

# Shores around Garðskagaviti

## Tides and temperature

- The intertidal zone, also known as the foreshore and seashore and sometimes referred to as the littoral zone, is the area that is above water at low tide and under water at high tide (in other words, the area between tidemarks, high tide and low tide).
- Tides are the rise and fall of sea level caused by the combined effects of gravitational forces exerted by the Moon, Sun, and rotation of the Earth.
- The tidal cycle is 12,5 hours with the low tide 6 hours and 15 minutes after high tide.
- The difference in height between high and low waters varies in a two-week cycle. Approximately twice a month, around new moon and full moon when the Sun, Moon, and Earth form a line, the tidal range is then at its maximum; this is called the spring tide.
- The difference between high and low tide in south-west Iceland is 3,3-3,8 meters on average.
- This regular movement of the tides make the shoreline habitat unique. Plants and animals are adapted to an environment of harsh extremes.
- The warmest sea around Iceland is on the south-west coast, averaging in August around 12°C.
- Some benthic plants and animals can only be found on the south-west coast, mainly due to the high temperature.

## Algae

- Garðskagi is the northernmost tip of Reykjanes peninsula. The area contains a mixture of sandy beaches and rocky shores. The rocky shore substrate can range from large stones to solid cliffs often covered in seaweed. The flatness of the area makes large zones exposed on the low tide. It is easily accessible and ideal to look for animals hidden between and under rocks.
- Rocky shores are characteristic for Icelandic shores and are the most widespread substratum on the Icelandic coastline.
- The region contains a high diversity of species, and the zonation created by the tides causes species range to be compressed into very narrow bands.
- Algae is a big group consisting mostly of aquatic photosynthetic eukaryotic organisms. Seaweed refers to several species of multicellular marine algae that grow and live on the seabed (benthic). The term includes red, brown and green algae.
- The most easily identified benthic seaweed in the tidal zone of Iceland are the fucoids and kelps. However, some common and abundant algal species are neither fucoids or kelp, for example dulse (söl) and dabberlock (marinkjarni).
- The most common seaweed found in Icelandic rocky shores are channeled wrack (dvergþang), spiral wrack (klapparþang), bladder wrack (bólþang), rockweed (skúfþang) and toothed wrack (sagþang).
- Kelps (þari) are large brown algal species that can be found just under low tide and sometimes on the water surface during spring tide. The most common ones are sea belt (beltisþari), oarweed (hrossaþari) and tangle (stórþari).
  - The holdfast is large and cone-shaped, the stipe is circular in cross section, rough and thick. The blade is yellowish brown with large digitate segments.

- Common but smaller algal species in the tidal zone are for example the red-algae like dulse (söl), Irish moss (fjörugrös), stackhouse (sjávarkræða) and common coral weed (kóralþang).
- At the top of the rocky shore one can find few species of green algae which can be hard to identify. There it is often possible to find black lichen (skóf eða flétta). A lichen is a composite organism that arises from algae or cyanobacteria (or both) living among filaments of a fungus in a symbiotic relationship.

### **Benthic Animals**

- Animals in the littoral zone are mostly of marine origin. Most of these animals are small, and not as visible as the thick brown algae.
- Molluscs (clams and snails) are the most abundant animals in the shores of Iceland.
- The blue mussel can be found in most tidal zones. It can live in diverse habitats and is not “picky” when it comes to habitat selection.
- Crabs can be found in the tidal zone. Under rocks and in the littoral zone the most abundant crab is the green crab (bogkrabbi) while other crabs such as the hermit crab (kuðungakrabbi) and the spider crab (trjónukrabbi) can also be found.
- Dogwhelk (nákuðungur) is a distinctive marine snail, easily identified on the rocky shore.
- Looking through the seaweed one could find many different molluscs, for example flat periwinkle (þangdoppa), rough periwinkle (klettadoppa), little mullet shell (mæruskel), northern lacuna (kúfstrútur) and spiral margarite (gljásilfri).
- Microscopic animals are in the seaweed in big numbers. Acarina (look like small little red spiders), harpacticoids and nematodes can be found in most habitats in the rocky shore but are hard to spot due to their small size.
- Vertebrates can be found in the seaweed and in tidal pools. Rock gunnel (sprettfiskur), juvenile lumpfish (hrognkelsi), sticklebacks (hornsíli), juvenile five-beard rockling (keilubröðir) and few other fish species.
- Turning over a stone in the rocky shore can be a great excitement. Everything starts to move and small crustaceans flee for safety. The most abundant animals are the amphipods (marflær). Usually under rocks you would find amphipods named Gammarus spp. (fjörufær) but there are more species around. They can only live on dry land for short amount of time so they will go for moist or wet rock beds.

### **Birds**

- Reykjanes peninsula is one of the best places in Iceland to observe birds all year around.
- All the Icelandic seabirds can be spotted from Garðskagaviti, as well as many non-breeders. The reason for the easy access to seabirds is due to the fact that Garðskagi is the northernmost tip of the peninsula and reaches out to one of the richest fish areas around Iceland and therefore the food source for seabirds.
- Seaweed drifts ashore in Garðskagi and starts to rot on the coastline. The heat and degradation of seaweed forms suitable habitat for kelp fly larvae. The larvae and the flies are a rich food source for waders (vaðfuglar) and passerines (spörfuglar).
- Purple Sandpipers (sendlingar) walk in the seaweed and on rocks and pick up small invertebrates.

- Turnstones (tildrur) throw around small stones and seaweed in search for larvae and flies.
- Sanderlings (sanderlur) run up and down along the tide on sandy beaches and grab invertebrates and edible biofilm.
- Redshanks (stelkar), whimbrels (spóar), dunlins (lóuþrælar), ringed plovers (sandlóur) and oystercatchers (tjaldar) walk on stones and on the beaches and pick up invertebrates between rocks and in the sediment.
- Northern wheatears (steindeplar), wagtails (maríuerlur) and meadow pipits (þúfutittlingar) catch flies in flight.
- Blackhead gulls (hettumáfar), kittiwakes (ritur), Iceland gulls (bjartmáfar), glaucous gulls (hvítmáfar), lesser black-backed gulls (sílamáfar), herring gulls (silfurmáfar) and great black-backed gulls (svartbakar) fly over the area in search of food, both at sea and on land.
- Eiders (æðafuglar), teals (urtendur) and mallards (stokkendur) dive or dabble for molluscs and other food from the bottom.
- Great northern divers (himbrimar), red throated divers (lómar), common mergansers (toppendur), great cormorants (dílaskarfar) and shags (toppskarfar) are often close to shore diving for fish.
- Common guillemots (langvíur), razorbills (álkur), black guillemots (teistur) and puffins (lundar) can be seen flying in big flocks out at sea.
- Plunging gannets (súlur) can be seen close to shore in the spring, summer and autumn.
- Garðskagi is a good place to look for vagrant birds, especially around the brackish ponds around Garður and the coastline from Sandgerði to Garðskagaviti.