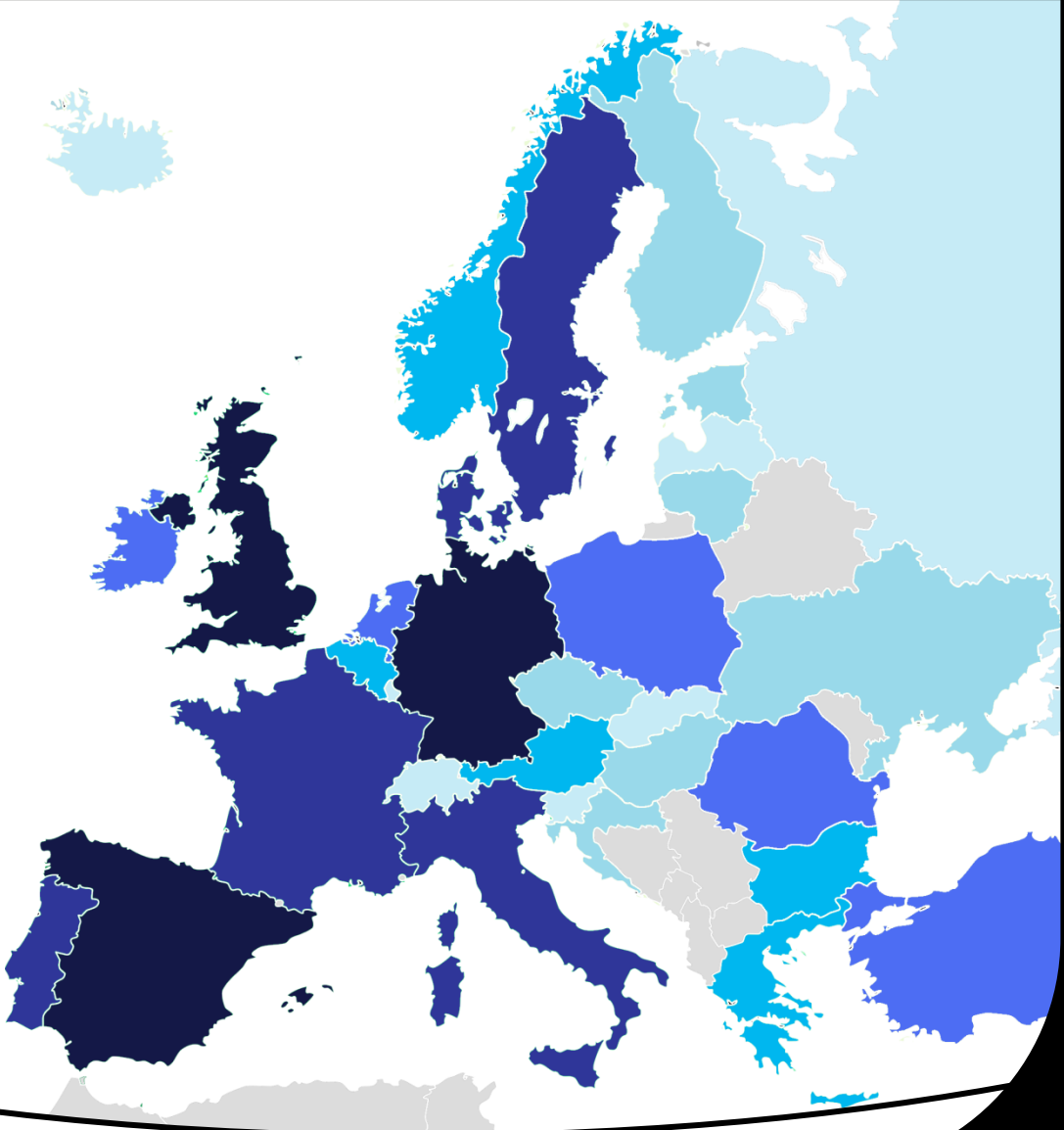
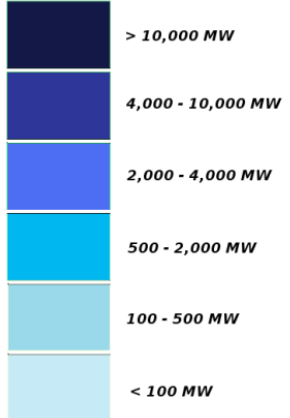


