

Trophic ecology of the little fish post-larvae of São Tomé Island

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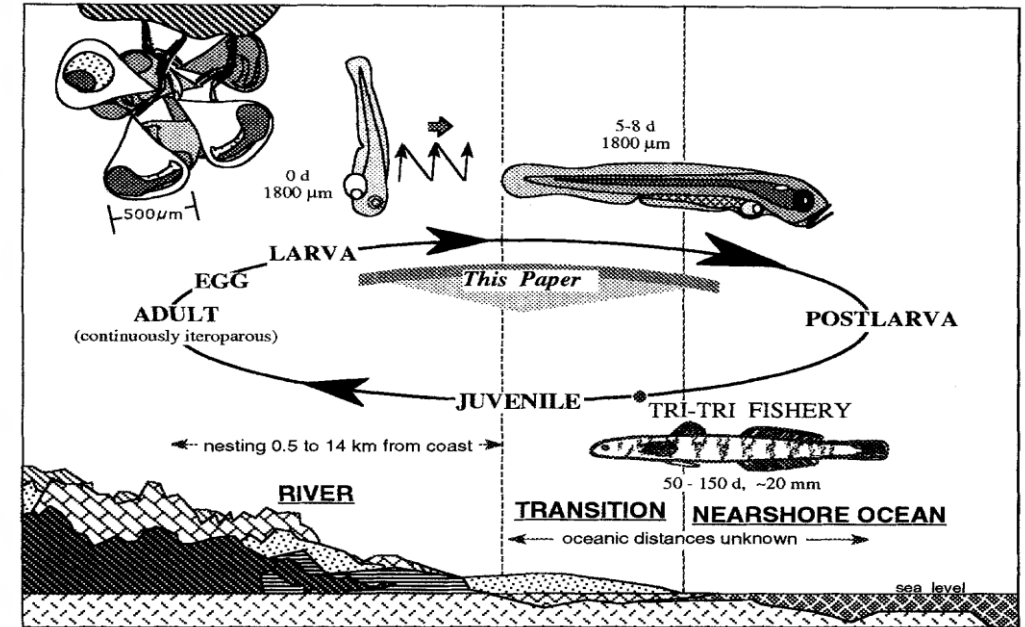
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What is the little fish of São Tomé and Príncipe?

- *Awaous lateristriga* (Duméril, 1861)
- *Sicydium brevifile* Ogilvie-Grant, 1884
- *Sicydium bustamantei* Greeff, 1884

Endemic species **Few studies**

Amphidromous species



Sicydium punctatum em Dominica (Bell and Brown, 1995)

Why is little fish so important?


