FEEDING ECOLOGY OF SYGNATHIDS INHABITING MEDITERRANEAN SEAGRASSES

Julia Castro[1], Inés Castejón[1], Pablo Arechavala-Lopez[1], Jorge Terrados[1], Beatriz Morales-Nin[1]

1 Department of Marine Ecology, IMEDEA (CSIC-UIB), Esporles, Illes Balears, Spain (juliacastro.94138@gmail.com)

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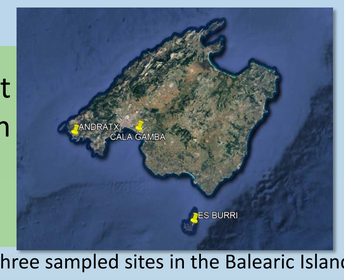
INTRODUCTION

Syngnathids are a vulnerable and diverse group of the ichthyofauna associated to vegetated coastal and estuarine habitats (Campolmi *et al.*, 1996). **Pipefish** aspect and behaviour makes them very mimetic within seagrass beds, their preferred habitats, where they shelter and feed on a wide range of preys. However, pipefish population dynamics and feeding habits are poorly known, especially in Mediterranean coastal waters (Vizzini & Mazzola, 2004)

This work aims to evaluate the status of syngnathids populations in the Western Mediterranean and to expand the knowledge on their feeding habits



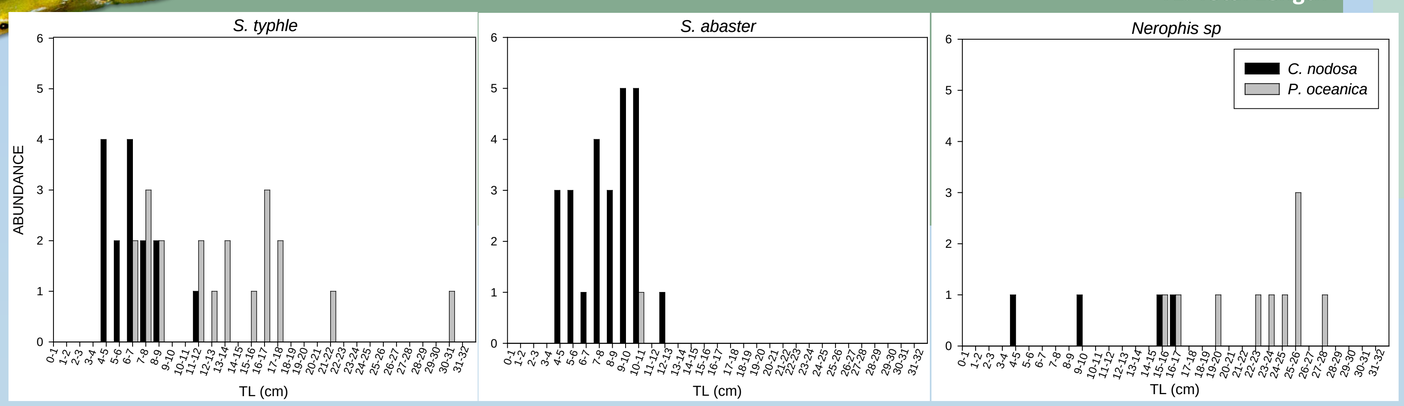
Three sampled sites in the Balearic Islands

PIPEFISH ABUNDANCES

Three sites of the Balearic Islands were sampled during 2017-2018. Transects with an epibenthic trawl net (``gánguil´´) in *P. oceanica* and *C. nodosa* meadows

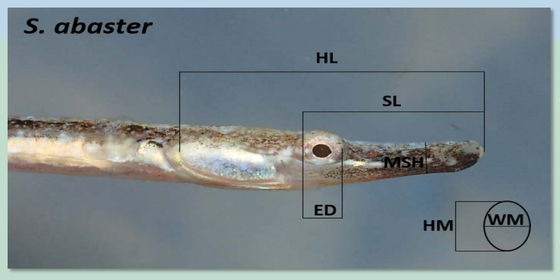
4 pipefish species were found:	*P. oceanica*	*C. nodosa*
	High abundance: ↑	Low abundance: ↓
Syngnathus typhle	↑ Large TL	↓ Short TL
Syngnathus abaster	↓ Short TL	↑ Short TL
Nerophis maculatus	↓ Large TL	↓ Short TL
Nerophis ophidion	↓ Large TL	↓ Short TL

TL: Total Length



Distribution of pipefish abundances by size in two different habitats: *P. oceanica* and *C. nodosa*

