

# Biscay Marine Energy Platform

## BiMEP

ETIP Ocean Webinar

Environmental data transfer

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# Biscay Marine Energy Platform

**BiMEP** is an open sea full scale grid connected test centre managing two sites:

## Mutriku site



## Armintza site

- 4 Cables, 5MW each, connected to the grid
- Water depth 50-90 m
- 24/7 Surveillance and emergency response
- Wave buoy

$H_s < 1\text{m}$	20%
$1\text{m} < H_s < 5\text{m}$	78%
$5\text{m} < H_s$	2%

- Wind conditions  
<https://trlplus.com>





## Testing in BiMEP includes:

- Installation and grid connection site
- Authorisation and permits
  - EIA, AA, license for the occupation of the public maritime domain
- Environmental Monitoring
- Metocean data

## Testing in BiMEP requires

- Contract, insurance policy, guarantee
- Finalising permits, managed by BiMEP
- Fulfilling environmental obligations



## Wave energy test site 2009

Simplified environmental permitting process

Innovative project, clean energy, uncertainties, research opportunity

**Key issues:** hydrodynamics, landscape, benthic communities, ichthyofauna, marine mammals, fishing activity and archaeological and cultural resources.



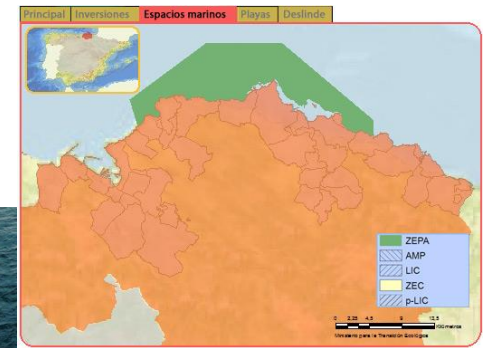
## Wave energy test site 2009

Innovative project, clean energy, uncertainties, research opportunity

## Floating wind energy test site 2018

Standard environmental permitting process

**Key issues:** Special Protection Area for Birds,  
monitoring of birds, collision avoidance devices



Special Protection Area 2014



DemoSATH prototype

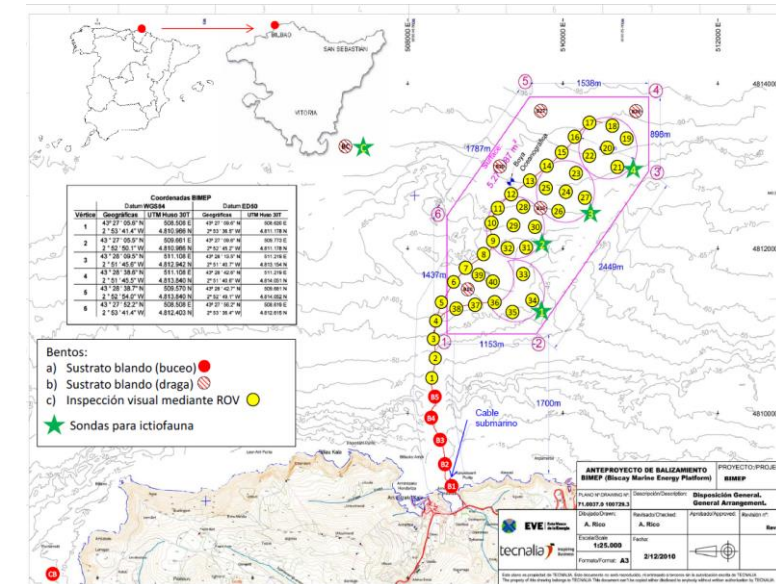


European petrel



# BiMEP – Environmental monitoring

- **Baseline Assessment: pre-operational (2012)**
  - Dynamics, ichthyofauna, noise, mammals, landscape, benthos, submarine archaeology
- **Monitoring during construction works (2014)**
  - Seabed integrity, noise, ichthyofauna, benthos, submarine archaeology
- **Continuous monitoring:** seabed integrity, marine birds and mammals, metocean conditions
- **Monitoring during tests (ongoing)**



