

WHAT ARE ROCKY SHORES

The rocky shore ecosystem is the vibrant and diverse area on both the west and east coast of the Western Cape, where the land meets the sea. Here waves repeatedly and forcefully beat the coastline, which is one of the major driving forces behind the range of living conditions experienced by species occupying this environment. This rising and falling of the tide creates a gradient of different zones based on how frequently water occupies a zone. The intertidal zone alternates between being covered and exposed by the ocean water with each rise and fall of the tide.

WHAT ARE THE DIFFERENT ZONES

LITTORINA ZONE

- remains dry most of the time
- species adapted to heat stress and water loss
- Littorina is abundant.

UPPER BALANOID ZONE

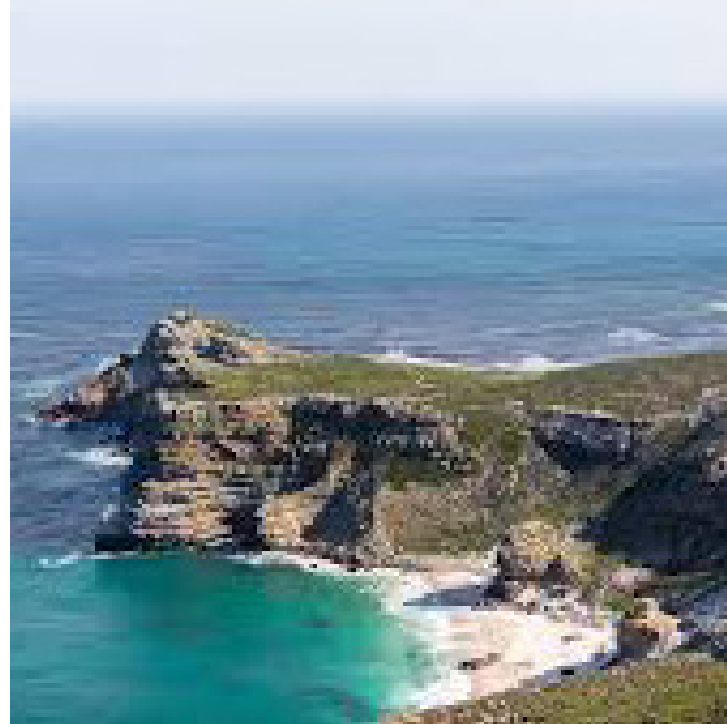
- wet during high tide

LOWER BALANOID ZONE

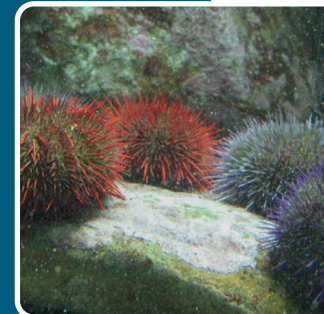
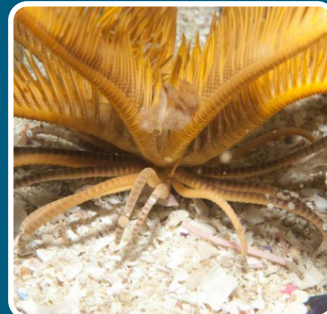
- wet and dry during high tide

INFRATIDAL ZONE

- usually wet



ROCKY SHORES



WHAT MAKES THIS AREA UNIQUE

Low intertidal and high intertidal areas have different organisms living in each zone due to this rise and fall of tides which leads to varying degrees of exposure to air, heat thermal stress and period of emersion. Organisms living in the rocky shore habitat are well-adapted to the zones they occupy and differ according to them. This habitat supports incredibly diverse communities of marine plants and animals. In order to live in the rocky shore environment many animals need not only deal with strong wave action but are also exposed to a changing environment from wet to dry referred to as tidal inundation. This creates the degree of immersion experienced by a species which varies according to an organism's level on the shoreline, thermal conditions, nutrient conditions and climate. For example, desiccation can result in dehydration and species occupying zones with long periods of air exposure need to be able to deal with this kind of stress. The changing tide creates rocky pools which vary in temperature and salinity with each pool as a result of water moving in and out of these pools daily. Therefore, the species living in the rocky shore habitat are well-adapted to not only the rocky shore as a whole but their respective zones or pools as well. This habitat has harsh living conditions due to a range of physical conditions experienced by organisms occupying the intertidal habitat.

