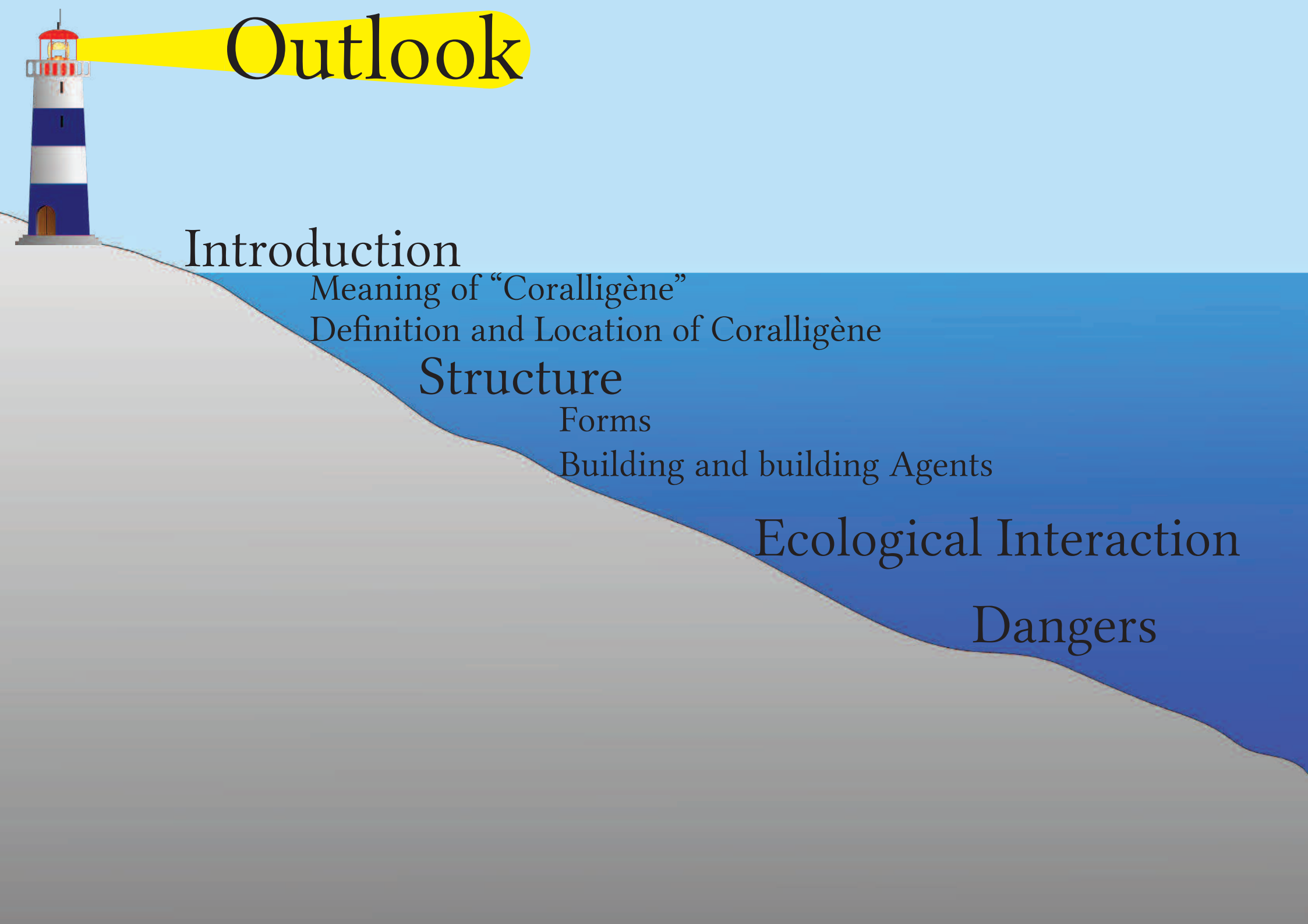
The Coralligène

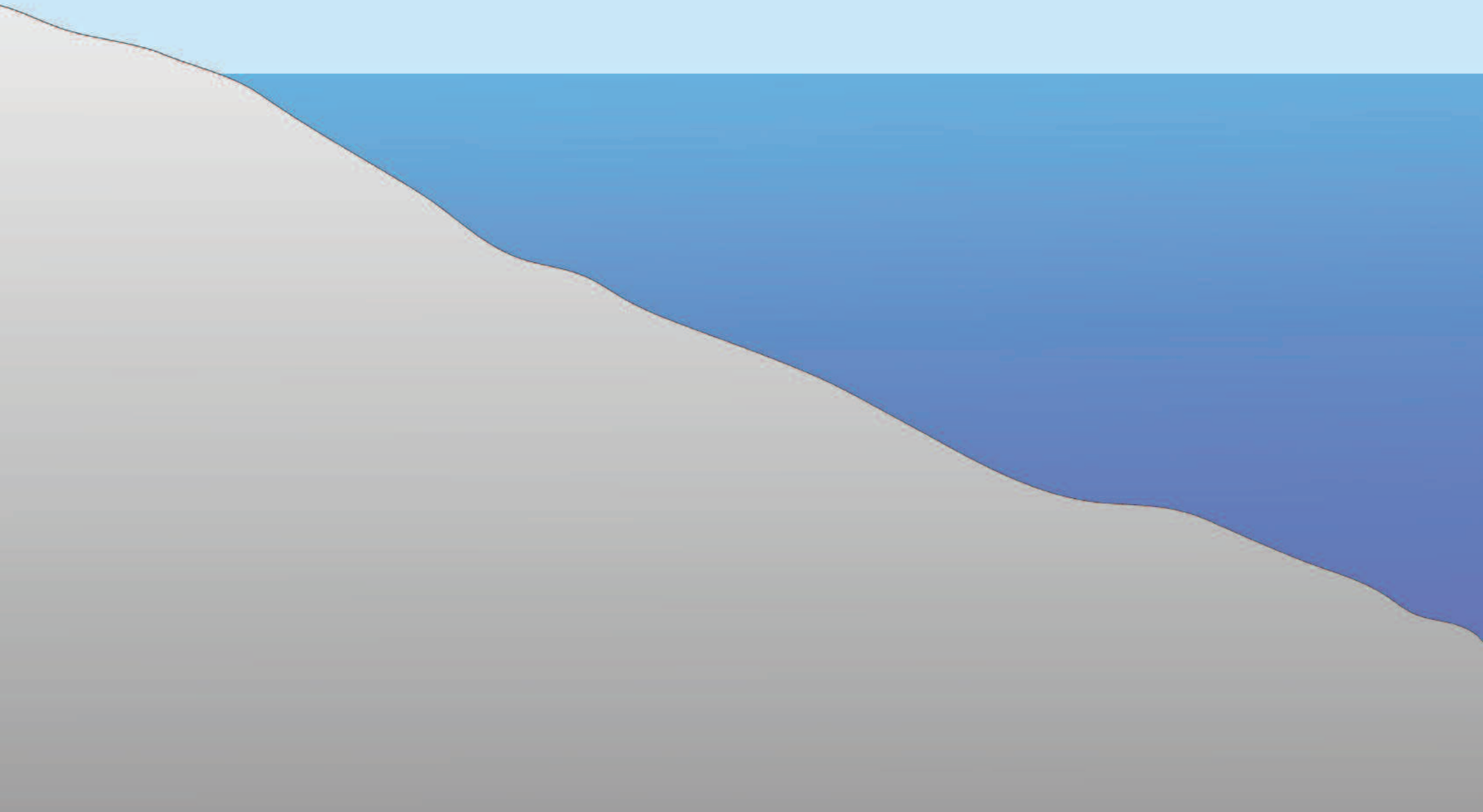
719519 SE Marinbiologie - Entwicklungsbiologie

SS 18 Reindl Simone


Outlook
Introduction
Meaning of “Coralligène”
Definition and Location of Coralligène
Structure
Forms
Building and building Agents
Ecological Interaction
Dangers

Introduction

What means “Coralligène”?



Introduction

What means “Coralligène”?

Obviously -> Corals -> *Corallium rubrum*
also means “coral producer”

Corallium rubrum

Early marine science methods like dragnet or bottom drag hauled them up from circalitoral depths as well as coralline algae.

