

# TG NOISE: NOISE THRESHOLDS AT UE LEVEL

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# European Green Deal

- **Action plan "Zero Pollution for air, soil and water" COM (2021) 400 final, 12.05.2021**
- **Strategy for biodiversity: "Bringing nature back into our lives" COM (2020) 380 final 20.5.2020**
- **Offshore renewable energy strategy: "An EU Strategy to harness the potential of offshore renewable energy for a climate neutral Europe" COM (2020) 741 final, 19.11.2020**

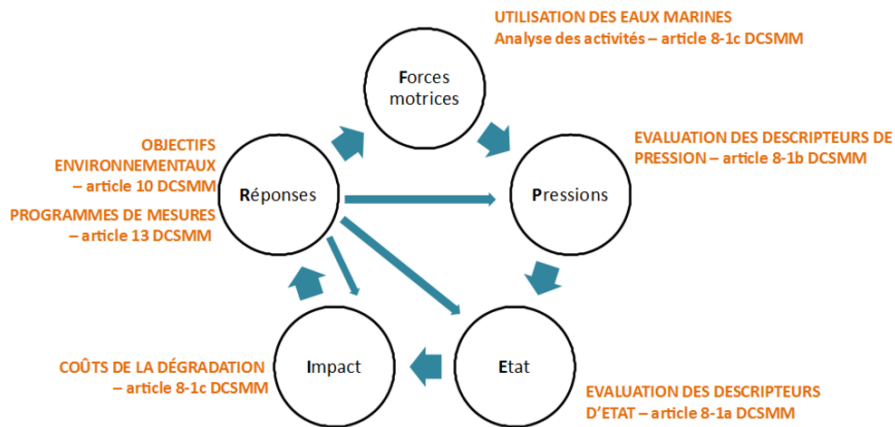
# The European regulatory framework on underwater noise

- The **Habitat Directive** to protect species.
- Obligations to assess the environmental impact of underwater noise.
- The **Marine Strategy Framework Directive (MSFD)** to achieve **Good Environmental Status (GES)** in marine waters.



# The Marine Strategy Framework Directive

**Good Environmental Status:** the proper functioning of ecosystems (in biological, physical, chemical and health terms), enabling sustainable use of the marine environment.



Eleven qualitative descriptors, common to all EU Member States, are used to define good environmental status:

1. Biological diversity 	2. Non-indigenous species 	3. Population of commercial fish/shellfish 	4. Elements of marine food webs 
5. Eutrophication 	6. Sea floor integrity 	7. Alteration of hydrographical conditions 	8. Concentrations of contaminants 
9. Contaminants in fish/seafood for human consumption 	10. Marine litter 	11. Introduction of energy including underwater noise 	

Good Environmental Status



Illustrated by Amy Elizabeth Dozier

## TODAY'S OCEAN SOUNDSCAPE

### ● ANTHROPOGENIC SOURCES

- 1 Acoustic deterrent devices
- 2 Fishing vessels
- 3 Recreational vessels
- 4 Cruise ships
- 5 Commercial shipping
- 6 Offshore oil & gas
- 7 Seismic airgun surveys
- 8 Military & civilian sonar
- 9 Offshore renewable energy
- 10 Underwater explosions
- 11 Construction and pile-driving

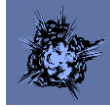
### ● NATURAL SOURCES

- A Waves
- B Wind
- C Rain
- D Marine mammals
- E Currents
- F Underwater landslides, volcanos and earthquakes
- G Fishes
- H Invertebrates

# Commission Decision (EU) 2017 of 17 May 2017

- GES assessment criteria and standardised monitoring methods.

- Impulsive** noise criterion D11C1



**Disturbance/ excess mortality**

- Continuous low-frequency** noise criterion D11C2



**Masking**

- Cooperation between Member States to define threshold values.**

18.5.2017

FR

Journal officiel de l'Union européenne

L 125/43

DÉCISION (UE) 2017/848 DE LA COMMISSION  
du 17 mai 2017

établissant des critères et des normes méthodologiques applicables au bon état écologique des eaux marines ainsi que des spécifications et des méthodes normalisées de surveillance et d'évaluation, et abrogeant la directive 2010/477/UE

(Texte présentant de l'intérêt pour l'EEE)

## TG Noise: Technical Group for Underwater Noise

- **Group of experts** on underwater noise for a joint and concerted implementation of the MSFD.
- Co-chairing **Sweden, France, Italy** since 2020.
- Ensure **overall consistency** with the HELCOM, OSPAR, Barcelona and Bucharest regional seas conventions.
- Definition of a **common methodology** and **threshold values at European level** for assessing the GES of the marine environment.

