

# The Intertidal and Sublittoral

The intertidal is exposed to air, sun and rain twice a day.

The sublittoral is always covered with water.

The drawing shows the shore when the tide is in. Animals are active grazing, or filter feeding on plankton; scavenging or preying on each other.

Ballymoney is a high energy shore, where shore levels vary greatly. It is so hard to survive in the intertidal of Ballymoney shore, that most species only visit when the tide is in – like these sand eels.

Rocky areas have exposed and more sheltered spots to survive. But what may seem a perfect substrate to settle on, for the planktonic mussels and barnacles, may be covered by sand next week. If washed away quickly, the tougher seaweeds and animals survive, while the spaces created by those smothered are recolonised.

Best spaces have intense competition.

Jellyfish are associated with warm water when 'parachutes' float in the water column. They catch plankton food using stinging cells. The Moon Jellyfish *Aurelia aurita* has four blue or red rings on its bell and four arms. Avoid the related Lion's mane Jellyfish which has no rings, but lots of long tentacles with sting cells which hurt severely. Leather backed turtles feed on Jellyfish. They can choke on balloons mistaken for jellyfish.

When the tide is in, seaweed fronds float, spreading out to catch sunlight filtering through the water. Most photos are taken when the tide is out. Algae hang limp and animal life closes down to minimise risk of overheating, drying out, or being eaten by birds. Sea anemones have pulled in their tentacles and look like brown blobs; limpets are suctioned tightly onto rocks on their home scare. Each dog whelk and rough wrinkle has moved back into its shell, until the operculum at the end of the foot shuts tight like a trap door behind it. Mussels which had been filtering the water through rows of gills opening the tops of their shells, have shut them tightly, keeping in the last gulp of seawater. Shore crabs are hiding under rocks and seaweed and the occasional Hermit crab which has ventured into the intertidal, crawls deep into its whelk shell house so you might think the shell is empty. Fish which visited the area have left with the ebbing tide – except the Weaver fish and the odd Dab which might have buried themselves in the sand and gravel.

**Climate Change:** The scientific evidence is now overwhelming that climate change is a serious global threat which requires urgent global response, and that climate change is driven by human activity. It is happening now. Sea levels are rising; the oceans have warmed to a depth of 3 km, Arctic summer sea ice is likely to disappear in the second half of this century. Weather patterns are becoming more extreme – storms and rainfall are becoming more intense with flash flooding and massive silt loads carried down our rivers. Will our wildlife adapt to climate change? In the summer of 2006 we saw massive barnacle die back which is suspected to be linked to the three hot summers between 2004 and 2006. Empty volcano shapes coming off rock surfaces like nets. Over the winter 2006/7 miles of shore lost their extensive barnacle 'belt' – the grey-white band just above seaweeds, formed by millions of these tiny crustaceans. Since then, we have seen some recovery, but not to previous levels.

**What we can do:** Apart from reducing carbon emissions – try cycling or walking to the beach – we need to adapt. Our streams are overflowing and full of soil after heavy rain. While we have grass verges in lower Ballymoney, we have lost most ponds in the area and developments have reduced soakaage areas. Wetlands are cradles of life, buffers for storm waters and carbon sinks. Any wetland loss should be avoided and restoration would be very beneficial.

While parts of submerged sand and gravel banks shift with changing currents, there are others which remain stable for years. Here kelps grow like trees of the sea and most red seaweeds, bryozoans and sponges are found as amazing long lived carpets on the sea floor.

Mussel spat settle here in large beds which attract lots of other species which feed on them. Starfish and brittle stars congregate in huge numbers to gorge on the mussel seed. These areas are full of life, and include the sea mouse which is actually a worm, scavengers like the large common whelk and different crab species.

If trawlers move in or the sea bed is disturbed by a storm, the riches are dislodged and washed up on the shore (see tide mark panel 2).

Fish, seals, porpoises and dolphins live here or pass through.

## Plankton – the essential you can't see

Plankton is made up of tiny plants, algae and animals which swim or are carried in the water. There may be millions in a glass of water, but they are so tiny you need a microscope to see their beautiful shapes. Phytoplankton uses sunlight, carbon dioxide and nutrients to photosynthesis like plants on land. When the water is murky or discoloured you might have a plankton bloom where some species have multiplied to great densities. Blooms are natural, however excess nutrients are thought to be responsible for extra blooms. Zoo plankton feeds on the phytoplankton.

