

**ENVIRONMENTAL IMPACTS OVER THE SEABED
AND BENTHIC COMMUNITIES OF
UNDERWATER CABLE INSTALLATION IN THE
BISCAY MARINE ENERGY PLATFORM (BIMEP)**

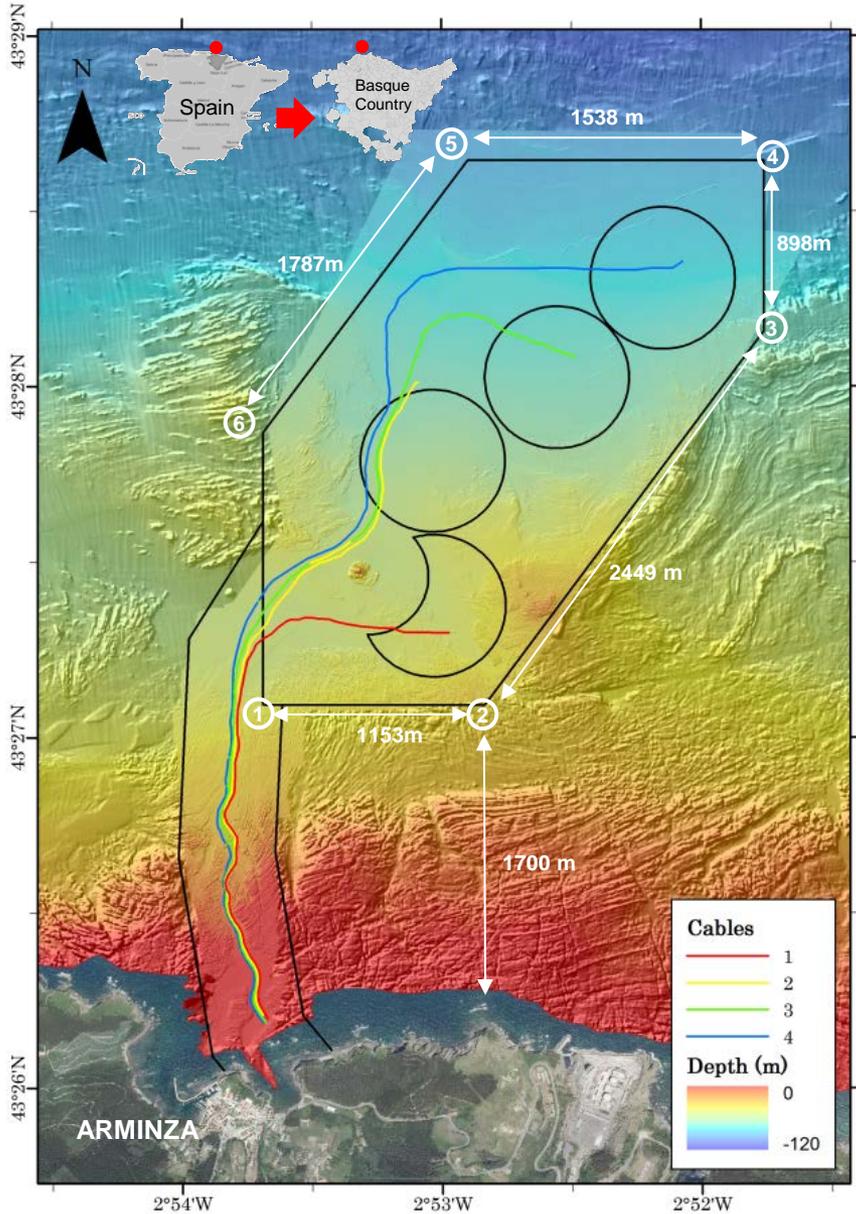
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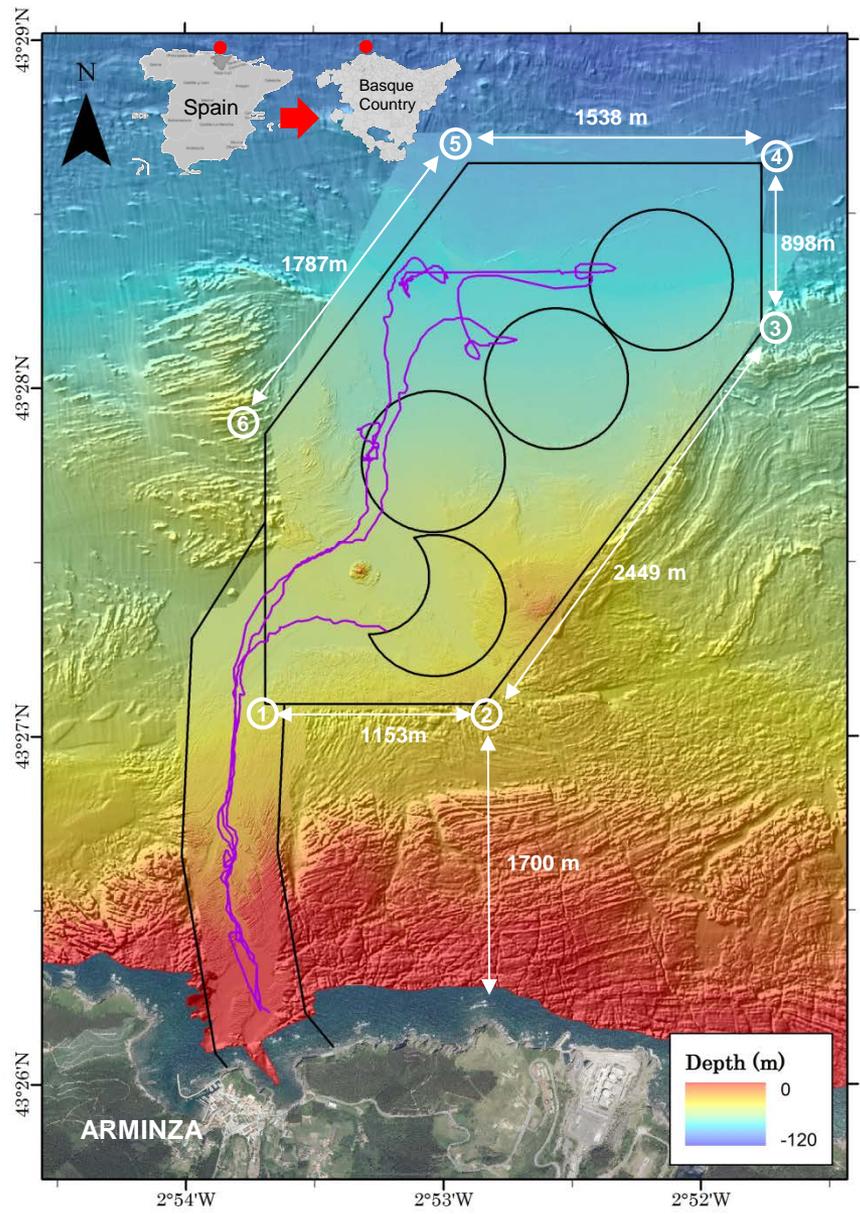




The Biscay Marine Energy Platform (*bimep*) is an **offshore infrastructure for the demonstration and testing** of marine energy harnessing devices promoted by the **Basque Energy Agency (Ente Vasco de la Energía - EVE)**