### Installed Renewable Power Capacity

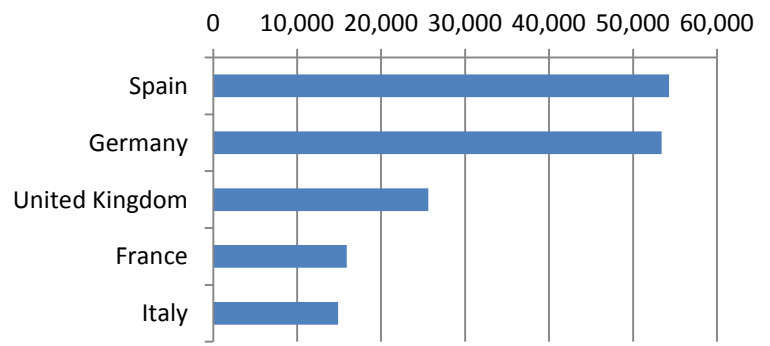


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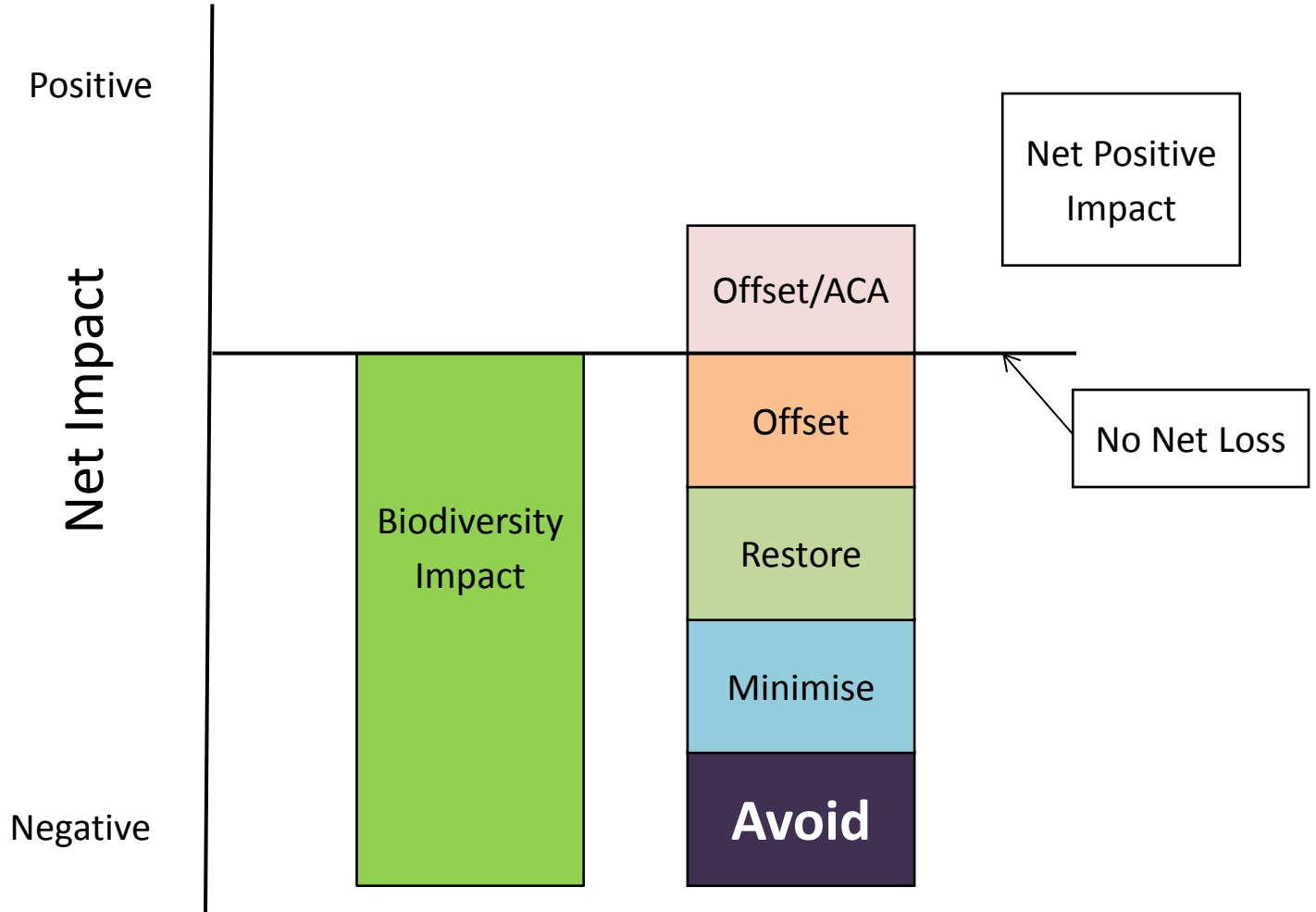
# Wind power installed in Europe by end of 2013



## Electricity production (GWh)



# Mitigation Hierarchy



# Outline

- Provide examples of what actions can be taken to avoid impacts on biodiversity through:
  - Strategic planning
  - EIAs and SEAs
  - Mitigation
  - Collaboration
- Conclusions

