

INVASIVE NON-NATIVE SPECIES

What are non-native species?

Non-native species are animals or plants that have been introduced to Scotland by man's activities, either accidentally (e.g. Japanese skeleton shrimp), or intentionally (e.g. farming the pacific oyster is permitted).



Photo: R Shucksmith (NAFC Marine Centre)

Japanese skeleton shrimp, found in Shetland.

Why look for them?

Some non-native species are considered 'invasive'; that is, they can cause damage to the environment, the economy, or to human health, or can have an impact on the way we live. The plants and animals shown in this leaflet have the potential to cause economic impacts in Shetland, having done so elsewhere in the world.

Where do they grow?

Many of these invasive non-native species prefer to

settle and grow on man-made surfaces, and will foul boat hulls, ropes, buoys and other structures. Many will also grow on mussels.



Photo: Tweedie (NAFC Marine Centre)

Invasive bryozoan growing on a rope.

The NAFC Marine Centre and Scottish Government websites contain information on non-native species, and provide links to the 'Code of Practice on Non-native Species'.

<http://www.nafc.ac.uk/introduced-species.aspx>

<http://www.scotland.gov.uk/Topics/Environment/Wildlife-Habitats/InvasiveSpecies>

Front page photo: Carpet sea squirt. Chris Beveridge (SAMS)



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**INFORMATION FOR
THE AQUACULTURE
INDUSTRY**

Carpet Sea Squirt



- Pale orange to off-white. Firm texture, like leather.
- Forms large mats, sometimes with hanging outgrowths.
- Now found at Largs in the Firth of Clyde, Scotland.

Potential economic impact, as will foul mussel lines and aquaculture structures. Has had a large impact on aquaculture in New Zealand.

Leathery Sea Squirt



- Individuals have a club-like body, with tough stalk.
- Can be up to 12cm long.
- Skin is yellow or brown, leathery, with folds and swellings, and often other plants and animals grow on it.

Potential economic impact, as will foul mussel lines, boat hulls, and other structures.

INVASIVE NON-NATIVE SPECIES

At present Shetland has few 'invasives', but many more are found elsewhere in Scotland.
You can help keep Shetland this way.

GOOD PRACTICE

Keep boats and structures as free of fouling as possible.

Check for 'invasives' when moving equipment between areas (boats, cages and lines).

Check, clean and dry personal gear when moving between areas.

Don't throw even small pieces back into the water, as some 'invasives' can grow back from tiny bits.

ACT QUICKLY

Keep your eyes open for the 'invasives' shown here. If you think you have found an invasive non-native species please contact the NAFC Marine Centre.

GOOD PRACTICE AND A FAST RESPONSE CAN LIMIT SPREAD OF INVASIVE SPECIES AND MINIMISE ECONOMIC IMPACTS.



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www.nafc.ac.uk/introduced-species.aspx

Wireweed



- Pale yellow to dark brown seaweed.
- Grows near the surface.
- Can be over a metre in length.

Potential economic impact, due to fouling and clogging.

Bryozoans



- Bryozoans are also known as sea mats or sea mosses.
- Small colonial marine animals.
- Invasives are orange and encrusting. A close look shows the roughly rectangular animals, each about 1mm long.
- One type is not deterred by anti-fouling paint.
- An invasive bryozoan has already been identified in some areas of Shetland.

Potential economic impact, as some bryozoans are able to grow on anti-fouled surfaces.