## Stage 1: Harmonisation with regulatory texts and the national approach

## Stage 2: Common methodologies for defining thresholds

### 2021

- Deliverable 1 (**DL1**): Assessment framework for thresholds values for **impulsive** noise.
- Deliverable 3 (**DL3**): Assessment framework for thresholds values for **continuous** noise.

## Step 3: Options for defining threshold values

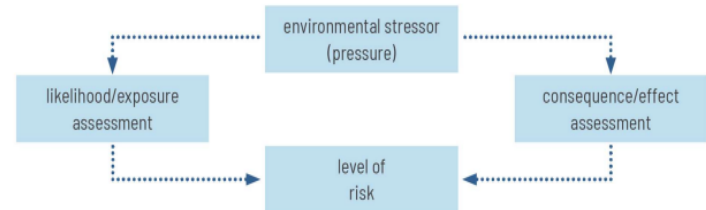
### 2022

- Deliverable 2 (**DL2**) : Options for thresholds values for **impulsive** noise.
  - Deliverable 4 (**DL4**) : Options for thresholds values for **continuous** noise.
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# 1. Harmonisation with regulatory texts and the national approach

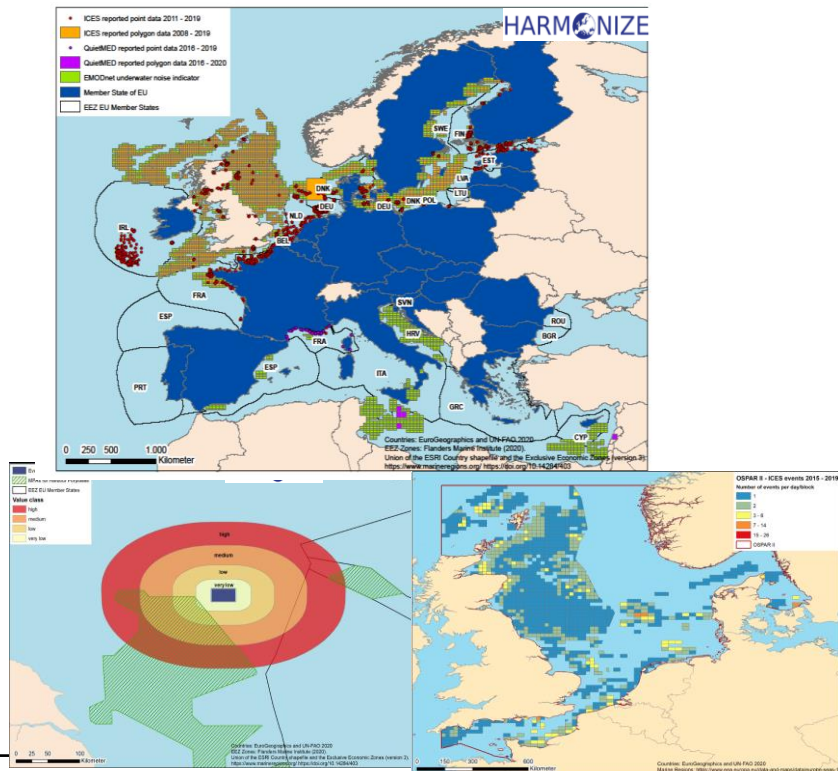
- Introduction of decision-making vocabulary (MRU, Reference condition, Current condition)
- Link with other directives
- Consistency with the **risk-based** approach
- Consistency with the **national** approach
- Taking into account of **specific** regional or sub-regional **characteristics**
- Methodological framework for Member States and a **common** approach to indicators for defining thresholds
- **Noise level**
- **Spatial extent**
- **Temporal hold**