BIOMETRIES



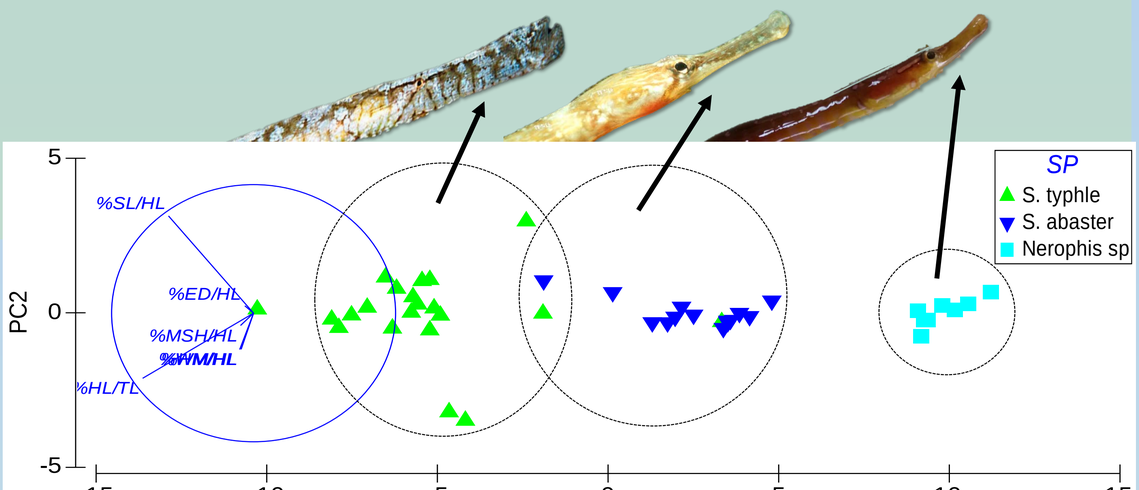
HL: Head Length
SL: Snout Length
ED: Eye Diameter
MSH: Minimum Snout Height
HM: Height Mouth
WM: Wide Mouth

Morphometric measures were taken with a precision caliper.

Head length (HL) expressed as %TL and the rest expressed as %HL

Main differences determined by %HL/TL and %SL/HL ⟶ Head and snout length and mouth opening:

S. typhle* > *S. abaster* > *Nerophis sp



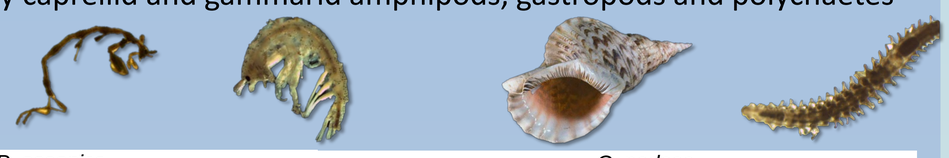
PCA results: Pipefish species separated by differences on their head morphometric characters

