



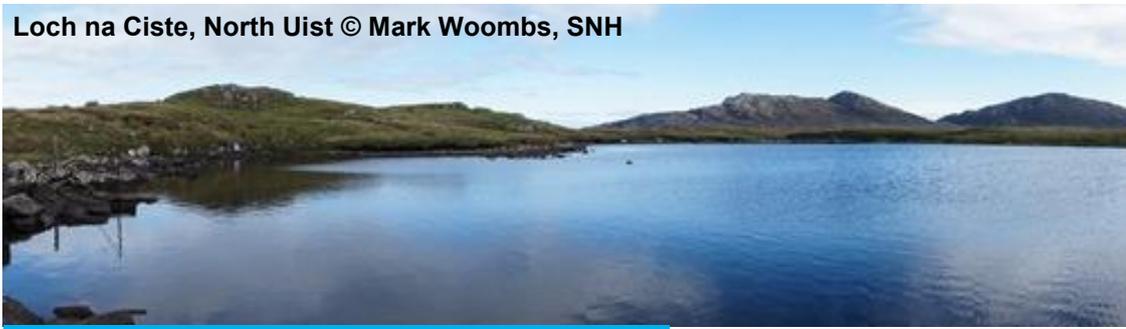
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Anemonia viridis
© Mark Woombs

Scottish Invertebrate discoveries

The hardy invertebrates thriving in Scotland's saline lagoons

Saline lagoons are shallow bodies of brackish water that are wholly or partially separated from the nearby sea by narrow channels, underwater sills, culverts, sluices or banks of shingle. In larger lagoon systems there is often a gradient from almost marine habitats, through brackish water habitats, to almost freshwater habitats as distance from the influence of the sea increases. In some lagoons the salinity of the enclosed



Lagoon cockles (*Cerastoderma* sp.) in Oban a' Clachain © Stewart Angus, SNH

water can fluctuate dramatically with tidal cycles and in response to seasons and rainfall.

This physiographically diverse but scarce habitat type has priority status ('in danger of disappearing') under Annex I of the European Habitats Directive and is recognised in UK conservation legislation. Some lagoon sub-types (e.g. silled lagoons which are found mainly in the Outer Hebrides) have a very restricted distribution and consequently a high proportion of the UK extent of lagoons has been included in Special Areas of Conservation and Special Sites of Scientific Interest.

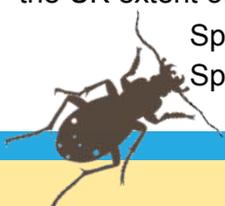
The associated biological communities vary according to the physical characteristics and salinity regime of the lagoon but usually only a limited number of species are present compared to other marine habitats. However, hardy lagoon specialists, tolerant of environmental fluctuations, thrive in conditions that would cause intolerable stress in their saline or freshwater counterparts.

In September 2012 Scottish Natural Heritage commissioned a team, including marine biologists from National Museums Scotland (NMS), to survey the biodiversity of saline lagoons in the Uists, Outer Hebrides. Taxonomic confusion within a number of phyla had led to doubts in some existing species records, and without access to the original specimens the records could not be verified. By incorporating recent NMS and Heriot-Watt University research on the morphological and molecular identification of mud snails (Hydrobiidae) and the morphological identification of lagoon isopods this survey has clarified the distribution of lagoon specialists in the Uists; these results will be used to plan a monitoring strategy.



Opossum shrimp, *Praunus flexuosus*
© Bill Crighton, NMS

Two hundred and forty-three species were recorded during the surveys, including the lagoon specialist isopods *Idotea chelipes* and *Lekanesphaera hookeri* and the gastropods *Hydrobia acuta neglecta* and *Ecrobia ventrosa*. The Lagoon cockle *Cerastoderma glaucum* was confirmed from 3 sites in Loch Bi and the nationally rare Foxtail stonewort *Lamprothamnium*



The hardy invertebrates thriving in Scotland's saline lagoons (continued)...

papulosum was rediscovered in five lagoons. The results, which will be published in an SNH Commissioned Report, illustrate the complexity of the network of freshwater, brackish and marine lagoons in the Uists.

Almost 600 jars of preserved zoological specimens (including material for molecular analysis) have been incorporated into the Invertebrate Biology collections at NMS. The specimens will be cared for in perpetuity and are accessible to external researchers via our loans scheme.



Lagoon isopods, *Idotea chelipes* (left) and *Lekanesthaera hookeri* (right) © Bill Crighton, NMS

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