

# Priority marine features

This section details information about the inshore priority marine feature (PMF) seabed habitats, many of which are features characteristic of the Scottish marine environment.

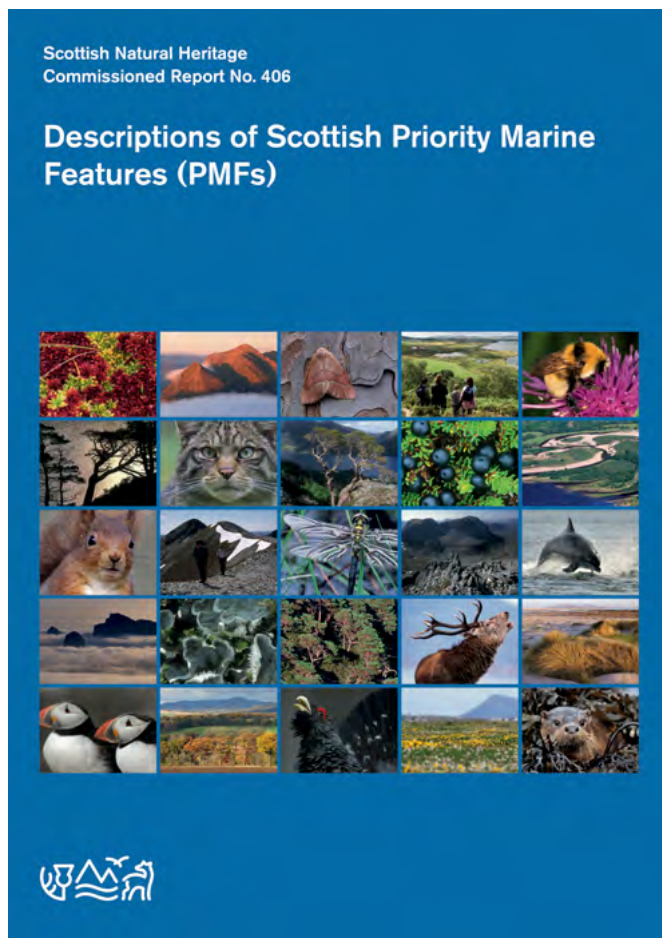
A list of PMF species and habitats of conservation importance were identified based on criteria that considered:

1. Whether the species/habitat occurs in significant numbers in Scotland's seas
2. Whether the species/habitat is under threat or in decline
3. The functional role that the species/habitat plays

We recommend that your marine survey or monitoring project should highlight the presence of seabed and intertidal habitats and species. Knowledge of where PMFs and other habitats and species are found can help marine conservation and planning and direct future research and education.

We have summarised information on some of the seabed habitat PMFs in the following sections. The images of the PMFs are close-ups of the characterising features of each PMF. Note that there are working definitions of PMFs that indicate for some features an area of 5m x 5m with specific densities are required to qualify as a 'bed'.

**i** Only identify marine life within your knowledge and skills, don't feel pressured into identifying species and habitats if you are uncertain.



**i** For more information on all 81 PMFs, including biotope details and mobile species please see the full descriptions within the Scottish Natural Heritage Commissioned Report No.406 Descriptions of Scottish Priority Marine Features (PMFs).

Visit <https://www.nature.scot/snh-commissioned-report-406-descriptions-scottish-priority-marine-features-pmfs>

More information about some PMFs, including the PMF definitions can be found within the Priority Marine Feature Review documents.

Visit <https://consult.gov.scot/marine-scotland/priority-marine-features/>

# Seabed habitat priority marine features



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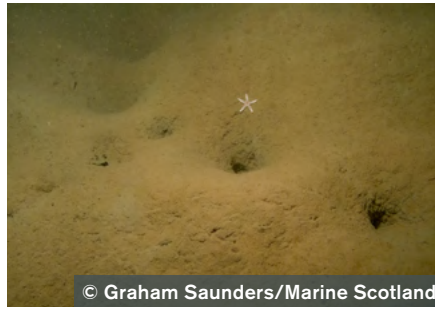
## Blue mussel beds (*Mytilus edulis*)

### Description

Blue mussels can form beds or reefs in the intertidal or subtidal. The beds stabilise sediment and create a habitat for a diverse community of animals and plants.

### Environment

A variety of rock and sediment types in the intertidal and subtidal (0- 30m), and in a range of conditions from open coasts to estuaries and marine inlets.



© Graham Saunders/Marine Scotland

## Burrowed mud

### Description

Areas of fine sediments that are home to a range of burrowing crustaceans, including langoustine, mud shrimps, and crabs. Burrows and mounds are a prominent feature of this habitat. Look out for seapens, firework anemones and the conical mounds built up by mud volcano worms.

