Skomer Marine Conservation Zone

Marine life in an underwater refuge

Cyfoeth Naturiol Cymru
Natural Resources Wales

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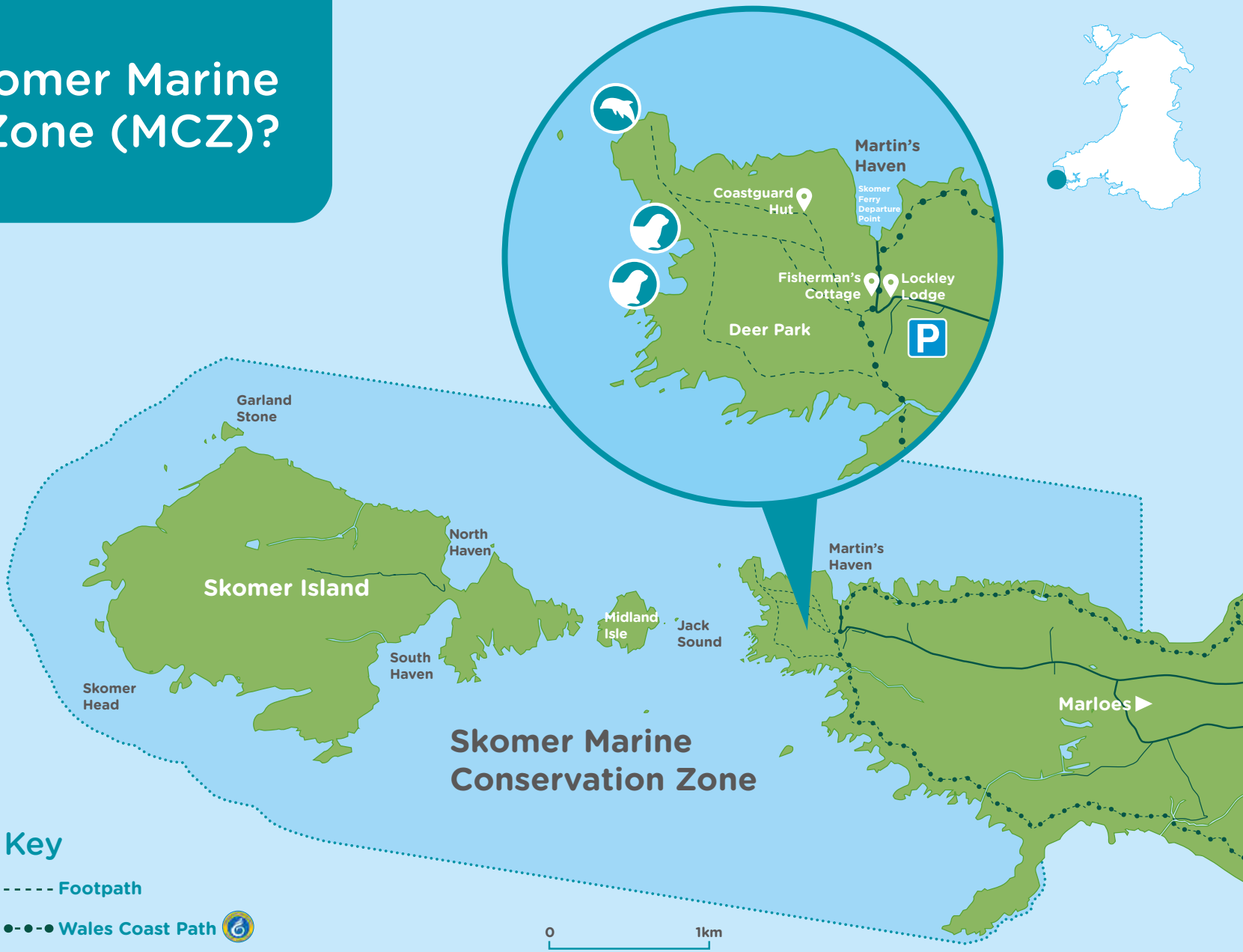
What is the Skomer Marine Conservation Zone (MCZ)?

