



# Standards Review Workshop: Draft Proposal for Environmental Guidelines

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# Starting point

- Regulatory requirements (EU, National)
- Establish framework for licensing
- EMEC – EIA for infrastructure and general activities & risks
- Establish *Plan, Deploy & Monitor* approach to licensing and data gathering, where no data available
- Guidance requested



# What guidance already exists?

- 2007 Initiated Environmental Standard - workshop
- Marine Scotland

- Marine Renewables Licensing Manual

- <http://www.scotland.gov.uk/Topics/marine/Licensing/marine/LicensingManual>

- Impact Assessment Tool

- <http://www.scotland.gov.uk/Topics/marine/Licensing/marine/tool>

- Scottish Natural Heritage

- Survey & monitoring guidance

- <http://www.snh.gov.uk/docs/B925810.pdf>

**marine**scotland

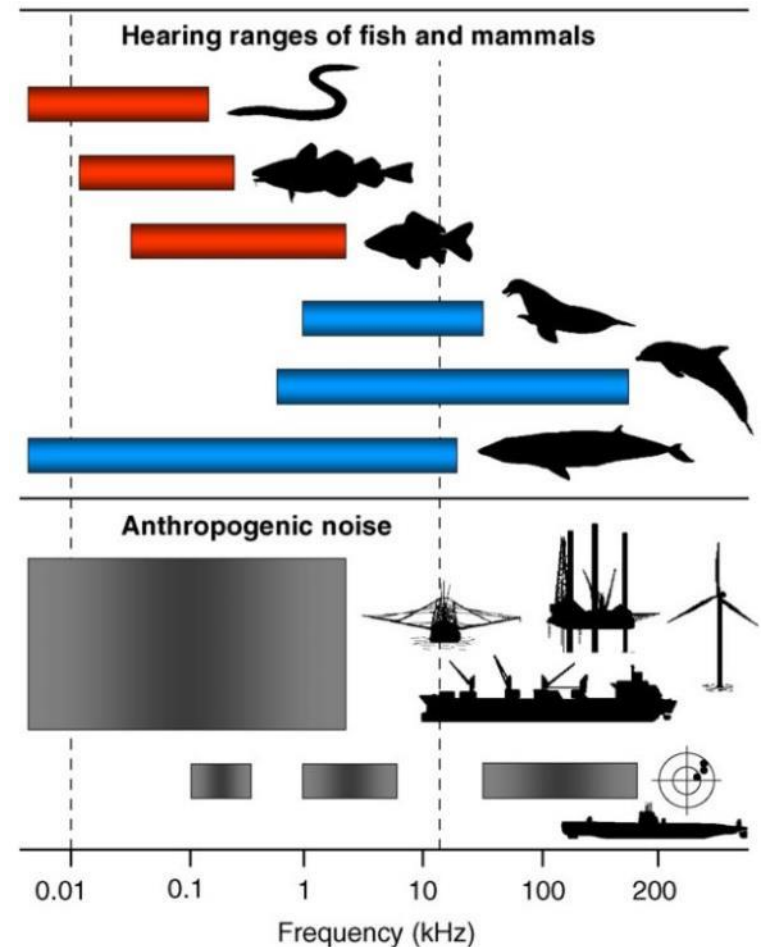


**Scottish Natural Heritage**  
**Dualchas Nàdair na h-Alba**

All of nature for all of Scotland  
Nàdar air fad airson Alba air fad

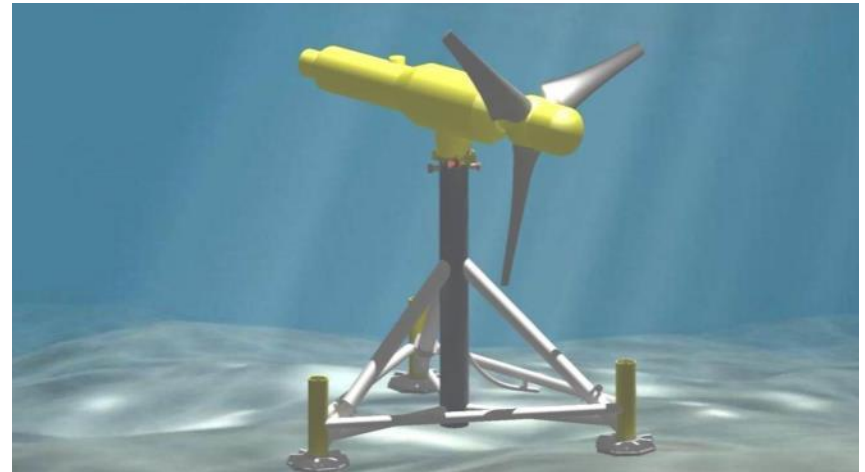
# Behavioural changes

- Displacement of
  - Marine mammals
  - Diving birds
  - Fish species (including basking sharks)
- Physical presence
  - Device in operation
  - Vessels
- Underwater noise
- EMF



# Physical harm

- Wildlife entanglement, entrapment & collision
- Device blades/rotors
- Mooring infrastructure
- Underwater noise





# Disturbance to seabed habitats

- Installation activities
- O&M activities
- Decommissioning activities



# Hydrodynamic effects

- Physical disturbance to water masses
  - Changes to nutrients, temperature, light level, turbidity
  - Surface waves & currents
- Ecological energy balances & flows
  - Changes in vertical mixing
  - Effect on biological communities



# Contamination of seawater, seabed & wildlife

- Hydraulic fluids & lubricants
- Chemical discharge
- Effluent discharge
- Other waste





# Visual, seascape & landscape impacts

- Devices visible on sea surface
- Navigational lighting



# Submerged landscape impacts

- Infrastructure
- Debris
- Decommissioning?



# Navigation/sea user interference

- Navigational safety
- Cable/pipeline routing
- Fisheries
- Ferries
- Recreational interests

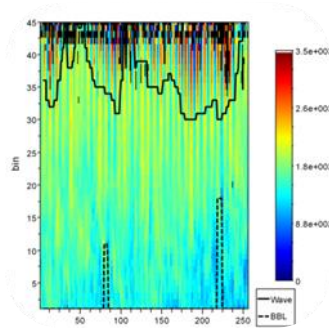


# Content and iterative development

- Areas of coverage
- References to existing guidance / protocols
- How detailed?
  - Survey frequency
  - Sampling design & methods
  - Approaches to laboratory analysis / data analysis
  - Format for reporting
- Ongoing dissemination of outputs → collaborative regulatory review of requirements?
- Is the time right (yet)?



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Thank you

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Environmental Guidelines

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