FAUNA OF SANDY BEACHES

CALVI-EXCURSION

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12.07.2018

LIST OF CONTENT

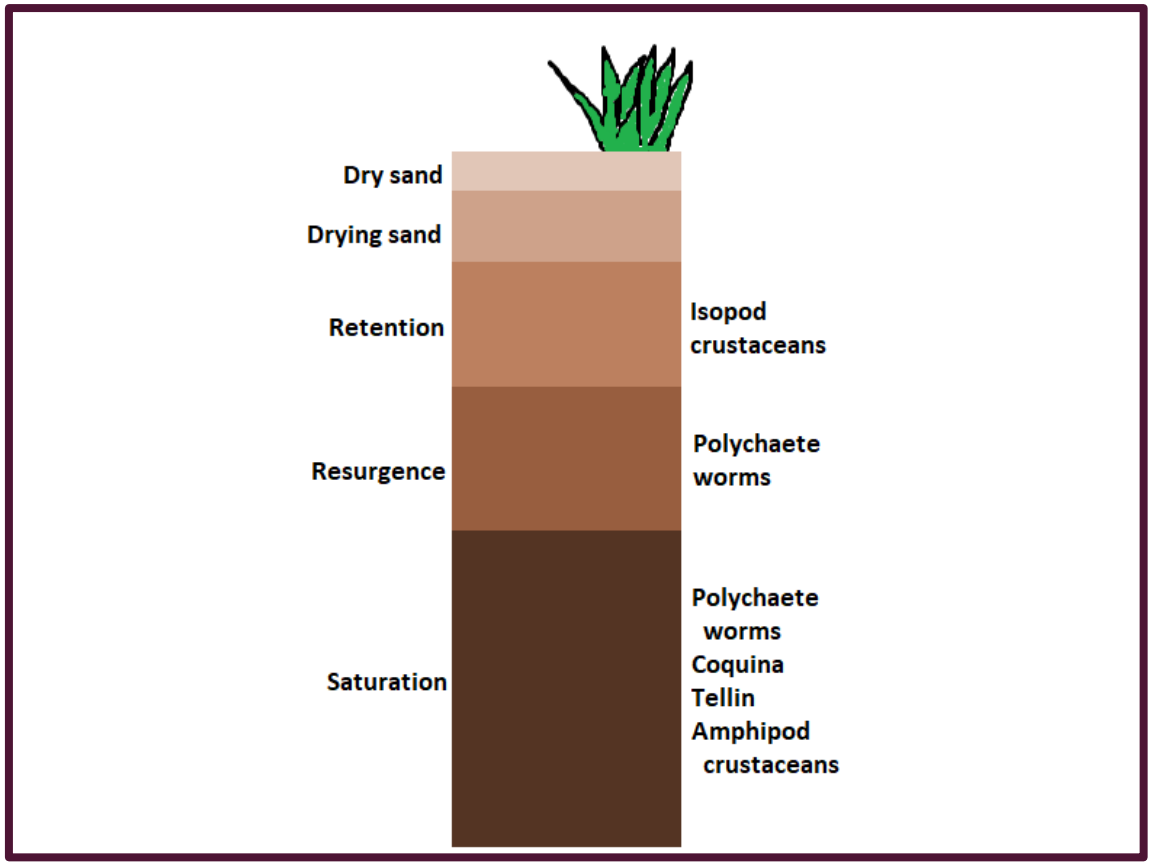
- Beach formation
- Zonation of sandy beaches
  - Vertical
  - Horizontal
- Meiofauna
- Macrofauna
- Summary

BEACH FORMATION

- Product of kinetic energy of biosphere → mainly wind + water
- Strong connection between mountain building process and formation of beaches
- Water + transport from stone material towards valley (saltation) = stone grinder
- Alps as an example for massive erosion
- Biotic sand 'producer': seashells, calcite shells and coral reefs

[1]

