IDENTIFICATION GUIDE

Invasive Non-Native Species in the Solway

Solway Firth Partnership

Scottish Government
Riaghaltas na h-Alba
gov.scot

Wire weed

WHAT ARE NON-NATIVE SPECIES?

Non-Native Species are organisms transported outside of their natural range. They can become a problem when they outgrow, kill or out-compete local species and habitats which can impact on the food chain and biodiversity.

The spread of Invasive Non-Native Species (INNS) around the world is often the result of human activities. Methods of movement include being attached to ship hulls or in ballast water, transport of shellfish for the seafood industry or species escaping from aquariums. Invasive species can lead to financial costs for fisheries, aquaculture, commercial and leisure marine users.

A lesser-known consequence of floating marine litter is the possibility of transporting Invasive Non-Native Species into the UK. Not all non-native species entering the UK will become established, but those that do can be incredibly harmful for the environment.

With the increase in marine litter in our seas, it is important for us to understand how these species are being transported and take global action to help prevent their spread.

Jewel clam from the Caribbean

HITCHHIKERS

Bait pot from America

Sometimes it is possible to trace the source of marine litter. In the Solway, we have identified plastics from the east coast of America. Some even arrive with marine creatures attached.

Lobster and crab bait pots can sometimes protect tropical species that entered the pot at a larvae stage and have survived to be an adult.

Recording Non-Native Species can be difficult but if you spot something unusual attached to floating debris please submit a photograph so we can try and identify it.

PLASTIC JOURNEYS

This pocket guide will assist you to identify selected marine INNS which are of concern in the Solway. They may be found in ports and harbours, on seashores, on boat hulls and on fishing gear and aquaculture equipment, and attached to floating debris. This guide will enable you to become part of the crucial early warning and reporting network across the Solway.

KEY

- Species known to be present in the Solway.
- Species not currently known to be present in the Solway but known to be a threat.

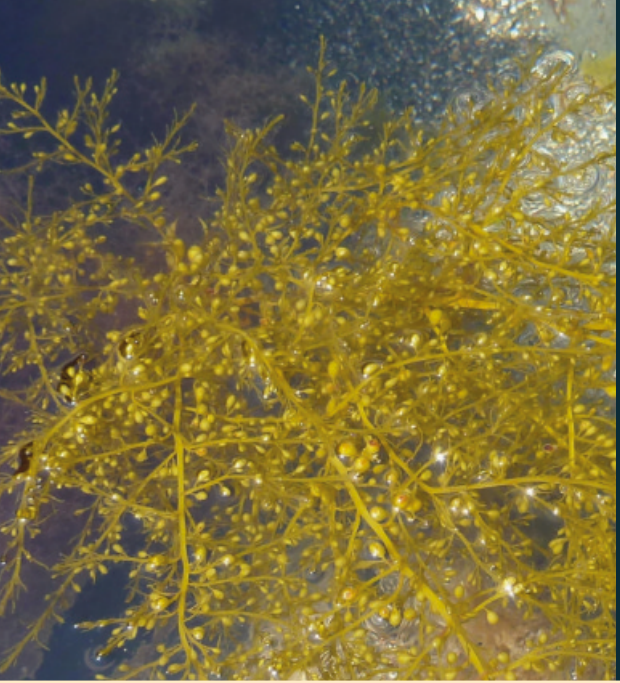
IT IS VERY IMPORTANT TO REPORT ANY SIGHTINGS!

If you see a plant or animal which looks like those pictured in this guide please take a photo and record:

WHAT	WHERE
name of the species	location you found it
WHEN	**WHO**
date of the record	name of the recorder

Report it as soon as possible to info@solwayfirthpartnership.co.uk or direct via **https://uk.inaturalist.org/**

HOW TO USE THIS GUIDE



A type of brown seaweed originally from the Pacific Ocean. Found locally in Loch Ryan and on the Galloway coast.

Key ID Features

- Long 'washing lines' of olive/brown weed.
- Covered in small fronds and tiny round floats.
- Attached to rocks by a small holdfast.

Problems

Clogs propellers and equipment, outcompetes local species.

