

Firth of Clyde Marine INVASIVE Non-Native Species

Identification Guide





What are Non-Native Species?

Non-Native Species are plants and animals outside their native range. They have been released into the wild by humans, either deliberately or accidentally, for hundreds of years.

With the increase in global travel and commerce more species are being moved in greater quantities than ever before. Non-Native Species can become Invasive (INNS), and therefore a problem, when they outgrow, kill or outcompete local species.

A vertical strip on the left side of the page shows a microscopic view of biological cells. It features several large, light-colored, roughly spherical cells with darker, granular interiors, connected by thin, blue, branching structures that resemble cell membranes or cytoplasmic connections. The background is a deep blue color.

Why should I care?

The spread of INNS can lead to massive financial costs for fisheries, aquaculture, the broader leisure and commercial marine sectors. They can also damage local species and habitats which can impact on the food chain and biodiversity.

How to use this guide

If you see a plant or animal which looks like those pictured in this guide please take a photo and report it as soon as possible via the Firth of Clyde Forum website, www.clydeforum.com.



Orange Sheath Tunicate

(Botrylloides violaceus)

Description – Bright orange/red firm sponge which is covered in clear jelly. Colonies up to 30cm across, or in fist-sized clumps.

From – Japan. First UK record 2004. Found in the Clyde in 2009.

Problems –
Smothers and displaces local wildlife. Significant fouler of mussel and oyster gear.



Image courtesy of Judith Oakley.

Key features of the Orange Sheath Tunicate



Images courtesy of Kathryn Birch.

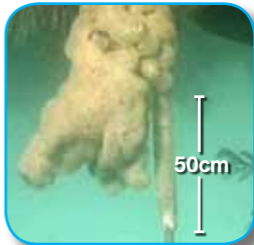
Carpet Sea Squirt (*Didemnum vexillum*)

Description – Extensive sheet-forming sea squirt, colour varies from off-white to tan, yellow or pink. Firm leathery texture. Not slimy.

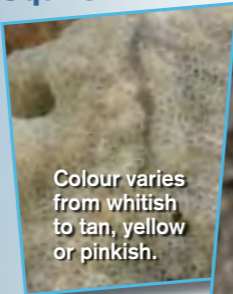
From – Origin is uncertain, most likely Japan. First UK record 2008. Found in several sites in the Clyde.

Problems – Fast growing, smothers underwater structures, plants and animals.

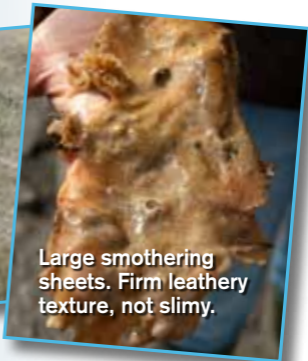
Image courtesy of CCW.



Key features of the Carpet Sea Squirt



Colour varies from whitish to tan, yellow or pinkish.



Large smothering sheets. Firm leathery texture, not slimy.

Images courtesy of CCW.

Leathery Sea Squirt (*Styela clava*)

Description – Stout bag-like structures on stalks up to 10-15cm tall including stalk.

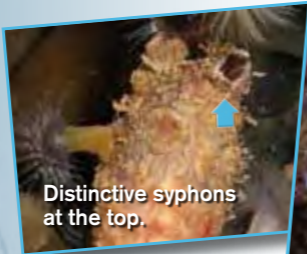
From – Korea. First UK record 1952. Found in several sites in the Clyde.

Problems –
Smothers and can outcompete local wildlife for space and food.

Image courtesy of Chris Wood, MCS.



Key features of the Leathery Sea Squirt



**Distinctive syphons
at the top.**



**Leathery, bag like
structure.**

Images courtesy of Judith Oakley.

Orange Tipped Sea Squirt

(Corella eumyota)

Description – Flat-lying sea squirt with a bright orange tip (siphon). Grows up to 8cm in diameter.

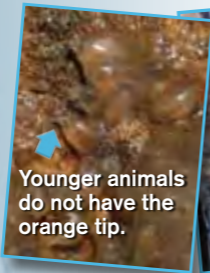
From – S Hemisphere.
First UK record 2004,
Scotland, 2010. Found in
several sites in the Clyde.

Problems –
Can clog underwater
machinery and smother
local wildlife.



Image courtesy of Judith Oakley.

Key features of the Orange Tipped Sea Squirt



Younger animals do not have the orange tip.



Distinctive orange syphon in adult sea squirts.

Images courtesy of Steve Trehwella and Judith Oakley.

Japanese Skeleton Shrimp

(Caprella mutica)

Description – Large skeleton shrimp up to 5cm occurring in great densities of up to 300,000m².

From – NE Asia, first UK record was near Oban in 2000. Found at several sites in the Clyde.

Problems –
Clogs nets and equipment.
Outcompetes local wildlife.

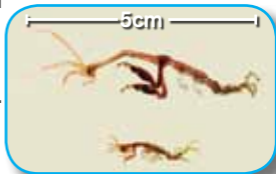


Image courtesy of Tom Nickell, SAMS.

Key features of the Japanese Skeleton Shrimp



Males have an elongated neck.



Can occur in great densities of up to 300,000/m².

Images courtesy of Elizabeth Cook.

Common Cord-Grass (*Spartina anglica*)

Description – Robust, loosely tufted saltmarsh grass.

From – A hybrid of native and N American species. First UK record 1892. Localised patches in the Clyde.

Problems –

Outcompetes local species, changes waterflow and alters beach and dune habitats.

Image courtesy of C.E. Hubbard.



Key features of the Common Cord-Grass



*Images courtesy
of C.E. Hubbard and Steve Trehwella.*

Green Sea Fingers (*Codium fragile*)

Description – Spongy, felt-like green seaweed with Y-shaped cylindrical fronds.