The seas around Skomer Island (a National Nature Reserve itself) and the Marloes peninsula became a Marine Conservation Zone (MCZ) in 2014. Before this the area had been a Marine Nature Reserve for 24 years and an important study area for many years before that. Although the designation may have changed, the purpose of the Marine Conservation Zone is still to conserve this wealth of wildlife.

By promoting careful and responsible use of the MCZ, habitats and wildlife are protected from damage and disturbance.



Key

- Footpath
- Wales Coast Path
- MCZ Boundary
- Seal Viewing Point
- Porpoise/Dolphin Viewing Point
- Car Park

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All the images and information in the booklet are the products of the work NRW staff carry out in looking after the MCZ.

Stars, squirts and slugs

Skomer Marine Conservation Zone's amazing undersea wildlife

Imagine a hidden world where unfamiliar creatures like squirts, stars and slugs all exist side by side. Such a world exists in the Skomer Marine Conservation Zone (MCZ).

Squirts can't be compared to anything you will see on land – most look more like miniature hand-painted jellies and flower heads than animals. You may be more familiar with the stars – relatives of the common starfish. We have all sorts: sunstars, bloodstars, brittlestars, spinystars, cushionstars and featherstars! Even our tiny voracious slugs are infinitely more colourful and attractive than any you'll see in your garden.

The wonderfully scenic coast and seabed provide an abundance of different habitats - places for animals and plants to live - and they are teeming with all kinds of life, not just the familiar seals, fish, crabs and lobsters. It's home to more than a third of all British seaweed species, over 100 different sponges and 40 species of anemone and soft coral.

Each animal or plant fits into a complicated web of marine life and, through evolution, has adapted to living in one of the many different and demanding habitats to be found here. That adaptation has provided us with a multitude of wonderful organisms of many colours, shapes and sizes, hidden just out of sight beneath the waves.

Habitats shaped by storms, tides and currents

Key to the huge variety of life in the MCZ is the diversity of its habitats. Water movement determines what lives where and sea conditions range from tranquil to tempestuous. Tides cause the sea to pour round the island and through the sounds in torrents.

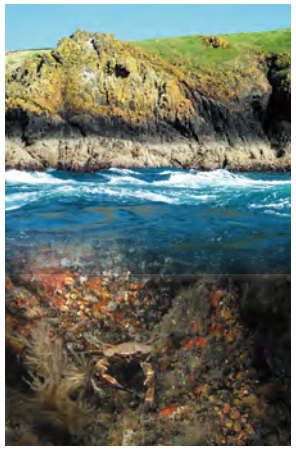
Huge storm waves pound the south and west coasts. Powerful tidal currents sweep through the sounds and past headlands and offshore rocks.

Sands and muds form the seabed in deep, sheltered water and in bays.

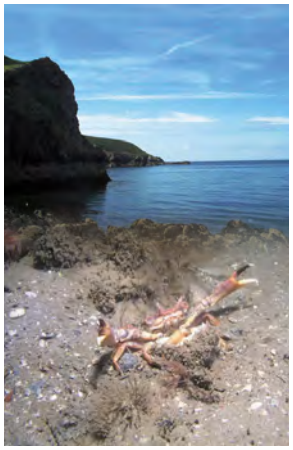
Plants and animals live at different depths influenced by the amount of light reaching the seabed.

Complicated as it is, this complexity produces diverse habitats and wildlife.

