

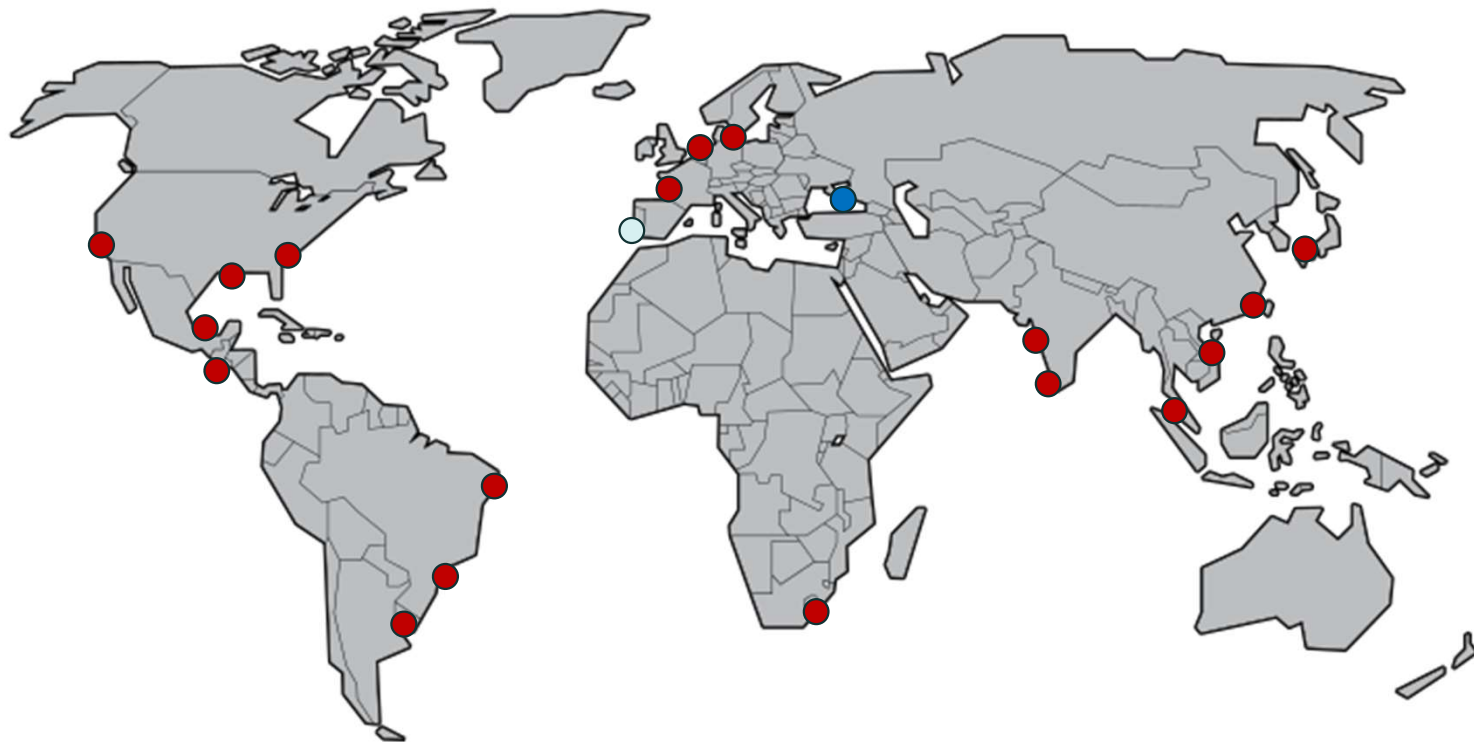


Tracking the invasion: long-term trends in density, size, and sex ratio of *Blackfordia virginica* in a non-indigenous environment