### Environment

Areas of fine mud, and muddy sand in water depths ranging from 10m to greater than 500m. The habitat is found in sea lochs and voes and in full or variable salinities.



© Graham Saunders/Marine Scotland

## Flame shell beds (*Limaria hians*)

### Description

Flame shells create nests by binding together e.g. pieces of gravel, shell, seaweed or maerl, and where conditions allow carpet the sea bed for several hectares. The carpets create a habitat for many organisms including hydroids, bryozoans, ascidians and seaweeds and provide shelter for other species such as juvenile cod and saithe, scallops and crabs.

### Environment

Occurs on mixed muddy, sandy and gravelly bottoms in sheltered areas of moderate to strong currents, usually at depths of 5-30m but occasionally deeper. They are often found in tide-swept narrows such as the entrances or sills of sea lochs.



© Graham Saunders/Marine Scotland

## Horse mussel beds (*Modiolus modiolus*)

### Description

Horse mussels can occur in scattered clumps, thin layers or dense raised beds, which can extend up to several hectares in size. The beds increase local biodiversity, stabilise the sediment and may provide settling grounds for commercially important bivalves, such as scallops.

### Environment

Weak to strong water movement on a variety of mixed substrata. Found at depths of 5-220m, though most known beds are between 20-50m.



© Richard Shucksmith/NatureScot

## Kelp beds

### Description

Beds of the kelp *Laminaria hyperborea* form as forests and parks in rocky coastal areas, under a variety of wave and tidal conditions. The kelp provides a canopy under which a wide range of animals and other seaweeds thrive.

### Environment

Kelp beds occur in shallow waters (to a maximum of 20-30m), on bedrock and boulders in a range of wave exposure regimes and tidal conditions.



© Lisa Kamphausen/NatureScot

## Maerl beds

### Description

Maerl beds are formed by a red seaweed with a hard chalky skeleton that grows as small rounded nodules or short branched twig-like shapes. In high abundance, maerl can form interlocking beds, supporting communities of plants and animals such as seaweeds, sea urchins, brittlestars, starfish, sea anemones and scallops.

### Environment

Coarse clean sands and gravels either on the open coast or in tide-swept channels to a depth of about 30m. Occasional records from muddier sediments e.g. Loch Torridon.



© David Donnan/NatureScot

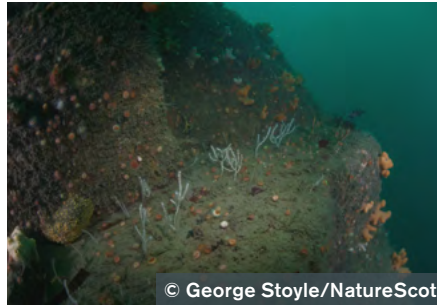
## European Native oysters (*Ostrea edulis*)

### Description

This once widespread habitat comprises dense beds of the native oyster *Ostrea edulis* (at densities of five or more per m<sup>2</sup>). A diverse community lives on, amongst, or in the sediment beneath the bed.

### Environment

Associated with productive estuarine and shallow coastal water habitats on firm mud, muddy sand and muddy gravel with shells and stones. Sheltered coasts from the intertidal to 5m and occasionally to 20m.



© George Stoyle/NatureScot

## Northern sea fan and sponge communities

### Description

A diverse habitat characterised by aggregations of the northern sea fan *Swiftia pallida* and the cup coral *Caryophyllia smithii* on upper and vertical surfaces of bedrock and boulders (20-50m). With increasing water depth (35-120m+), and in areas of low tidal flow, erect branching sponges replace sea fans as the most striking component of the habitat.

### Environment

Found on circalittoral bedrock and boulders on silty sediment, in wave-exposed to wave sheltered areas and in fully marine conditions at depths of 20-120m+.



© Ben James/NatureScot

## Seagrass beds

### Description

Seagrasses are marine flowering plants found in shallow coastal areas, typically on sheltered sandy or muddy substrata. Seagrasses often grow in dense, extensive beds or meadows, stabilising the sediment and creating productive habitats that provide shelter and food for a wide variety of plants and animals.

### Environment

The seagrasses grow in sands and muds from the upper shore down to 10m, in areas at least moderately sheltered from wave action such as sea lochs, inlets, bays, sounds, channels and lagoons.



© Tom Mercer/NatureScot

## Sea loch egg wrack beds (*Ascophyllum nodosum*)

### Description

A detached dwarf variety of common egg wrack. Individual plants rarely exceed 60cm in diameter but they often grow together to form dense mats. Occurs as two forms - the 'beach' form is olive green or yellow, very branched, and may appear bent and irregularly twisted; whereas the smaller 'turf' form is found on the upper shore as individual plants where it forms small clumps or mats.

### Environment

Found only in very sheltered conditions such as at the heads of sea lochs, on the mid to lower reaches of gently sloping shores where it sometimes grows with other brown seaweeds.