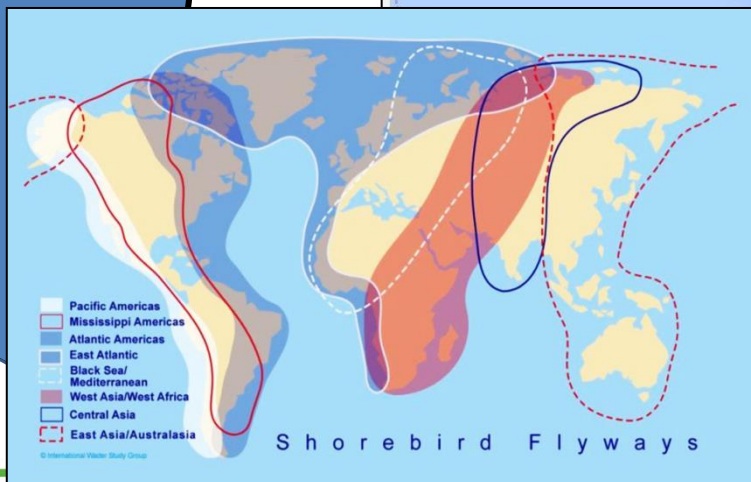
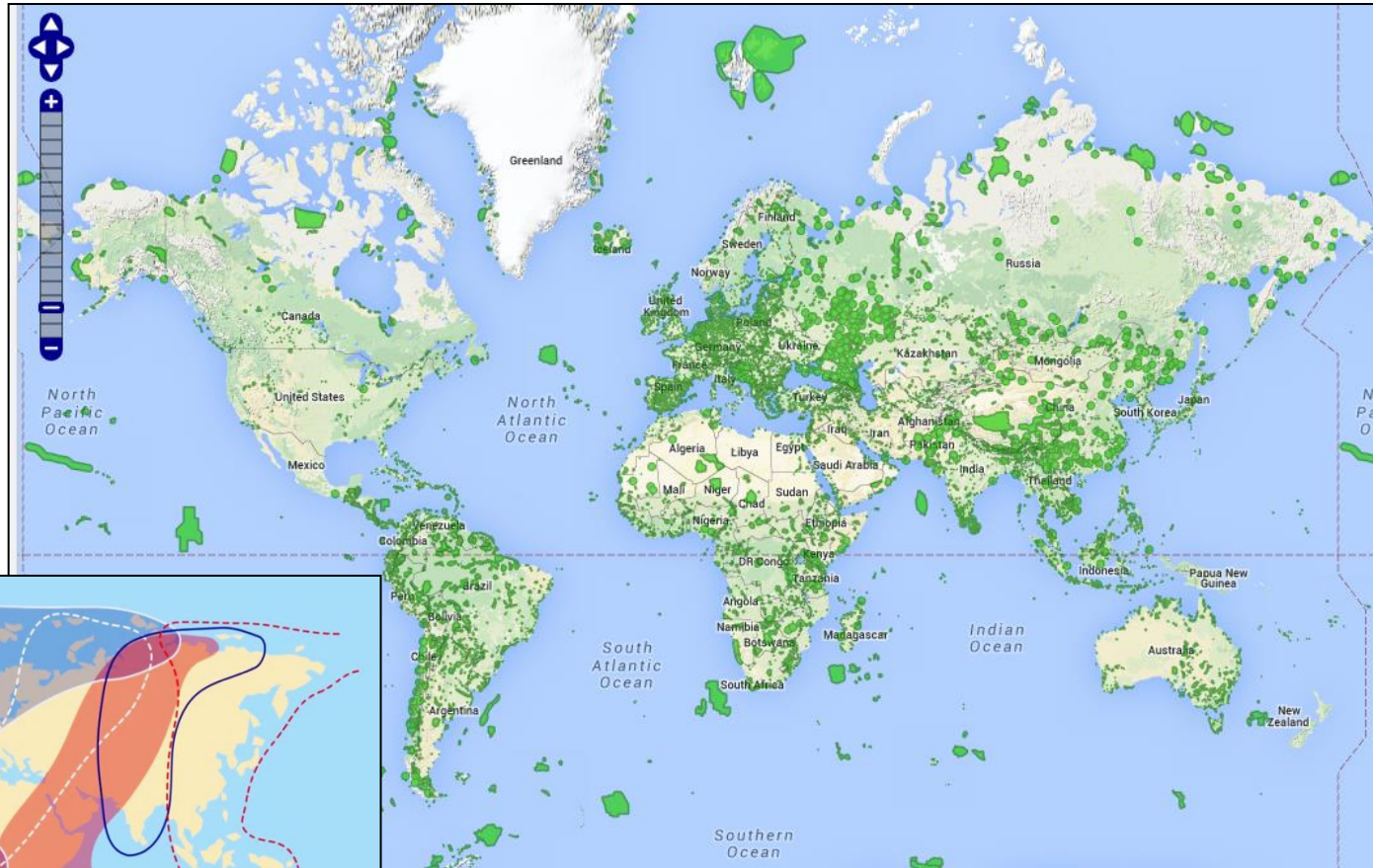




## The importance of strategic planning

- Planning wind farm developments in a strategic manner over a broad geographical area is one of the most effective means of avoiding the impacts of wind farms on nature and wildlife early on in the planning process.