M. Alexandra Teodósio, Vânia Baptista, Leonardo Dias, João Encarnação, Joana Cruz

Invasion

Blackfordia virginica Mayer, 1910

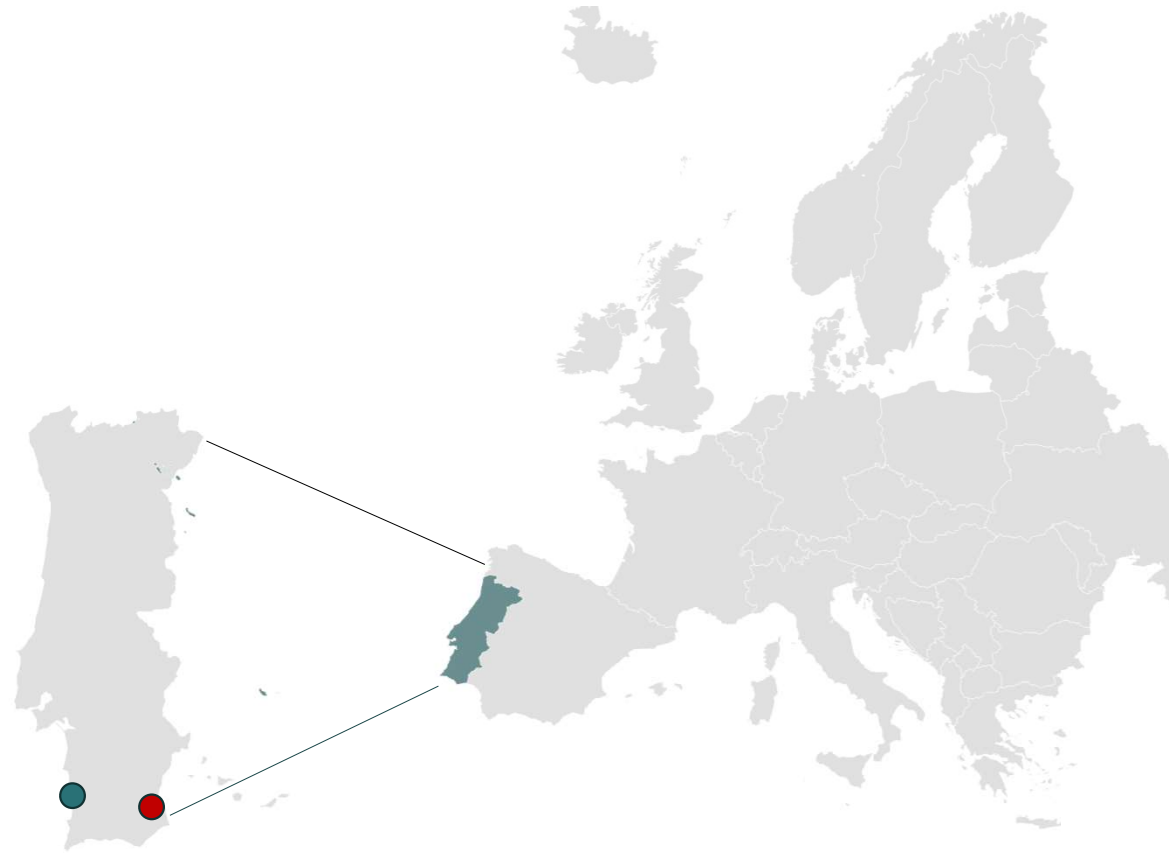


Invasion

Portugal

Mira River 1984
(maximum abundance: 982.3 ind. m⁻³)