Support local fisheries during
post-larval phase

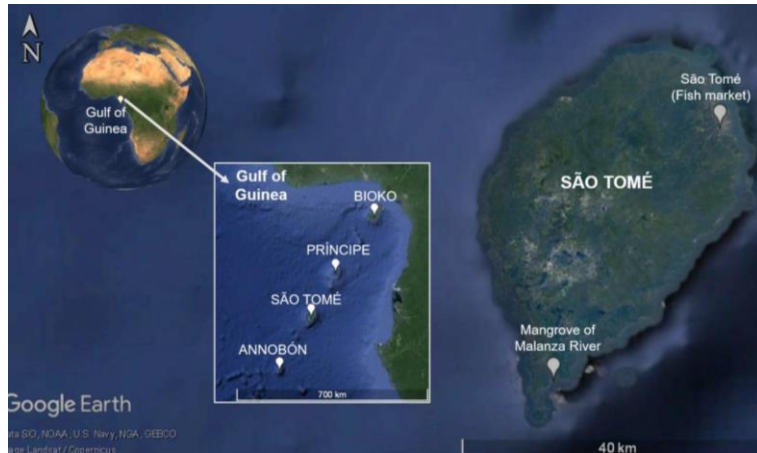
Caught without any control

Goby fry fisheries




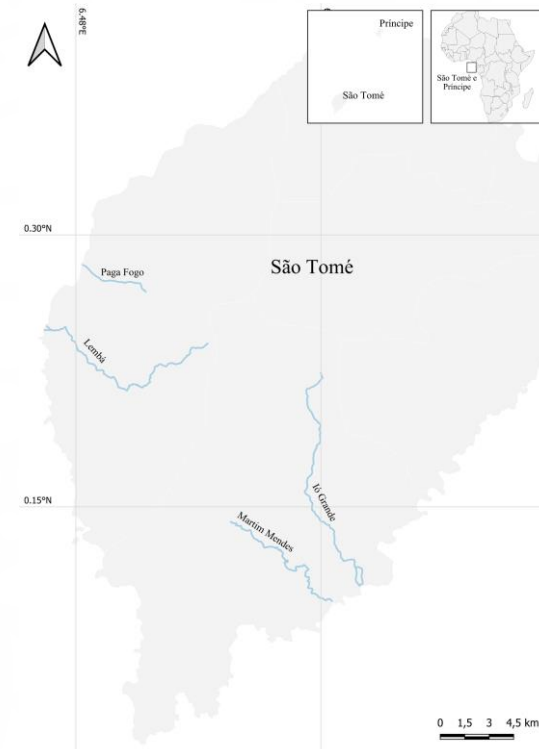
Objectives

- To compare the **feeding ecology** of little fish species on **different locations** of the island and **different seasons** using **gut content** and **stable isotope analysis** 
- To compare the **trophic niches** between little fish species on **different locations** of the island and **different seasons** using **stable isotope analysis**
- To describe **plankton variability** along the São Tomé island on **different seasons**



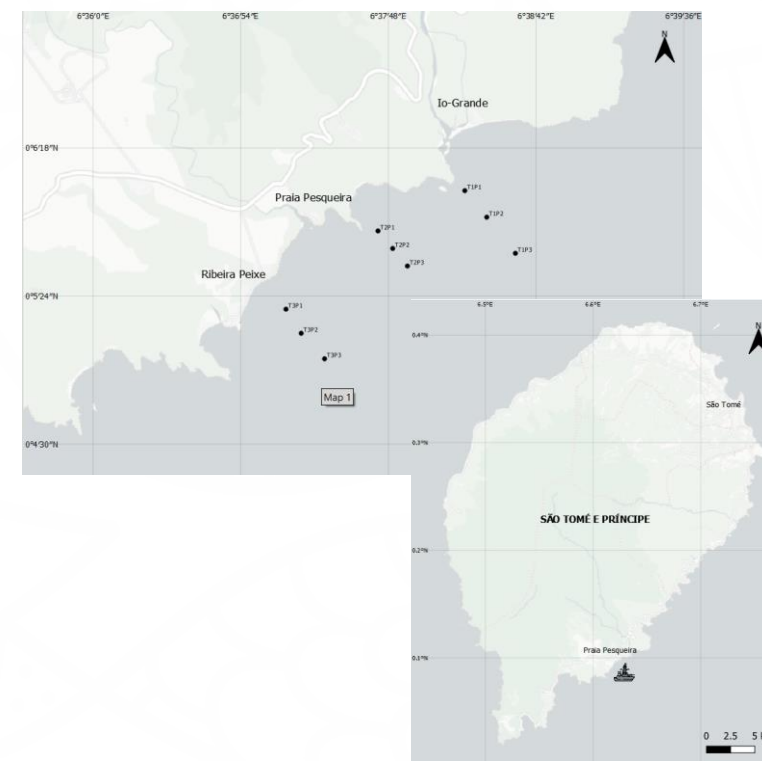
Sampling for feeding analyses

- Post-larvae
- Wet (January'23) and dry (July'23)
- Rivers: Paga Fogo, Lembá, Martim Mendes and Iô-Grande
- **Gut contents:** binocular stereoscope and inversion microscope
- **Main sources of OM and importance:** Stable isotopes of $\delta^{13}\text{C}$ (13C/12C) and $\delta^{15}\text{N}$ (15N/14N) 



Plankton sampling

- 200 μm plankton net and water collection
- Wet (January'23) and dry (July'23)
- Sea: Iô-Grande, Praia Pesqueira and Ribeira Peixe (NRP-Zaire - PT Navy in Jan'23)
- Rivers: Paga Fogo, Lembá, Martim Mendes and Iô-Grande