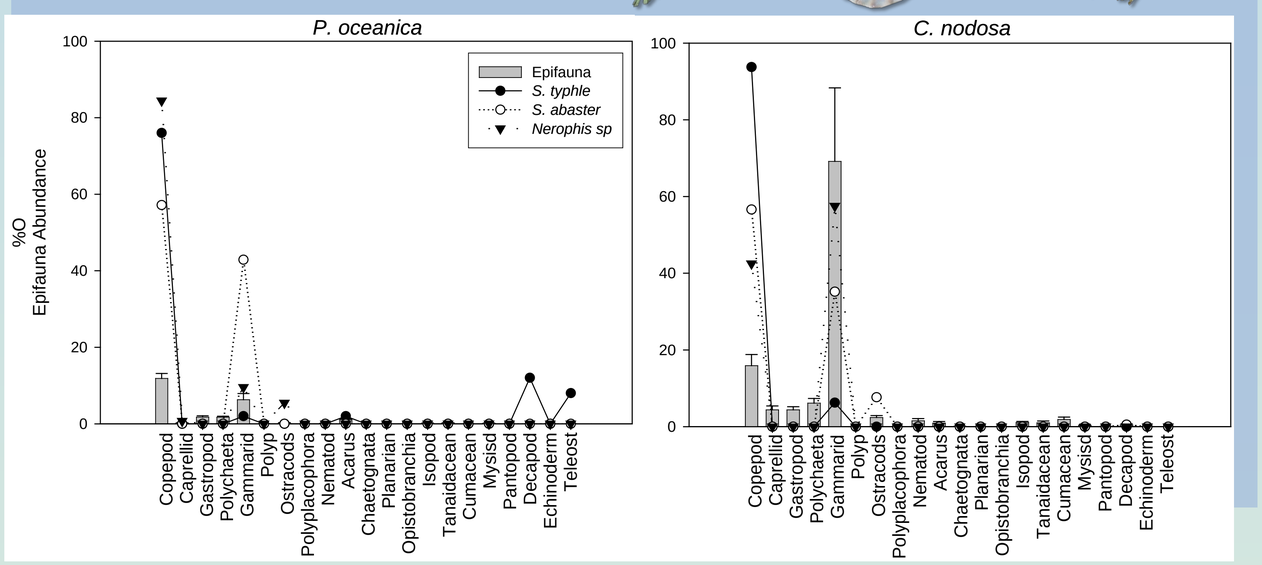
POTENTIAL PREY

Epifauna from seagrass meadows ⟶ Categorized into broad taxonomic units

Higher invertebrate abundance per foliar surface in *C. nodosa*

Differences caused by caprellid and gammarid amphipods, gastropods and polychaetes





Relation between %O of different preys in pipefish diets and standardized abundances of epifaunal invertebrates: a) *P. oceanica* b) *C. nodosa*

STOMACH CONTENTS

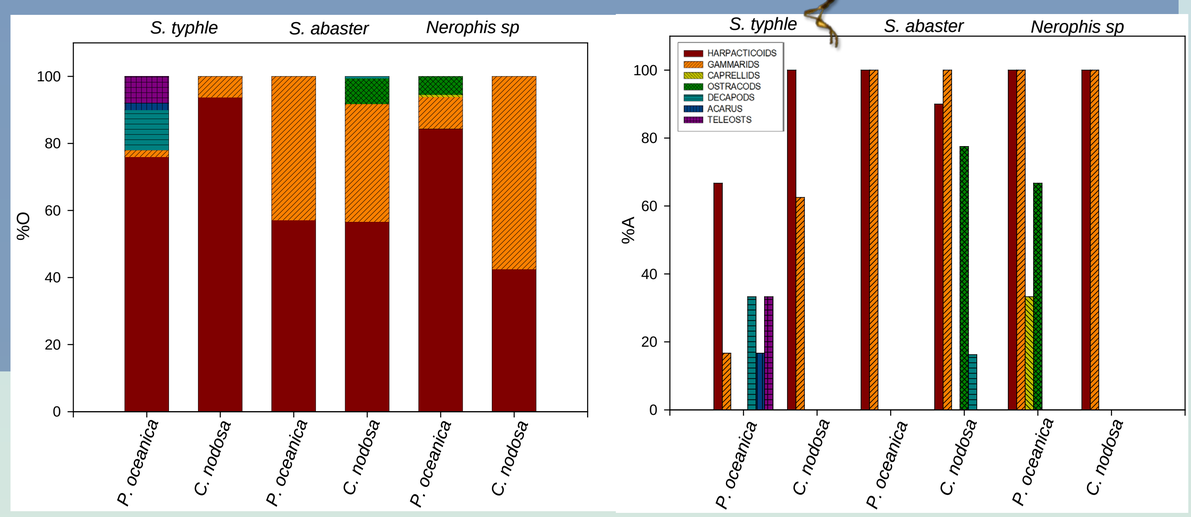
Dissections ⟶ Digestive tracts analyzed ⟶ Prey items categorized

COMMON PREY: harpacticoid copepods & gammarid amphipods & teleosts

S. typhle ⟶ decapods

S. abaster ⟶ ostracods

Nerophis sp ⟶ ostracods & caprellid amphipods



Pipefish stomach contents: a) %O: frequency of occurrence; b) %A: frequency of appearance

CONCLUSIONS

1. Low pipefish abundances were found, being *S. typhle* and *S. abaster* the most abundant species. Habitat choice is conditioned to meadow architecture and body size: larger individuals prefer *P. oceanica meadows,* which provides shelter and food

2. Trophic preferences depend on pipefish snout morphology and mouth opening. Maximum snout and mouth opening were found in *S. typhle* compared to *S. abaster* and *Nerophis sp*

3. Prey availability determines pipefish diets. Primary prey for pipefish (copepods and amphipods) are also the most abundant potential prey

4. Common primary prey for all pipefish. Differences on the diets are caused by their habitat choice as well as their head morphology. *S. typhle* forages on bigger and faster prey in *P.ocenica*

5. Further studies on pipefish distribution and feeding habits (i.e. stable isotopes) are recommendable in this area due to low sample size found for this work

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