PERLEMOEN

This habitat is also home to the infamous, endemic and endangered abalone or commonly referred to perlemoen (*Haliotis midae*). Illegal harvesting is a major threat to abalone stocks. This is mainly due to lack of opportunities and poverty in small towns along the coast as well as the result of poorly managed fisheries. These organisms only reproduce every 8 to 10 years which gives more reason to protect them.



OTHER THREATS

South African rocky shore ecosystems face major natural and human threat. Some of the human threats include climate change, overharvesting, pollution and invasive species. At different degrees each of these threats cause major changes in food availability, predation rates, competition between organisms and environmental stress experienced by species in the rocky shore habitat. Rocky shore monitoring is necessary in the Western Cape so as to detect early introduction of invasive species as well as to prevent the proliferation of these species.

WHY ARE ROCKY SHORES IMPORTANT

Species interactions on the rocky shore are strong and important in determining patterns of distribution and abundance in the community. The rocky shore area also provides important breeding grounds as well as nursery areas for many fish and other marine organisms making it a vital area for certain periods of the life history

of many species. The nursery area helps protect the growth and development process of these fish and in turn replenish fish stocks. Rocky shores are also a productive food source and provide food and shelter for many threatened marine species.

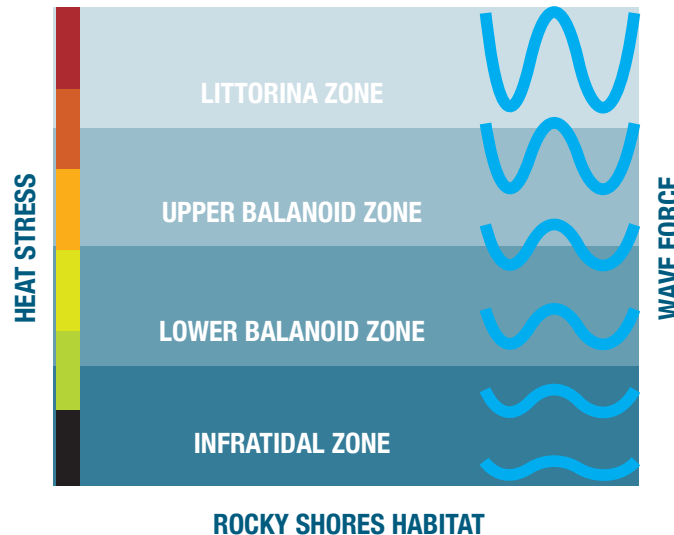
WHAT LIVES HERE

Here the main source of primary production is the seaweeds and microscopic phytoplankton we can find floating in the water.

The algal organisms living in the rocky shore environment are suited to live there due to their ability to grow and live on hard surfaces including the rocks along the shore. They use their holdfasts to cling to the rocks through the strong forces exerted by waves.

All the animals occupying this habitat depend directly or indirectly on this food source. Some species of algae are harvested for commercial use such as the saw-edged jelly weed or algae (*Gelidium pristoides*) which is harvested for agar. Other commercially exploited algae of rocky shores include *Lessonia*, *Ecklonia*, *Laminaria*, *Durvillaea*, *Iridaea* and *Gelidium*.

Many marine birds rely on the rocky shore habitat as food and breeding ground. It supports the more colourful spiny skinned Echinoderms including starfish, seastars, feather stars, sea urchins and sea cucumbers. Some other interesting species living in rocky shores include barnacles, limpets, sea snails, crabs. It also provides habitat for many invertebrates including important bait species such as mussels and oysters.



“The severity of the wave force is the greatest at the rock headlands and declines to the lower or more and more sheltered areas.”