

Floating Offshore Wind: an example of Environmental Management Plan focused on protecting and promoting biodiversity, and fishing resources.

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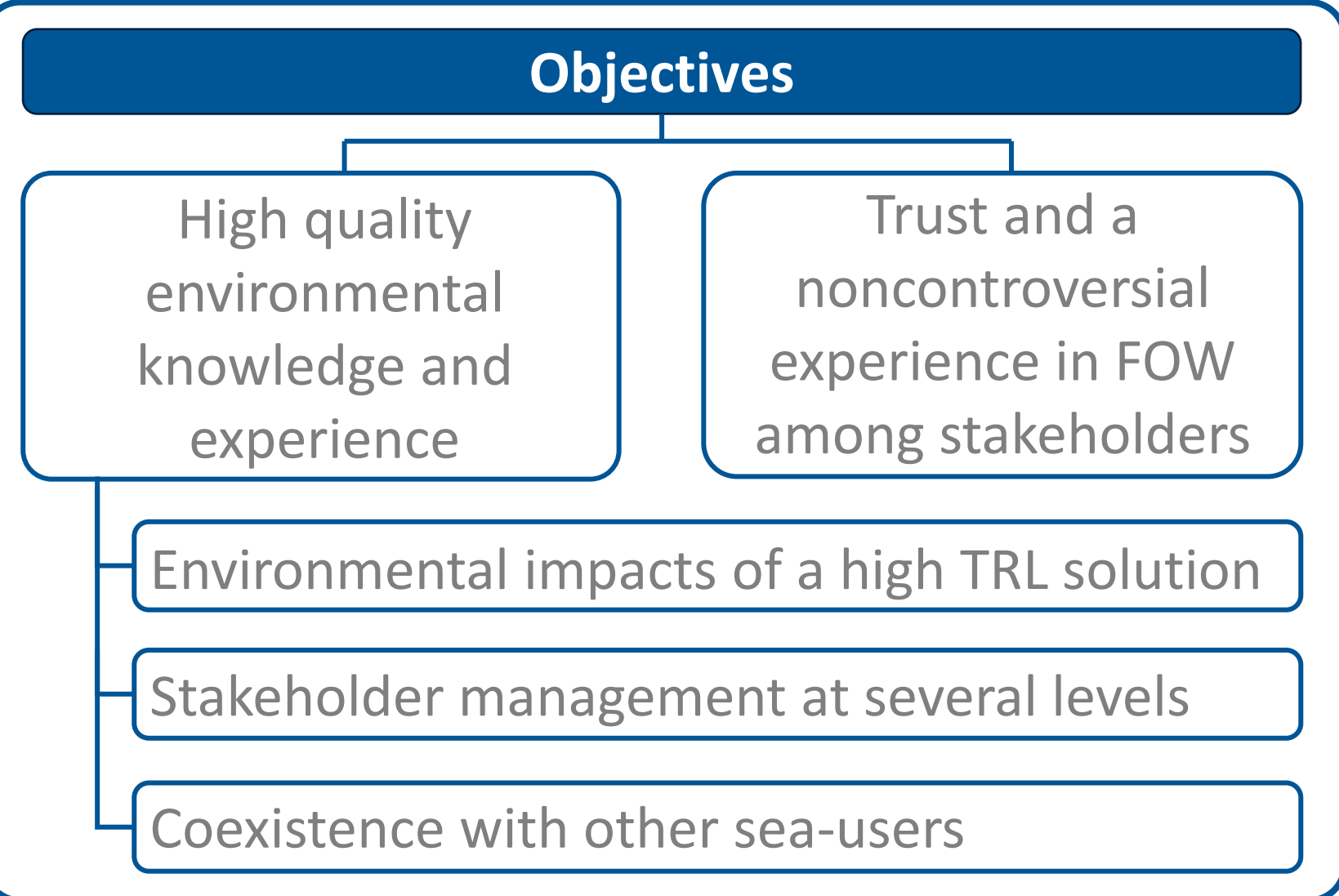
Abstract

