Green light for marine renewables?

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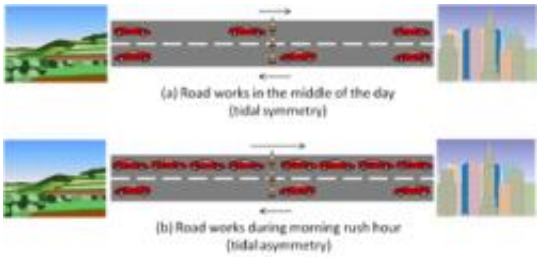

The environmental impact of tidal energy farms is like the effect roadworks have on the flow of traffic

Farms of 'underwater windmills' could affect how sand moves around our coastal seas, affecting beaches, sand banks and ultimately the risk of flooding, according to Bangor University oceanographer Dr. Simon Neill.

Writing in Planet Earth, the award winning magazine of the Natural Environment Research Council, Dr. Neill explains how tidal energy farms are like roadworks.

“When tidal currents are fast enough, they pick up grains of sand from the seabed, which are then transported with the flow. This is like cars picking up passengers en route to their destination.”

“Extracting energy from a tidal system, for example by installing a farm of tidal stream turbines or ‘underwater windmills’, will reduce the strength of tidal flows. This is like the impact of roadworks, leading to a

reduced flow of traffic. A reduced flow of traffic means fewer passengers can be transported. In the sea, tidal energy farms will similarly reduce the volume of sand transported."

This movement of sand feeds into the natural systems which protect our coastlines from storm waves, such as beaches and offshore sand banks. If a large tidal energy scheme were to disrupt the natural flow of sand, this could make our coastline more vulnerable to storm impacts, and could lead to increased flood risk.

However, apart from the obvious benefits of low carbon electricity generation, artificial interventions by tidal-energy farms could lead to positive effects. Strategic placement of tidal-energy farms could even be used to create a natural form of coastal flood protection by artificially manipulating offshore sand deposits. However, such state-of-the-art geoengineering would have to be based on a sound understanding of the underlying oceanographic processes.

More information: Details of this research are published in the Autumn 2011 edition of *NERC Planet Earth*. www.nerc.ac.uk/publications/pl … aut11-renewables.pdf

Provided by Bangor University