Sampling stations for various campaigns of the baseline assessment

# BiMEP – Environmental monitoring

## WESE (2018-2021)

- Underwater noise
- EMF
- Seabed integrity

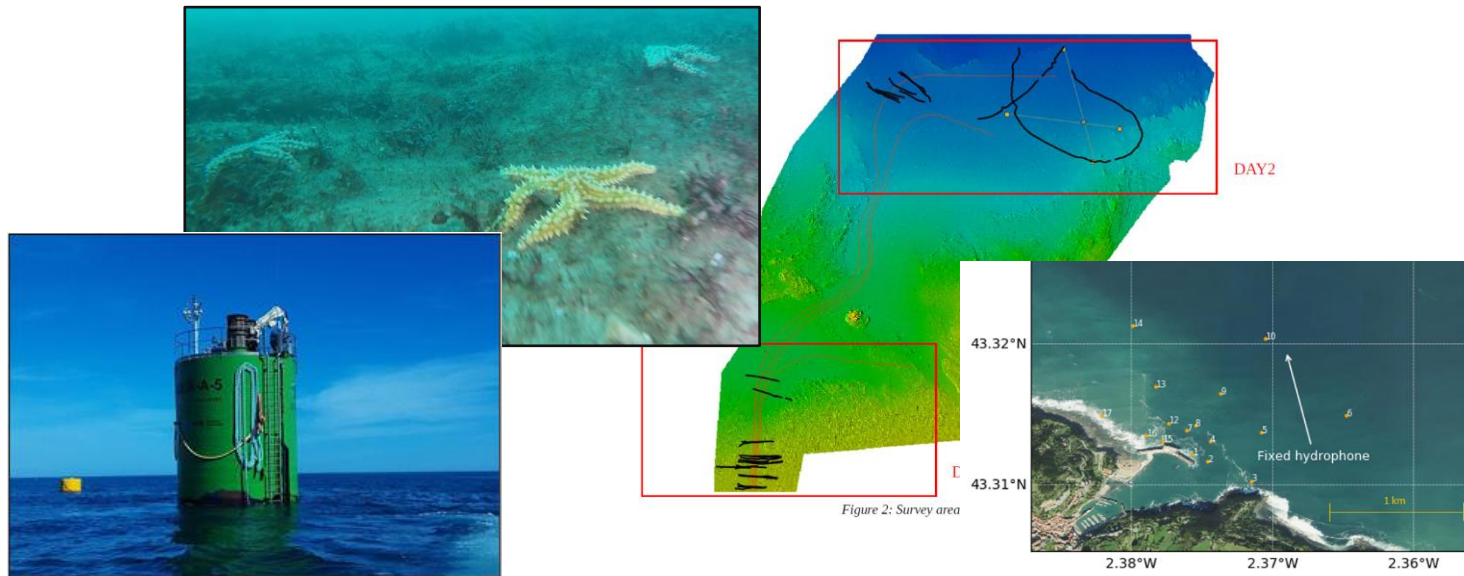


Figure 2: Survey area



# BiMEP – Environmental monitoring

## SAFEWAVE (2020-2023)

- Underwater noise
- EMF
- Seabed integrity
- Ichthyofauna



Penguin device installed in BiMEP



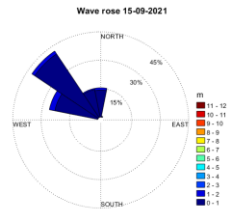
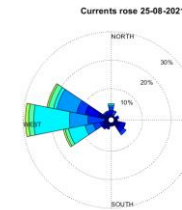
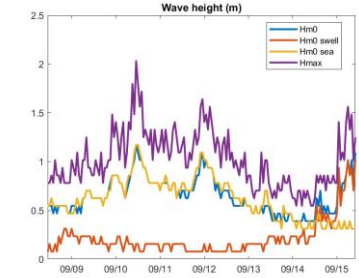
Hydrophone installation





