



Quaternary Research Association

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Scottish Government
Marine Planning and Policy Division
Area 1-A South
Victoria Quay
Edinburgh
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Dear Sirs

RESPONSE OF THE QUATERNARY RESEARCH ASSOCIATION TO THE PLANNING SCOTLAND'S SEAS CONSULTATIONS

The Quaternary Research Association (QRA) is a professional organisation comprising archaeologists, botanists, civil engineers, geographers, geologists, soil scientists, zoologists and others interested in research into the problems of the Quaternary, the period of geological time that covers approximately the last 2.6 million years up to the present day. The Quaternary has been a period of extraordinary changes in the global environment, including the Ice Age, as well as spanning the time during which much of human evolution took place. The majority of QRA members reside in Great Britain, but membership is international, including most European countries, North America, Africa and Australasia.

Learning from the past has an essential part to play in understanding and dealing with the challenges faced by society today, such as climate change adaptation, loss of biodiversity, sea-level rise, and sustainable economic development. Quaternary science and the benefits it delivers for society and the environment depend on the availability of key sites for research and education. Such sites are an essential component of Scotland's rich and internationally important geodiversity and a key part of Scotland's environmental assets and rich geoheritage.

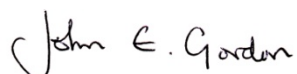
A significant part of Scotland's geological record occurs inshore and offshore as documented, for example, in the BGS UK Offshore Regional Reports and many other scientific publications. This record comprises geodiversity features relating to the evolution of 'passive' continental margins, the dynamics of marine-based ice sheets, and past and present marine processes. From a Quaternary perspective, a significant part of the footprint of the last British Ice Sheet and its earlier counterparts lies on Scottish seabed. The last decade has seen significant progress in understanding the dynamics of the British Ice Sheet as a result of the availability of offshore evidence. This includes abundant bedforms associated with marine-based ice sheets, indicating the presence of very fast moving ice streams. Understanding of palaeo ice sheets is not merely of academic interest but is of critical importance in informing assessments of the future dynamic responses of contemporary ice sheets in Greenland and Antarctica to likely 21st century climate warming,

sea-level rise and possible changes in ocean circulation. Studies of past regional-scale changes in ocean circulation from the offshore sedimentary records, have also played an important part in elucidating the links with the wider global climate system and have the potential to greatly improve our understanding of future changes. The west coast fjords of Scotland, too, hold important geomorphological and sedimentary records that augment the terrestrial evidence for the later stages of deglaciation of the last ice sheet. Scotland's marine geodiversity therefore represents a valuable scientific asset.

As a signatory of Scotland's Geodiversity Charter, the Quaternary Research Association supports the responses and detailed comments of the Scottish Geodiversity Forum to the 3 consultations. In comparison with the terrestrial environment, the conservation of geodiversity in the marine environment has been largely overlooked, despite a great wealth of accumulated information and clear links between many terrestrial and marine features. We therefore particularly welcome the recognition of geodiversity generally in the consultation documents and believe that this represents an important step forwards.

However, as part of ensuring that the strategic objectives of Scotland's National Marine Plan should achieve the national vision for clean, healthy, safe, productive and biodiverse seas, we strongly support the Forum's recommendations that protection of geodiversity should be more explicitly recognised as part of our marine heritage and as a foundation for habitats and ecosystems. We recommend that marine planning should help to ensure that future marine activities and developments can be carried out in a way that respects the marine geoheritage and conserving what is significant. To achieve this, marine planning and decision making authorities should consider the sensitivities and vulnerabilities of Scotland's geoheritage assets, particularly of those key features not included, or only partly included, in the network of possible MPA areas/MPA search locations and existing protected areas. This should help to enable more integrated approaches to conservation of geodiversity and biodiversity, and in doing so, also help to deliver the objectives in Scotland's Geodiversity Charter.

Yours faithfully



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