

Implications of scientific uncertainty in environmental impact assessment of marine seismic surveys

Tim Carter, Environment Division

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- Not providing a full account/analysis of impacts
- Uncertainty not acknowledged or addressed
- Results in:
 - precautionary decision making
 - protracted assessment timeframes.





Why the focus on seismic?

- Scientific uncertainty particularly high for underwater noise impacts – complex and paucity of data, not acknowledged
- Less developed in approach to evaluating impacts and addressing uncertainty
- Titleholders case for acceptable impacts and risks is weakened.





- Increase in number of speculative, strategic seismic surveys
- A number of these proposed in particularly sensitive areas for whales and interacting with less studied, sensitive receptors
- Heightened stakeholder concern, expectation for information
- In response – a number of literature reviews underway on environmental effects of underwater noise.



Sources of uncertainty



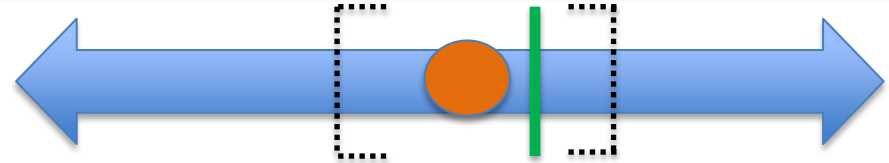
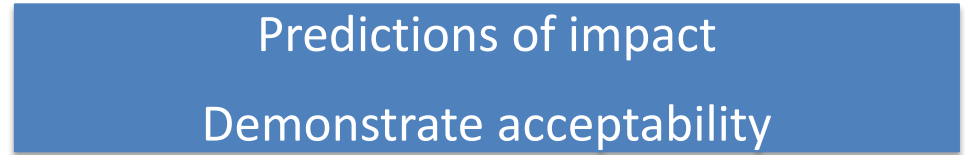
- Insufficient baseline environmental data
- Predictions of sound attenuation poorly supported

- Limited reference to data on ecological effects
- Effectiveness of controls

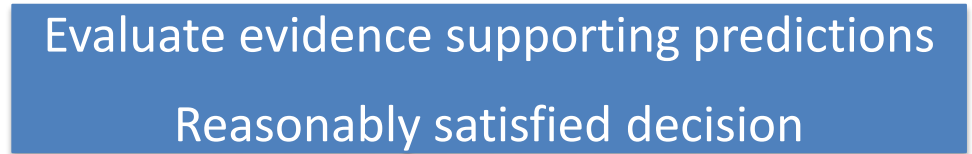
- Limited monitoring of ongoing performance



Titleholder



Regulator





- The Regulator:
 - precautionary decision making
- Titleholders:
 - protracted assessment timeframes
 - additional controls or conservatism in controls
 - may limit data coverage (excising sensitive survey areas and/or timeframes)
 - additional time/costs
- Stakeholders:
 - reduced confidence in industry.



Description of environment	Sound exposure predictions	Ecological effects	Effectiveness of controls
increase in review of existing data	site specific predictions	increase in interrogation of existing data	ensure controls are truly adaptive
increase in access/use of MMO data	horizontal and vertical	use of surrogates where supported	international reviews
consult data custodians	reconciling units	seek expert peer review/advice	measures to test effectiveness
strategic baseline studies	validate received sound levels	strategic research to build knowledge base	field validation