Plankton variability in environment

Phytoplankton

Wet Season

Temperature: 28.5–28.7 °C

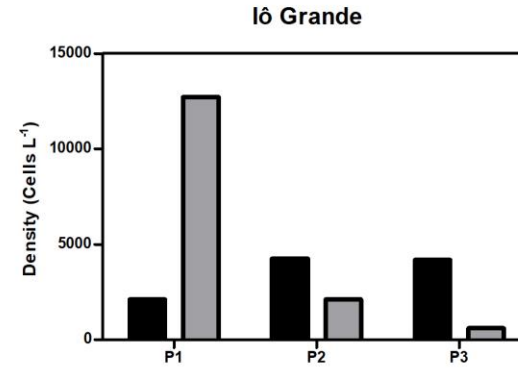
Salinity: 32.3–33.0

Dry Season

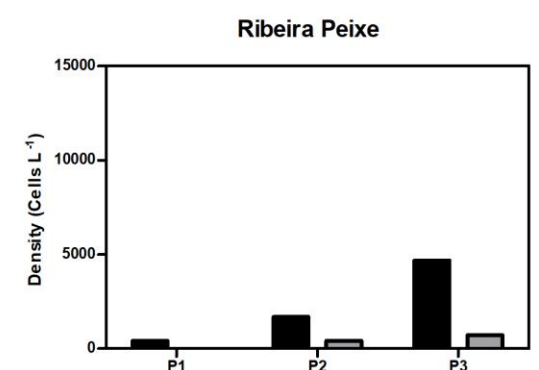
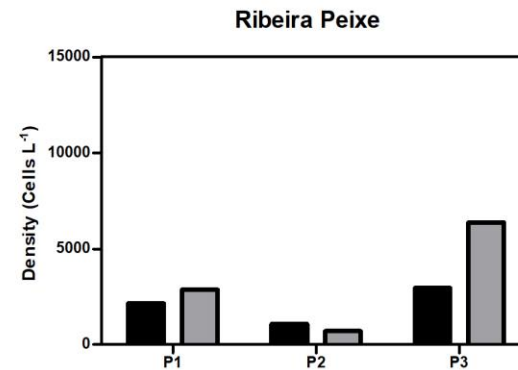
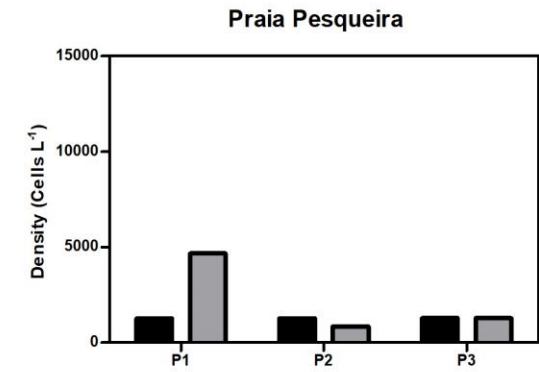
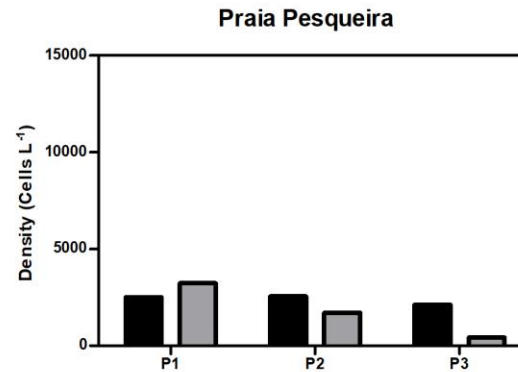
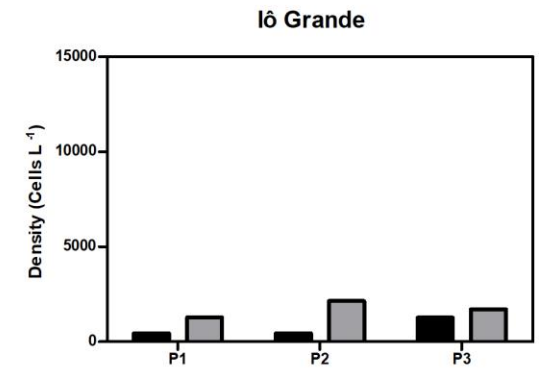
Temperature: 25.5–26.2 °C