- Evidence to date illustrates that wind power does not have to threaten wildlife but appropriate siting is critical and must be a first goal of the planning process.
- Developing wildlife sensitivity maps at the strategic planning stage enables areas to be identified where wind farm development is not appropriate.

# Important Bird and Biodiversity Areas (IBAs)

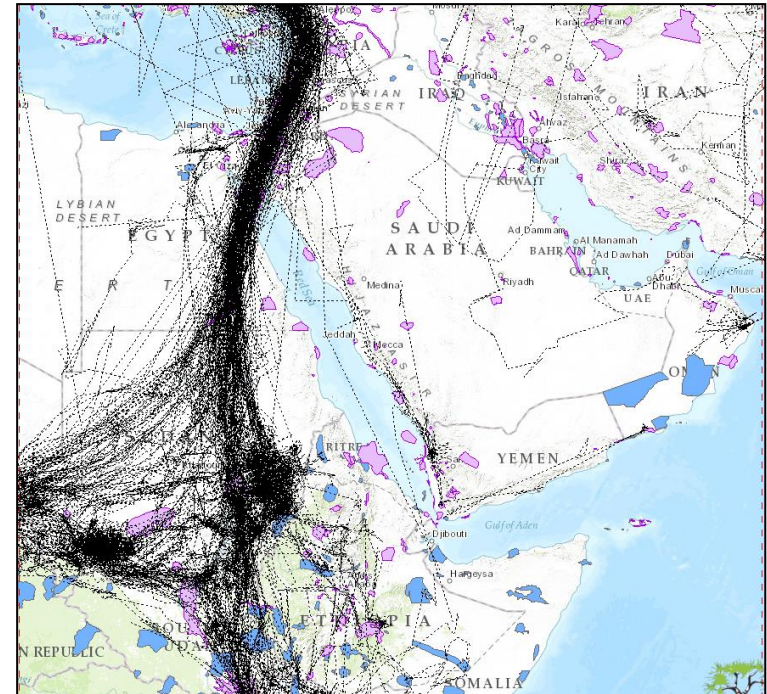
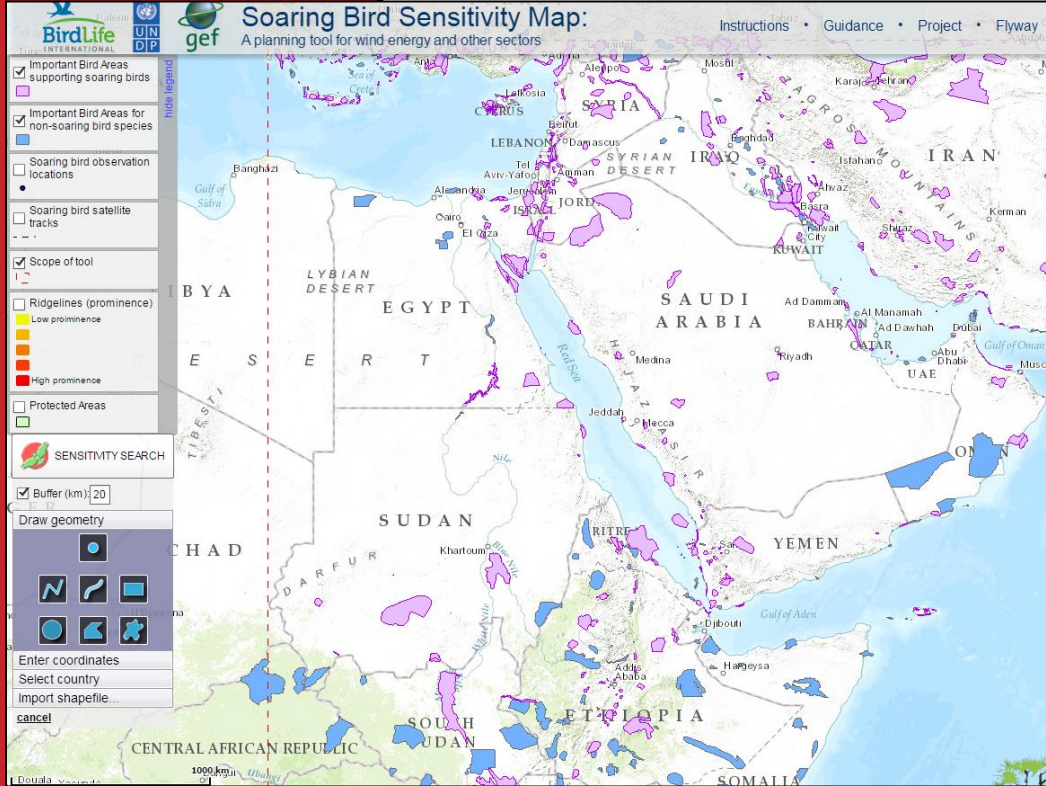