Habitat

Grows on hard surfaces in rock pools and in shallow water.

WIREWEED *Sargassum muticum*

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A large golden-brown kelp. This large seaweed has been recorded in Loch Ryan.

Key ID Features

- 1 to 2 m in length consisting of a divided frond with midrib.
- Frills above rootlike holdfast.
- Mostly annual so smaller in Spring.

Problems

Highly invasive and likely to out-compete native species.

Habitat

Attaches to hard surfaces in sheltered coastal sites including harbours and marinas.

2 **WAKAME** *Undaria pinnatifida*

A spongy green seaweed from Japan. It is widespread around the UK shore and has been recorded in Loch Ryan. It is easily confused with a native species so report all seen.

Key ID Features

- Grows to around 25cm.
- Felt like texture to the fronds.
- Fronds are cylindrical, spongy and end in a Y shape.
- Form dense clumps.

Problems

Competes with native species for space, forming dense clumps, potential nuisance to fisheries and aquaculture.

Habitat

Attaches to hard surfaces in rock pools and rocks in lower shore.

GREEN SEA FINGERS *Codium fragile*

A type of shellfish from Asia used in aquaculture in the UK. Found in several locations on the Galloway shore.

Key ID Features

- Similar to the native oyster but has a frilly oval shell up to 18cm long.
- Shell may have dark purple patches.
- Attaches to rocks/hard surfaces.

Problems

Outcompetes and smothers local species, sharp shells can cut bare feet.

Habitat

Grows on lower shore / coastal hard substrates and can be found in harbours and marinas.

4 PACIFIC OYSTER *Magallana gigas*

A reef building tubeworm, believed to be native to Australia and regions of the Indian Ocean. It is an aggressive species that dominates habitats, significantly altering water conditions and physical environments. Colonies of tubeworm have been found in Whitehaven and Maryport marinas. One to look out for!

Key ID Features

- Thin, white calcareous tubes that turn yellowish-brown with age.
- Up to 8cm in length and 0.1 – 0.2cm diameter.
- Many individuals grow together forming huge reefs.

Problems

Extensive reefs causing fouling on boat hulls, equipment and blockages to pipes.

Habitat

Attaches to hard surfaces in sheltered coastal sites including harbours and marinas.

TRUMPET TUBEWORM *Ficopomatus enigmaticus*

A solitary sea squirt with a bright orange tip which attaches to hard substrates. Has been recorded in Loch Ryan.

Key ID Features

- 2–4 cm in length.
- Orange siphon in adults.
- Curved/ U-shaped gut visible rather than the S-shaped gut of similar squirts.

Problems

Can clog underwater machinery and smother local wildlife.

Habitat

Attaches to hard surfaces in harbours and marinas as well as natural surfaces.

©John Bishop

6 ORANGE TIPPED SEA SQUIRT *Corella eumyota*

©Chris Wood, Marine Conservation Society

A brown solitary sea squirt attached by a small flat holdfast at the base of a narrow stalk. Originally from Korea it is now widespread and has been recorded in Loch Ryan.

Key ID Features

- Up to 20 cm tall.
- Shaped like a stout bag with two siphons.
- Leathery appearance with a rumpled/ knobbly surface.
- The siphons are close together with dark brown stripes on the inside.

Problems

Large populations dominate and displace native species and can be a fouling pest on ship hulls and aquaculture infrastructure.

Habitat

Attaches to hard surfaces in harbours and marinas as well as natural surfaces.

LEATHERY SEA SQUIRT *Styela clava*

A small barnacle which is native to Australasia. Widely distributed including various sites around the Solway.

Key ID Features

- 5-10 mm in diameter.
- White in colour with only 4 outer shell plates and low conical body.
- Tolerant of a wider range of salinity and turbidity than native species.

Problems

Can dominate hard surfaces and displace native species and can be a nuisance as a fouling organism.

Habitat

Grows on hard surfaces such as rocks, harbours and marinas.

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DARWIN'S BARNACLE *Austrominius modestus*

©*Cricket Raspet*

An aggressive skeleton shrimp originally from NE Asia which has established populations in the North Sea, west coast of Scotland and Irish Sea.