Salinity: 34.5–35.5

Wet Season



Dry Season

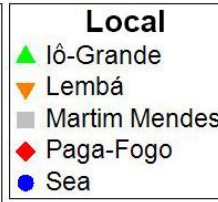
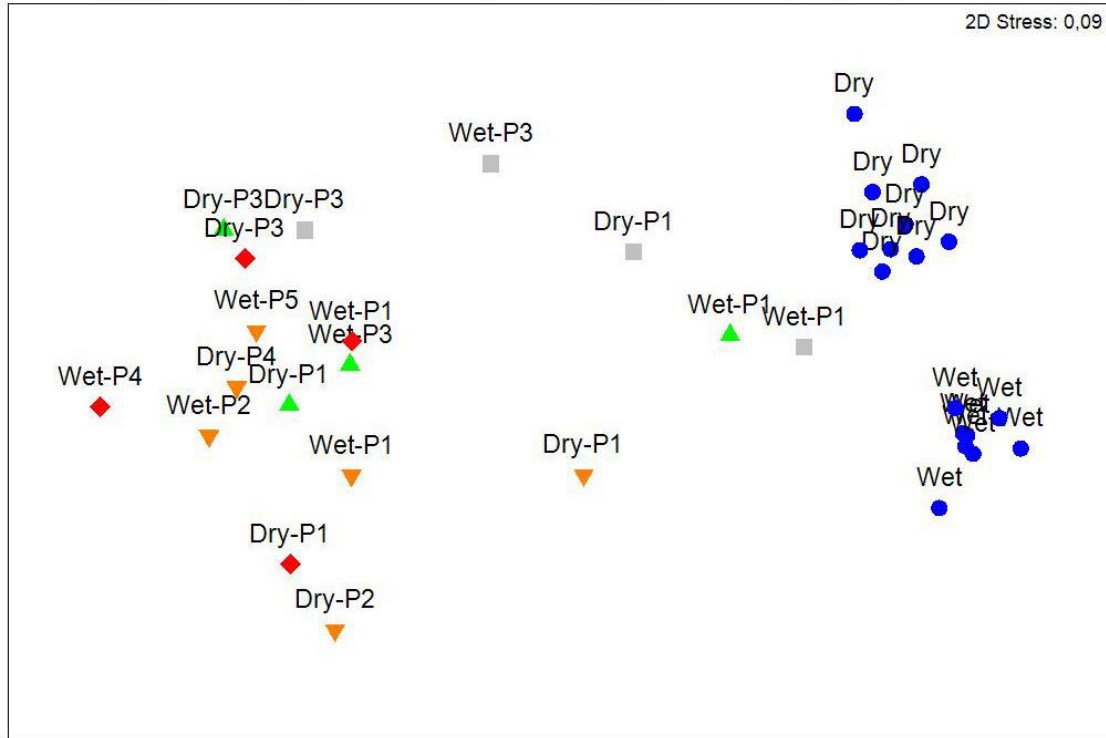