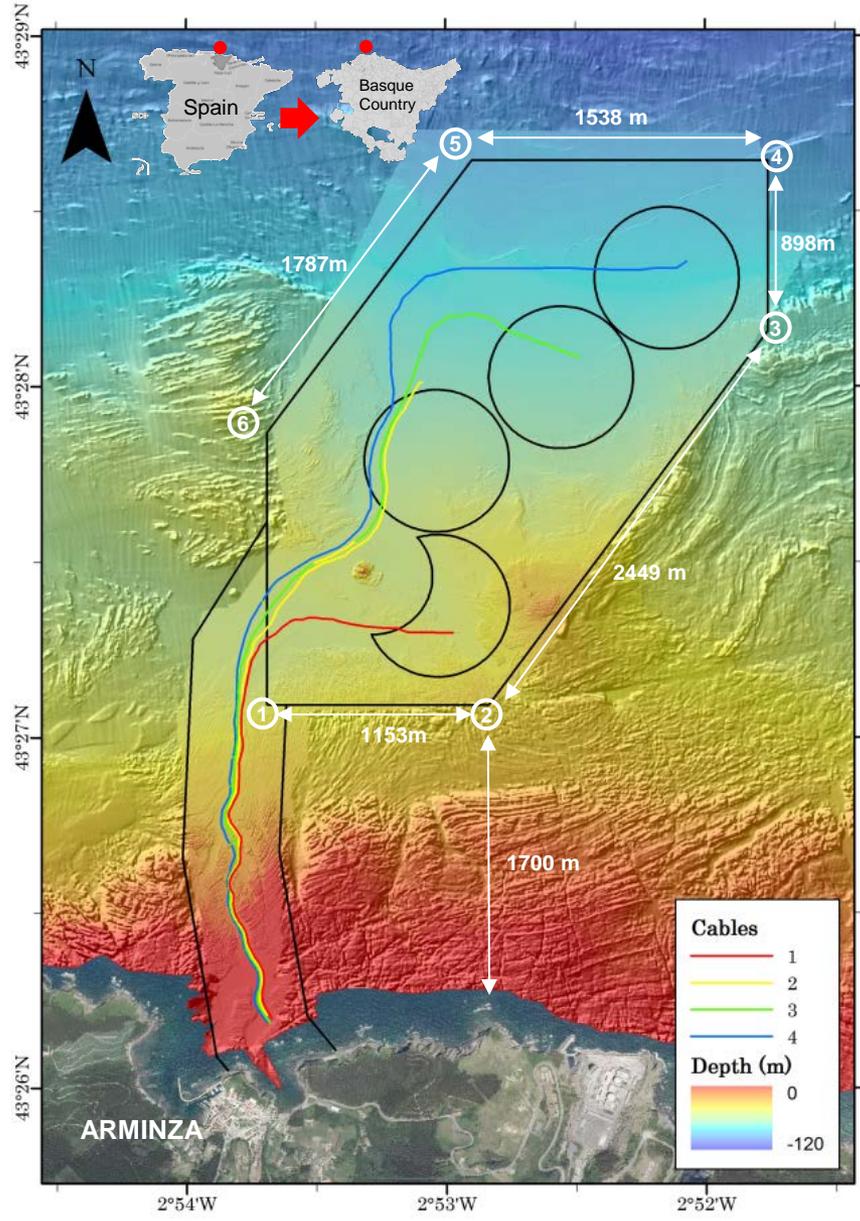
Bimep is located close to Arminza town (Basque Country, Northern Spain) and it consists on a 5.3 km² sea area between 50 and 90 m depths where **four static submarine cables will be placed, operating at 13kV and 5MW.**

On land, *bimep* will establish a **research centre in Arminza** town where developers will be able to monitor de behaviour and performance of the devices



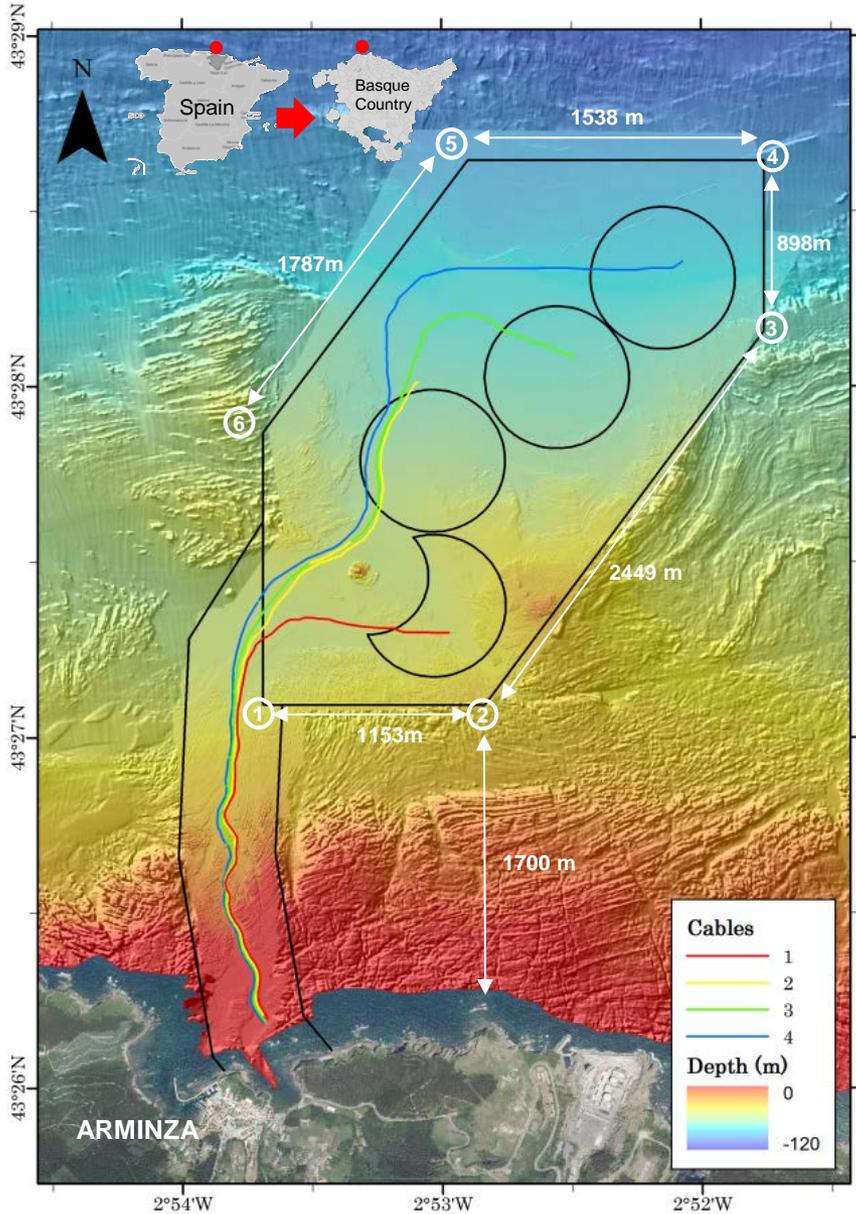
The installation of the submarine cables began on the **11th of September 2013** with the **PLRG** of the cable route