- The development of Floating Offshore Wind (FOW) energy is crucial for **transitioning to cleaner energy sources**.
- The DemoSATH platform serves as a **full-scale demonstrator** in an open sea area (BiMEP).
- Environmental Monitoring Plans (EMP)** have been defined, both from BiMEP (EMPb) and from DemoSATH (EMPd).
- All environmental activities will imply several **monitoring techniques**.
- DemoSATH is located within a **Special Protection Area for Birds (Natura 2000)** where 5 key species have been identified:
 - Northern gannet (*Morus bassanus*)
 - European storm petrel (*Hydrobates pelagicus*)
 - Balearic shearwater (*Puffinus mauretanicus*)
 - Sooty shearwater (*Ardenna grisea*)
 - European shag (*Phalacrocorax aristotelis*)
- DTBird smart device** preliminary data shows no risk situations for any of the 5 key species in the SPA.
- Nature Based Solutions (Nbs)** have been designed to boost benefits on biodiversity, sustainable offshore aquaculture, and fishing resources.
- All **stakeholders** concerned by the FOW development at different regional levels are being involved.

BiMEP and DemoSATH

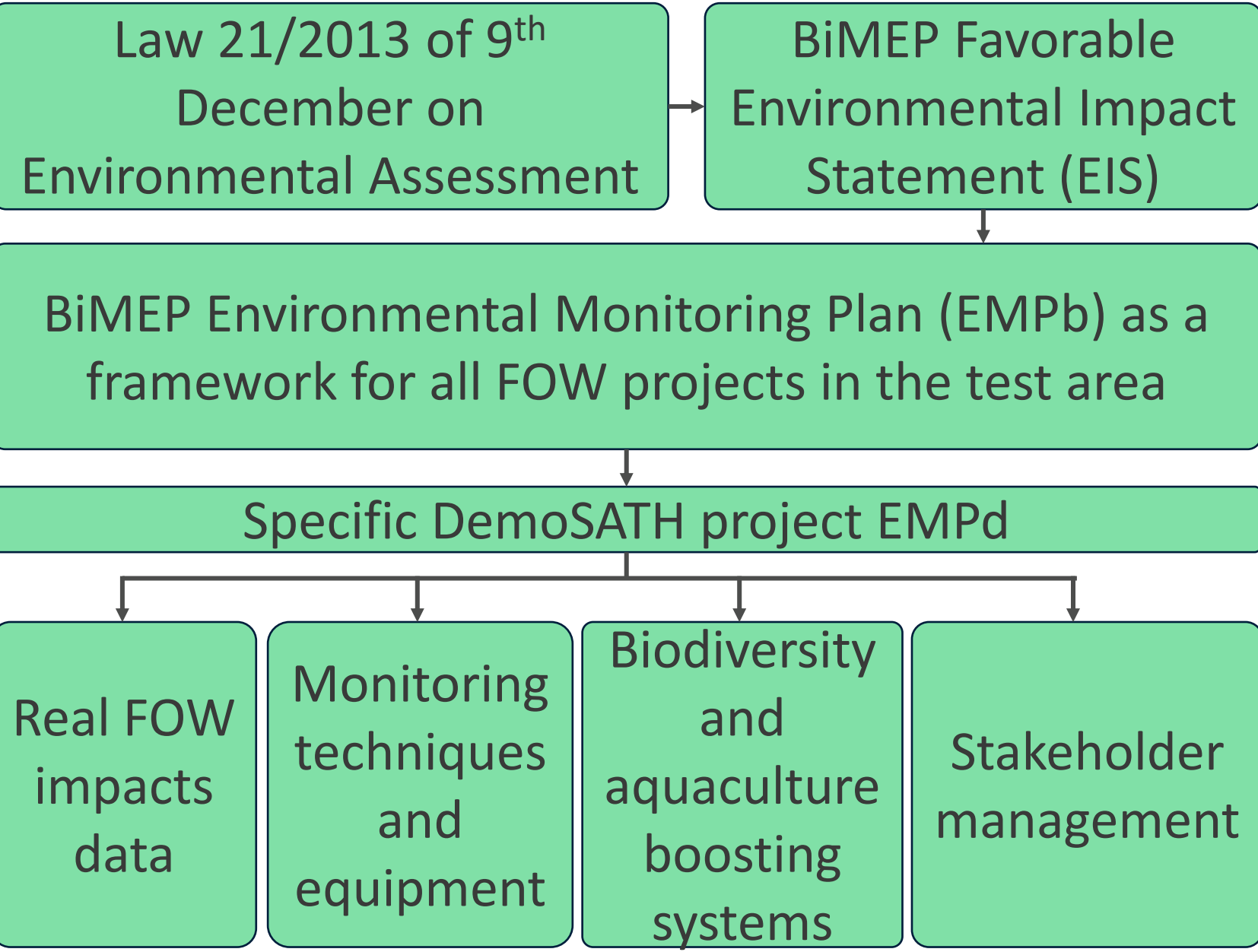


- 1st FOW turbine connected to the grid in Spain
- 2 MW
- Installed in 2023 in BiMEP (open sea testing facility for ocean energy collectors)
- Concrete platform
- Single Point Mooring for weathervaning to optimize exposure to environmental loads
- Hybrid mooring lines with anchors secured to the seafloor