■ Dinoflagellates ■ Diatoms

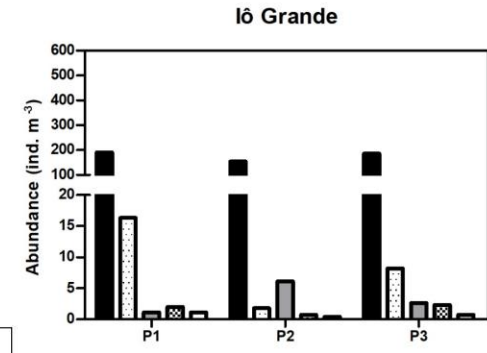
■ Dinoflagellates ■ Diatoms

Plankton variability in environment

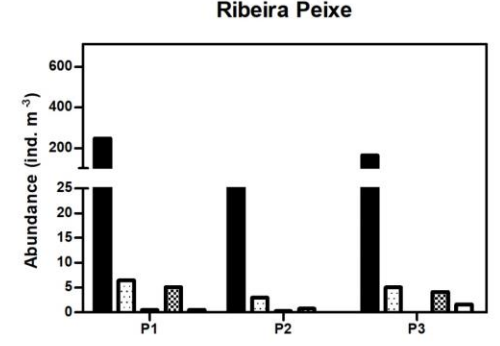
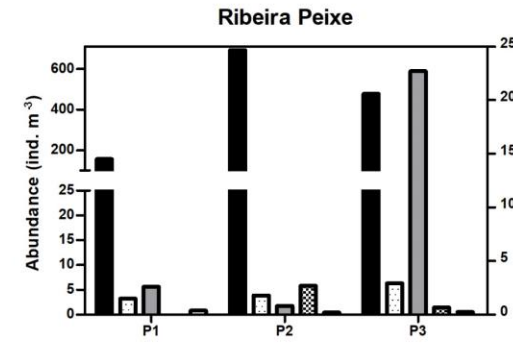
