



EmpowerCoast: A UN Ocean Decade-Endorsed Platform for Coastal Empowerment

EmpowerCoast is a living coastal intelligence platform, built through the EmpowerUs Horizon Europe project. ATU is one of 16 international partner organisations involved in the Horizon Europe consortium, led by Nordland Research Institute (NRI), Norway. EmpowerCoast puts real evidence in the hands of the people who need it most: rural coastal communities. Technically, it is a next-generation spatial data repository designed to present past, present, and predictive information about coastal environments within a single web-based platform. EmpowerCoast brings together spatial data, IoT sensors, and predictive modelling into a single, coherent platform. The result is a collection of thematic and real-time insights that goes far beyond passive observations. Communities gain interactive tools that make complex environmental data legible, actionable, and theirs. EmpowerCoast has recently received endorsement under the UNESCO UN Decade of Ocean Science for Sustainable Development 2021–2030 through the Digital Twins of the Ocean (DITTO) programme.

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Image Credit: EmpowerUs Project

Research Overview

Coastal communities across Europe face mounting pressures from marine habitat loss, flood risk and declining water quality to support sustainable fisheries. EmpowerCoast is a geospatial digital platform developed through the EmpowerUs Horizon Europe project to provide community-centred, legible, local, and actionable coastal intelligence. Built across six Transitional Coastal Labs (TCLs) spanning Ireland, Norway, Cyprus, Bulgaria, Finland, and Spain, the platform integrates historical social/environmental datasets, real-time IoT environmental monitoring, and predictive spatial modelling to inform local communities about their coast. EmpowerCoast helps coastal communities turn data into actionable knowledge that can support fair and inclusive coastal transitions. Social and Environmental layers connect the coast to people. Maps of housing patterns show how settlements are distributed around shorelines, the location of social enterprises shows how community innovation supports resilience and livelihoods, the dashboards show how towns grow, work and live beside the sea.

Key Insights / Findings

A platform is only as powerful as the problems it is honest about. EmpowerCoast did not define the agenda — the six Transition Coastal Labs (TCL) pilots did. In Norway, the pressing question was spatial: where are people living, and how close are they to protected waters? In Bulgaria, it was green mobility, mapping cycling corridors, that locals could actually use. Cyprus tested the platform on two fronts. Along the Pentakomo coast, IoT sensors were deployed to stream live water quality data, until they were stolen. This served as a reminder that open-access coastal infrastructure has no guaranteed protection. What survived that setback was arguably more durable: a geospatial modelled flood susceptibility for Eastern Limassol to indicate spatial areas that may be more or less susceptible to floods. For Ireland, solar irradiance data gathered with the Aran Islands Energy Cooperative sitting alongside a geospatial flood prediction layer for county Galway was made available through the platform.



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Further Reading:

Gustavsson, M., Solnør, S. and
Rønningen, K. (2025). Handbook
of Inclusive Methodologies: How
methods and methodologies
contribute to equitable coastal
transition through empowerment
and inclusivity. Zenodo. DOI: <https://doi.org/10.5281/zenodo.17142234>

Smart Specialisation Strategy (S3) Theme:

Renewable Energy, Climate Change
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Sustainable Development Goal (SDG):

SDG 13: Climate Action

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Why it Matters

Coastal policy has long suffered from an information asymmetry. The people with the richest knowledge of a coastline like those who fish it, live beside it, depend on it, are rarely the same people who get to shape decisions about it. EmpowerCoast does not solve that problem, but it meaningfully disrupts it. By making complex spatial data navigable for non-experts, EmpowerCoast shifts who can participate in evidence-based conversations about coastal futures. That redistribution of access is, in policy terms, significant and it is precisely what the EU's 'Leave No One Behind' commitment demands in practice. Directly linked to the EmpowerUs Transition Coastal Labs, EmpowerCoast provides place-based evidence and is accessible to everyone, not just experts.

What's Next?

The potential of EmpowerCoast does not lie in the technology itself — it lies in what people choose to do with it. By enabling stakeholders to combine social and environmental data across historical, real-time, and predictive timeframes, the platform dissolves the knowledge silos that have long kept coastal communities at the margins of decisions made about them. Scaled beyond six labs, EmpowerCoast offers a replicable model for equitable knowledge management in coastal governance in Europe. The deeper contribution of this research is not a platform — it is a demonstrated pathway from data access to coastal empowerment and social transformation.



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EmpowerUs
Socio-Economic Empowerment
of Coastal Communities



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