And ended between the **20th and 27th of September 2013** with the **laying** of the four submarine cables





After de laying of the cables, an **attempt** was done in order to **bury** the cable route from the outcrop of the cables at 15 m depth, until the bimep perimeter by means of an hydraulic fan, but **finally this option was discarded** and the cables were **simply lay down** in the seafloor



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Environmental Impact Study

Biscay Marine Energy Platform (bimep)

Pasaia, December 17, 2008

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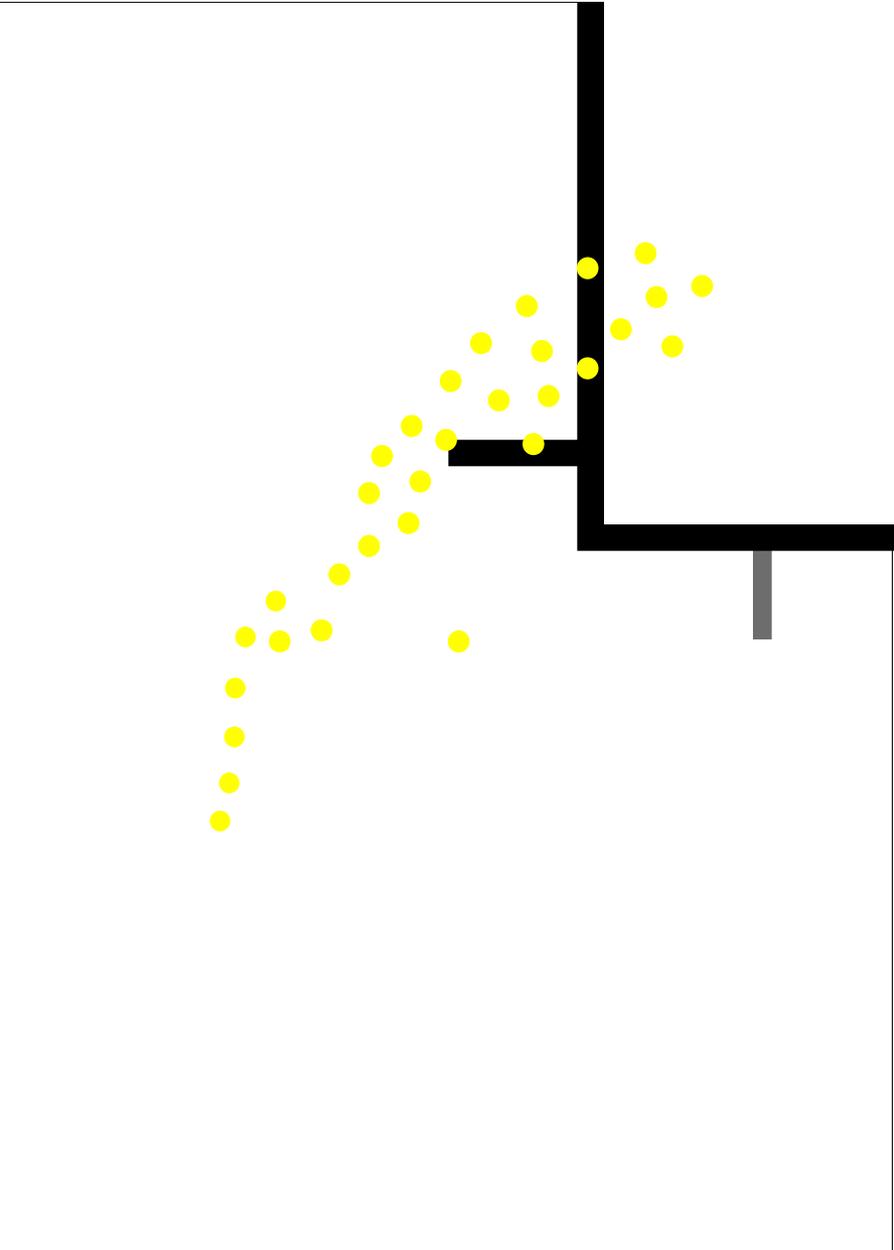
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Not to submit the BIMEP project to the whole EIA process



Nevertheless,...taking into account the **great uncertainties** about some predicted **environmental impacts**, underlined the need to implement the proposed **Environmental Monitoring Program (EMP)** of the EIS