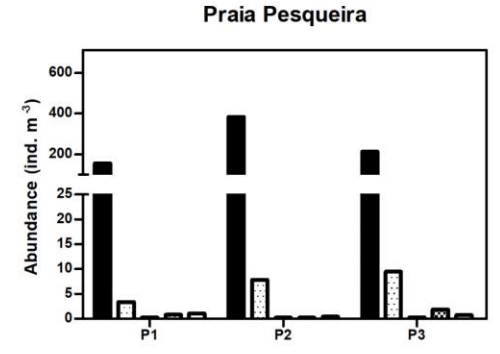
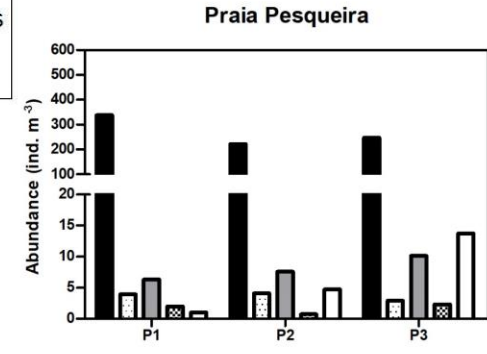
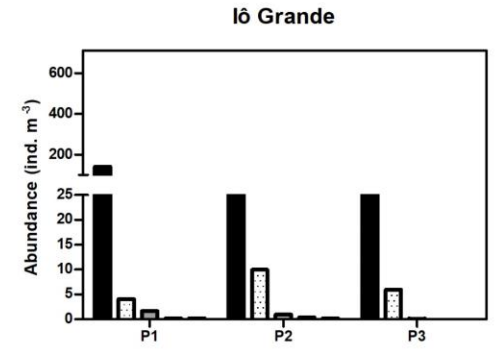
Zooplankton



Wet Season

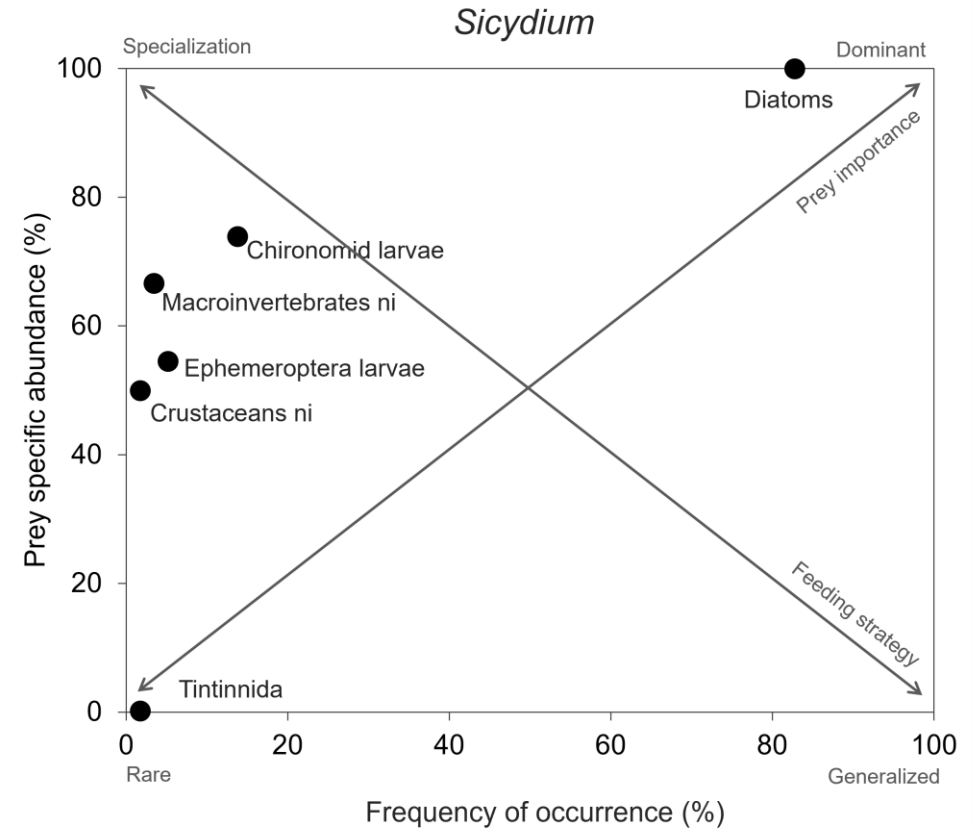
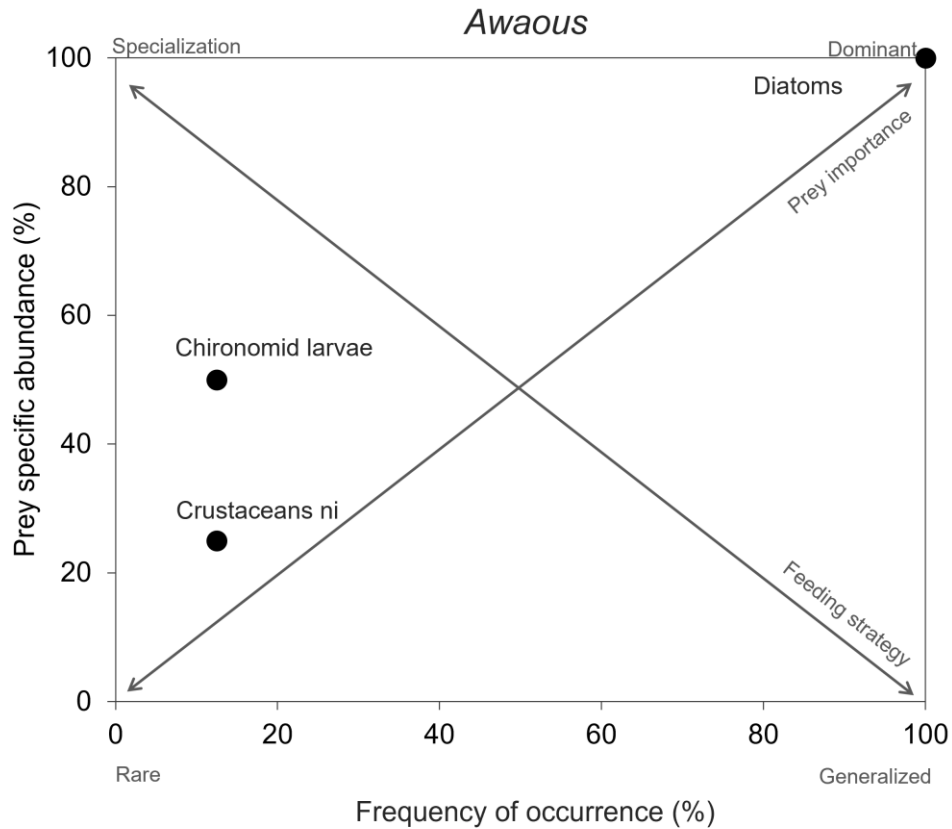