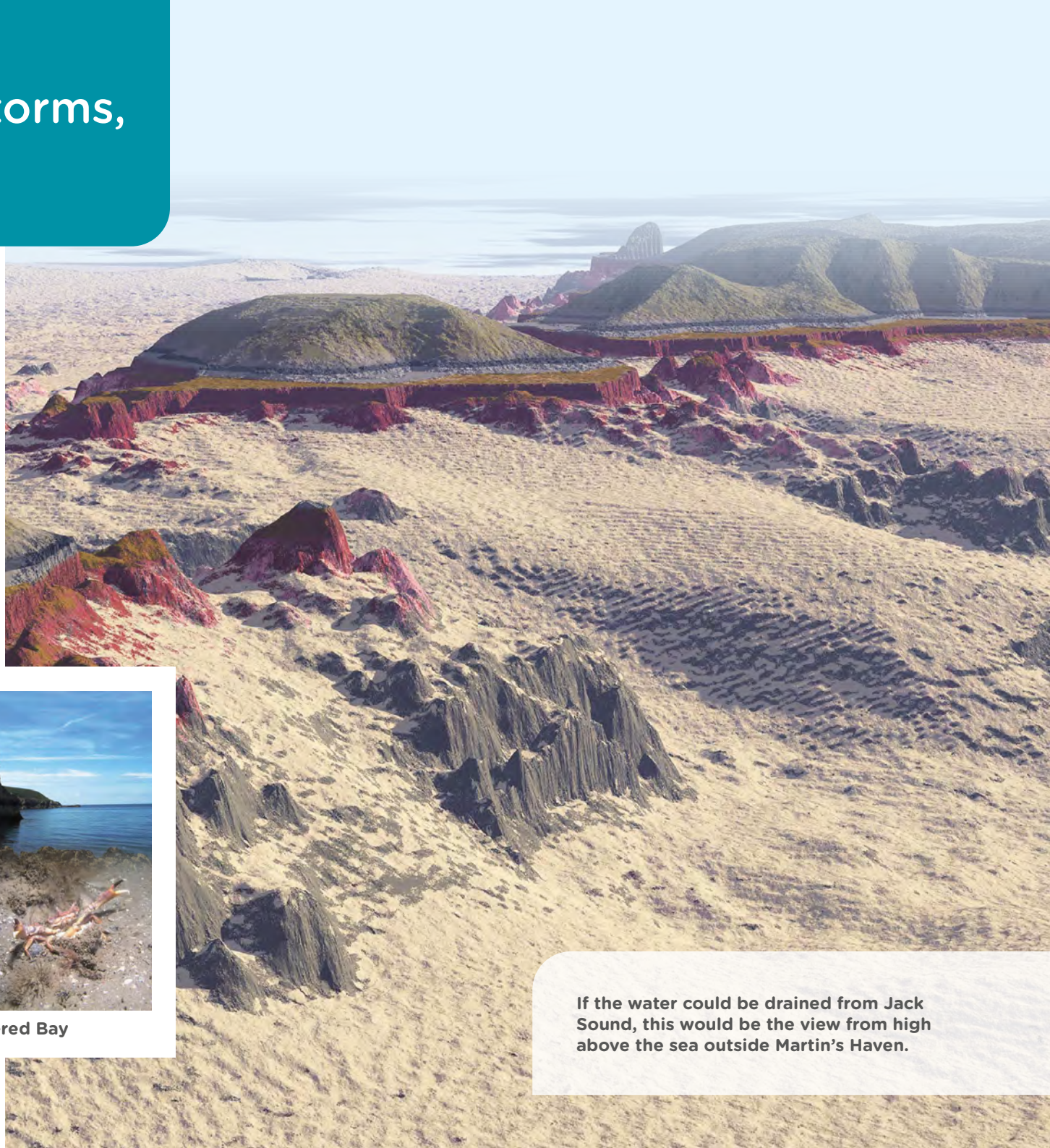
Wave Action



Strong Currents



Sheltered Bay



If the water could be drained from Jack Sound, this would be the view from high above the sea outside Martin's Haven.

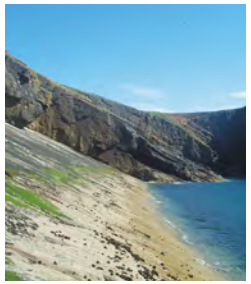
Rocky shores – a place of extremes

The Skomer MCZ has 27 kilometres of coast. More than 95 percent is rocky shore. The coast is fringed by bays and promontories, cliffs and slopes, isolated rock pinnacles, caves and tunnels.

The shape of the shore and the animals and plants living there vary according to their exposure to wind, waves, tides and currents.

The difference in conditions between living at the top of the shore (wet at high tide/dry at low) and the bottom (always wet) is more extreme than a comparison between our Welsh mild marine climate and that of the North Pole! Plants and animals have adapted to survive this harsh environment.

Steep, extremely exposed cliffs are dominated by small, tough animals - few seaweeds can survive.



Wave-swept rock slopes provide a habitat for short, specialised forms of seaweed which hang on tightly to the rock surface.

Partially-sheltered rock platforms have rich communities with rock pools; seaweeds dominate the lower shore.

Boulders on sheltered shores contain lush seaweed communities and provide shelter for many animals.

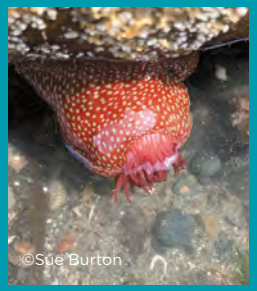
Limpets and purple topshells
Patella vulgata* and *Steromphala umbilicalis
Limpets and winkles affect the appearance of shores by grazing on young seaweed.

Brown seaweed
Fucus vesiculosus
Shore-dwelling seaweed are specialists at conserving water during low tide.

Barnacles
***Balanus* species**
Shells protect these animals from drying out or being eaten.

Splash zone lichens extend over sixty metres up cliffs.

Cornish clingfish
Lepadogaster lepadogaster
Vulnerable fish and soft bodied animals survive on shores by living in rock pools and sheltering under boulders.



Strawberry anemone
Actinia fragacea
The stinging tentacles of anemone are used to catch their prey, at low water they retract their tentacles to prevent drying out.

The seaweed zone – underwater forests

Dense "forests" of large, brown kelp plants grow only in the shallowest eight metres in the MCZ. They need plenty of light to grow. Water clarity affects how much light is available. Kelps can extend down to 30 metres in very clear water, but only to about one metre in the more murky water of nearby Milford Haven.

Kelps are the largest marine seaweed. Their structure is simple. Their fronds form a forest "canopy", often encrusted by seafirs and seamats.

The **holdfast** anchors the plants to rock. Its root-like structure is an animal refuge. Over 250 species have been recorded living in kelp holdfasts.

Kelp stipes, the "tree trunks", are sometimes colonised by sponges and sea squirts.

Blue-rayed limpets
Patella pellucida

Blue-rayed limpets are tiny, but voracious and eat large holes in kelp stipes.

Dahlia anemone
Urticina felina

Flower-like anemones are actually predators equipped with stinging tentacles ready to capture food.

Red seaweed
Drachiella spectabilis

Many red seaweeds need less light than kelp. They thrive in the shade of the kelp canopy and form dense "meadows" on rock slopes below the edge of the forest.

Ballan wrasse
Labrus bergylta

Ballan wrasse patrol the kelp forest defending their territories.

The animal zone – colourful creatures create seabed ‘turfs’

Light-dependant seaweeds cannot survive in water much deeper than fifteen metres in the MCZ. Any rocky surfaces deeper than this are smothered by characteristic “turfs” of animals fixed to the seabed.

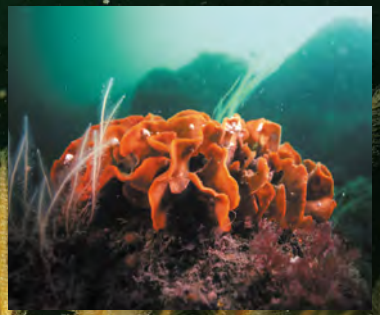
Tidal currents bring plentiful food, in the form of plankton and tiny organic fragments.