**IBA**  
 BIRD LIFE IMPORTANT BIRD  
 AND BIODIVERSITY AREA  
*Four decades of  
 conservation action*

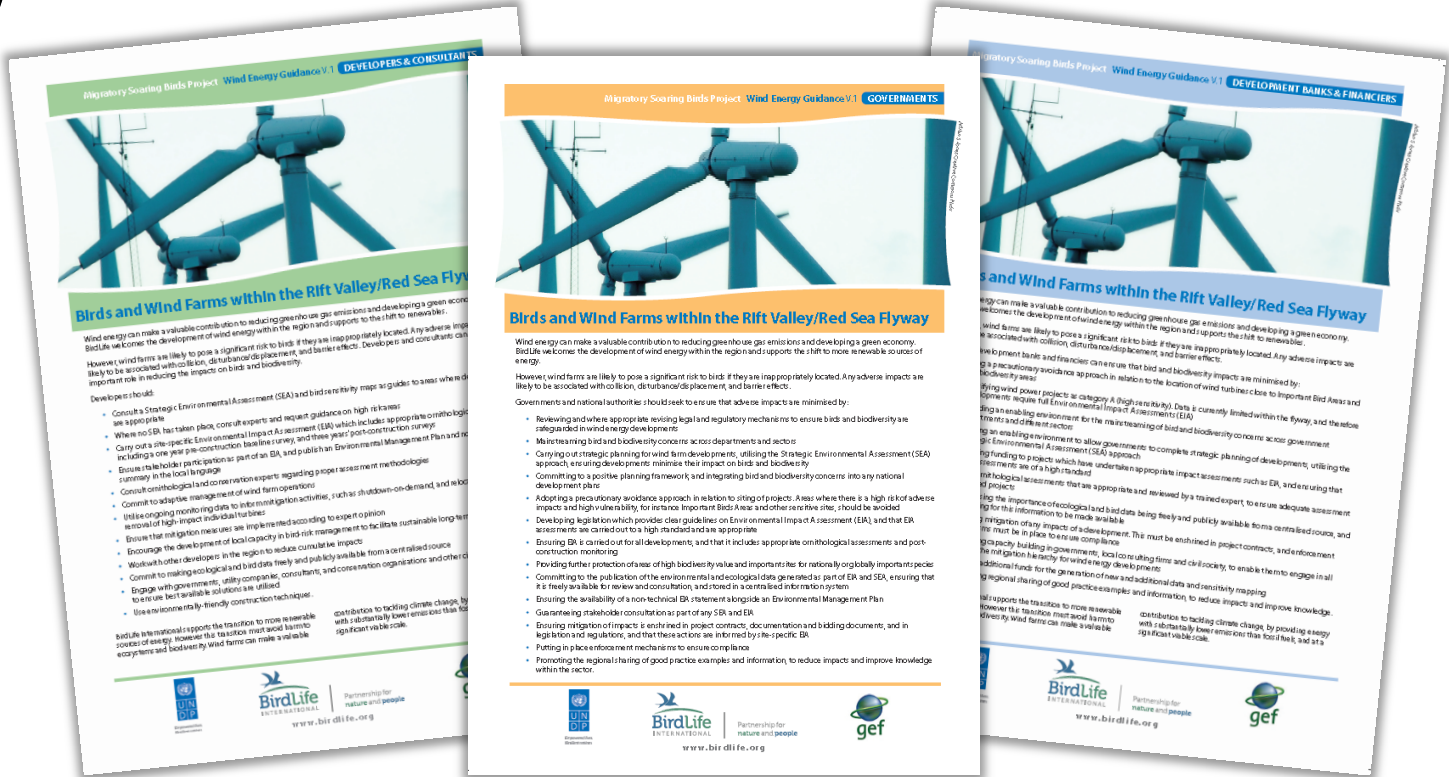




# Migratory Soaring Bird Sensitivity Mapping Tool



# BirdLife guidance for wind energy development

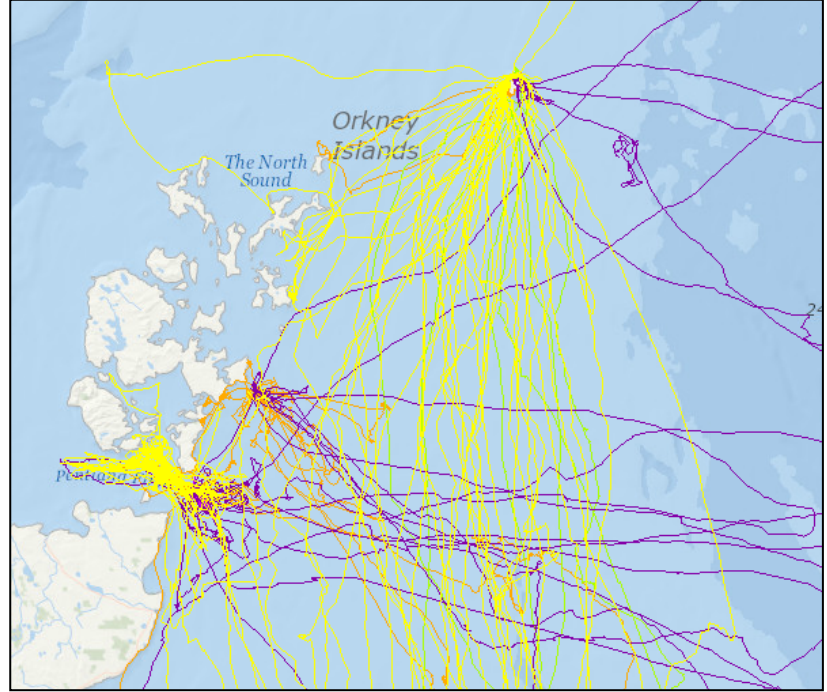
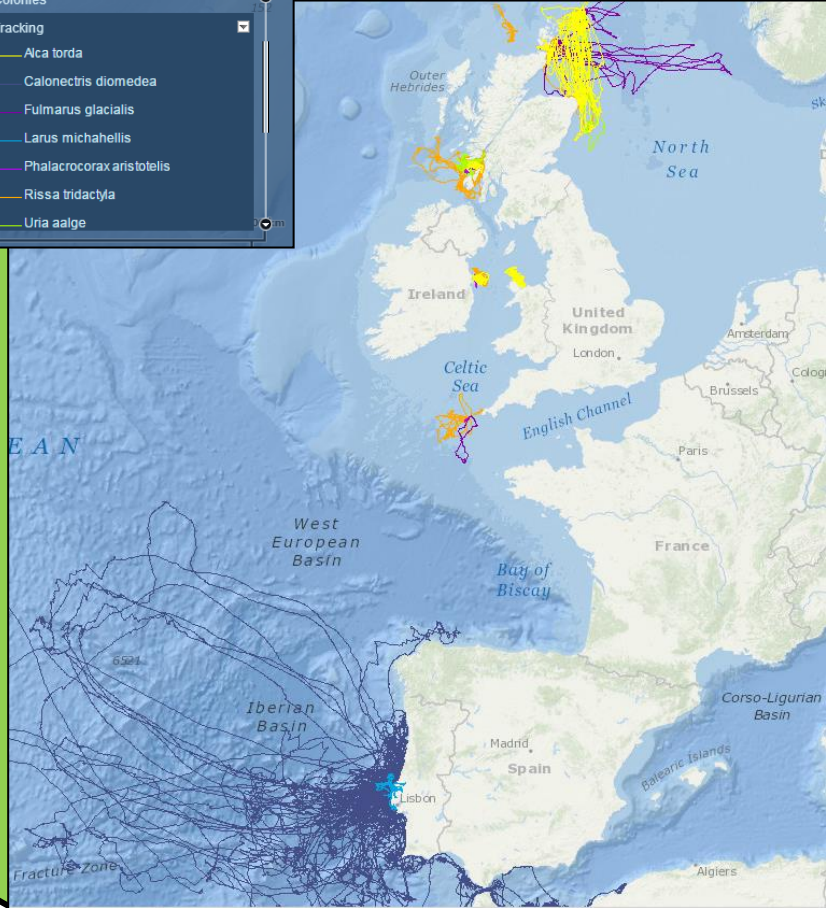


# FAME and STaR Projects

Layer List

Layer Visibility

- Colonies
- Tracking
  - Alca torda
  - Calonectris diomedea
  - Fulmarus glacialis
  - Larus michahellis
  - Phalacrocorax aristotelis
  - Rissa tridactyla
  - Uria aalge