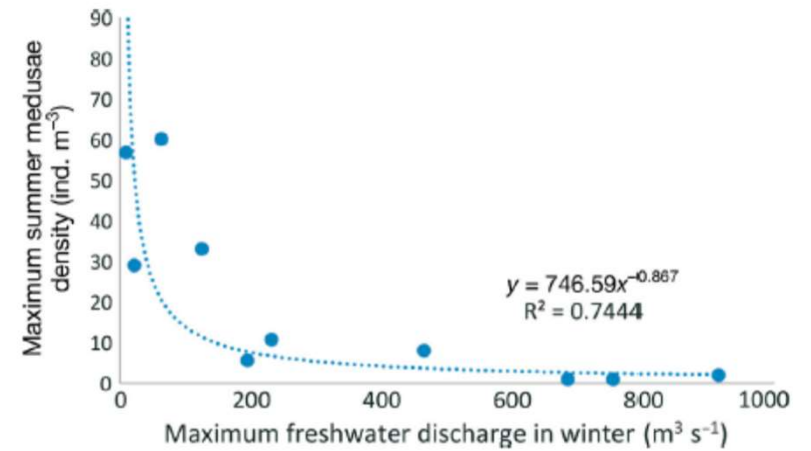
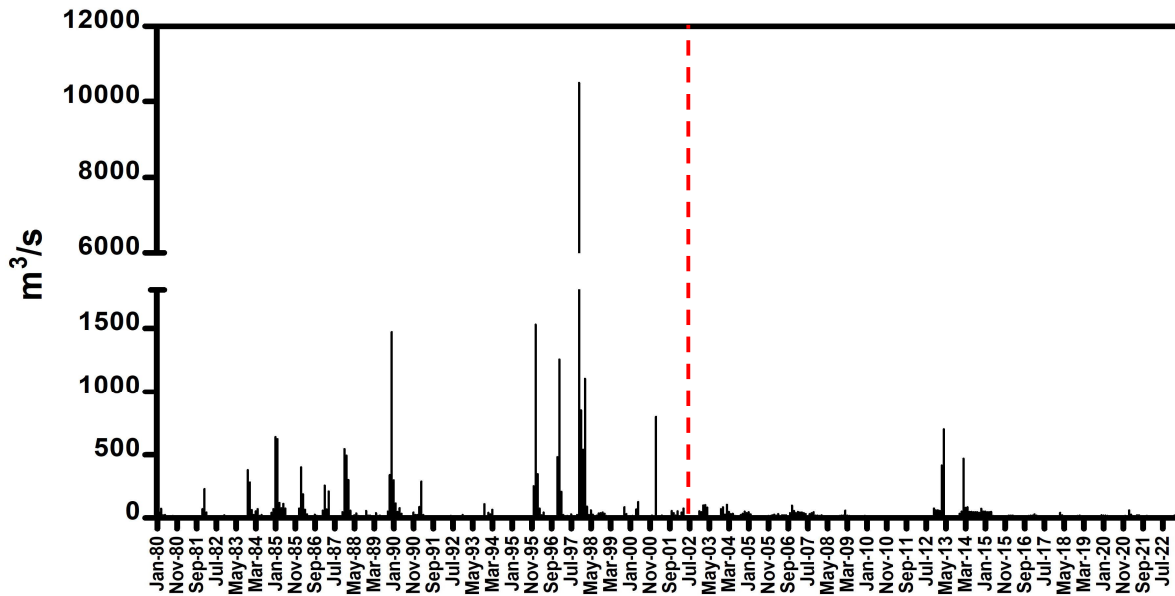
Guadiana River 2008
(maximum abundance: 31.7 ind. m⁻³)