Key ID Features

- Up to 45mm in length with males larger than females.
- Fine hairs on the first two body segments.
- Large spines on third to seventh body segments in males.
- Orange spots on females' brood pouch.

Problems

Can clog equipment and nets, outcompetes native species

Habitat

Found in harbours and marinas amongst fouling growth on boat hulls, ropes and nets.

JAPANESE SKELETON SHRIMP *Caprella mutica*

A salt marsh grass, a hybrid of a native species and a North American species. Found in several locations along the north and south Solway coast.

Key ID Features

- Loose clumps growing up to 1.5m tall.
- Seeds only grow on one side of the flower spike.
- Forms large stands in intertidal mudflat areas.

Problems

Outcompetes local species, reduces areas of mud flats used by feeding birds.

Habitat

Colonises the mudflats in estuaries.

10 COMMON CORD GRASS *Spartina anglica*

A lobster native to the Atlantic Ocean around North America. It has been occasionally caught in Scottish waters.

Key ID Features

- More stocky looking than the European lobster.
- Dark green / brown with orange and black speckles.
- Underneath of claws orange colour.

Problems

May introduce disease and cross breed with European lobster.

Habitat

Rocky seabeds below low-tide.

AMERICAN LOBSTER *Homarus americanus*

A brown crab which lives in freshwater – muddy riverbanks, but breeds in seawater. Originally from SE Asia.

Key ID Features

- Dense fur on claws like mittens.
- Hexagonal body up to 8cm wide.
- Legs very long and hairy.

Problems

Causes damage to riverbanks by burrowing; feeds on a wide range of native insects and fish eggs competing with native species.

Habitat

Found in rivers and estuaries.

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CHINESE MITTEN CRAB *Eriocheir sinensis*

A fast growing extensive sheet or mat forming sea squirt thought to be of Asian origin.

Key ID Features

- Firm smooth texture, not slimy
- Variable in colour - white, cream or orange/brown.
- Can form long, pendulous outgrowths.
- Veined or marbled appearance.

Problems

Fast growing, smothering underwater structures and native plants and animals.

Habitat

Grows in shallow waters in harbours and marinas.

CARPET SEA SQUIRT *Didemnum vexillum*

Smooth-shelled sea snail found in characteristic chains or ladders of up to 15 individuals. Originally from the USA it was transported to the UK with oysters.

Key ID Features

- A 'toe-nail' shaped shell, up to 5cm long.
- Often forms stacks with the oldest shell at the bottom.
- White or cream coloured with orange or pink blotches.

Problems

Outcompetes local species, major pest of oyster and mussel beds.

Habitat

Attaches to hard surfaces in sediment in intertidal or shallow coastal waters.

14 SLIPPER LIMPET *Crepidula fornicata*

©Environment Agency

KILLER SHRIMP
Dikerogammerus villosus

Key ID Features

- Larger than native shrimps, growing up to 3cm.
- Tail with distinctive cones.
- Can survive up to 5 days out of water in damp conditions.

©RPS Group PLC

ZEBRA MUSSEL
Dreissena polymorpha

Key ID Features

- Shell up to 3cm with distinctive D-shape.
- Light and dark bands of colour.
- Attaches by threads to anything solid underwater.

Freshwater species also found in brackish water

Marine INNS can hitchhike on equipment, footwear, clothing and boats. When you move to a new site on the coast or elsewhere in the country the species can be released and may become established and alter the ecosystem. You can help to prevent the spread of marine hitchhikers by following a simple three step process every time you leave any water.

CHECK

Check your equipment and clothing for living organisms. Pay particular attention to areas that are damp or hard to inspect.

CLEAN

Clean and Wash all equipment, footwear and clothes thoroughly. If you do come across any organisms, leave them at the place on the coast you found them.

DRY

Dry all equipment and clothing as some species can live for many days in moist conditions.

BIOSECURITY IN THE SOLWAY

This guide is an introduction to selected Non-Native Species.

Find out more about Non-Native Species at Nature Scot: