

Sound of the ocean not so relaxing

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With a projected increase in shipping around the Moray Firth, scientists are keen to better understand the effect increased human activity is having on local marine life like bottlenose dolphins. Credit: Barbara Cheney, University of Aberdeen

(Phys.org) —The impact of underwater noise on a bottlenose dolphin population in Scotland's Moray Firth will be closely monitored, thanks to a new system developed by scientists at our University and the University of Aberdeen.

With a projected increase in the number of offshore windfarms on the northeast coast of Scotland, and the increase in shipping this will bring, scientists are keen to better understand the effect increased human activity will have on local marine life.

In a recent paper, published this week in *Marine Pollution Bulletin*, researchers outline a new technique to track and monitor current [underwater noise](#) levels, in order to assess future noise increases. By

using underwater recording equipment, and technology to track shipping movements, scientists will be able to place in context any changes in dolphin behaviour with shifts in underwater noise levels.

Acoustic measurements in the Northeast Pacific suggest that underwater noise levels have been increasing globally over the past five decades, mainly as a result of increased shipping. Such low-frequency sound can travel great distances in the ocean – potentially thousands of kilometres – and biologists are concerned about the impact this has on the populations of dolphins, whales and a range of other marine life.

Despite this, researchers have so far been hampered by a lack of reliable baseline data by which to assess the impact of man-made underwater noise on [marine life](#). This lack of baseline data about noise sparked lead author Nathan Merchant, who completed the work while studying in our Department of Physics, to undertake the study.

Nathan, currently working in the Parks Laboratory at Syracuse University, said: "This paper characterises natural and anthropogenic contributors to underwater noise at two sites in the Moray Firth Special Area of Conservation, an important marine mammal habitat that may be exposed to increased shipping activity from proposed offshore energy developments.

"Globally, noise from shipping is widespread and increasing as trade becomes ever more globalised. Over the last decades, the number of large vessels and their size and power has risen dramatically. All these ships traversing the oceans and radiating low-frequency noise adds up to a diffuse increase in the background noise level. In places where ships cross habitats or migration routes for marine animals, the cumulative effect of many noisy ships can interfere with important activities such as foraging, which may affect the long-term health of individuals and ultimately populations."

The techniques presented in the paper allow researchers to track ship movements and to relate them to levels of underwater noise recorded. By monitoring ships using both ship-tracking data and time-lapse cameras, the scientists were able to cross reference movements with peaks in underwater sound levels.

It is now hoped this approach – a ship noise assessment toolkit – will lead to the long-term studying of [noise levels](#) in and around the Moray Firth and that the techniques developed here can be applied in other coastal marine environments for similar purposes.

More information: To access the latest research paper 'Monitoring ship noise to assess the impact of coastal developments on marine mammals' see [www.sciencedirect.com/science/ ...
ii/S0025326X13006802](http://www.sciencedirect.com/science/.../ii/S0025326X13006802)

Provided by University of Bath

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