Spores, eggs and larvae of many species are planktonic before they settle and become the bladder wrack, mussels, crabs etc. we know. Many species also feed on plankton from the tiny barnacles to the huge whale.

Barnacles have curled up their little legs which had waved through the water and closed their roof plates.

## Fish

Wedding bells: Thornback Rays congregate to spawn off the Ballymoney shore. Afterwards the female ties the dark egg cases individually onto seaweeds at the sea bottom where they hatch weeks later. When you find lots of mermaid's purses on the shore you know that rays have hatched. While the thornback egg cases are still quite common on this coast in early spring, numbers of this and other ray species are dropping fast. Some ray species may become extinct over the next decade.

All year round: Dog fish – the smallest of all our sharks – are caught off the Ballymoney shore. They too lay eggs which they tie – usually in bunches onto seaweeds and bryozoans. The mermaid's purses are slender, smaller and lighter coloured than ray eggs.

Sea Bass numbers have increased as strict conservation measures were introduced. There are several other resident fish species like Dab and Flounder which prefer the sandy and gravelly ground.

Passing by: Sea trout, eel and sea lamprey populations pass this shore en route to or from the Ounavarragh River (Courtown) and the Castletown River north of Ballymoney.

Thin little colourful sand eels are seen in shoals in the middle of summer.

Pain: Watch out for Weaver fish reported occasionally from Ballymoney North Beach, especially in a good warm weather spell. They might be buried around the low water mark in sand. When you step onto one in bare feet, the pain goes through you! A soak in very hot water helps.