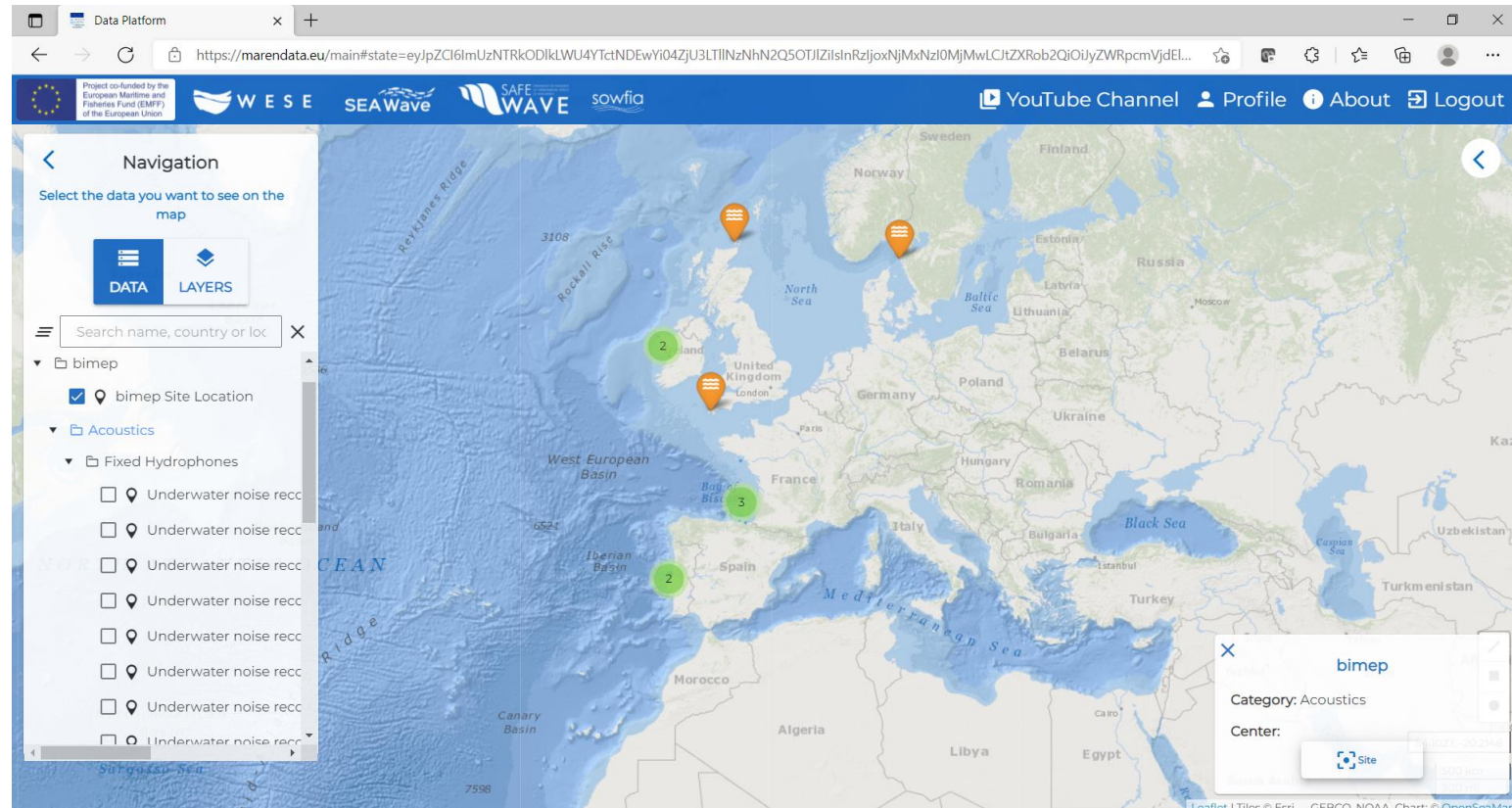
# BiMEP – Other monitoring activities

- **Metocean data:**
  - Swell and sea wave height, period, direction
  - Wind speed, gust, direction
  - Water temperature, current speed and direction
  - Air temperature, pressure, global radiation
- **Marine birds and mammals:** fortnightly monitoring campaigns since september 2016
- **Marine mammals observer** during noise emitting operations
- **Seabed integrity:** bathymetry in 2013 and 2017



Dolphin near BiMEP during Penguin installation  
Photo credit: Laura Oksanen, WELLO

- Marendata: data platform





# BiMEP – Data transferability

## BLUEGIFT

Collaboration between test sites  
sharing data, knowledge and resources

- Metocean data
- AIS: marine traffic
- Biofouling
- Submarine acoustics
- Seabed integrity
- Others



## TETHYS

- Facilitate exchange of information and data
- Enhance connectedness of the renewable energy community

[www.tethys.pnnl.gov/project-sites/biscay-marine-energy-platform-bimep](http://www.tethys.pnnl.gov/project-sites/biscay-marine-energy-platform-bimep)





- BiMEP is fully committed to providing a public service via an open data policy and to supporting the marine renewable energy sector
- BiMEP is not only a marine energy device test site but a site for research on environmental aspects of these technologies



- Ownership of data
- Effects of scaling up from one device to an array
- Transferability of results: some impacts may be site-specific
- Methods and data format
- Do we want to share data or results? Data platforms, peer reviewed publications, project deliverables





# Thank you for listening!

[www.bimep.com](http://www.bimep.com)



# Permits