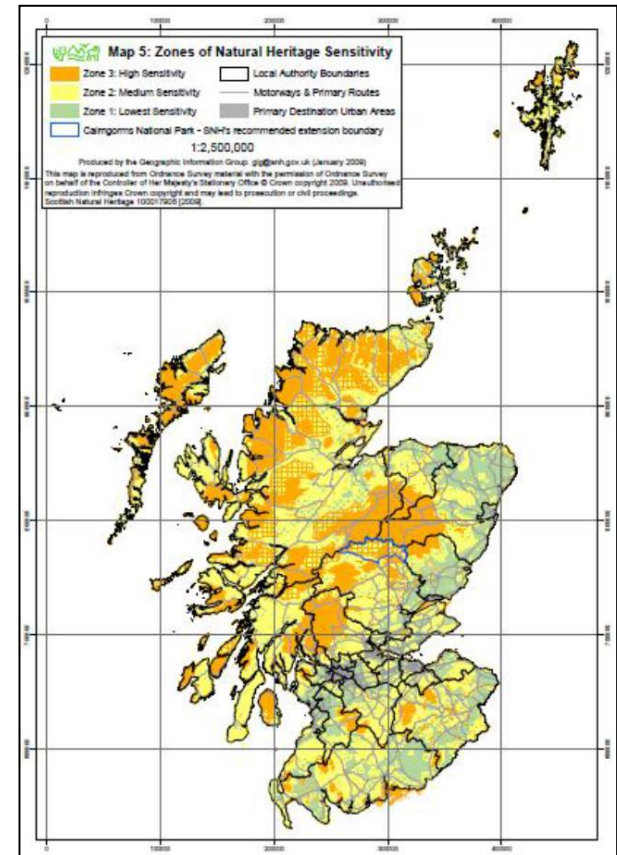
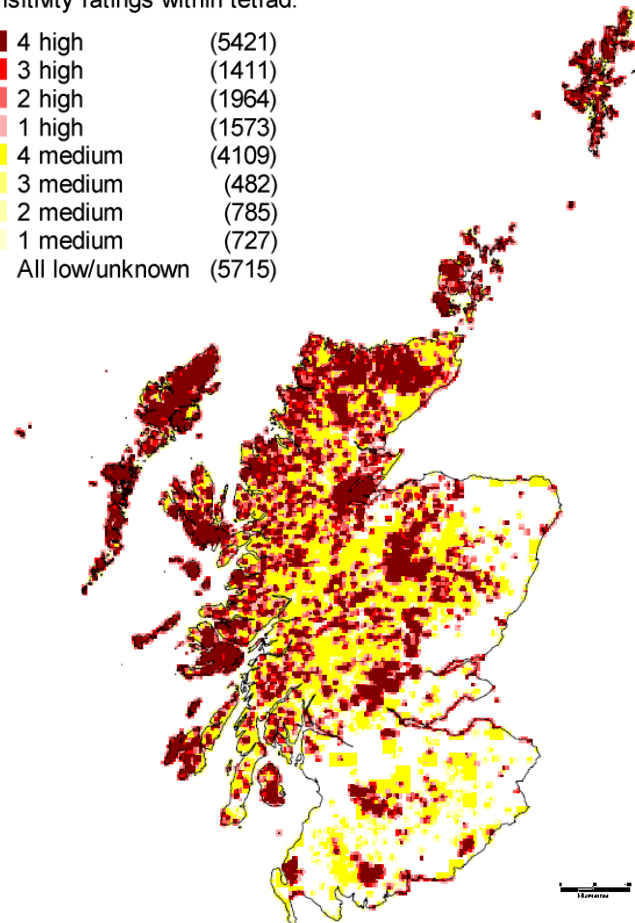


# Bird Sensitivity Map for Scotland



Sensitivity ratings within tetrad:

■ 4 high	(5421)
■ 3 high	(1411)
■ 2 high	(1964)
■ 1 high	(1573)
■ 4 medium	(4109)
■ 3 medium	(482)
■ 2 medium	(785)
■ 1 medium	(727)
■ All low/unknown	(5715)



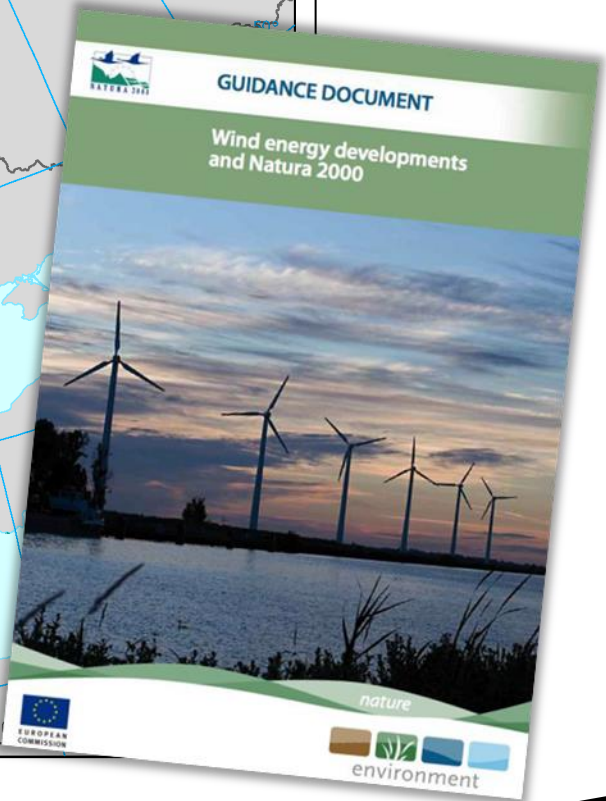
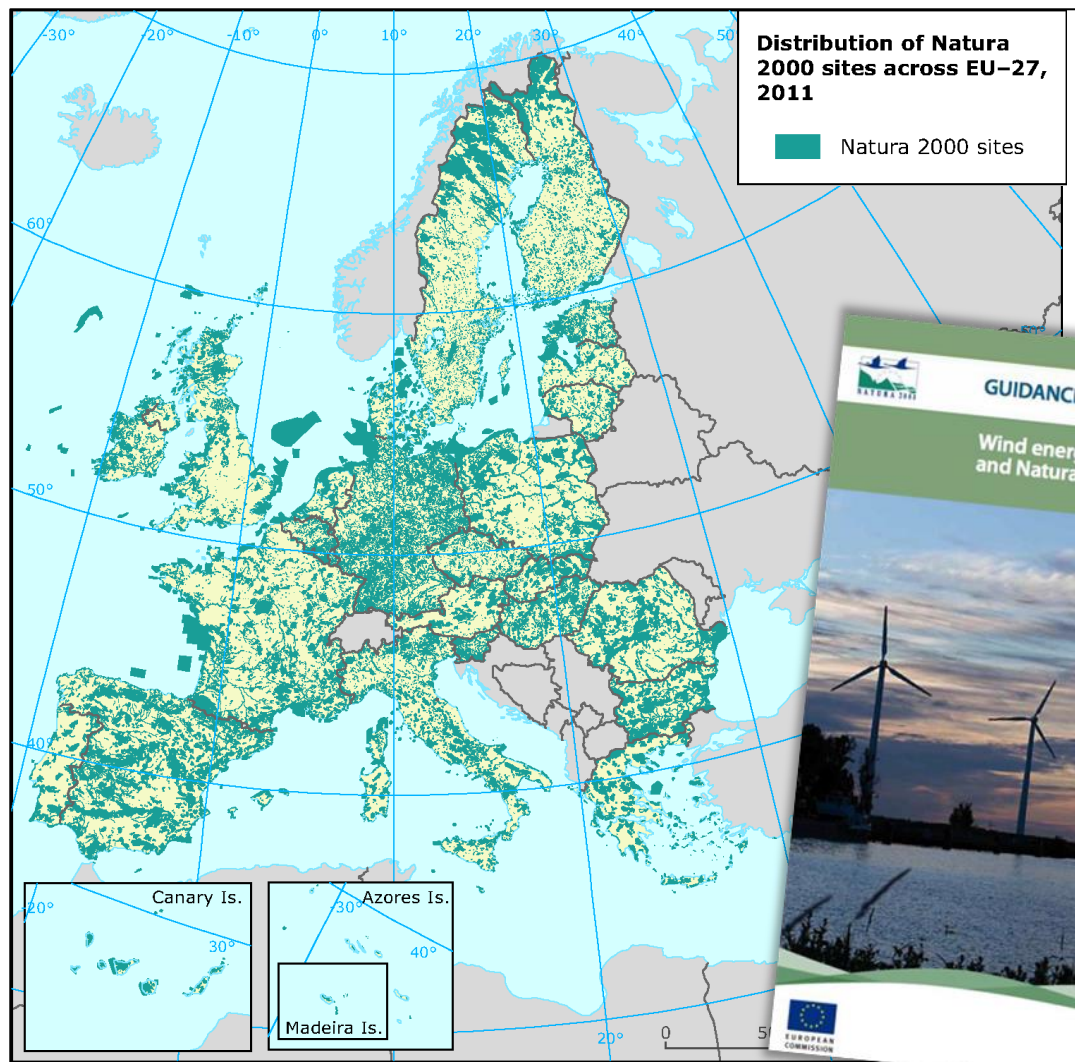