Dry Season



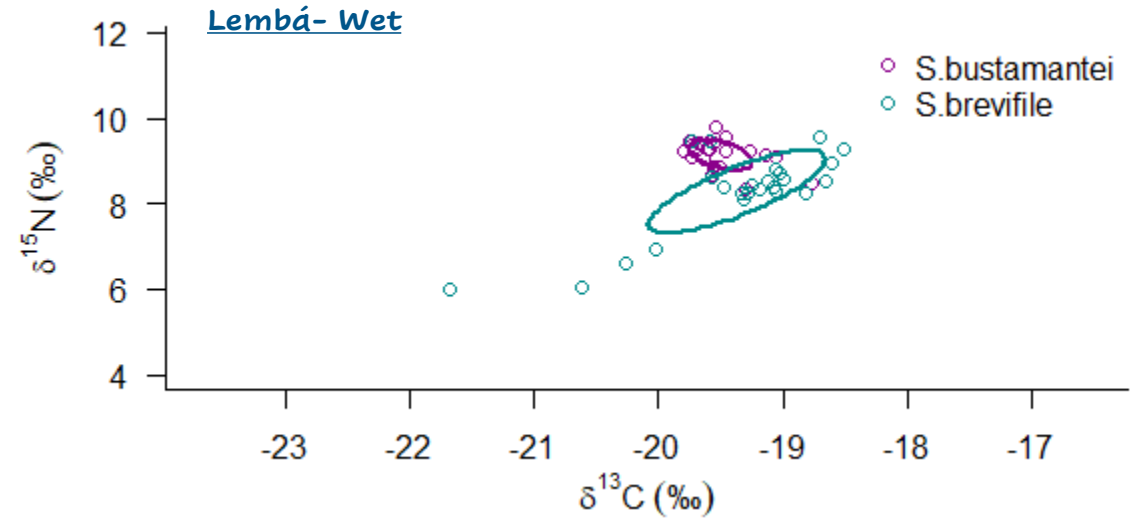
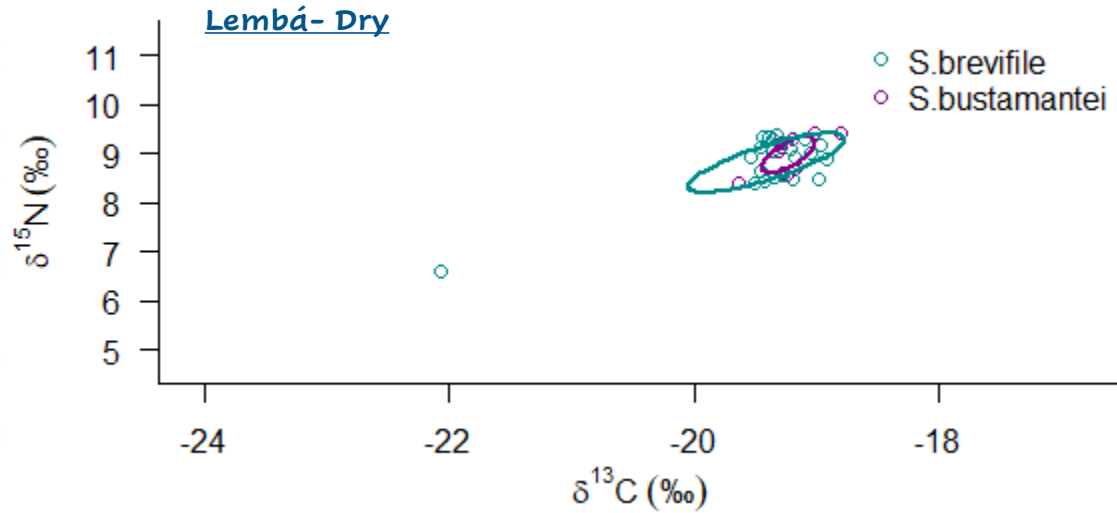
Gut contents

Species	Stomachs (N)	Empty (%)	Digested content (%)
<i>Awaous</i>	21	38	24
<i>Sicydium</i>	149	31	35



Costello Method (1990)

Trophic niches



Local	Season	Species	Low 95%	High 95%	Mode
Lembá River	Dry	<i>Sidyidium brevifile</i>	0.71	1.78	1.11
		<i>Sidyidium bustamantei</i>	0.16	0.63	0.31

