Rijkswaterstaat
Ministry of Infrastructure and the Environment

Underwatersound Policy and Implementation

EBN Symposium "Echoes from Seismic"

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Policy

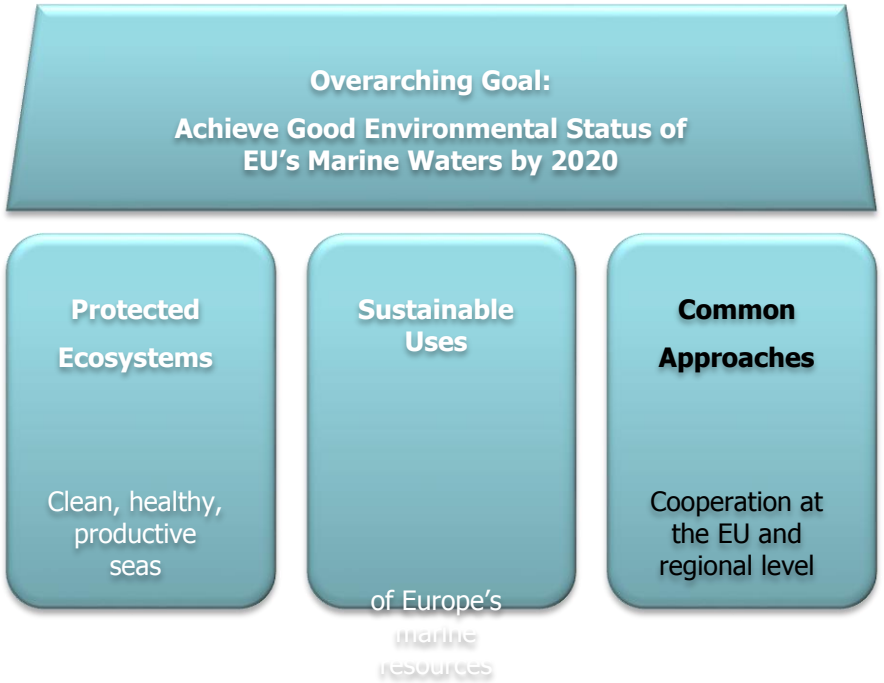
'**pollution**':…the introduction of substances or energy, including human-induced **underwater noise**, which results or is likely to result in deleterious effects …

Marine Strategy Framework Directive (2008)

Overall objective: to achieve or maintain Good Environmental Status (GES) of the EU's marine waters by 2020.

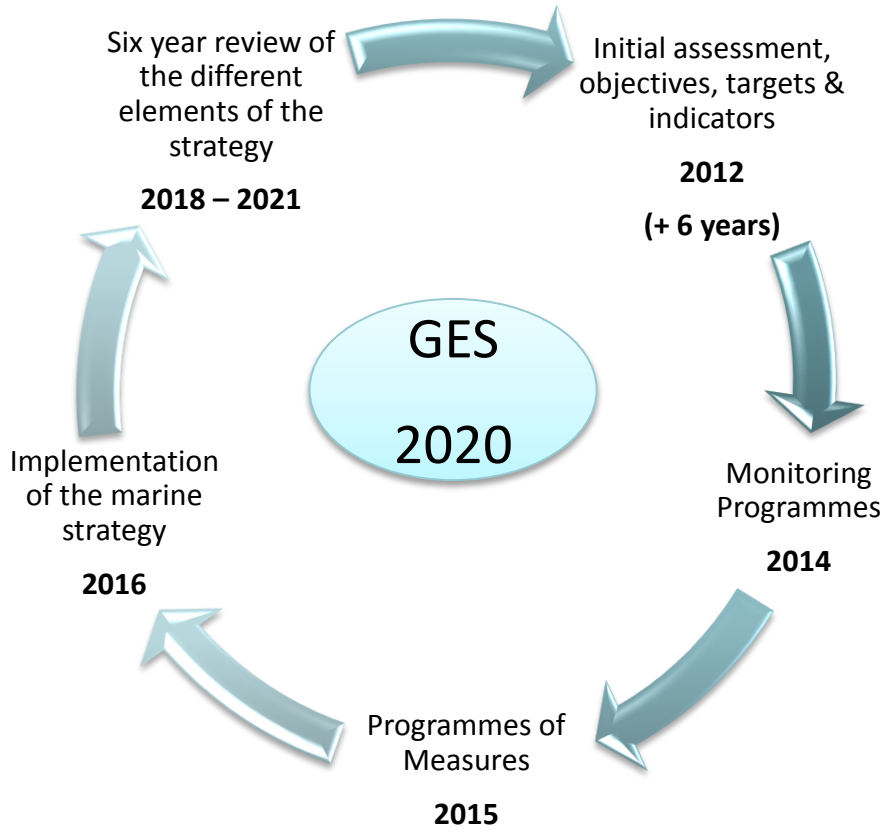
Sustainable: **Ecosystem scale** and integrated approach to the management of all human activities which have an impact on the marine environment