© Sue Scott/NatureScot

## Serpulid aggregations (*Serpula vermicularis*)

### Description

Dense clumps or reefs of white chalky tubes, each containing a *Serpula vermicularis* worm. These aggregations can reach over 1m in height and 2m width, with individual tubes up to 5mm wide and 15cm in length. Serpulid aggregations provide solid substrata in an otherwise sedimentary area. The species is common as individuals but well developed reefs are only known from one location in Scotland (Loch Creran) and very few worldwide.

### Environment

Sheltered to extremely sheltered sea lochs or inlets with weak or very weak water flow, at depths of 6-10m.

# Non-native species

## What are non-native species?

**Non-native species are plants and animals that live outside their native range. With the increase in global travel and movement of goods by ships, more species are being moved around and can be introduced accidentally or deliberately outside their native range.**

Non-native species can become a problem if they become 'invasive non-native species' by outgrowing, killing or outcompeting local species. Invasive non-native species can cause damage to local habitats and impact on the food chain and biodiversity. It can also lead to financial costs for marine industries including fisheries, aquaculture and the broader leisure and commercial marine sectors.

## How can I help?

### 1. Document their abundance and distribution

You can help us learn more about their current abundance and distribution within Scotland and your local area by searching for them and recording their location. This can be done by submitting species observations with images to iRecord.

- Please follow the species image library survey method, [page 1](#).
- Additionally, note roughly how many you saw in the description.

### 2. Avoid spreading non-native species

Thoroughly wash all kit following Check Clean Dry biosecurity principles. See getting started, impact on the environment, [page 5](#) for details.

### 3. Do not remove the suspected non-native species

They may look similar to our native plants and animals and moving them may risk spreading the species.

### 4. Share your findings

Ensure any local authorities or national recording schemes for non-native species are aware of any findings in your area.

Further biosecurity information and guidance for boaters and paddlers can be found on GB Non Native Species Secretariat (NNS) - [www.nonnativespecies.org/checkcleandry/](http://www.nonnativespecies.org/checkcleandry/).

# Non-native species key



**Carpet sea squirt**  
(*Didemnum vexillum*)



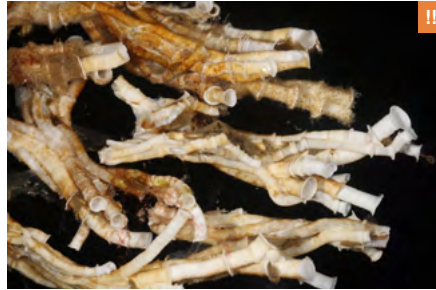
**American oyster drill**  
(*Urosalpinx cinerea*)



**Pacific oyster**  
(*Magallana gigas*)



**Japanese kelp, Wakame**  
(*Undaria pinnatifida*)



**Trumpet tubeworm**  
(*Ficopomatus enigmaticus*)



**Orange ripple bryozoan**  
(*Schizoporella japonica*)



**Leathery sea squirt**  
(*Styela clava*)



**Compass sea squirt**  
(*Asterocarpa humilis*)



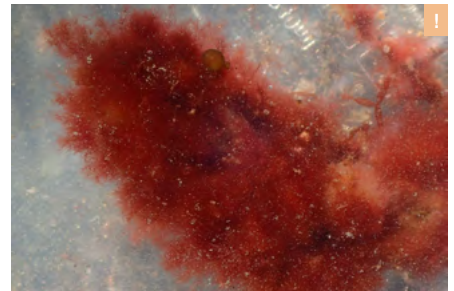
**Orange-striped sea anemone**  
(*Diadumene lineata*)



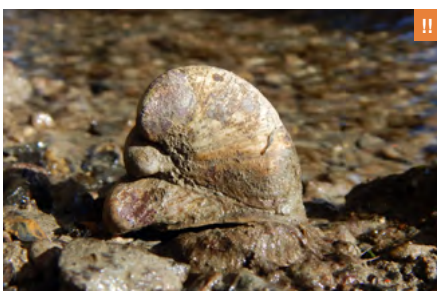
**Chinese mitten crab** (*Eriocheir sinensis*)



**Japanese skeleton shrimp**  
(*Caprella mutica*)



**A red seaweed**  
(*Bonnemaisonia hamifera*)



**Slipper limpet** (*Crepidula fornicate*)



**Wireweed** (*Sargassum muticum*)

!!! = High impact – already found within Scotland

!! = High impact – already in the UK, but not yet recorded or verified in Scotland

! = Mid, low or unknown impact – already found within Scotland

Image acknowledgements for non-native species ©David Fenwick at aphotomarine.com, unless otherwise stated. Visit [www.aphotomarine.com](http://www.aphotomarine.com) for more information.

  Habitat and species information