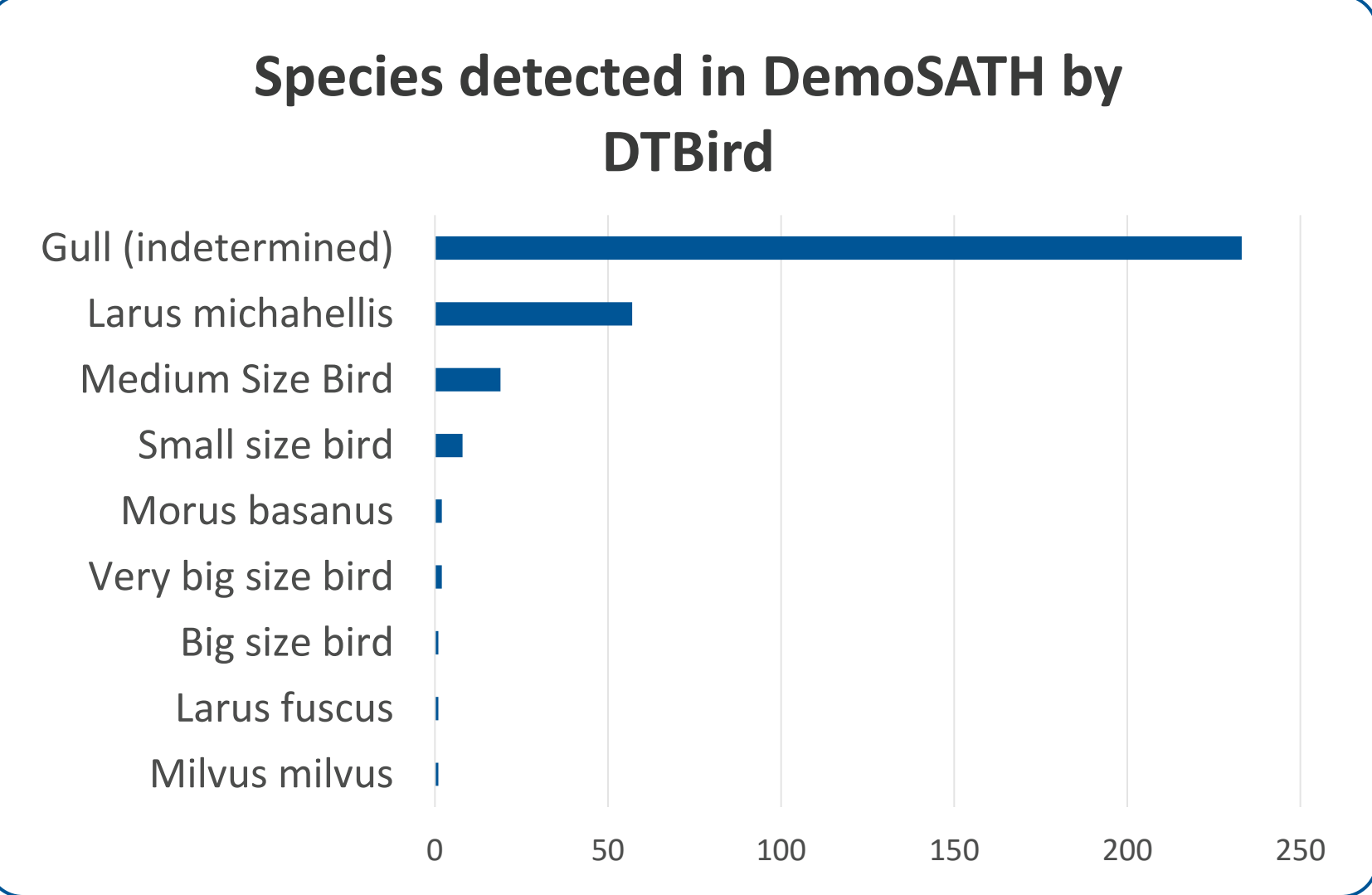