## 2. Common methodologies for defining thresholds

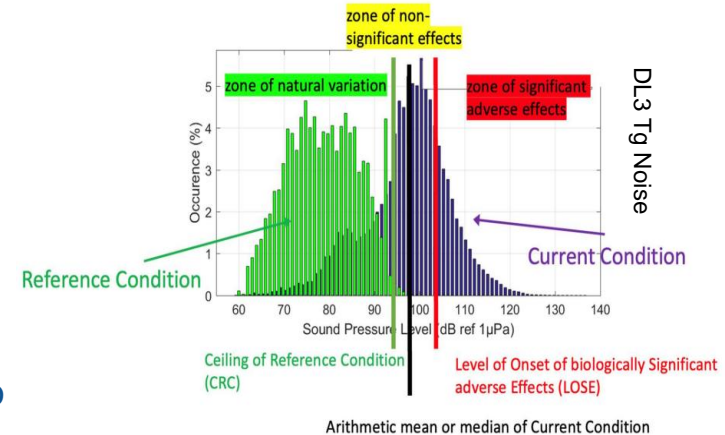
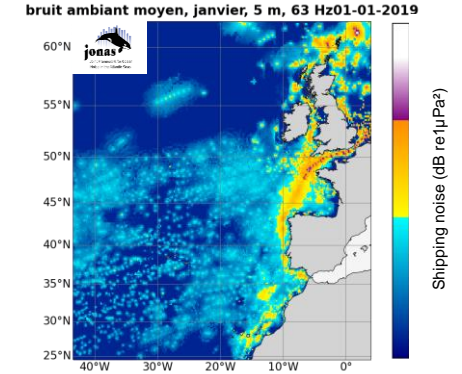
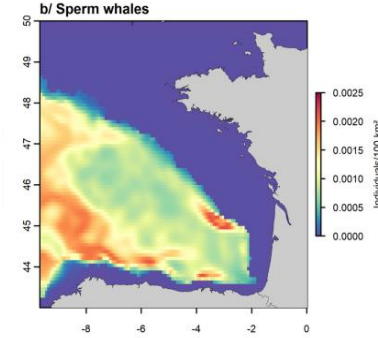
### Impulsive noise

- Data collected from the existing **register** of impulsive noise (SIRENE) to determine the "affected area".
- Number of daily pulse events per cell (**Pulse Block-Day**).
- Overlay with the **distribution** of species present to **quantify** the potential exposure of marine species.
- Similar to "traditional" **risk** assessment techniques for hazardous substances.



## Continuous noise

- **Indicator species** and their **habitats**
- **Risk** assessment based on noise levels
- Determine the **assessment periods** (month, season, year)
- Assessment of acoustic status by monitoring
- Establish a **reference condition** and a **current condition** of noise
- Define the **condition of cells** and the **status of habitats**
- Determine the **Good Environmental Status** of D11 according to **threshold options**



### 3. Options for defining threshold values

#### Define thresholds:

- **Level threshold (dB) relative to species: LOBE (*Level of Onset of Biological adverse Effects*)**
- **Spatial threshold: Tolerable impacted habitat area (% habitat)**
- **Time threshold: Tolerable duration (% of the assessed period)**

## Level thresholds (dB) defined according to species: LOBE - Level of Onset of Biological adverse Effects

- **LOBE**: a sound level above which an **adverse biological effect** on an indicator species is expected.
  - This effect can affect the **comfort, survival** and **vital functions** of individual animals.
  - If this happens **too often** to a **large number of animals**, it can affect their physical condition.
  - If this happens on a **too large scale**, in a **too large a part of the habitat** and affects **too many animals**, it is assumed that there will be **negative effects on the population**.
- ➔ **Tolerable status**: the LOBE is not exceeded too often over excessively large areas.

## Level thresholds (dB) defined according to species: LOBE - Level of Onset of Biological adverse Effects

- Will be defined at regional and sub-regional level by Member State.
- Depending on the target species populating the waters of each State.
- Consultation with neighbouring countries on shared habitats.
- Will depend on the auditory sensitivity (level and frequency) of the target species.



# DL2 Threshold options for impulsive emissions

Management objectives:

TG-Noise recommends maintaining a minimum population size of **80% (carrying capacity)** for impulsive noise.