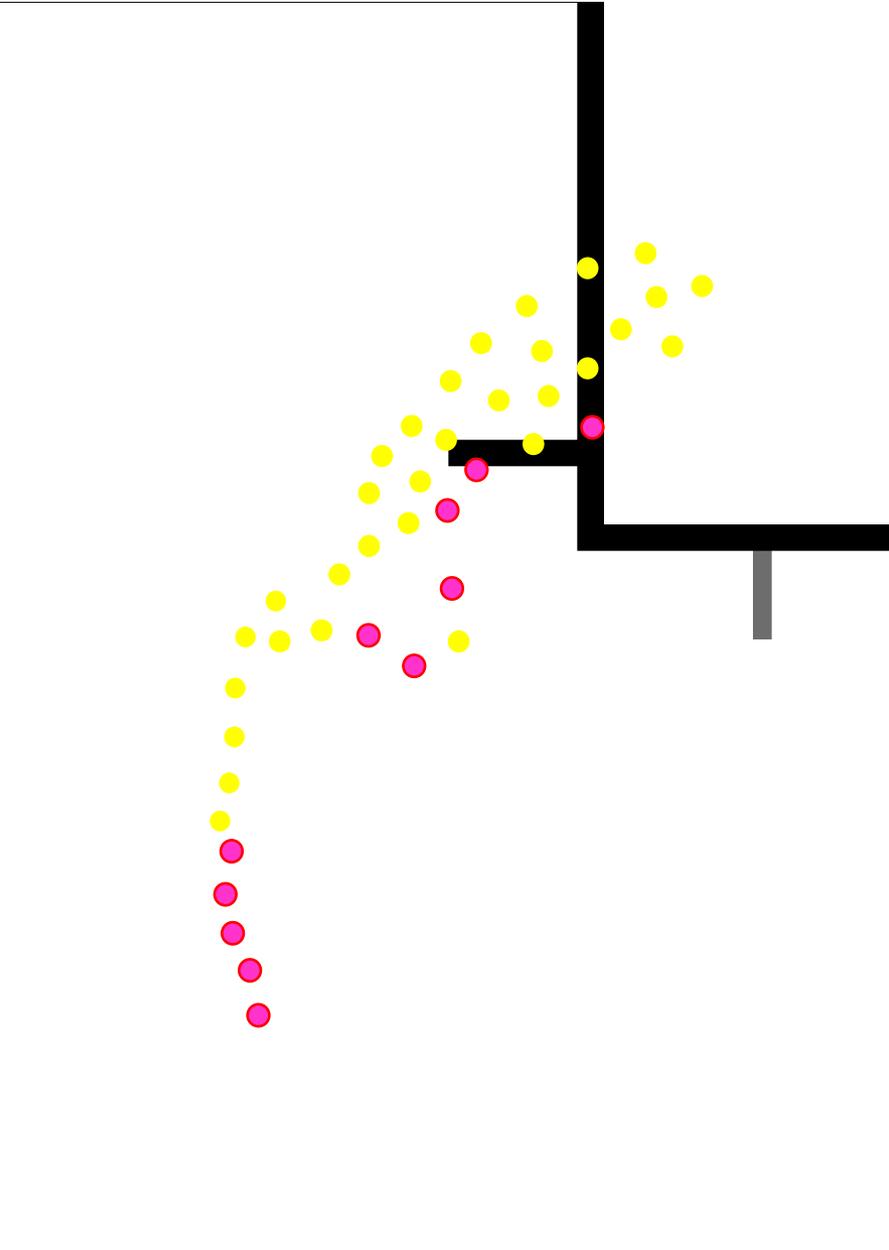
EUNIS Habitat Classification 2012

A5.142: Circalittoral coarse sediment



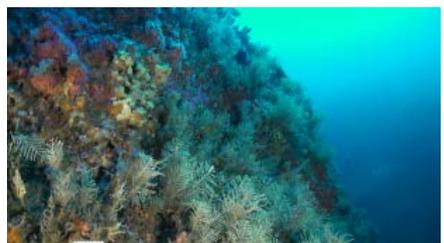
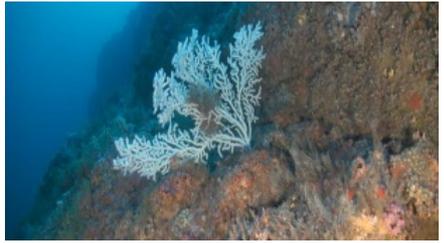
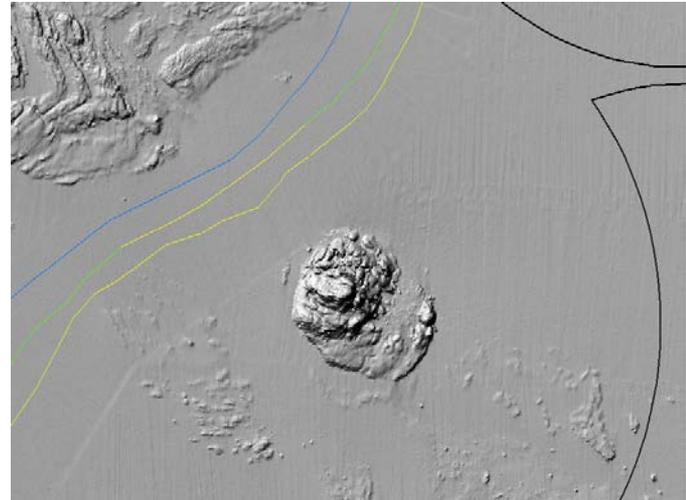
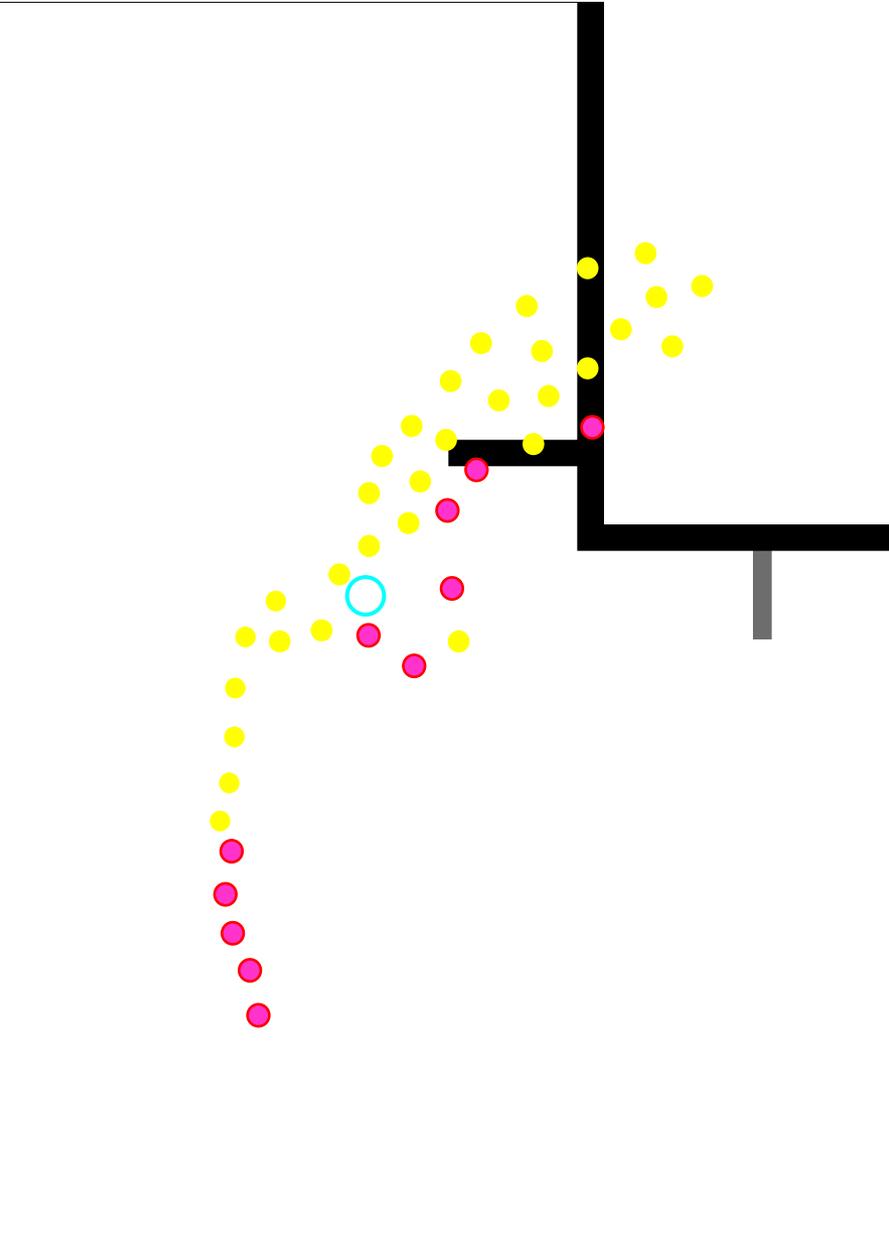
EUNIS Habitat Classification 2012

A4. Circalittoral rock and other hard substrata (A4.121; A4.212; A4.22;)



EUNIS Habitat Classification 2012

A3. Infralittoral rock and other hard substrata



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Pasaia, December 17, 2008

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Two mitigating measures were suggested:

- (i) to plan de cable route over soft sediments;
- (ii) to maintain a security distance of 100 m of the cable route from the “Sea bream Island”