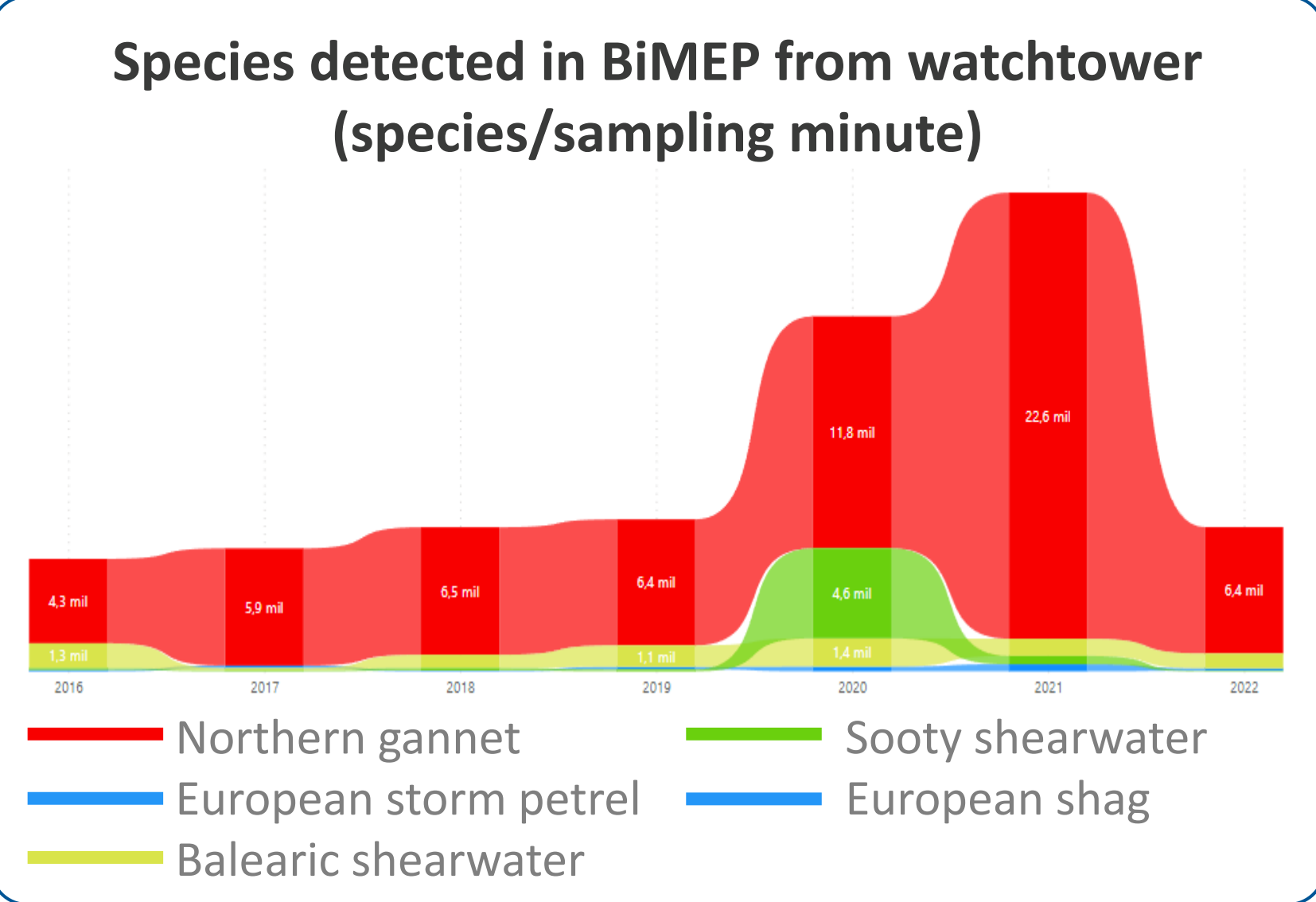