Common: **Regional approach** to implementation



Implementation Steps

- *Initial assessment* of environmental status of MS waters (2012)
- *Determination* of GES (2012)
- Establishment of environmental *targets* and *indicators* (2012)
- *Monitoring programme* for ongoing assessment and regular updating of targets (2014)
- *Programme of measures* designed to achieve or maintain GES (design 2015, operational 2016)



MSFD: transposition in national policy/laws

- MSFD (directive, not EU regulation) is addressed to member states
  - not individuals
  - sets the framework for member states, but details of implementation are left for the member states to decide ("transposition": turn EU directives into national law)- overarching targets and governance
- Does not replace existing legislation that regulates at scales less than MSFD (e.g. SEA, EIA and Habitats Directives)
- In 2012 EU member states have established national marine strategies

Indicators for energy/underwater noise

- *Descriptor 11:* Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment
- In 2010 the EC decided on criteria and indicators to describe GES
- Two indicators defined:
  - short duration: low and mid-frequency impulsive* noise

  (*includes sonars)
  - long lasting: low frequency continuous noise

Conclusions and implications for seismic

- Driven by EU MSFD register of impulsive noise created (now!)
- Cumulative effects of impulsive noise sources will become available
- IF we conclude (preferably at regional level, e.g. North Sea) that there is too much impact: target setting
- If total amount of noise to be reduced: noise budgets option; but international management frameworks to be further developed
  - OSPAR: considered option is Regional Action Plan (RAP) from 2018

Implementation

Why a Framework Ecology and Cumulation?

Plans in the Netherlands to build 10 new wind farms.

Recommendation from the Dutch Commission for Environmental

Assessment: “Further research on (cumulative) effects of wind farms is needed.”

NL Underwater Sound Group

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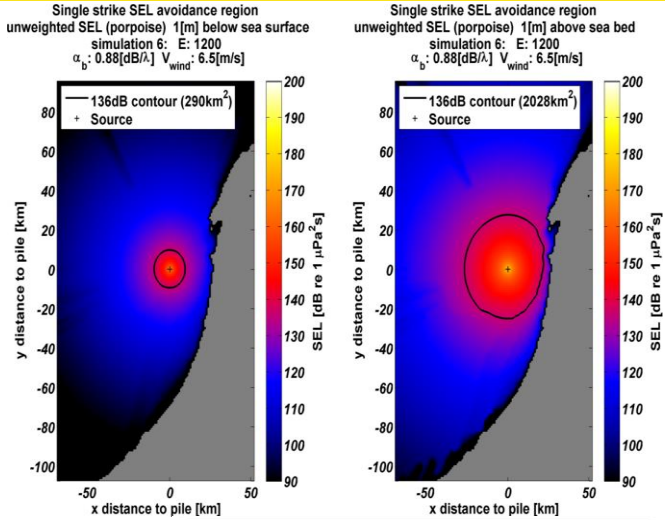
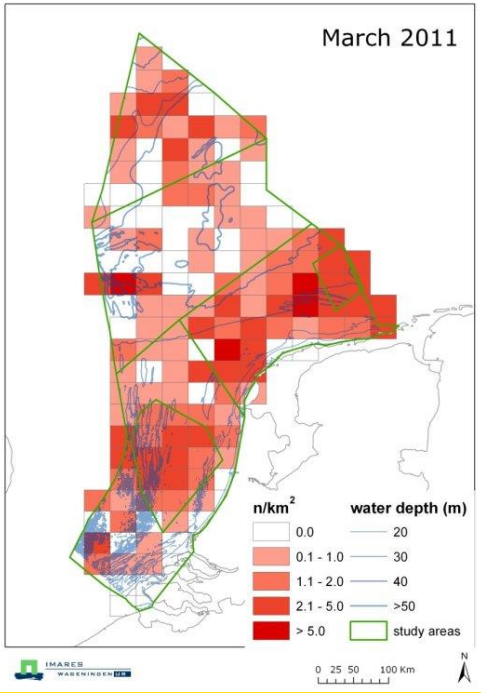
Cumulative effects of impulsive underwatersound on marine animals