Caves, crevices and rock prominences were left unsampled.
New equipment: scuba diving -> better sampling

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Corallium rubrum

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Caves, crevices and rock prominences were left unsampled.
New equipment: scuba diving -> better sampling

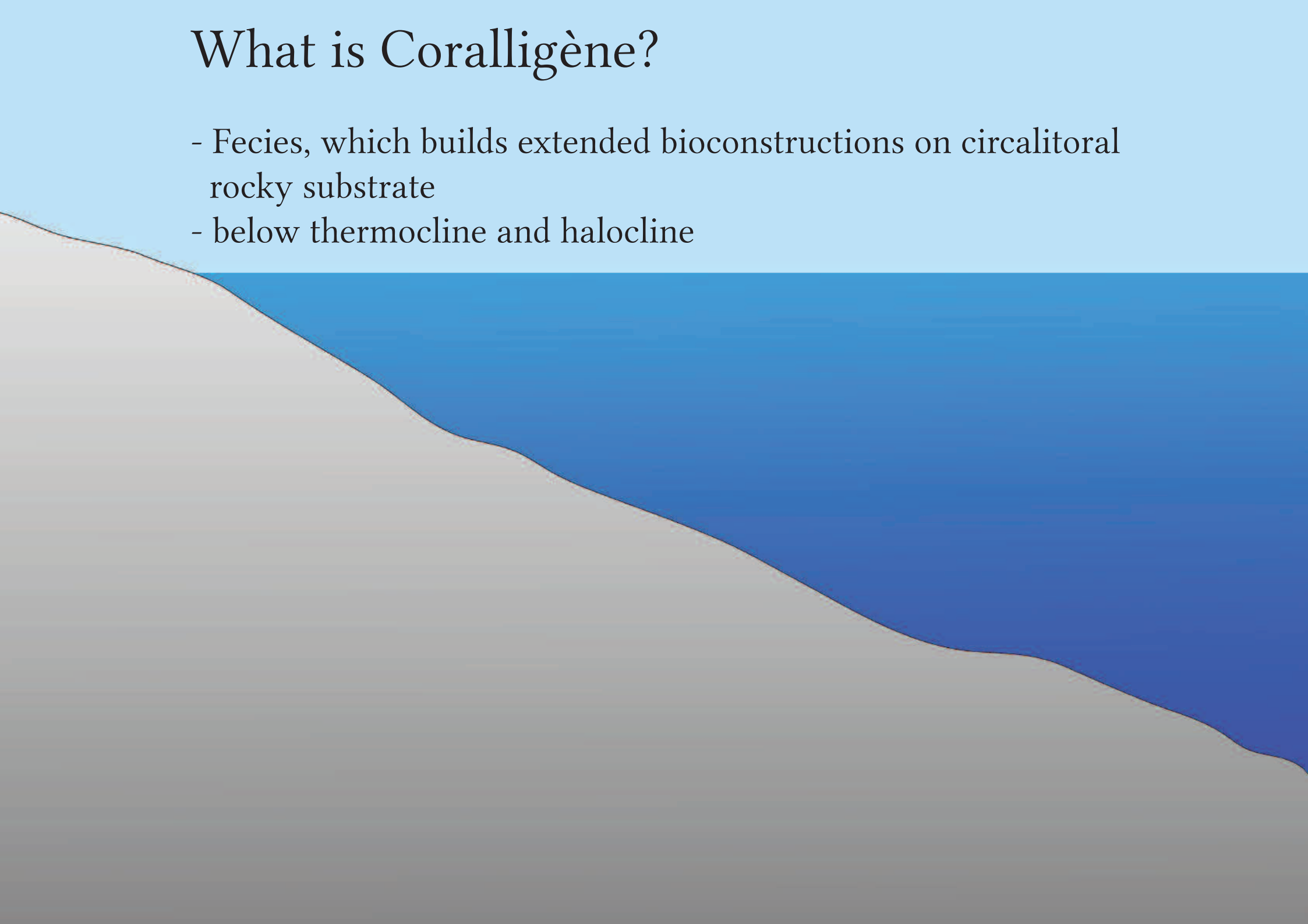
→ Main building agent: Red algae from the family of Corallinaceae

