

PROJECT SITE METADATA SURVEY FORM

Name of person updating the form

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Project Name: **Marine Test Site for Ocean Energy Converters**

Planned

In-Operation

Completed

Canceled

Project Description:

Project Developer: Oceanic Platform of the Canary Islands (PLOCAN)

Technology type: Wave energy converters and offshore wind turbines

Resource (wave, tidal): Wave, Wind

Project scale (test site, prototype, array, commercial): Test site for prototypes

Installed capacity (MW): 10 MW

Project Website: <http://www.plocan.eu/en/>

Launch Date: April 5, 2008

End Date (if applicable): N/A

Additional Description: Marine test site for emerging oceanic technologies focused on ocean energy converters. PLOCAN is a Public Consortium ruled by the Spanish Government and the Regional Government of the Canary Islands. PLOCAN is a marine scientific and technical infrastructure to facilitate the development of new oceanic technologies providing different services to the enterprises and researchers. The five strategic lines are: ocean observation, underwater vehicles, marine test site, platform of innovation and Training centre.

Location: The site is located on the east coast of Gran Canaria Island of the Canary Islands in Spain. It is located at the border of the continental platform with depths between 20-600m in the Atlantic Ocean.

Coordinates: 27.9905387°, -15.3702581°

Process Status: This test site is operative without grid connection since 2010. Grid connection is expected by the end 2015. A total capacity of 10 MW will be installed.

Licensing Information: Environmental impact assessment.

The Regional Government of the Canary Islands was in charge of the environmental procedure. The Authorization was issued in April 2013 to install the submarine electrical infrastructure and wave energy converters.

The test site area has been authorized by the Council of Ministers agreement of 14th March 2014. This test site has a marine area of 23 km².

Key Environmental Issues: Brief description on the most important environmental issues raised by the project (e.g. Sensitive species/habitats/areas that were of particular concern and/or received special protection) and how they were addressed.

The test site is out of sensitive areas in terms of NATURA 2000 or any National and Regional Declarations. The most interesting species detected in the area are:

- *Avrainvillea canariensis*: Algae declared as “Interesting for Canary ecosystems” by the Regional Law 4/2010.
- Mäerl: Include in the Annex V of Habitat Directive.

Environmental Webpage: <http://observatorios.plocan.eu/index.php/en/coastal-observatory>

Baseline studies and project effects studies: Marine Test Site for Ocean Energy Converters					
General description					
Receptor	Study description including question and/or objective		Design and methods	Results	Status
	Water Quality	In-situ	Survey conducted with multi-parameter probe: salinity, temperature, pH, turbidity, oxygen.	No contamination detected.	Completed
		Laboratory	Sampling with oceanographic bottles. Parameters: nutrients, pigments, metals, pH, salinity, oxygen.		Completed. Planned side scan sonar.
Physical Environment	Geophysical	Sediments morphology, type and quality (metals, PAHs, PCBs, Organic matter)	Van Veen dredger to collect bottom samples.	Sand, Gravels and Rocks. No contamination detected.	Completed 2010
					Completed 2015
		Sub-bottom layers	Sub-bottom profiler TOPAS.		Unconsolidated sediment layer thickness: 1 m-10 m
	Wave Conditions		Waverider buoy data analysis.	Average values: <ul style="list-style-type: none"> • Hs = 1.05 m 	Completed

			<ul style="list-style-type: none"> • $T_p = 8 \text{ s}$ 	
	Marine Currents	Drifters and ADCP	Average value: <ul style="list-style-type: none"> • $V = 0.2 \text{ m/s}$ 	Underway
	Underwater Acoustic Survey	Hydrophones at 3 depths	Pending of results compilation	Underway
	Electromagnetic Fields	Electric and magnetic field measurements	Report in Spanish. English summary report is pending.	Completed by the end of 2015
Benthos	Identification of Benthic Community	Video transects, previous existing information, sampling.	Most interesting species: <ul style="list-style-type: none"> • <i>Avrainvillea canariensis</i> (algae) • Mäerl community 	Completed
Fish and Fisheries	Study of Fish and Fisheries in the Area	Review of existing information.	Presence of some species of sharks documented. Local fisheries activity.	Completed
Large Vertebrates	Presence of Marine Mammals in the Area	Review existing information.	Few mammals and turtles. Report in Spanish. English summary report is pending.	Completed 2015
Marine Uses / Users	Review of Uses	Review and consulting existing information.	Slight interaction with local fisheries.	Completed
Reports or Papers	Environmental Monitoring at the PLICAN Marine Test Site (ICOE 2016), Poster			
Research Projects	<p>Project name: WELCOME (Wave Energy Lift Converter Multiple España) Sector: Wave energy Status: Finished Environmental monitoring:</p> <ul style="list-style-type: none"> • Oceanographic parameters: Temperature, Salinity, Turbidity, pH, Oxygen, Currents speed, Waves • Meteorological parameters: Wind speed and direction, Atmospheric pressure <p>Project name: UNDIGEN Sector: Wave energy Status: Testing Environmental monitoring:</p> <ul style="list-style-type: none"> • Temperature, Salinity, Turbidity, pH, Oxygen, Chlorophyll, Nutrients, PAHs, Submarine noise <p>Project name: WELLO (Penguin II) Sector: Wave energy Status: Ongoing Environmental monitoring:</p> <ul style="list-style-type: none"> • Seabed sediments and species, submarine noise (planned) 			

Monitoring and adaptive management: Marine Test Site for Ocean Energy Converters

General description				
Receptor	Monitoring program description including question and/or objective	Design and methods	Results	Status
Physical Environment	In Situ: temperature, salinity, pH, oxygen, turbidity, chlorophyll	Seasonal boat based survey with multi-parameter probe.	N/A	Underway
		Permanent deployed oceanographic buoys.	N/A	Planned
	Laboratory: nutrients, pigments, metals, pH, salinity, oxygen	Seasonal boat based sampling with oceanographic bottles.	N/A	Underway
	Waves	Permanent deployed wave buoy.	N/A	Underway
	Currents	Permanent deployed ADCP.	N/A	Planned
Noise	Underwater Noise	Permanent deployed monitor noise systems.	N/A	Underway
EMF	Electromagnetic Fields	Electromagnetic field monitoring produced from cables and submarine station.	N/A	Planned
Benthos	Monitoring the Impact on Benthic Communities	<ul style="list-style-type: none"> • ROV inspections • Permanent underwater video cameras • Inspections with divers 	N/A	Planned
Fish and Fisheries	Monitoring the Presence of Fish, Particularly Sharks	Visual surveys.	N/A	Planned
Large Vertebrates	Monitoring the Presence of Marine Mammals	Video camera radar.	N/A	Planned
Reports or Papers	N/A			
Research Projects	N/A			