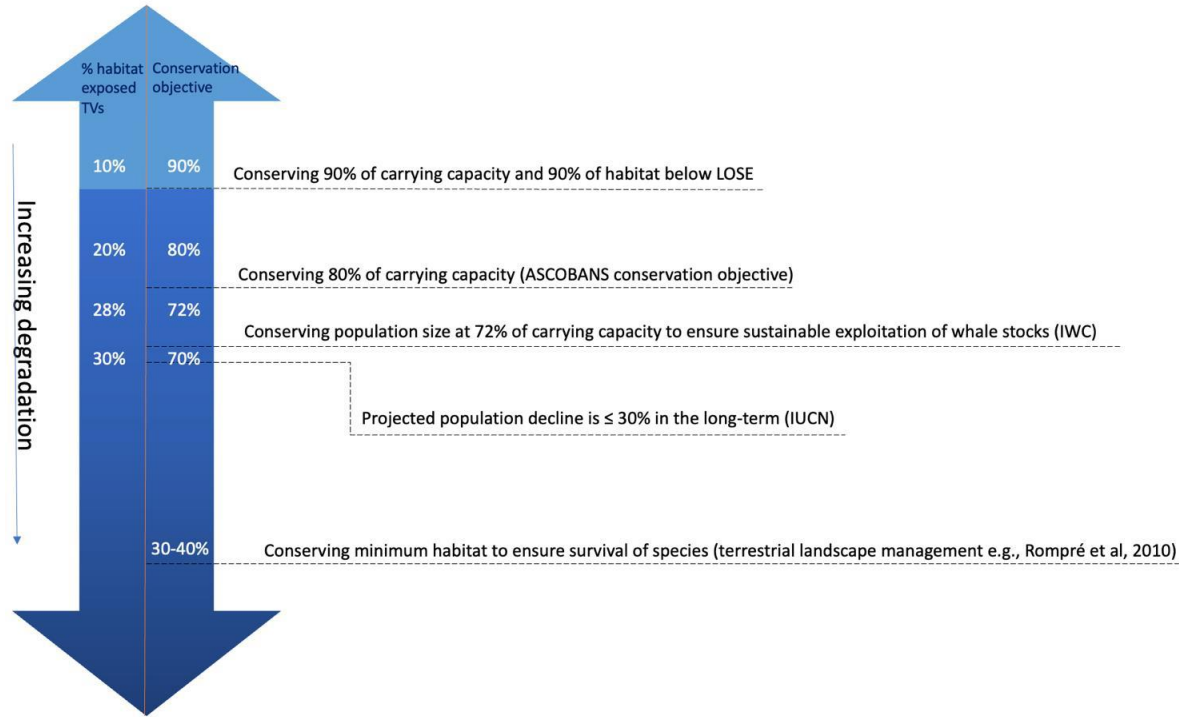
80%  
carrying  
capacity



20%  
habitat  
loss

If cumulative effects:

TG-noise recommends a maximum of **10%** habitat loss.



## Zone and duration of tolerable exposure

- **Short-term** exposure (1 day, **daily** exposure):  
Maximum fraction of the habitat of an indicator species that can be exposed to **impulsive noise levels > LOBE over 1 day is 20% or less ( $\leq 20\%$ )**.
  - **Long-term** exposure (1 year, **annual** exposure), the average surface area exposed is calculated (*arithmetic mean of daily exposure over one year*).  
Maximum fraction of the habitat of an indicator species that can be exposed to **impulsive noise levels > LOBE over 1 year is 10% or less ( $\leq 10\%$ )**.
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# DL4 Threshold options for continuous emissions

## Zone and duration of tolerable exposure

- **20% of the habitat** of the target species with noise levels above LOBE **must not be exceeded for any month** of the assessment year, in accordance with the conservation objective of 80% of carrying capacity/habitat size.
  - **Long-term** exposure (**annual** assessment, on a **monthly** basis)
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## Targets for TG Noise 2023-2025

- Continued work on the harmonised assessment (art. 8) of GES (art. 9)
  - Harmonised implementation of measures (Art. 13) and objectives (Art. 10)
  - Support Member States in assessing habitat status (*according to the data available and their level of progress*)
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## Zero pollution and Biodiversity: First ever EU-wide limits for underwater noise



Underwater noise due to human activities at sea can harm marine biodiversity, leading for example to hearing impairment and behavioural disturbances. EU experts have adopted recommendations on maximum acceptable levels for impulsive (for example from oil and gas exploration and extraction) and continuous (such as from shipping) underwater noise.

Commissioner for the Environment, Oceans and Fisheries, Virginijus Sinkevičius, said:

On the road towards COP 15 in Montreal, the EU is taking action today to better protect marine life from underwater noise. The new, evidence-based noise pollution limits will help

# THANK YOU

[https://environment.ec.europa.eu/news/zero-pollution-and-biodiversity-first-ever-eu-wide-limits-underwater-noise-2022-11-29\\_en](https://environment.ec.europa.eu/news/zero-pollution-and-biodiversity-first-ever-eu-wide-limits-underwater-noise-2022-11-29_en)