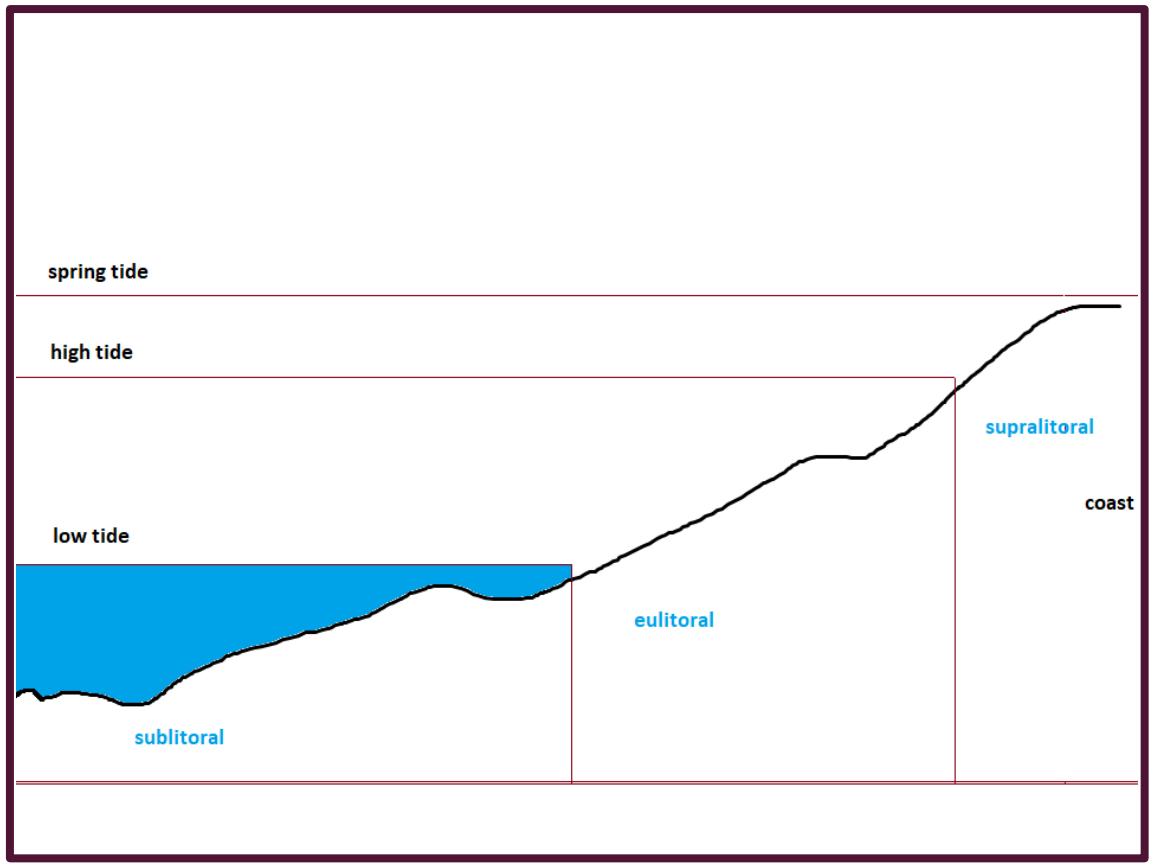
ZONATION-TYPE VERTICAL



[2] adapted from: Karleskint et. al (2013)

- Zone 1: Dry sand
- Zone 2: Partially dried sand
- Zone 3: Capillary forces holding back moisture during low tides
- Zone 4: Hold back water during low tides
- Zone 5: Permanently wet

ZONATION-TYPE HORIZONTAL



- Sublittoral: always covered with water
- Eulittoral: intertidal zone, characterized by a change between high and low tides
- Supralittoral: only covered with water during storm tides = splash zone, can include dunes

[3] adapted from: http://www.lebensraum-wattenmeer.de/spulsaum.html [11.07.18]