<p>Sea lettuce <i>Ulva lactuca</i> Glásán</p> <p>36. Translucent green seaweed, like lettuce leaves, just put into hot water. Edible. Similar species occur.</p>	<p>Gut Weeds <i>Ulva</i> incl <i>Ulva intestinalis</i> Lineáil ghorm</p> <p>37. Grass green seaweeds in the intertidal, on rocks. Some growth visible year round. <i>U. intestinalis</i> grows long thin-walled inflated tubular fronds from a small disc base from spring, gets bleached and dies off in very hot weather.</p>	<p>Bladder wrack <i>Fucus vesiculosus</i> Feamainn bhoilgineach</p> <p>38. A green-brown seaweed with branching fronds and paired air bladders as in this sheltered bay site where the bladders help it float (left). However this amazingly adaptable seaweed takes on a different shape on exposed rocks – e.g., at the Far Beach entrance in Ballymoney, where it is reduced to rags in winter and has a very strong midrib and almost no swim bladders (right). On the land-facing side of rocks behind Ship Rock is an intermediate form (middle).</p>	<p>Toothed wrack <i>Fucus serratus</i> Míoránach</p> <p>39. A tough brown to greenish seaweed with narrow, flat fronds which have a thick midrib and noticeable saw-like edges. There are no air bladders. A few found at the start of Far Beach and on rocks north of Ship Rock.</p>	<p>Purple Laver <i>Porphyra umbilicalis</i> Seabhac dearg</p> <p>40. Like a brownish version of sea lettuce when in water, but distinct glistening dark membrane on rock when the tide is first out. See rocks at entrance of Far Beach. While edible, don't pick it unless you see lots.</p>	<p>Coral weed <i>Corallina officinalis</i> Feamainn choiréalach</p> <p>41. Unusual, small feathery pink-purple seaweed which produces a hard calcareous cover made up of tiny segments. It grows in only a few spots here – mainly on the near shore rocks where it juts out of the water at low tide. Turns white when dead.</p>	<p>Bread crumb sponge <i>Haliclondria panicea</i> Spúinse grabhógach</p> <p>42. Orange, yellow or greenish soft encrusting sponge, which holds fast to sheltered corners between seaweed or inside a ship wreck. It has tiny pores where water is pulled in and larger volcano-like holes called oscula, where water leaves the sponge.</p>	<p>Beadlet Anemone <i>Actinia equina</i> Bundún coirneach</p> <p>43. Our most common anemone is a reddish-brown-green, barrel-shaped jelly lump with sucker base stuck to shaded area of rock. Mass of ~ 200 tentacles with sting cells come out of the centre to catch food when in water. Report any other variety.</p>	<p>Common Limpet <i>Patella vulgate</i> Bairneach coiteann</p> <p>44. Firmly stuck to the rocks when the tide is out, these animals die if prised off! When covered by water, they graze on the seaweed carpet. The common limpet is the largest and grey white, with blunt top. Several others occur, including <i>P. intermedia</i>.</p>	<p>Rough wrinkle <i>Littorina saxatilis</i> Faocha gharbh</p> <p>45. A small grey-brown/black whorled shell, which is rough to touch. Feeds on seaweed and has a lung to breathe air, so it can survive high in the intertidal. Carries a horny plate, (operculum) which is pulled closed when the tide is out or if under attack.</p>	<p>Dogwhelk and egg capsule <i>Nucella lapillus</i> Cuachma chon</p> <p>46. A white, grey or yellow striped heavy whorled shell up to 5 cm high, smooth or with rills. Shell opening has siphonal canal. Moves on soft foot, with drill end and attacks, then liquidises and 'drinks' its prey incl. baby limpets, mussels and barnacles. On/under rock with operculum closed when the tide is out. Lays eggs like milky yellow skittles. Eggs show the area is not contaminated by TBT paint.</p>	<p>Mussels <i>Mytilus edulis</i> Na muslaí</p> <p>47. One of three native mussel species. While in the water, eggs and sperm turn into planktonic larvae. The shells open to filter food out of the water, shut tightly when the tide is out. A high protein food for fish, starfish, birds and man.</p>	<p>Native Oyster <i>Ostrea edulis</i> Oisre dúchasach</p> <p>48. Large, edible, off-white, grey/beige shellfish filter feeder, with one curved and one flat shell, cemented onto shell pieces or stone on the seafloor in the sublittoral (oyster beds). A Red Data species, protected under the OSPAR convention. Extinct on east coast. P</p>	<p>Gigas Oyster <i>Crassostrea Gigas</i> Oisre an Aigéin Chiúin</p> <p>49. Imported from Japan into Europe for aquaculture, the Gigas Oyster has adapted to our cold waters and is now an IAS covering miles of shore in the North Sea. It is spreading in Ireland. Please report any sightings of this IAS to Coastwatch.</p>	<p>Barnacles <i>Cirripedia</i> Na cúbchosaigh</p> <p>50. With the head stuck to a solid surface, these crustaceans look like hundreds of shell volcanoes with trap doors at the top. In water, the doors open and hairy legs come out to sweep through the water, bringing food down into the mouth.</p>	<p>Common Shore Crab <i>Carcinus maenas</i> Portán glas</p> <p>51. These green-brown crustaceans with five pairs of legs are clever predators and scavengers. Watch pincers on first pairs of legs! They hide under seaweed and rocks. Note the sharp edges on the shell, with three blunt 'teeth' between the eyes.</p>	<p>Edible Crab <i>Cancer pagurus</i> Portán dearg</p> <p>52. The shell or 'carapace' is oval with plicrust like rounded edges up to 15 cm. Big pincers with black tips on first legs; other legs hairy. Adults scavenge mainly in deeper water. Can live 20+ years. As it grows, the shell has to be abandoned and a bigger one excreted.</p>	<p>Mermaid's purses Eggs of Ray Raja and Dog fish <i>Scyllorhinus canicula</i></p> <p>53. The fish lay eggs in capsules with thread ends to tie them to seaweeds and sponges on the sea floor. Egg capsules are distinct for each species. Rays and skate eggs are always darker, more flattened and often larger than the dog fish eggs.</p>
--	---	---	---	---	---	---	---	--	--	--	--	---	--	--	--	---	---

Macro algae or seaweeds are attached to rock, shell or other seaweeds. They photosynthesise like plants on land. But as they take up food from the water rather than soil, they don't need roots, just a base attachment. They are divided into Green, Brown or Red, though the actual colour may mislead you as to group it belongs to.