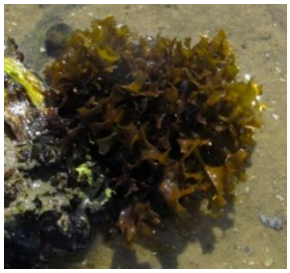
1. Marine life at the beach

Troothed wrack (Fucus serratus)

Bladderwrach (Fucus vesiculosus)

Sukkertare (Laminaria saccharina)



Irish moss (chondrus crispus)

Furcellaria (Furcellarialumbricalis)

Shore crab (Carcinus maenas)

flat periwinkle (*Littorina obtusata)*

common periwinkle (Littorinalittorea)


common starfish (Asteriasrubens)


Netted dog whelk (Nassarius reticulatus)

blue mussel (Mytilisedulis)

common cockle
(Cerastodermaedule)

Venerupis Rhomboides

oyster (Ostreaedulis)

European common cuttlefish
(Sepia officinalis)

2. Clear zoning of animals and plants in the littoral zone

The littoral zone can also be called the intertidal zone. This zone is really interesting for ecologist to have some studies there. You can find the intertidal zone at every coastline around the world. The conditions inside the intertidal zone are vary continuously. This is the reason why it is divided into several vertical zones:

The highest zone is called *supratidal fringe or splash zone*. It is mostly wetted by waves and sometimes of high tides. Below this fringe is the *intertidal zone*. It is divided into the upper intertidal zone, which is covered during the highest tides and the lower intertidal zone, which is uncovered during the lowest tides. Between those two zones is

the *middle intertidal zone* which is covered and uncovered during average tides. Below this zone is the *subtidal zone* which is covered by water during the lowest tides.

In these zones are different types of physical conditions given.

Light

Water turbulences which are given in a high tide reduces light intensity. On the other side at low tides the full intensity of the sun is given.

Temperature

Temperatures are always changing in the intertidal zone because it is exposed to the air once or twice each day. Sometimes the temperature turns to freezing temperatures during low tides. This could maybe happen at high latitudes, tide pools or small basins. But along tropical and subtropical shores the temperature can increase to 40°C for example in tide pools.

All those factors which are given in the intertidal zone lead to the clear zoning of animals and plants in the littoral zone. The living species inside the water have to find a way in which they can survive and find their zone for living (= zonation of species).

Examples which species are living in the zones:

Upper intertidal zone = for example: rock louse

Middle intertidal zone = for example: Limpet

Lower intertidal zone = for example: Crabs, Rock weed

Subtidal zone = for example: sea star, algae

3. Bringing children to the shoreline

Activity: Combination with mathematics

Task: Find similar species, for example: snails, shells or algae, which are living at the shoreline. You should find at least 10 of them. Create a mathematic task with it.

Present it afterwards to your class mates.

Groups: 3 Students

Group age: 8-10 years old

Schedule plan:

Introduction into the species which are living at the coast line	In school
Field work	At the shoreline
Going more into details – which species were found	At the shoreline

Important for students:

- Bring good clothes

- Bring clothes to change

- Bring food and something to drink

Important for the teacher

- Wear good clothes → role model
- Overview about the people working at the shoreline
- Being there for questions

Challenges

- The weather conditions are getting worse and it´s not able to be outside anymore
- Some students don´t find 10 species