https://www.noordzeeloket.nl/en/functions-and-use/Maritime_wind_energy/ecology/index.aspx

Assessment of underwater noise

1. Acoustic propagation of each piling strike or seismic airgun puls
2. *Area of disturbance*
3. Number of animals disturbed
4. Number of disturbance days (days of piling or shooting)
5. Population consequences calculated by the the Interim PCoD model





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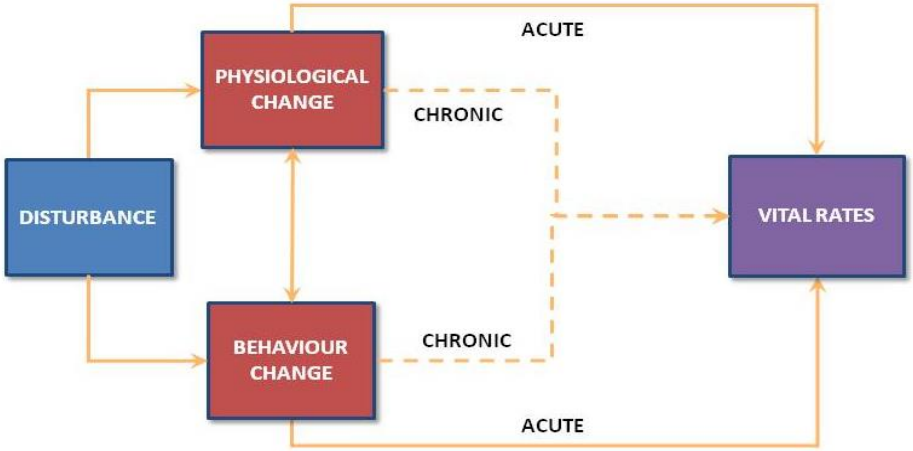
Interim Pcod model

Input = harbour porpoise disturbance days



Conclusion: Significant impact possible

Maximum acceptable effect

ASCOBANS

- Goal: reducing anthropogenic mortality of harbour porpoises to zero and human influence on the population to a minimum.
- Interim goal: Restoring and/or maintaining populations at 80% or more of the carrying capacity

- Dutch interpretation: a maximum effect of 5% on the population is acceptable for the total of the Offshore Wind Development until 2023

Mitigation: sound thresholds for piling

	Geluidsnorm (dB re µPa²s SEL_1 op 750 meter van de geluidsbron)		
	periode		
Aantal op te richten windturbines	Januari tot en met mei	Juni tot en met augustus	September tot en met december
77 - 95	verboden	165	166
64 - 76	160	166	167
55 - 63	162	167	169
49 - 54	163	169	170
43 - 48	163	169	171
39 - 42	164	170	172
35 - 38	165	171	172

What does this mean for the seismic surveys?

- Effect of seismic surveys is comparable to unmitigated piling
- Existing guidelines (i.e JNCC) aim at preventing injury, but don’t take disturbance into account
- Competent authority is now considering what a maximum acceptable level would be for seismic surveys

Future developments

- 2018 MSFD evaluation

- IF we conclude (preferably at regional level, e.g. North Sea) that there is too much impact: target setting
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Thank you!

Questions?