FAUNA

Grouping by residence

- Living freely in the water column
- Epipsammon = living ‚on' the sand
- Endopsammon = animals bury themselves
- Mesopsammon = interstital, living between the sand grains

Grouping by size

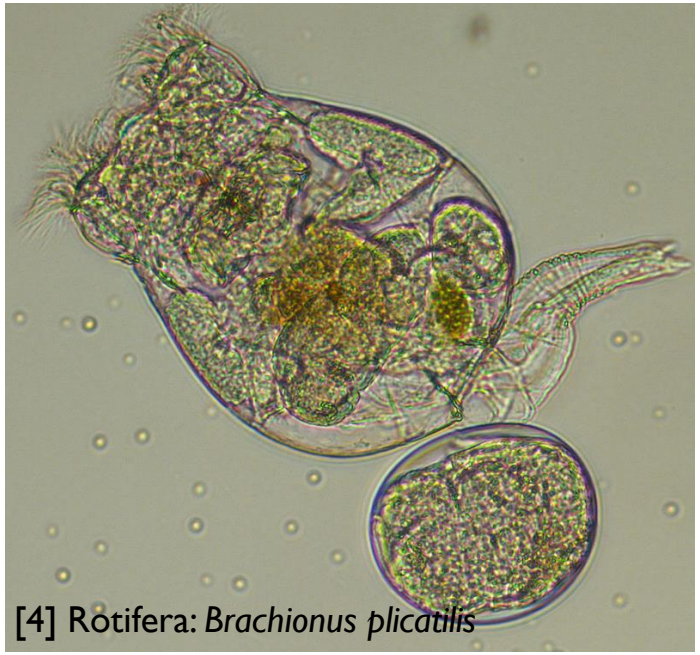
- Macrofauna
- Meiofauna

MEIOFAUNA


Fox Frank (2011), http://www.mikro-foto.de

- Size: 0.5 – 1 mm → Intermediaries between microbes and macrofauna
- Living in the upper part of the interstitial or on aquatic plants
- Slender and worm-shaped, often with cilia
- Nematoda and crustacea are dominant
- Basic food resource to a higher trophic level → example: copepods

EXAMPLES FOR MEIOFAUNA



[4] Rotifera: *Brachionus plicatilis*

[6] Flatworm: *Foviella affinis*

[7] Marine mite: *Arrenurus sp.*

[5] Gastrotricha: *Chaetonotus maximus*

[8] Crustacea: *Gammarus roeselii*

Size: 0.5 mm - 1 mm

MACROFAUNA

- Living on or in the sediments of marine habitats + size: bigger than 1 mm
- Infauna = living in the sediments
- Epifauna = living on or just above the sediment
- Critical link between a variety of primary producers, organic matter sources and different fish etc.
- Economically important species → Eastern oyster, hard-shelled clam …
- Indicator for environmental status (!)