## The SEA Directive and the EIA Directive

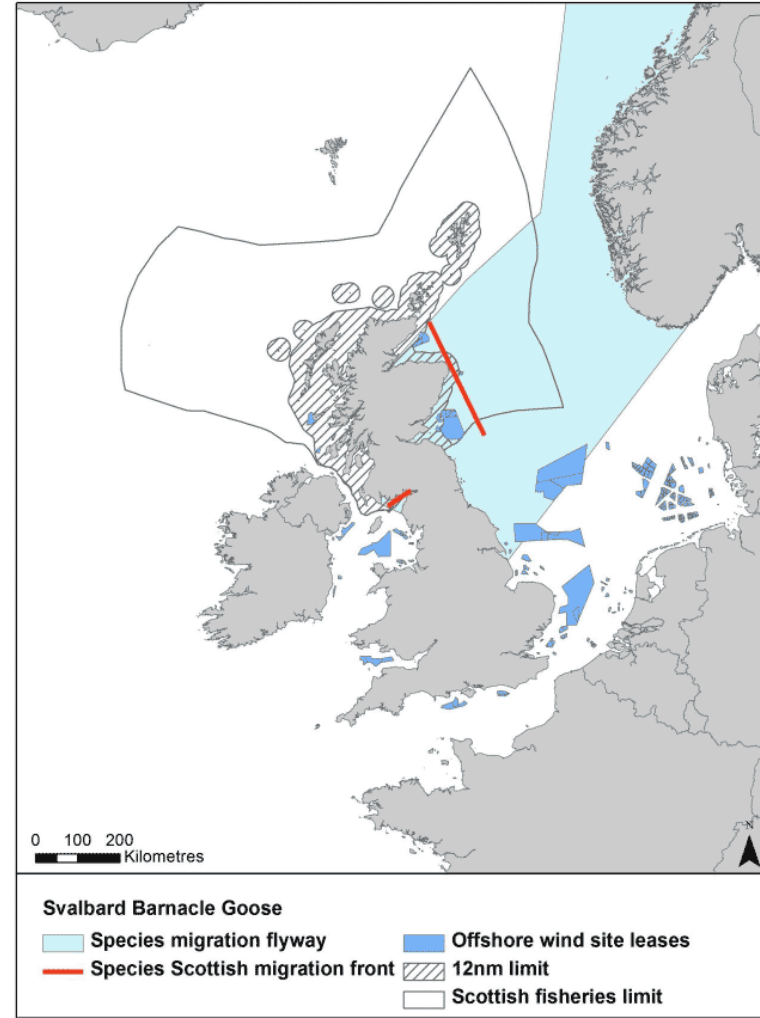
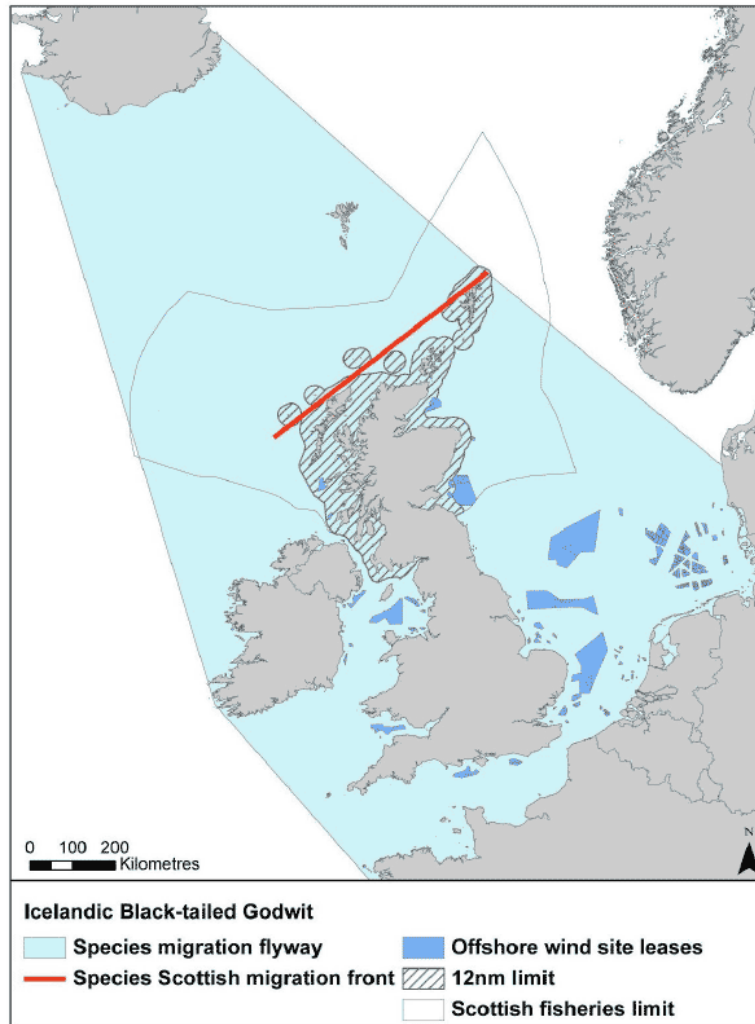
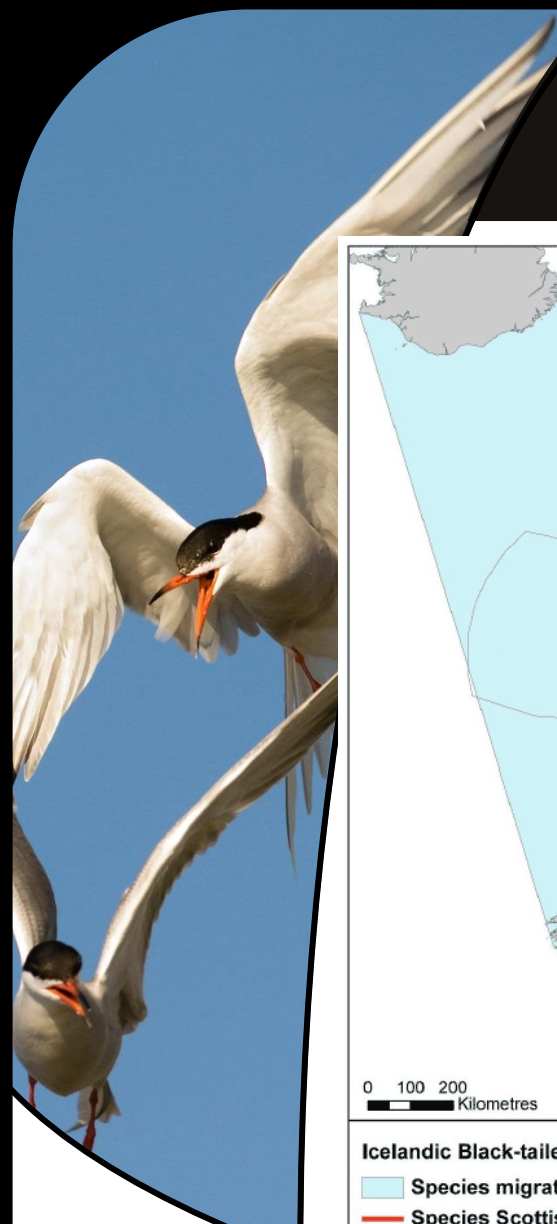
- Two key pieces of EU environmental legislation are directly relevant to wind farm developments:
  - **Directive 2001/42/EC** on the evaluation of the effects of certain plans and programmes on the environment – ‘SEA’ Directive
  - **Directive 85/33/EEC** on the assessment of the effects of certain public and private projects on the environment, amended in 1997 (97/11/EC) and 2003 (2003/35/EC) – ‘EIA’ Directive