From – Japan. First UK record 1939. Found at several sites in the Clyde.

Problems –
Smothers, and outcompetes local seaweeds.

Image courtesy of Niall Moore.



Key features of the Green Sea Fingers



Large areas of just one species.



Cylindrical fronds are spongy and end in a Y shape.

Images courtesy of Chris Wood, MCS and J. Sewell, MBA.

Wireweed (*Sargassum muticum*)

Description – Long 'wires' of olive/brown weed also known as Strangle Weed. Fast growing.

From – NW Pacific. First UK record 1973.
Recorded at several sites in the Clyde.

Problems –
Clogs propellers
and equipment.
Outcompetes local
species.

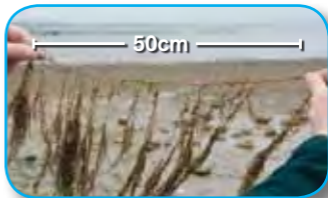


Image courtesy of GBNNSS.

Key features of Wireweed



FronDs can be olive green or brown in colour.



Also known as Strangle Weed.
FronDs often over 1m long.

Images courtesy of Jack Sewell, MBA and GBNNSS.

The following pages show species which are known to be heading towards the Clyde – it is particularly important to report any sightings.

Chinese Mitten Crab

(Eriocheir sinensis)

Description – Brown crab, shell 8cm across. Distinctive furry areas on front pincers. Lives in freshwater but breeds in saltwater.

From – China. First UK record 1935.

Not yet recorded in the Clyde.

Problems – Outcompetes local species, burrows cause bank instability.



Key features of the Chinese Mitten Crab



Images courtesy of Phil Crabb, Natural History Museum and FERA.

Slipper Limpet (*Crepidula fornicata*)

Description – Smooth-shelled limpet found in characteristic chains or ladders of up to 15 individuals.

From – NE USA. First UK record 1872. **Not yet recorded in the Clyde.**

Problems –
Outcompetes local species
major pest of oyster and mussel beds.



Image courtesy of GBNNSS.

Key features of the Slipper Limpet



Distinctive
'stacking'
behaviour'.



Shell colour varies
from whiteish to pink
with brown splotches.
Irregular growth marks.

Images courtesy of GBNNSS and Keith Hiscock.

Pacific Oyster (*Crassostrea gigas*)

Description – Sharp/rough shelled oyster up to 30cm, more usually 8-15cm, in length and tear drop in shape.

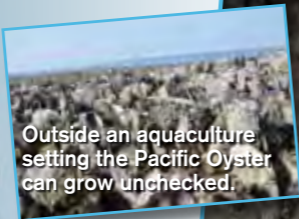
From – Asia. First UK record 1926.
Not yet recorded in the Clyde.

Problems –
Outcompetes and smothers local species. Sharp shells can be dangerous.

Image courtesy of GBNNSS.



Key features of the Pacific Oyster



Outside an aquaculture setting the Pacific Oyster can grow unchecked.



Irregular, tear drop shaped shell.

Images courtesy of Keith Hiscock and Guy Baker, MBA.

Freshwater Species

The following pages include freshwater INNS.

Some of these animals can survive long periods out of freshwater and pose a significant threat to inland waterways and the businesses that rely on them.

For more information about freshwater species go to www.nonnativespecies.org.



Images courtesy of GBNNSS and the Environment Agency.

Zebra Mussel (Freshwater)

(Dreissena polymorpha)

Description – Characteristic black and white striped mussel, 20-40mm in length. Very fast reproduction. One individual spawning can equal 1 million eggs.


From – W Asia. First UK record 1825. Recorded in the Forth & Clyde Canal.

Problems – Dangerously sharp shells, clogs water intakes and equipment. Outcompetes local species.




Image courtesy of GBNNSS.

Key features of the Zebra Mussel



Large populations of small mussels may go unnoticed.

A photograph showing a large, dense clump of zebra mussels covering a rock surface. A blue arrow points to the clump.



Smaller individuals create dense clumps.

A close-up photograph of a zebra mussel shell, showing its characteristic dark and light stripes. A blue arrow points to the shell.

Distinctive striped shell.

Images courtesy of GBNNSS.

Killer Shrimp (Freshwater only) *(Dikerogammarus villosus)*

Description – Large (3cm) aggressive shrimp, voracious predator.

From – E Europe. First UK record 2010. **Not yet recorded in Scotland.**

Problems – Kills and outcompetes other native freshwater animals.

Image courtesy of the Environment Agency.



Key features of the Killer Shrimp

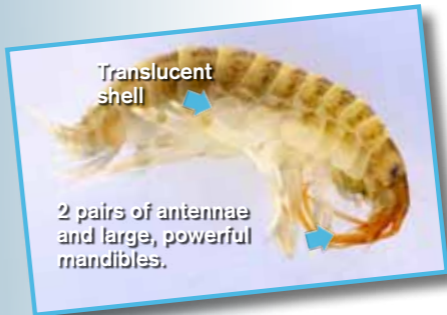



Image courtesy of the Environment Agency.



Please note it is an offence under the Wildlife and Natural Environment (Scotland) Act to knowingly release or transport a non native species.

This guide is based on the Firth of Clyde Forum's Biosecurity Plan which can be downloaded at www.clydeforum.com.

With thanks to the Marine Biological Association, www.mba.ac.uk, the GB Non Native Species Secretariat, www.nonnativespecies.org, Scottish Natural Heritage, www.snh.gov.uk and the Scottish Association for Marine Science, www.smi.ac.uk.



**Use your Smartphone to
report your sightings or
call: 08452 30 20 50.**



www.clydeforum.com