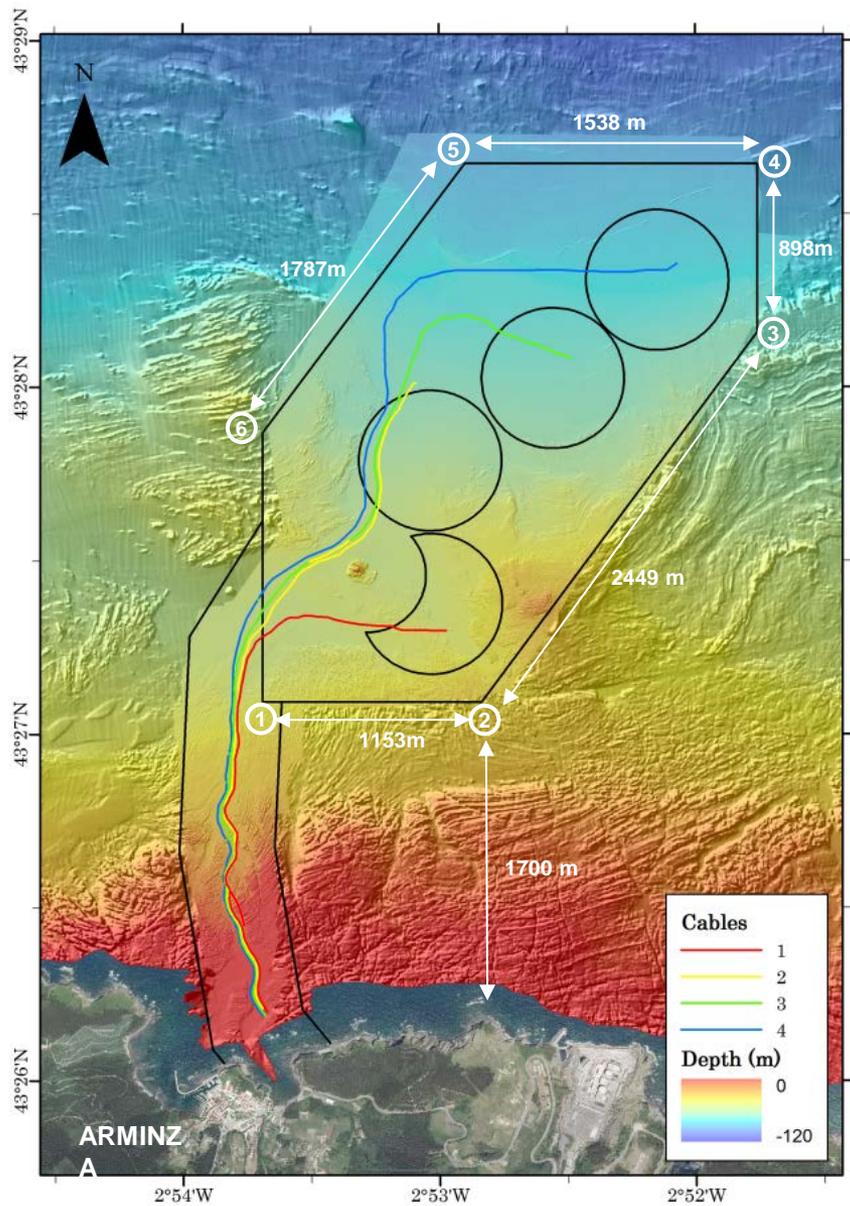
The main objective was to **monitor** and check the **environmental impacts** associated to the **installation** of the **submarine cables** of BIMEP over the **seabed** and **benthic communities**

● Seabed characterisation

Using a high-resolution **RESON SeaBat 7125 multibeam echosounder**.

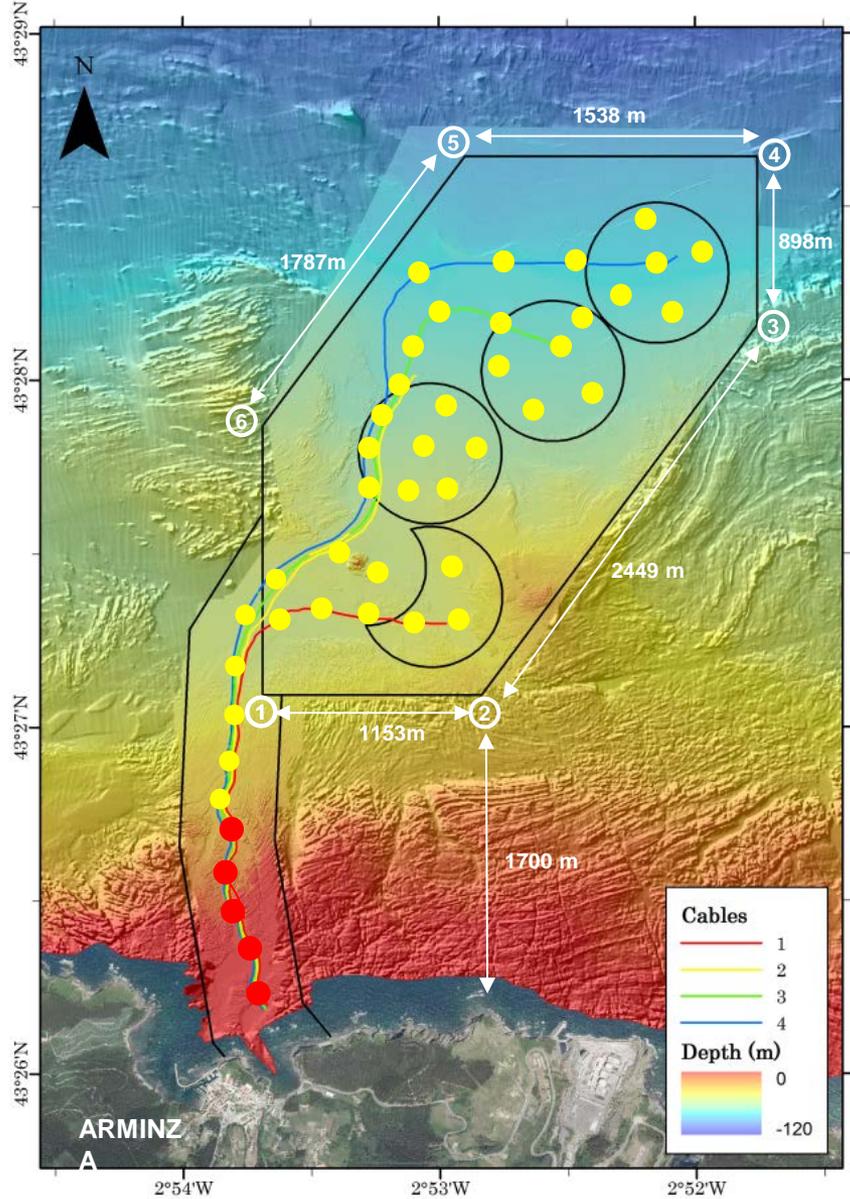


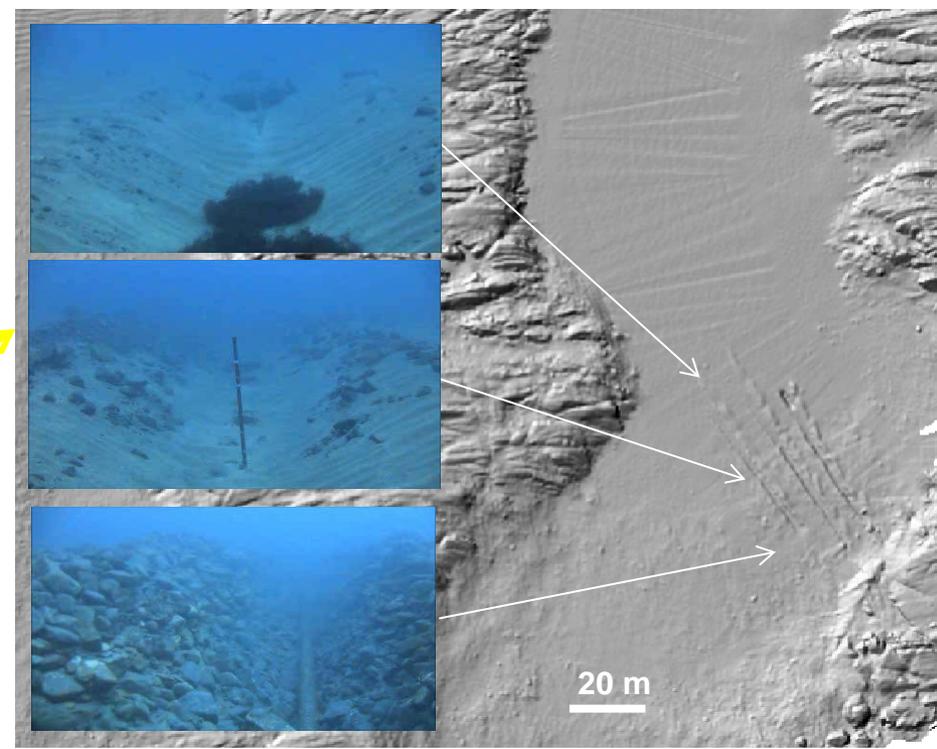
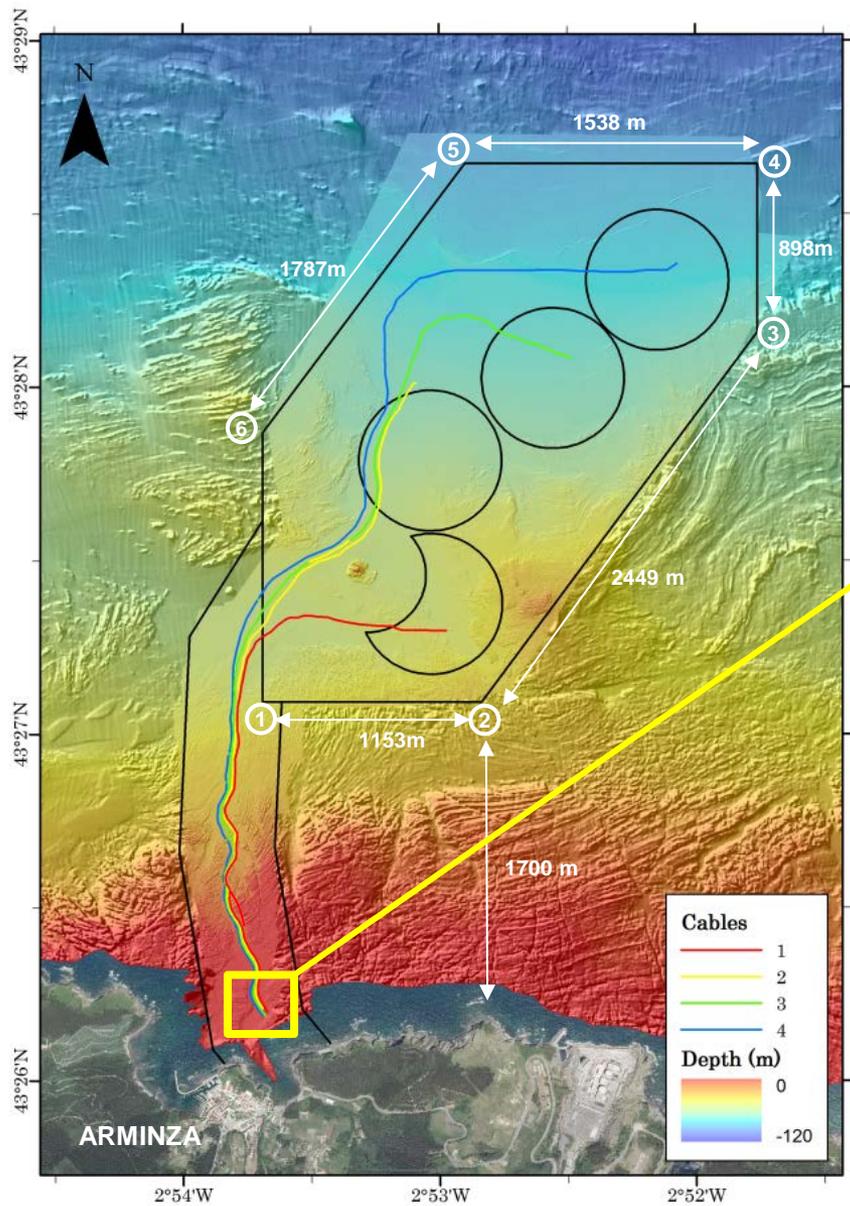
As result of that methodology, a **0,5m resolution seafloor digital elevation model** was produced

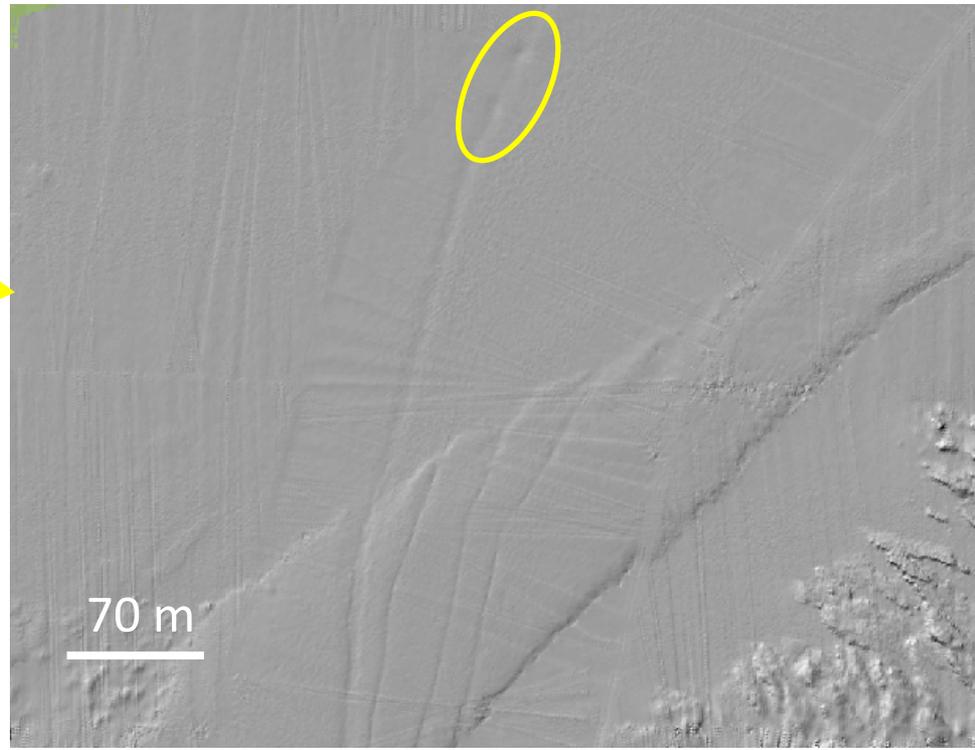
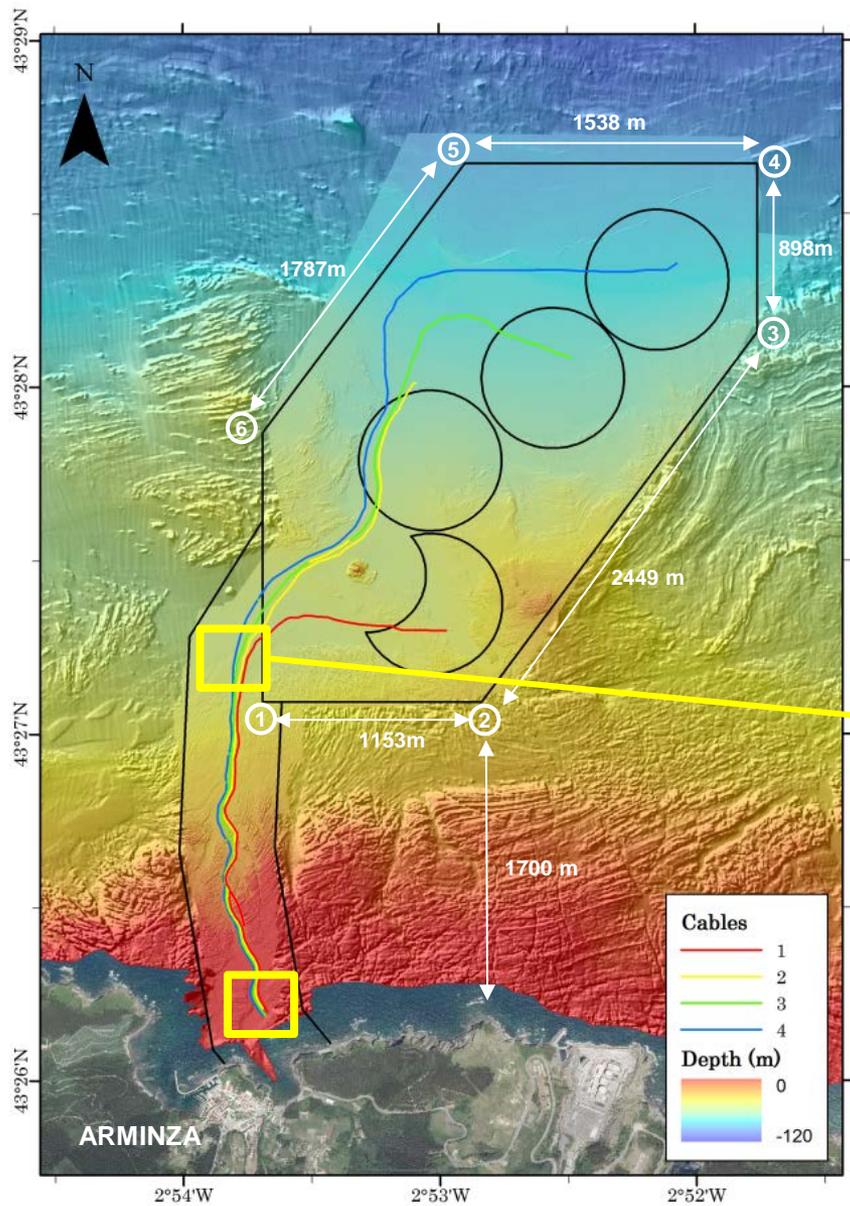


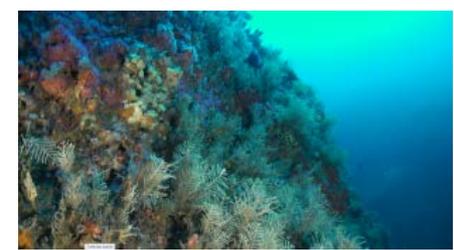
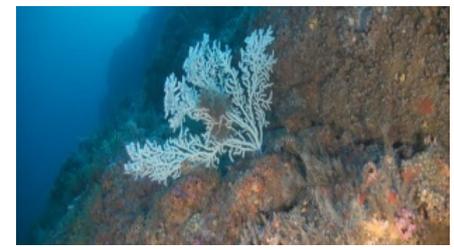
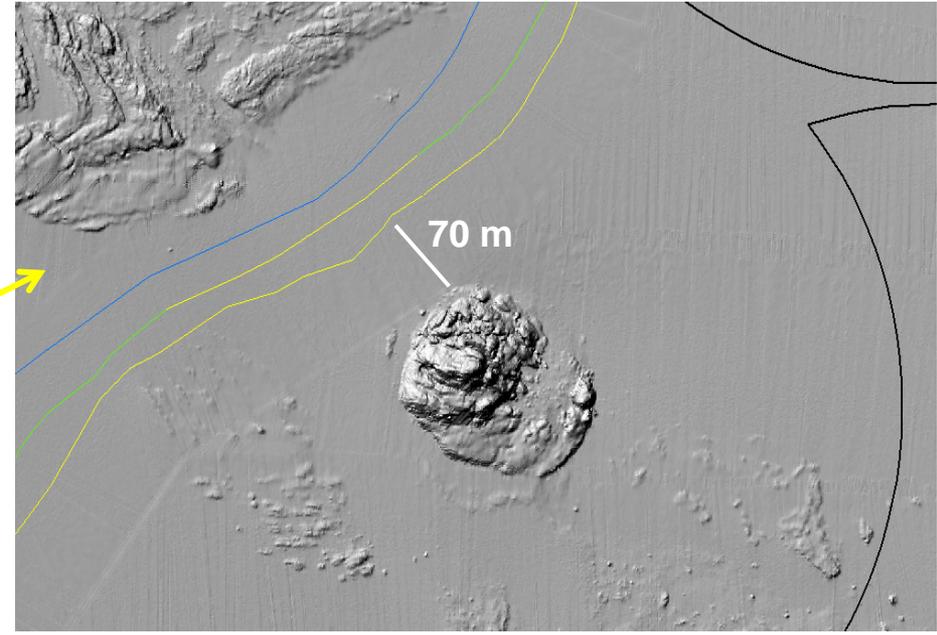
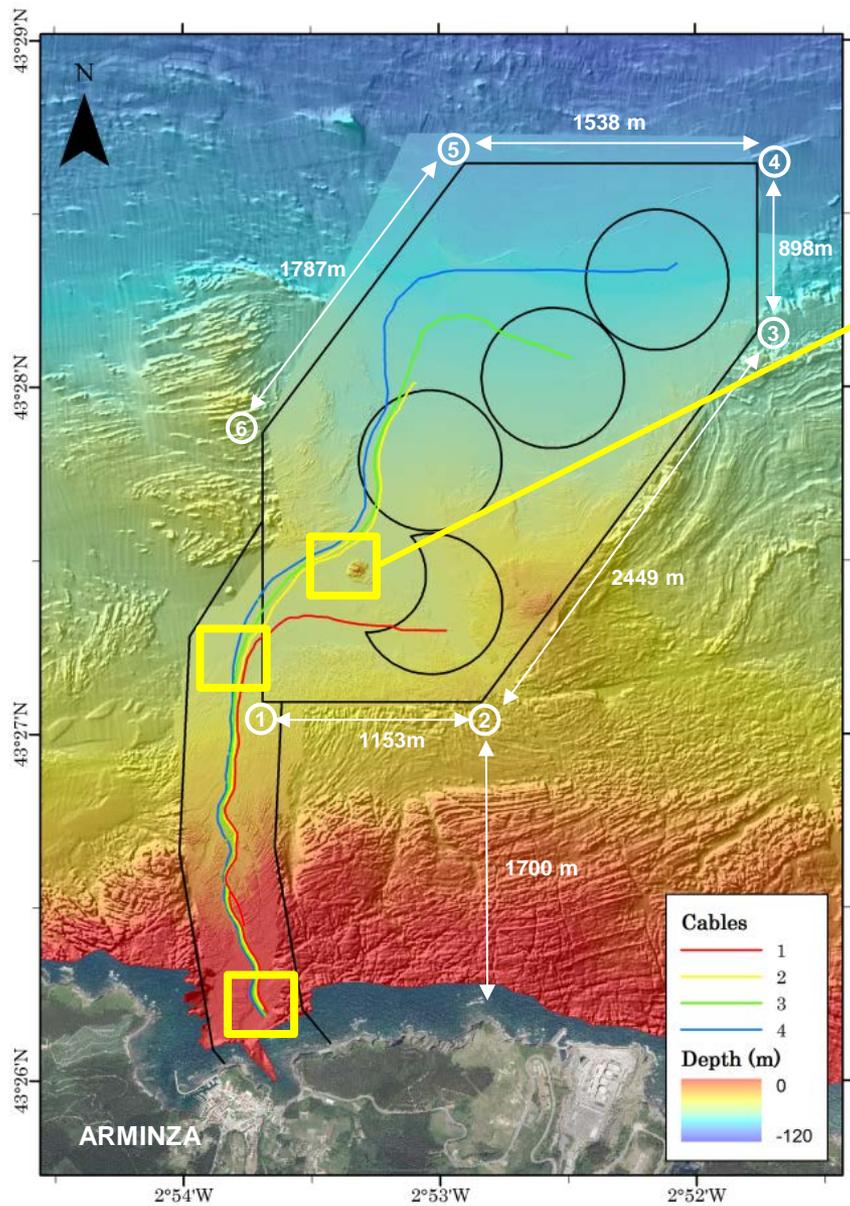
- Seabed characterisation
- Visual inspection