Similar name -> Coralligène retained

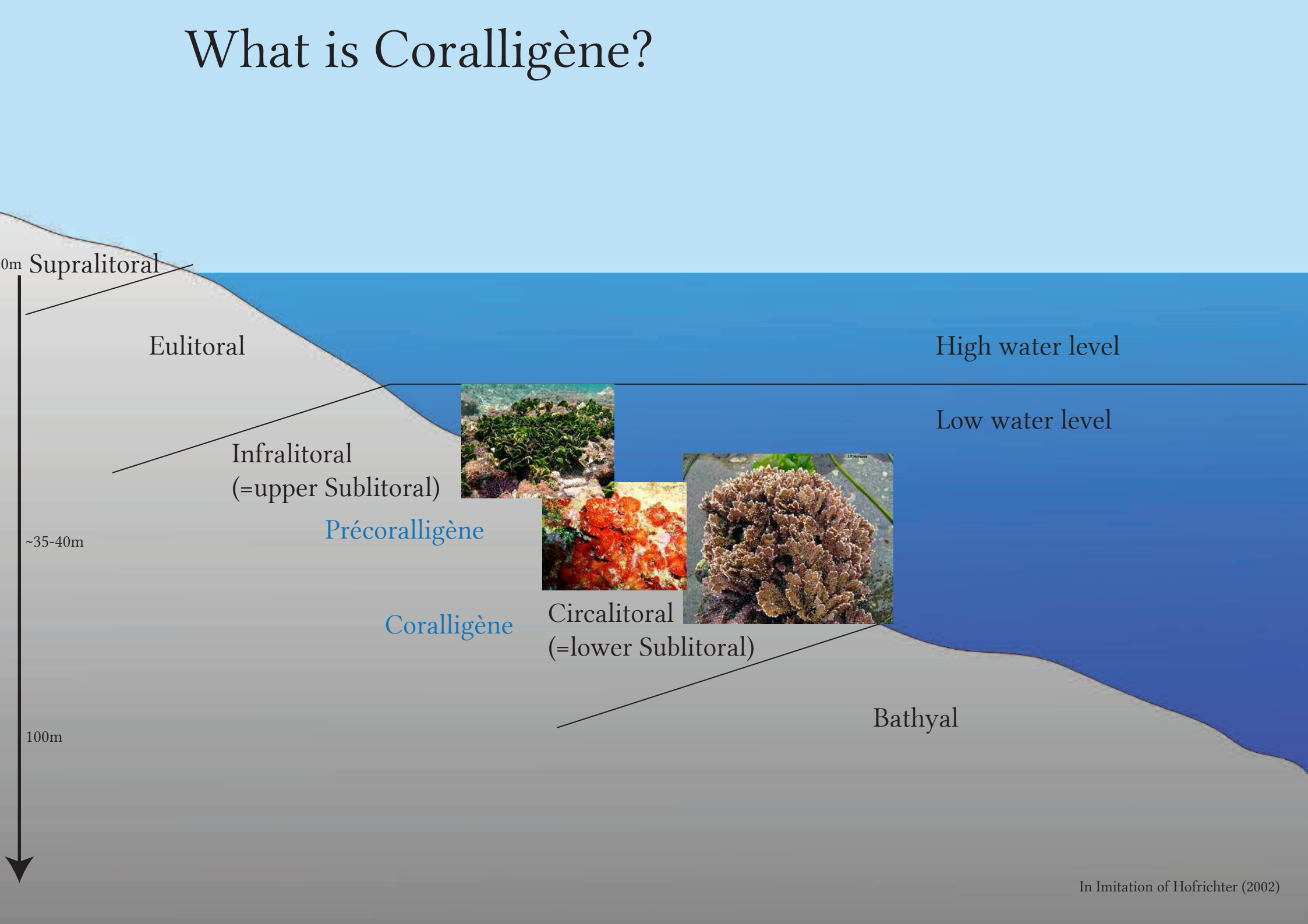
Corallina pinnatifolia

What is Coralligène?

