

Scottish Saline Lagoons

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Introduction

Background

- Saline lagoons are coastal water bodies that are partially connected to the sea (Fig. 1).
- They are neither fully freshwater nor fully saline, but brackish. Salinity is highly variable both between lagoons and within individual lagoons over time, giving rise to unique biological communities.
- Data on saline lagoon biota across Scotland is limited, and taxonomic confusion has led to doubts in previous species records.

Aims:

- To assess the diversity and distribution of lagoon flora and fauna by constructing comprehensive species lists for sites across Scotland.
- To establish a voucher specimen collection which will be available to conservation bodies and future researchers.

Data Collection



Salinity measurements



Sweep netting



Sediment collection and sieving



Weed and stone washing



In situ species recording



Collection of voucher specimens

- In 2012, 23 lagoons in the Uists, Outer Hebrides were surveyed.
- Current work involves surveys of lagoons in the Firth of Forth, Skye, Orkney and the northwest coast of Scotland.
- Permanent collections of geo-referenced zoological and botanical specimens are incorporated into the collections of National Museums Scotland and the Royal Botanic Garden Edinburgh.



Figure 1: A network of saline and freshwater lagoons in the Outer Hebrides, Scotland.

Lagoon Specialist Species

- The invertebrates and plants which thrive within saline lagoons include marine species that are tolerant of low salinity, freshwater species that are tolerant of high salinity, and highly-adapted lagoon specialists.



Idotea chelipes



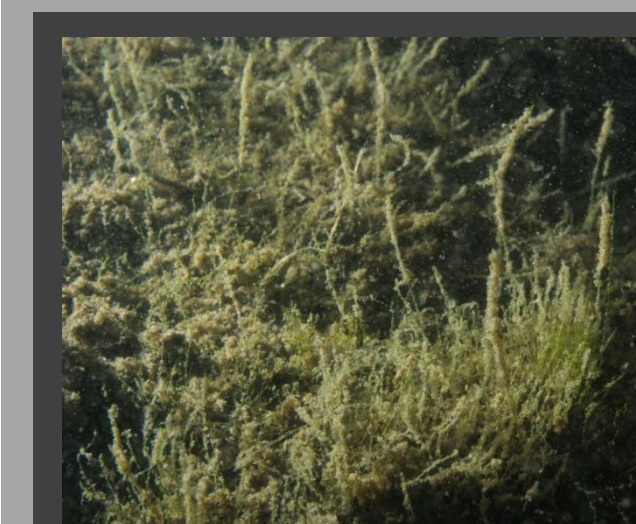
Lekanesphaera hookeri



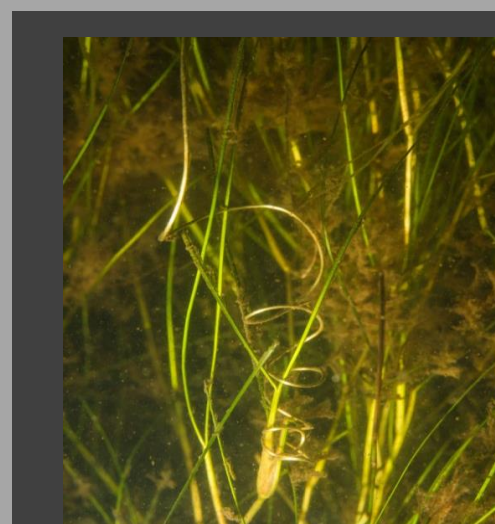
Ecrobia ventrosa



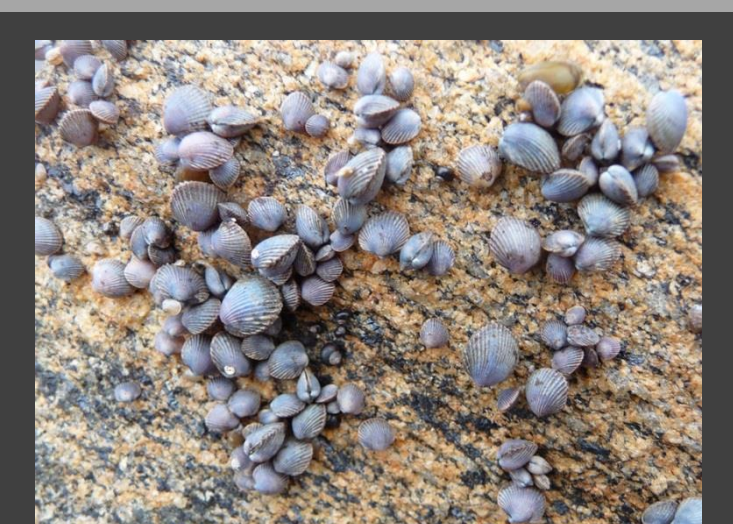
Hydrobia acuta neglecta



Lamprothamnium papulosum



Ruppia cirrhosa



Cerastoderma glaucum

- There are thought to be several lagoon specialist species in Scotland and these are a priority for conservation as they are rarely found outside of the lagoon environment.

Conservation and Management

- Saline lagoons are recognised as a Priority Habitat under Annex I of the EC Habitats Directive (1992), and Scotland is home to internationally important examples of this habitat type.
- Saline lagoons face a number of threats, including:
 - Artificial control of (sea and fresh) water influxes
 - Sea level rise
 - Coastal erosion
 - Invasive species
 - Pollution
- Current knowledge is not sufficient to implement a monitoring protocol for these habitats. Our findings will inform future lagoon monitoring and conservation strategies across Scotland.

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Figure 2: Loch Bì, South Uist, Outer Hebrides, Scotland.