EXAMPLES FOR MACROFAUNA

[9] Cnidaria: *Pelagia noctiluca*

[10] Fish: *Pleuronectes platessa*

Marine species bigger than 1 mm

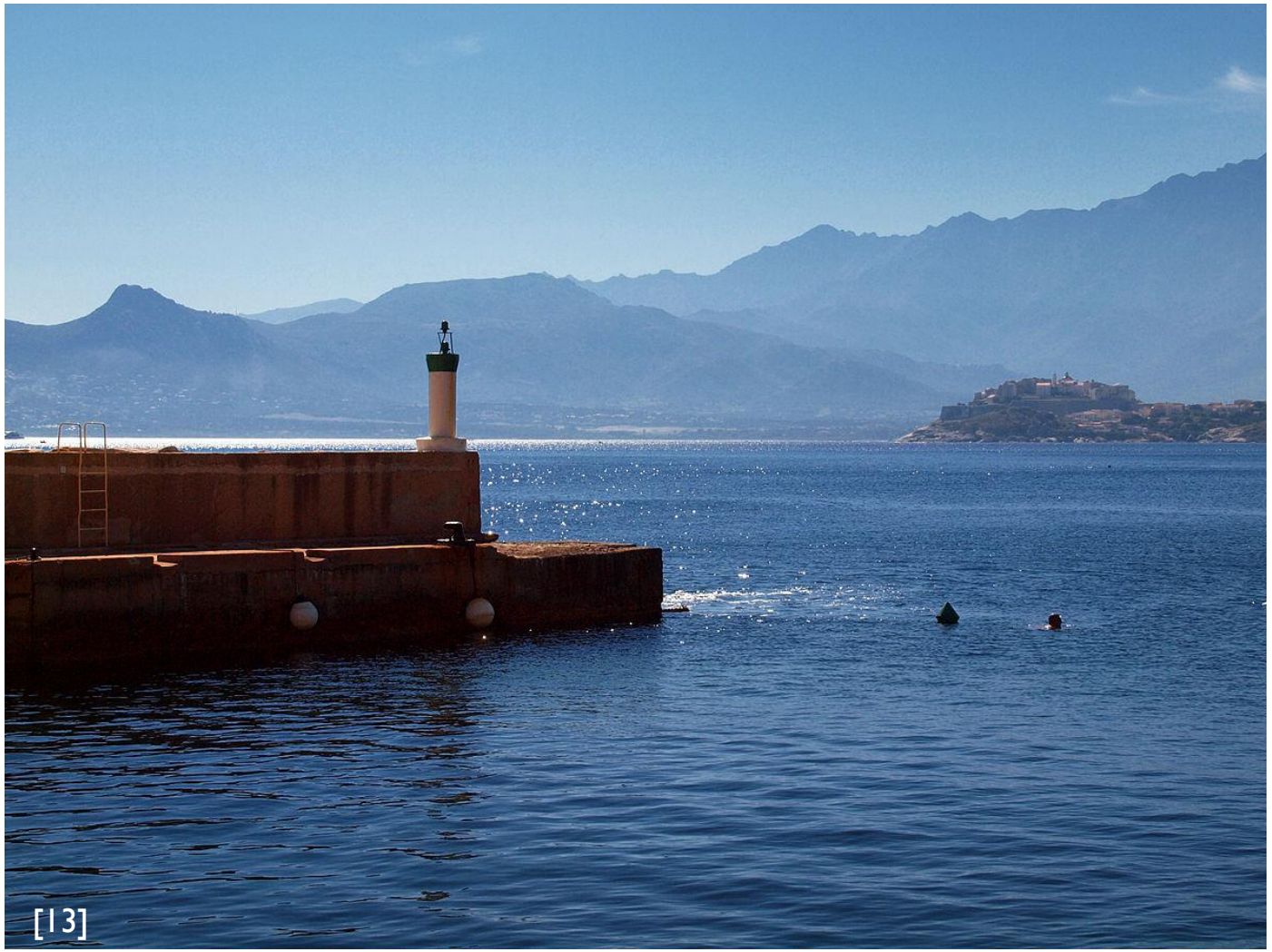
[11] Crab: *Ocypode convexa*

[12] Echinodermata *Holothuria tubulosa*

SUMMARY

Sandy beaches …

- are underestimated habitats with a high biodiversity
- can be zoned vertically or horizontally
- have a macro – and a meiofauna


[13]

THANK YOU FOR YOUR ATTENTION

QUESTIONS?

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PICTORIAL SOURCES

- Title: https://de.wikipedia.org/wiki/Datei:Scholpin-Sandstrand-0906j-260.JPG [11.07.2018]
- [1] https://de.wikipedia.org/wiki/Steinschlag#/media/File:Zeichen_115-10_-_Steinschlag_von_rechts,_StVO_1992.svg [11.07.2018]
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