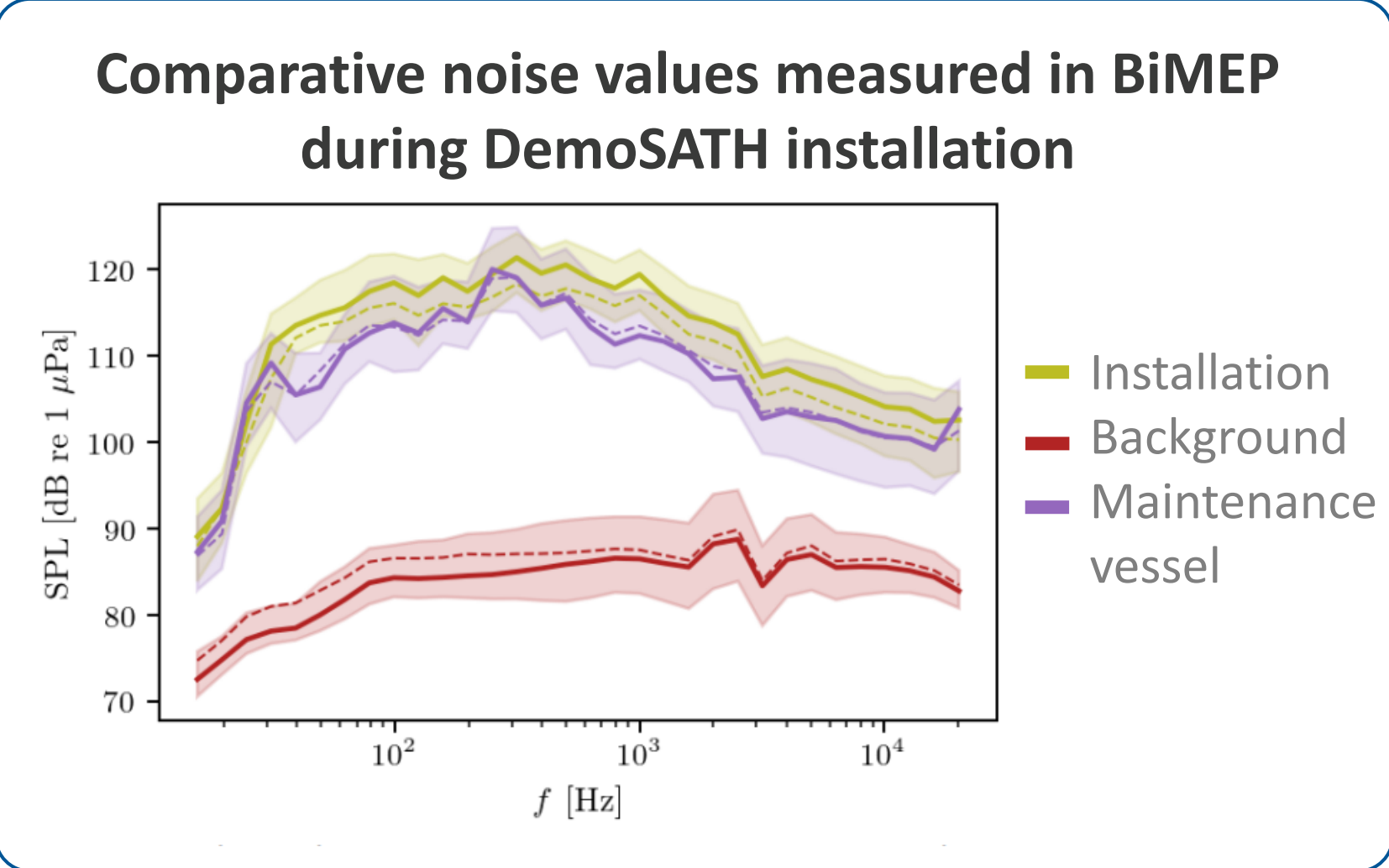