- Fecies, which builds extended bioconstructions on circalitoral rocky substrate
- below thermocline and halocline

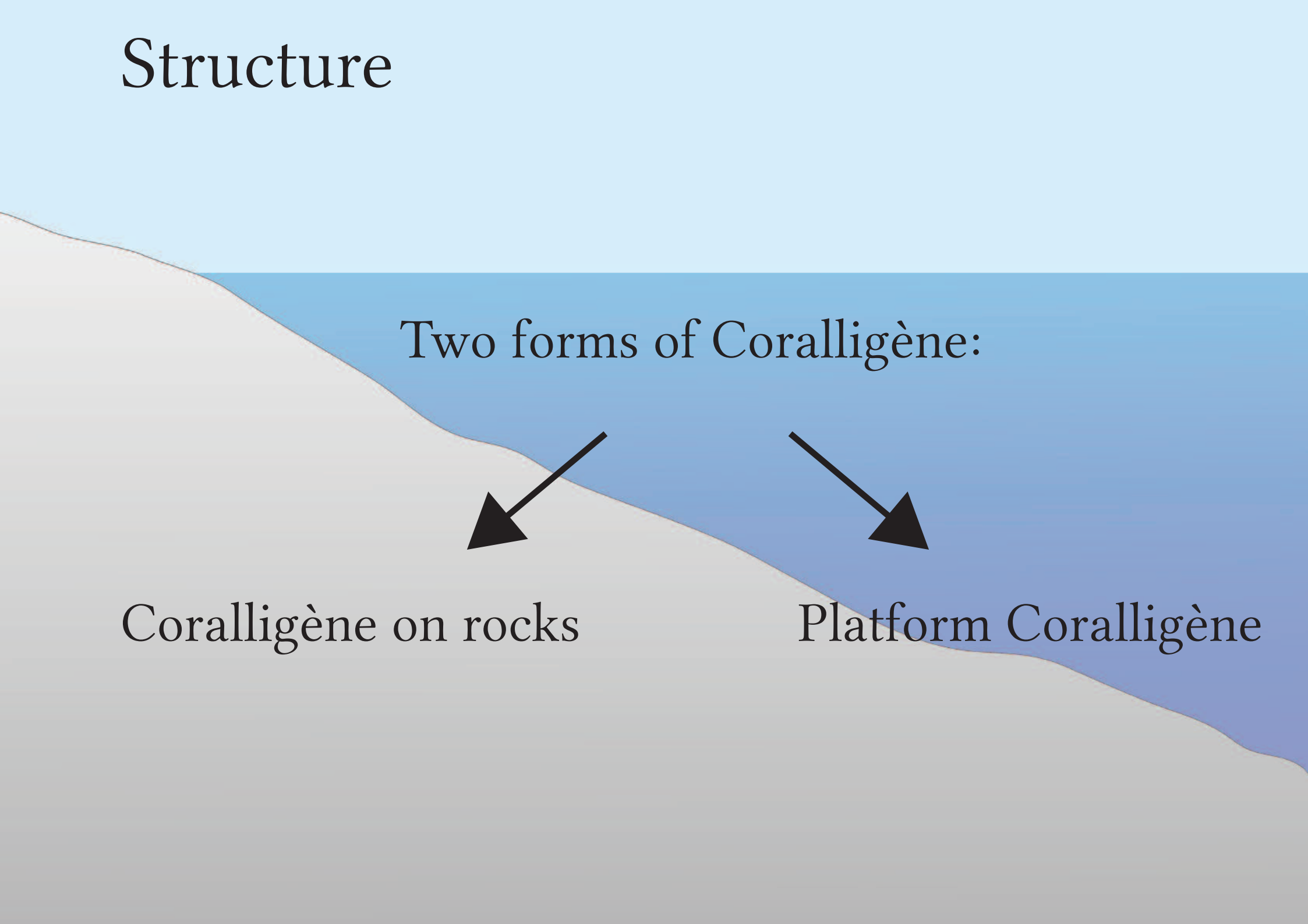


What is Coralligène?



In Imitation of Hofrichter (2002)

Structure


Two forms of Coralligène:
Coralligène on rocks
Platform Coralligène

Structure

… but firstly:
The Precoralligène

- mostly build of *Halimeda tuna* and *Peyssonnelia squamaria*
- transition zone to Infralitoral -> tidal zone
- less light intensity than in the algae phytal (Infralitoral)
- more calm water movement