# Natura 2000 network



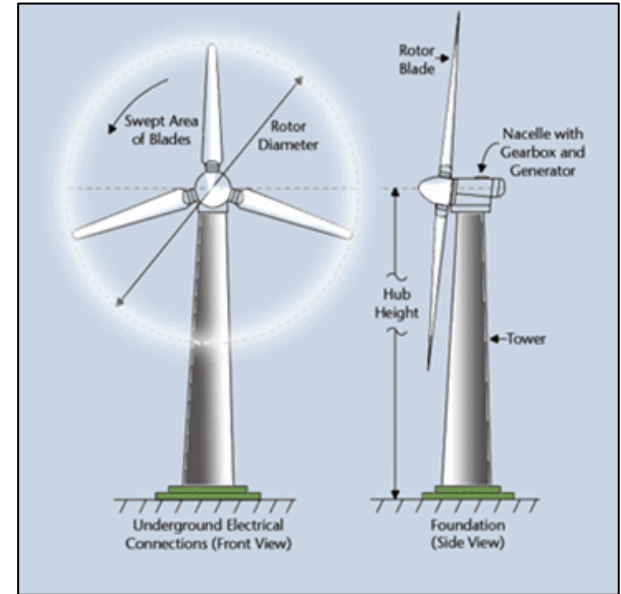
# Collision Risk Modelling



# Mitigation Measures



<http://mlwindaction.org/category/wind-project-proposals/jericho-project/>



<http://www.mechanicalengineeringblog.com/1782-introduction-to-wind-turbine-wind-turbine-design-wind-turbine-technology/>



<http://www.detect-inc.com/wind.html>



# Conventions and Collaboration



Partnership for  
nature and people

# London Array, outer Thames Estuary, UK



## Conclusions

- Wind power does not have to threaten biodiversity
- Planning early and appropriate siting are critical to avoid impacts
- Success of mitigation measures will be location and species specific
- Monitoring programmes must be implemented and the results used to inform decision making

## Any questions?

With thanks to Samir Whitaker, Tris Allinson , Melanie Heath and Richard Grimmett (BirdLife), and Dr. Benedict Gove, Ivan Scrase and Philippa Roddis (RSPB) and the partners of the Cambridge Conservation Initiative funded project

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