“The DemoSATH not only operates as an energy source platform, but also as a monitored laboratory that will help to define a model for future FOW projects that harmonize technological progress with marine environmental protection and societal engagement.”

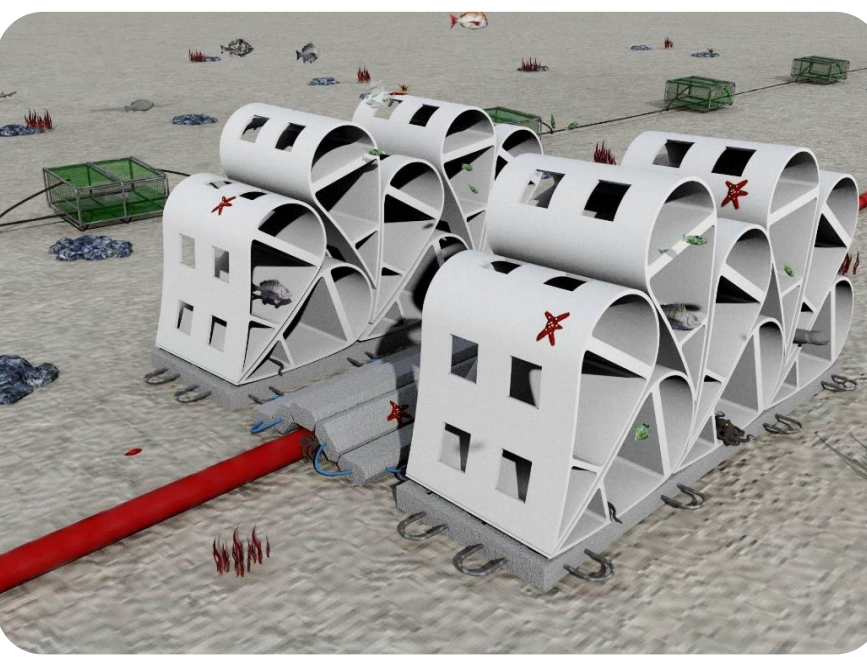
Environmental Monitoring Plan (EMP)



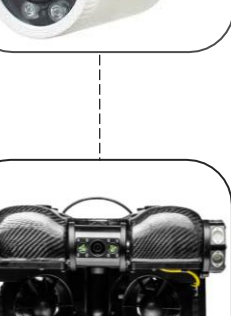
Preliminary monitoring results



Nature Based Solutions (Nbs)

- Use: cable protection
 - Design based on circularity
 - Non-toxic materials
 - Multitrophic
 - Promote marine life
 - Replicability and scaled-up
- 

Scheduled environmental activities

-  Direct **birds and cetacean sightings**
 - Biweekly observations from a near watchtower by a team of specialists since 2016
-  **DTBird smart device** for bird detection, identification and deterrence
 - Day and night cameras
 - Continuous recording
 - Evaluation of risk and collision rates
-  **Passive ultrasound recorder** for bat detection and identification
 - Installed on the top of the nacelle
 - Evaluation of risk and collision rates
-  **Hydrophones** for noise characterization in preoperational and operational phases
 - Passive cetacean detection
-  **CCTV cameras** for bird and bat smart system efficiency verification
 - Bird and bat collision risk assessment
-  **Class I ROV cameras** for presence of benthic and nektonic communities
 - Evolution of fouling colonizers
 - Early detection of invasive species
-  **Underwater cameras** for continuous recordings of the platform environment and identification of present species
-  **Metabarcoding** for elasmobranchs, bony fishes, cetaceans, benthic and fouling species monitoring
 - Special focus on invasive and commercial species
-  **Echosounder** for cetaceans and ichthyofauna (nektonic) and planktonic marine life presence and behavior monitoring
-  **Visibility** comparative analysis between 3D modelling and real photographs
 - Perception surveys to affected citizens at beaches and near locations

Stakeholder Management Plan

- Engagement and contact with Fisheries Sector
-  **MAKOPAKO** BASQUE SHARK DIVING Shark watching company collaboration for data acquirement
- Open day in Armintza on the 23rd September 2023 to inform the public. More dates to come
- Documentary about DemoSATH construction process
-  **DemoSATH on DMAX TV** MEGASTRUCTURES IN THE SEA UNVEILS SPAIN'S PIONEERING FLOATING WIND PROJECT