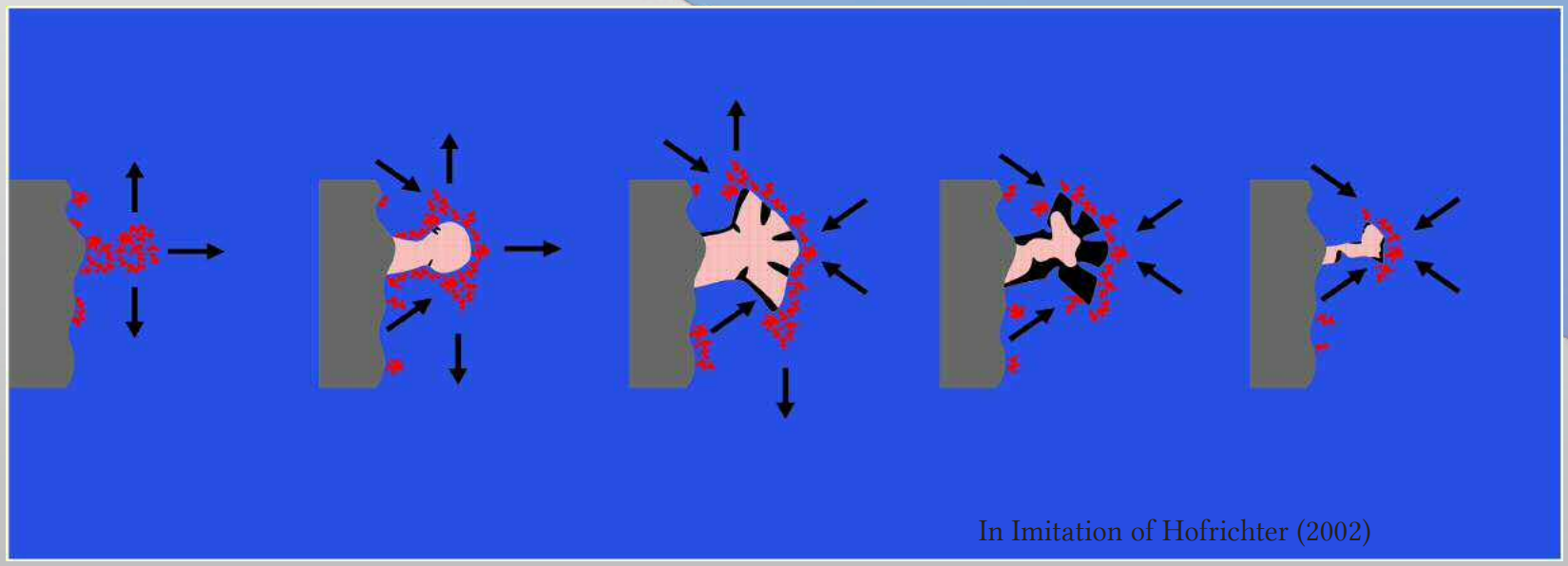
Halimeda tuna

Peyssonnelia squamaria

Structure

1) Development and building agents of **Coralligène on rocks**:

- coralline red algae (Corallinaceae) and green algae settle on rocks
- some die -> calcification -> new settlement of algae
- musselshells, crustaceaen shells -> more calc.
- within dead algae -> drilling animals, other endobionts -> Bioerosion



In Imitation of Hofrichter (2002)

→ In a healthy ecosystem an equilibrium between building and degradation is maintained!

Structure

1) **Coralligène on rocks**:

- in deeper depths, shadowy steep faces, crevices and under overhangs
- layers cm-dm thick

Various layers according to fecies:

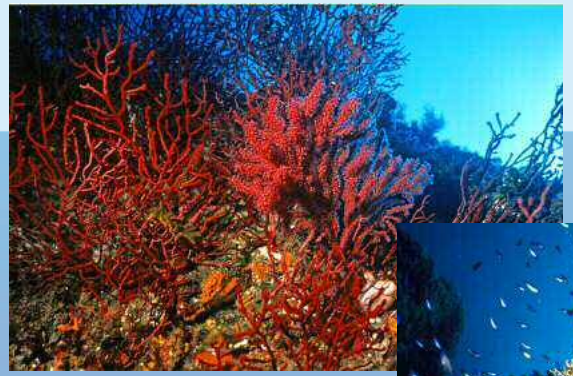
- High layer
  - Gorgonians (horny corals), erectly grown porifera, epizoic animals

- Middle layer
  - erectly grown coralline red algae, Bryozoa colonies, Polychaets, Echinodermata

- "living" crust layer
  - Corallinaceae

- "dead" crust layer
  - dead Corallinaceae, drilling animals, Endobionta

Paramuricea clavata



Eunicella sp.