Scenario 2



Scenario 1





Describe environment

- Bathymetry
- Benthic habitats
- Fish assemblages



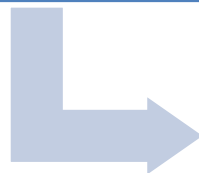
Characterise sound exposure

- Exposure level below array
- Units
- Cumulative exposure



Evaluate impacts and risks

- Peer reviewed literature
- Unit consistency
- Advice from SMEs

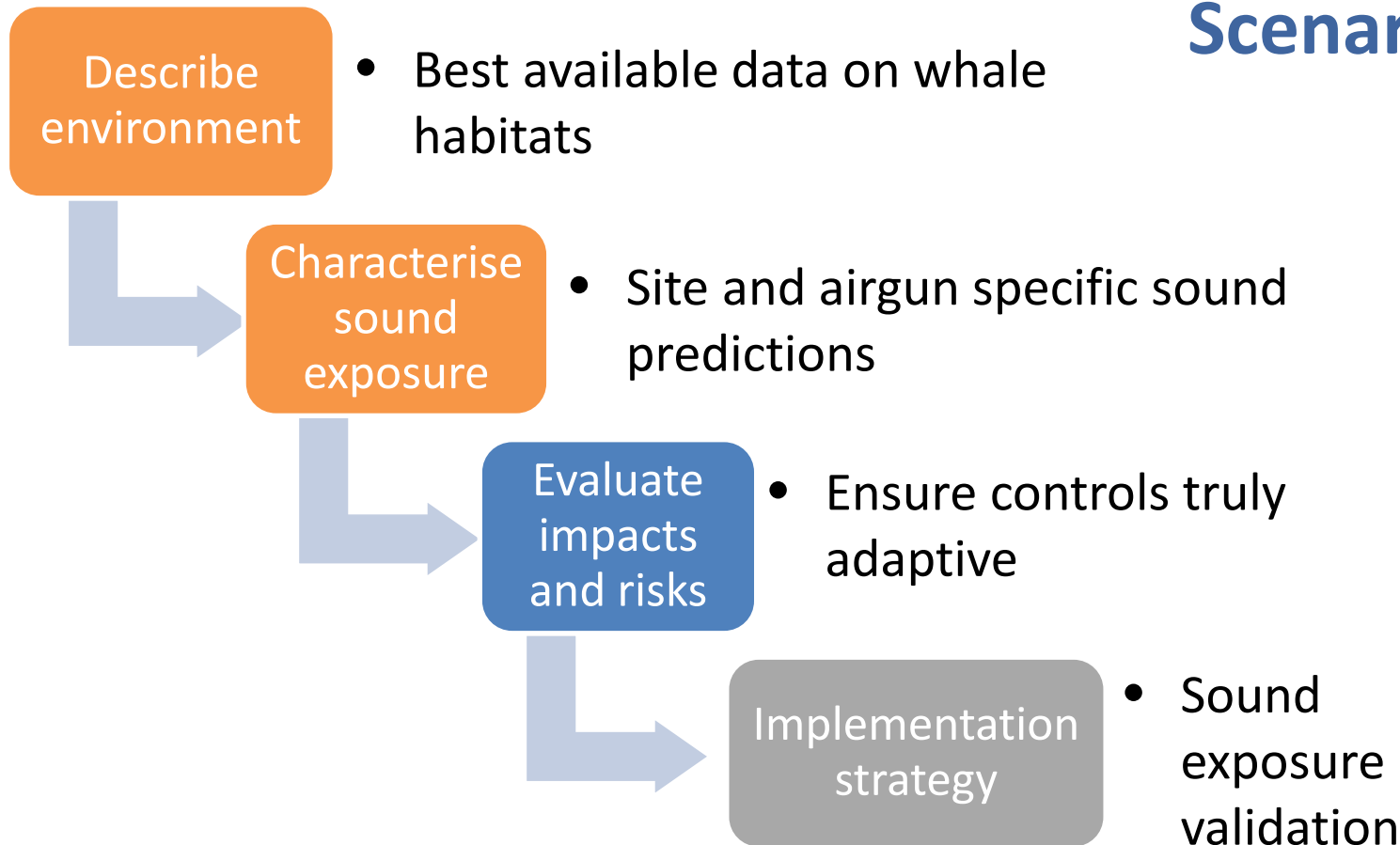


Implementation strategy

- Measures to ensure



Addressing uncertainty: Scenario 2





- Much more can be done to reduce scientific uncertainty:
 - better use of available data, i.e. scientifically robust evidence base to support predictions
 - develop specific measures to validate predictions
 - collaborative efforts to fill critical knowledge gaps.
- Why?:
 - greater certainty and efficiency in approvals process
 - improved stakeholder confidence.

Thank you