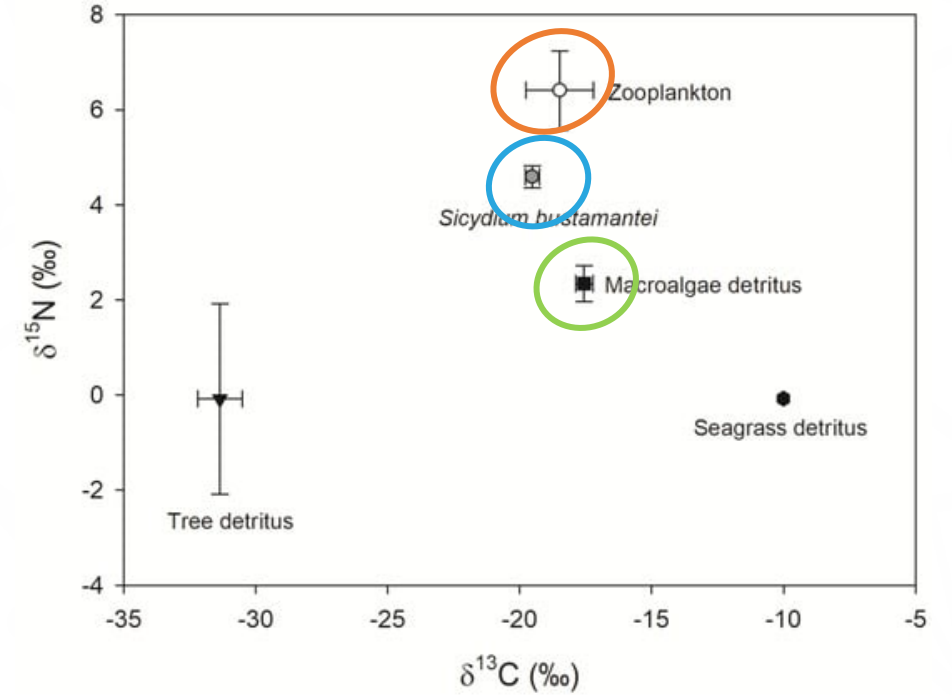
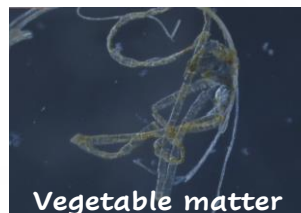
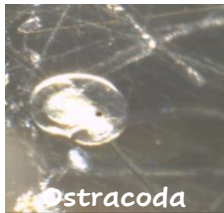
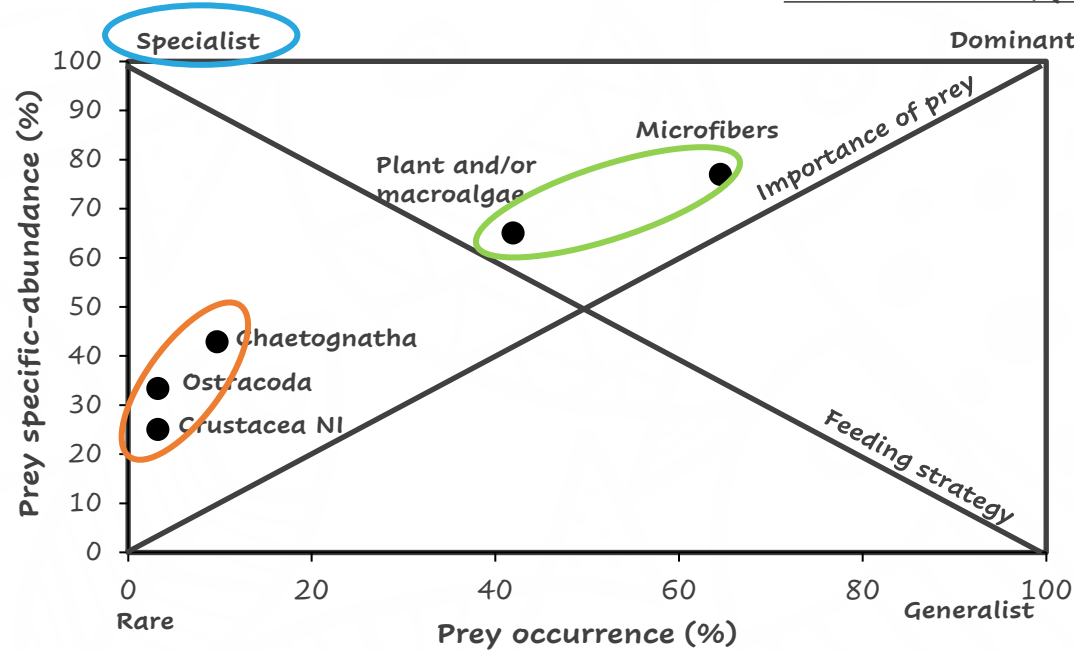
Local	Season	Species	Low 95%	High 95%	Mode
Lembá River	Wet	<i>Sidyidium brevifile</i>	0.91	2.11	1.37
		<i>Sidyidium bustamantei</i>	0.16	0.38	0.24

Communication

Feeding Ecology of *Sicydium bustamantei* (Greeff 1884, Gobiidae) Post-Larvae: The “Little Fish” of São Tomé Island

Vânia Baptista ^{1,4}, Ester Dias ², Joana Cruz ¹, Maria Branco ³, Sara Vieira ³ and Maria Alexandra Teodósio ¹

Costello Method (1990)



Food Items	Low 95%	High 95%	Mode
Zooplankton	0.39	0.76	0.57
Macroalgae detritus	0.13	0.53	0.35
Tree detritus	0.02	0.17	0.1

Final remarks

- In south of São Tomé Island, the **sea surface temperature was higher in wet season**, and the **salinity was lower**
- **Diatoms and dinoflagellates** dominated the phytoplankton community
- **Copepods** dominated the zooplankton community
- **Plankton densities were higher during wet season**, typical of equatorial areas, more oligotrophic systems
- *Awaous* spp. and *Sicydium* spp. showed a **specialist food strategy**, with **diatoms being the dominant food item**
- There is a **trophic niche overlap** between *Sicydium brevifile* and *Sicydium bustamantei* during **dry season**, but not in wet season

Working with community for community



Thank you...



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