Diversity and distribution of ostracods in a high-use coastal ecosystem, Bay of Sept-Îles, Québec

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Coastal Ostracoda

Why study ostracods ?

- Good **bio-indicators** : Present in water bodies around the world, good **preservation**, extensive **fossil record**, sensitive to changes in their environment, high **abundance** and **diversity** [1, 2]

Why study the Bay of Sept-Îles (BSI) ?

- Region submitted to various **port**, **industrial**, **maritime** and **urban** activities [3]
- Constant **perturbation** of the ecosystem and benthic communities by anthropic activities [3]
- Region submitted to **climate change** effects, such as a reduction in winter ice cover

OBJECTIVES

1. **Caracterize ostracoda** from the Sept-Îles region
2. Determine the **environmental factors** which explain the **distribution** and **abundance** of ostracoda in the study area

Sub-arctic coast of Canada

Bay of Sept-Îles

- Connected to **Gulf of St-Lawrence**
- **Marine** to **brackish** water gradiant
- Ecosystems : sandy beaches, mud flats, salt marshes, urbanized structures

Field sites : Intertidal zone Bay of Sept-Iles
Field sites : Deeper zone (15-20 m) from Port-Cartier to Matamec

Ostracoda sampling

Habitats :

Bay, port and gulf | Bay

Materials :

Grab | Small corer

Substrates :

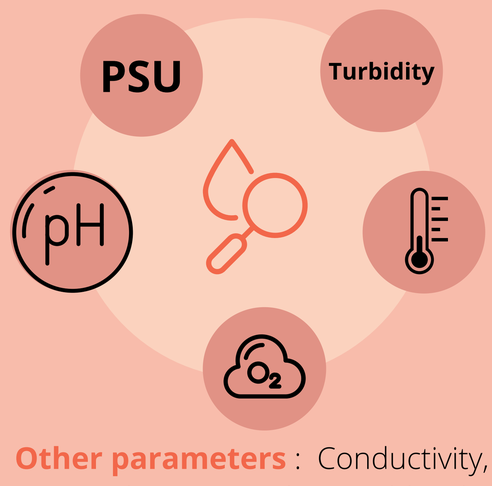
Rocky and sandy substrate | Fine silty sediments and zostera root sediment

Sampling in summer season of 2021 and 2022.

Objective 1: More picking and identification needed

Measurements

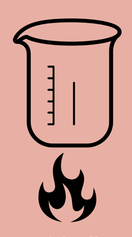
Environmental parameters



Other parameters : Conductivity, ORP, redox potential, TDS, chloride, sulfides, calcium, iron magnesium, manganese, potassium, sodium, silicium, phosphorus, nitrogen

Analyses of ostracoda and sediment [4]

1 Disaggregation



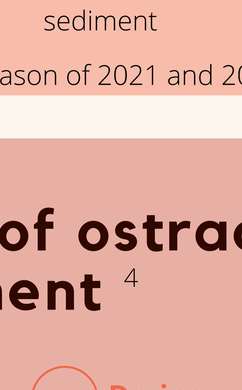
H_2O_2
w/v 5-15%
+Heat
4-8 h

2 Sieving

3 Drying

Oven dried
60°C
18-24 h

4 Picking



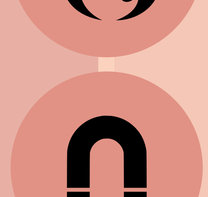
Dissecting microscope
Fine wet brush
Paleontological slides

5 Identification

Light microscope
Ostracoda literature

Grain size analysis
Size of particles

Loss on ignition
Carbon content
Organic matter



Magnetic susceptibility
Magnetic metals composition

What's next ?

Objective 2:
Multivariate analyses of ostracod species

- Correspondance analysis
- Principal components analysis
- Canonical analysis

Expected Results

Determine ostracod **species composition** (abundance, presence-absence, dominance) in the Sept-Îles region as well as the main **environmental factors** (we expect **salinity, temperature** and **substrate** to play an important role) affecting **abundance** and **diversity**

PERSPECTIVES

The knowledge acquired will allow this bioindicator group to be integrated into **spatial** and **temporal** analyses of **environmental dynamics** for this region of the Gulf of St. Lawrence, including the **natural variability** and **effects** from **anthropogenic disturbances** of the Côte-Nord ecosystem.

Literature cited

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