Just a drop of seawater is full of microscopic plankton life.
©Mike Crutchley

These minute particles are filtered from the water by specialised seafirs, seasquirts, sponges and bryozoans, and trapped by the stinging tentacles of anemones and corals.

In strong currents, animals need to be firmly attached so as not to be swept away. In Jack Sound, currents can reach over 10 miles per hour - about eight times faster than the average person can swim.

Ross coral
Pentapora foliacea



Ross corals are not corals at all, but are colonies of countless individuals living in microscopic chalky building blocks. These fragile structures can grow to over a metre across.

Jewel anemone
Corynactis viridis

Jewel anemones of many colour variations form sheets of thousands of individuals. They reproduce by cloning, with parent anemones splitting into two.

Erect sponge
Axinella dissimilis

Delicate sponges, susceptible to damage, thrive in gentle water movement.

Light-bulb sea squirt
Clavellina lepadiformis

©Rob Spray

Sea squirts are an example of animals that filter food from the water, and they thrive in strong currents.

Skomer seabed sediments – nowhere to run, everywhere to hide

At first glance sand, gravel and mud (sediment) habitats appear deserted. Don't be deceived – the animals that live here often use camouflage to stay alive on the sediment surface, or survive by burrowing beneath it.

Seaweeds do not like sediments, which are largely plant-free, except for one special habitat – the eelgrass bed. Eelgrass is the only underwater British flowering plant and is very rare in Wales. The plants form very productive beds which stabilise moving sediments and provide shelter for fish.

Burrowing anemone
Mesacmaea mitchellii

Burrowing animals have a clever way of avoiding predators. Their tentacles capture food from the water passing by, whilst their bodies remain safely protected. When danger threatens they completely disappear into the sediment.

Anglerfish
Lophius piscatorius

The anglerfish has perfected the art of camouflage. It eats a wide variety of prey which it lures into a suitable position above its cavernous mouth by twitching a lure on the end of its dorsal fin.

Dragonet
Callionymus lyra

Camouflage is achieved by body shape, colour and pattern.

King scallop
Pecten maximus

Scallops hide themselves under a thin layer of sediment and are protected by their thick shells from all but the most determined predators.

Underwater predators and grazers hunt and forage

Not all marine animals are fixed to the seabed. Some range across wide areas of the MCZ, whereas others will keep to distinct territories.

Free floating plankton are paralysed by the stinging tentacles of jellyfish, passed to the mouth, then digested in the central stomach.

Cuckoo wrasse
Labrus mixtus

These colourful fish live in and defend territories. Cuckoo wrasse are 'protogynous hermaphrodites'. This simply means that they are all born females, but can become males when a dominant male disappears. This striking blue-marked one is male.

Common sea urchin
Echinus esculentus

Sea urchins are the "rabbits" of the marine world. They are the most important grazer of underwater rock surfaces and create bare patches for new plants and animals to grow on, so are vital to biodiversity.

Seven-armed starfish
Luidia ciliaris

Starfish meander across the seabed using hundreds of tube feet with sucker-like ends, each species seeking out its own favourite prey. This seven-armed starfish eats brittlestars.

Tompot blenny
Parablennius gattorugine

Tompot blennies live in cracks and crevices in rock. They have large, fringed tentacles, one above each eye.

Underwater predators and grazers hunt and forage

Grey seals
Halichoerus grypus

Grey seals are Britain's largest predator. They roam widely hunting fish and shellfish. Each autumn they return to the MCZ's beaches and caves to have their pups and mate. Over 350 pups are born in the MCZ each year.

Spiny spider crab
Maja brachydactyla

Spiny spider crabs roam across the reef scavenging for food.

