

# Rocky platforms dissipating wave energy – a new option for coastal defence?

November 25 2014

---

Communities across Wales are coming to terms with the very real threat of coastal flooding as the Welsh Government announces that as many as 48 areas have been identified where coastal defences will not be maintained in the long term.

With that stark reality in mind, scientists in Wales are contributing their expertise to obtain a clearer picture of the waves and storm surges hitting our coasts, so that they can gain a greater understand of the energy within waves and how a wave's power can be dissipated.

Working on an international research project with experts from Plymouth University and colleagues in the Netherlands and New Zealand, the experts at Bangor University's School of Ocean Sciences are contributing their high powered computer modelling capabilities to the Engineering and Physical Sciences Research Council (EPSRC) funded research project called WASP (Waves Across Shore Platforms).

Leading the work at Bangor University's School of Ocean Sciences is Dr Martin Austin, a lecturer in coastal dynamics and expert in numerical modelling.

Martin Austin explains: "We've traditionally sought to defend the coast with solid vertical structures, but these are not necessarily the best means of facing or taking the energy out of a breaking wave or storm surge.

"We can see along the natural coastline that some areas are less prone to

erosion, not only because of their geological make-up but because of the nature of the sea bed beneath the incoming waves. A high proportion of our coastline is rocky, and the rough surface of these submerged rock platforms removes energy from the incoming waves before they reach the cliffs thereby providing a form of natural coastal protection.

"This is an area that is not yet well-understood, but it is a field of study which could reveal more to us about possible solutions to dissipate the force within the waves before they break against our coastline. The critical factor is the roughness of the rocky seabed – the rougher it is, the greater the energy removed from the waves.

The newly created computer models will incorporate data collected from an array of the latest wave sensors, digital video and laser scanners to map the decay in wave energy across intertidal rocky shores.

Dr Austin has worked with colleagues in the Netherlands on earlier computer models and this project will advance these models by combining them with the new data to more accurately predict what happens as [waves](#) break across rocky platforms.

Dr Austin added: "This work may sound theoretical, but there is future potential here to develop new methods of defending areas of our coastline in a different, potentially more sustainable way by reducing the energy within a wave before it reaches the vulnerable shoreline. For example, it is particularly relevant when one considers the proposed locations for the development of new nuclear power stations such as Wylfa Newydd in Anglesey, which is right on the coastline. It may also help predict areas vulnerable to cliff collapse."

Provided by Bangor University

Citation: Rocky platforms dissipating wave energy – a new option for coastal defence? (2014, November 25) retrieved 26 June 2024 from <https://phys.org/news/2014-11-rocky-platforms-dissipating-energy-option.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.