

# MORPHOLOGY AND MOLECULAR IDENTIFICATION OF NATIVE, INVASIVE AND CRYPTOGENIC SEAWEED SPECIES

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## Introduction

- Three types of algae (seaweeds): **native**, **invasive** and **cryptogenic** (unclear native/alien status)
- **Intentional** and **accidental introductions** of alien species, sometimes with **negative impact** on the **marine ecosystem**
- Taxonomic **identification difficult** due to the intraspecific **morphological variability**
- The **molecular methods** can be a **useful taxonomical tools**

## Aim

We propose a roadmap using molecular approximations (i.e. DNA barcodes) to identify morphologically indistinguishable taxa

## Material and Methods

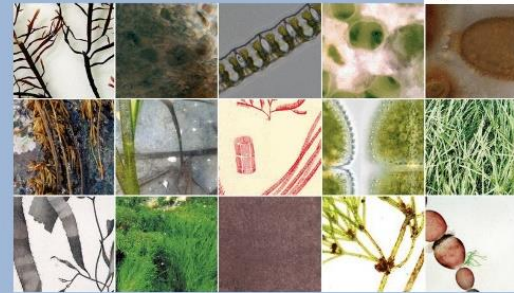
- Obtain the different algae fouled to vessels
- Preservation of Herbarium voucher and tissular material
- DNA extraction kit from plant tissue
- Universal primers for nuclear ribosomal DNA and plastid regions (e. g. Provan *et al.*, 2004)

## Results

### Vessels sampling



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1- Sampling the different areas of the vessel and noting them

2- Preliminary morphological identification

## Molecular methods



3- DNA extraction from the preserved tissue



4- Amplification by PCR of ITS sequences and other markers with taxonomic value



5- Sequencing and molecular taxonomic identification

6- Determination of the native, invasive or cryptogenic status and generation of a Checklist

## Discussion

- Completing the local Checklist of algae
- Better understanding of invasive species introductions and dynamics
- Applications of invasive species management: early detection and better prevention strategies

### References

- Carlton, J.T. (1996). *Ecology* 77: 1653–1655.
- Glasby, T.M. *et al.* (2007). *Marine Biology* 151(3): 887–895.