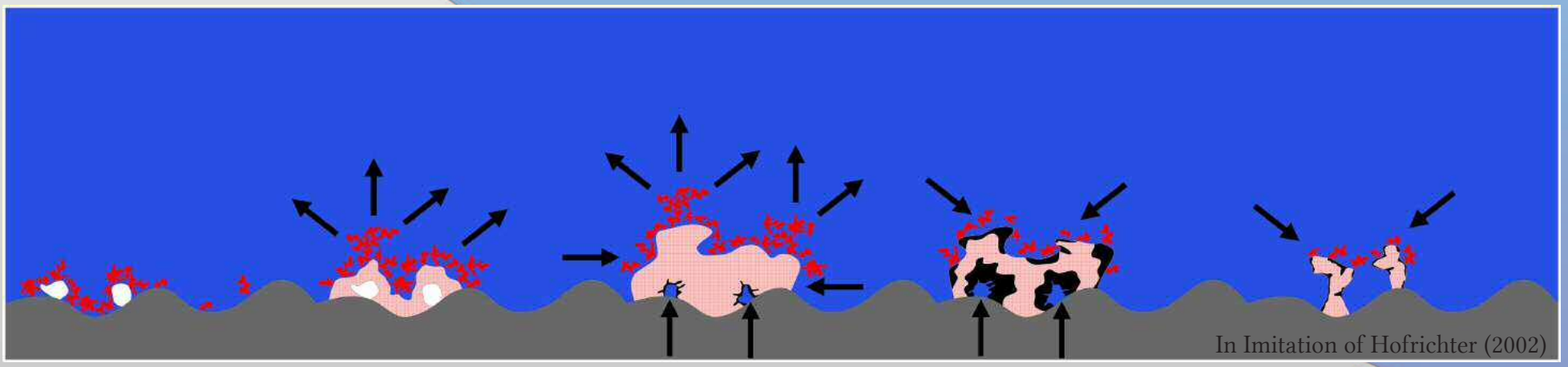
Hermodice carunculata

Arbacia lixula

Structure

2) Development and building agents of
Platform Coralligène:

- coralline red algae (Corallinaceae) settle on originally mobile sediment
- small detritus particles will be enclosed -> Thalli
- Thalli grow together -> Plaques
- leaf like concentric structures are formed



- Order of layers and species composition are the same as in Coralligène on rocks

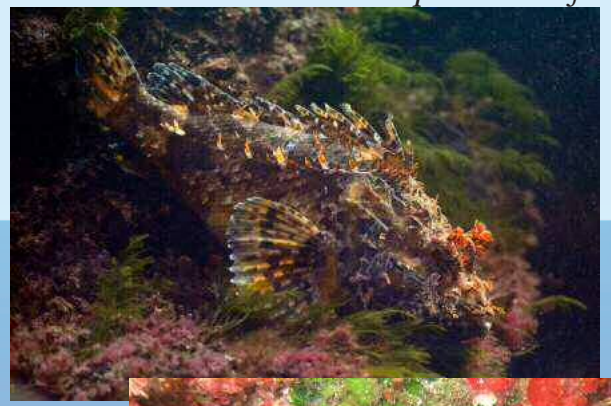
Ecological Interactions

- biggest biomass: algae and suspension feeders
  -> close relationship to Pelagial
  -> dependant on currents and primary production in Pelagial

- Bioerosion: Sea urchins
  -> pasturing on Corallinaceae

- fishes, bigger carnivores: use of cavity in Coralligène as hiding place

Scorpaena scrofa



Muraena helena

Ecological Interactions

- Epibiosis: overgrowing

Halocynthia papillosa

Parazoanthus axoniella

Microcosmus sabatieri

- Commensalism: only one benefits

Cliona viridis

\+ Polychaets

- Parasitism: one benefits, one has disadvantage

- Mutualism: benefits on both sides

Cacaspongia sp.

\+ Jellyfish

Dangers

- Global warming -> physiological stress

- Pollution of sea water -> less light intensity in depths -> light is limitating factor for growth and oxygen supply

- Orthophosphate and CO_2 inhibit building of calcified structures -> disintegration of coralligene structures


Thank you!

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