Common lobster
Homarus gammarus

Lobsters and crabs hide in rock crevices and under boulders, coming out at night to feed.

Curled octopus
Eledone cirrhosa

Octopus live in holes amongst rocks by day, but at night hunt for crabs, their favourite food. They are intelligent animals able to change colour and shape very quickly.

Violet sea slug
Edmundsella pedata

Sea slugs are picky eaters! Each species will have its own specific prey. Those that eat stinging animals are able to store stinging cells and use them to protect themselves. 75 species of sea slug have been recorded in the MCZ.

Skomer rarities – trumpets, fans and fingers

The MCZ is at the northern limit for many warm-water species found more commonly in the Mediterranean. Some northern species are also found as far south as Skomer.

Cold water

Warm water

Sunstar
Crossaster papposus

Northern species

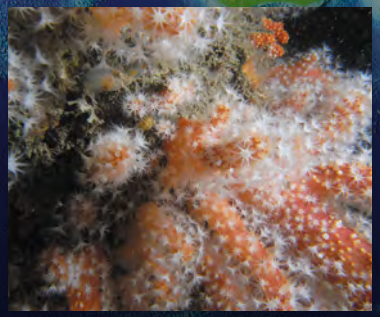
The multi-armed sunstar *Crossaster papposus* is one example of a northern species near its southern limit.

Scarlet and gold cup coral
Balanophyllia regia

Southern species

These bright scarlet and gold star corals thrive in strong wave-surge areas.

Red sea fingers
Alcyonium glomeratum



Southern species

Tiny, white, anemone-like feeding polyps extend from these soft corals called red sea fingers. When the polyps are retracted the colonies look like lifeless human fingers.

Yellow trumpet anemone
Parazoanthus axinellae

Southern species

Yellow trumpet anemone colonies form patches more than a metre wide on vertical rock.

Skomer rarities – trumpets, fans and fingers

Populations of scarce and long-lived species such as these are vulnerable and benefit from the protection of the MCZ. But the main aim is to safeguard the full range of marine wildlife here, not just the rare and unusual.

The **crawfish** or spiny lobster ***Palinurus elephas*** lacks the large claws of the common lobster. It used to be common, but due to overfishing it is now a rare sight in UK seas.

The MCZ is the northern-most stronghold of pink sea fans, *Eunicella verrucosa*. The sea fans are soft corals which grow very slowly this far north. There are over a hundred colonies living in the MCZ and many are fifty to one hundred years old. Young colonies are few and appear infrequently.

The role of the Skomer Marine Conservation Zone

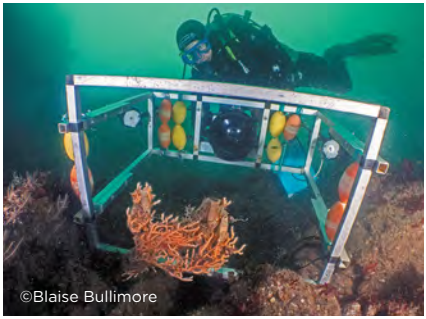
The MCZ is part of a network of various types of Marine Protected Areas. Our purpose is to safeguard the full range of marine wildlife diversity. We operate an extensive research and monitoring programme that aims to broaden our knowledge and understanding of the marine species, communities and habitats found here.

By promoting careful and responsible use of the MCZ, habitats and wildlife are protected from damage and disturbance. You can help protect the MCZ by taking great care:

- Give priority to wildlife at all times;
- Minimise any damage or disturbance you cause, however unintentional
- If you do disturb seabirds or seals, withdraw promptly and quietly
- Keep noise to a minimum
- Don't leave rubbish of any kind.

Skomer MCZ is managed by Natural Resources Wales, with advice from the Skomer MCZ Advisory Committee which has its membership drawn from a range of organisations.

Leaflets about the codes of conduct and byelaws that apply to the MCZ and further information are available from: **naturalresources.wales**



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For more information scan:

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