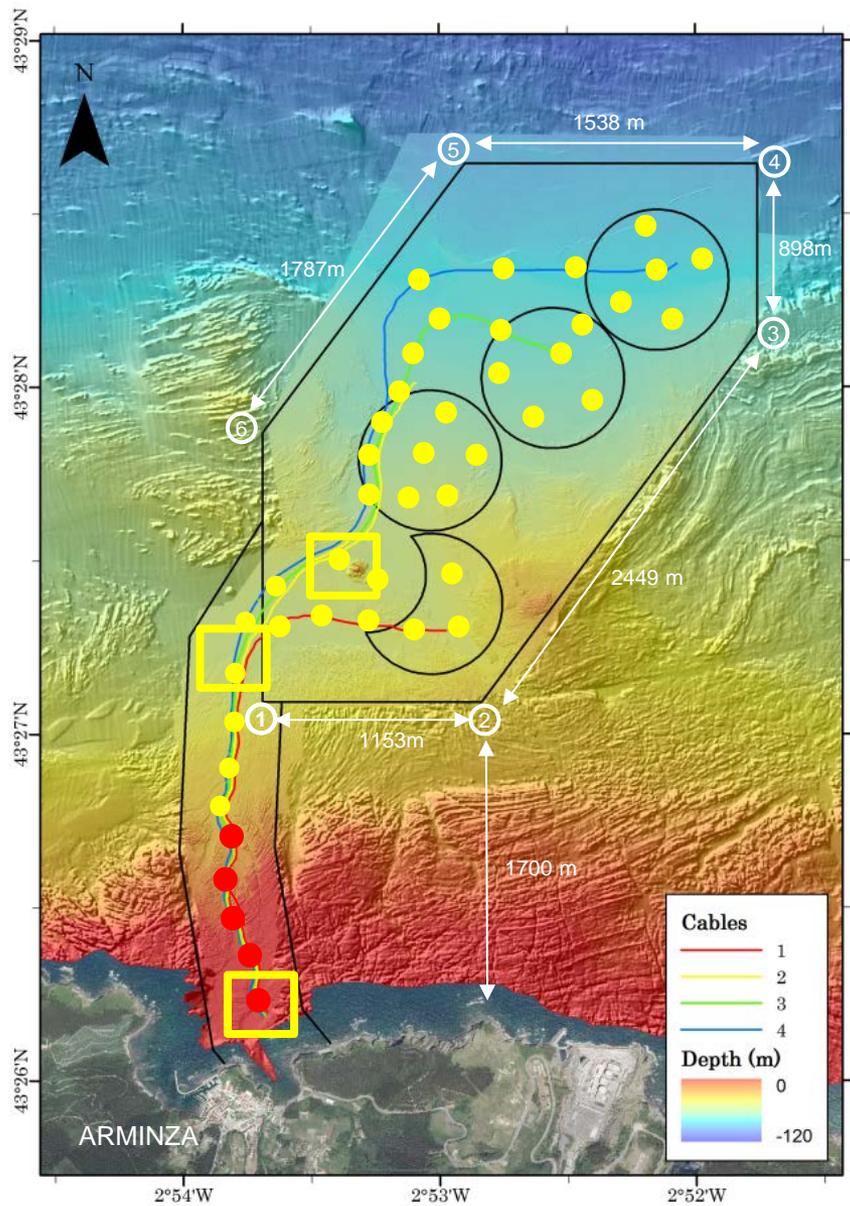
With a underwater video camera attached to a Seaeye Falcon **Remote Operated Vehicle (ROV)** in 38 points distributed all along the submarine cable route and the mooring areas



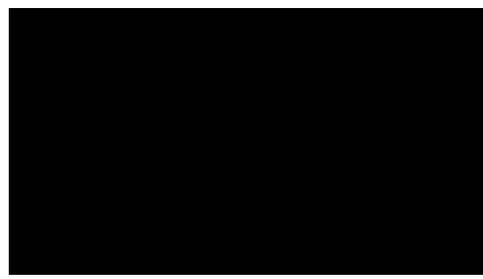
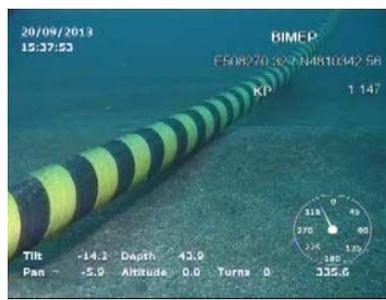








No significant alterations of the seafloor and benthic communities were observed



EMP of the submarine cables installation in *bimep* showed that:

- a) the **observed impacts are in the range and even below of those predicted in the EIS** of *bimep*
- b) the **effectiveness of the protection measures** proposed in the EIS of *bimep* for the preservation of the biological values of the singular submarine mountain known as “Isla de las Lubinas”.

EIMR International Conference, 2014
Environmental Interactions of Marine Renewable Energy Technologies
Stornoway (UK)

!!!Thank you very much for your attention!!!

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