Freshwater inflow influence

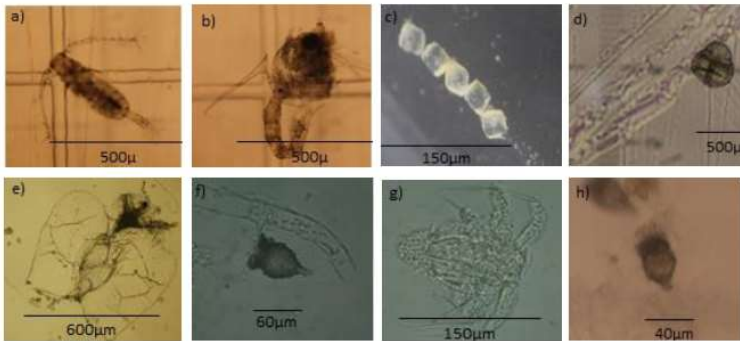


River inflow

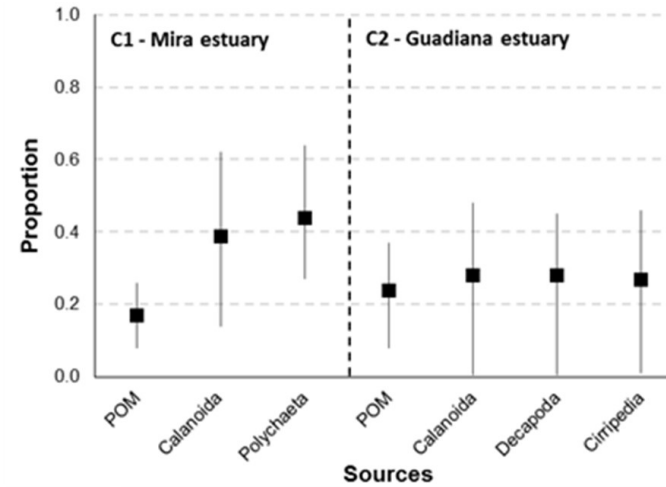


Amorim et al. 2018

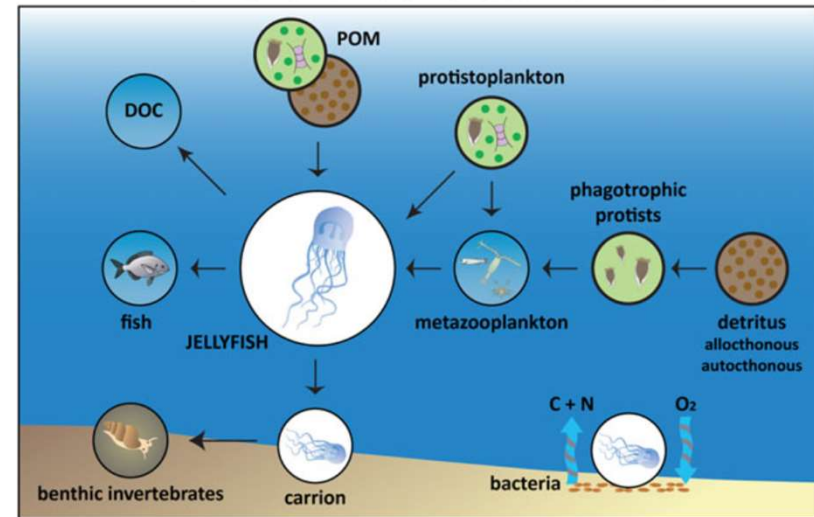
Trophic Ecology



Morais *et al.* 2015



TROPHIC PATHWAYS OF ESTUARINE JELLYFISH



Morais *et al.* 2017

Aims of the study

Infer about the evolution of the *Blackfordia virginica* population in the Guadiana River estuary.

Determine the abundance, size and sex ratio of *B. virginica* from 2014 to 2021.

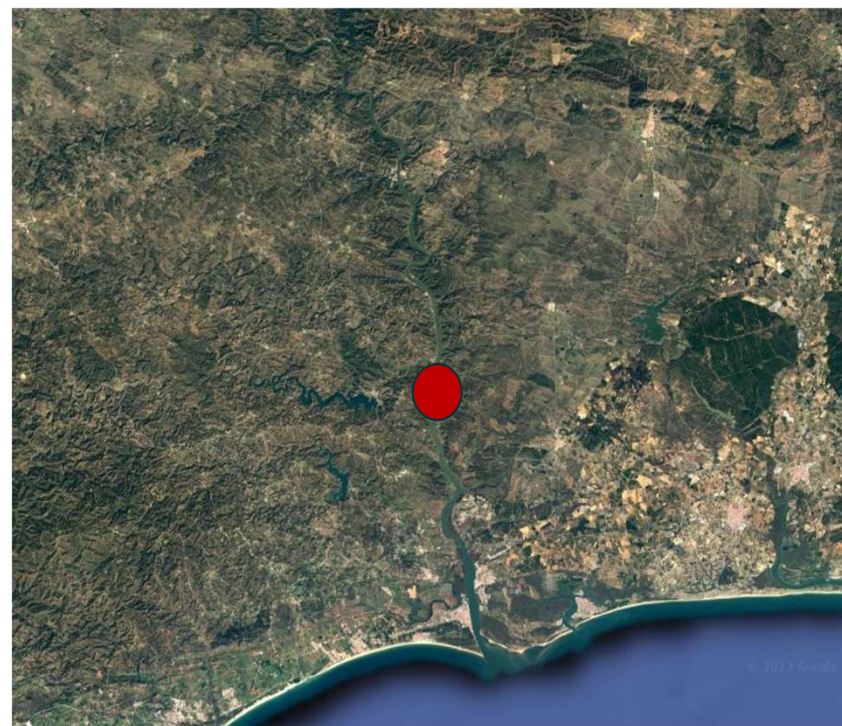
Methods

Sampling

Monthly 2014 to 2021

Horizontal zooplankton tows (200 μm mesh size)

In situ temperature and salinity; freshwater inflow
(<http://snirh.pt/>)



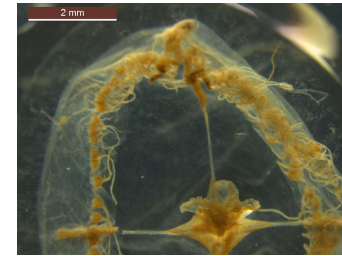
Methods

Laboratory

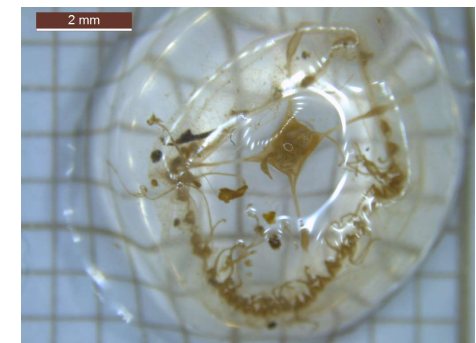
All *B. virginica* were counted to determine the abundance

For each sample 100 individuals were measured, and the sex was determined

♀

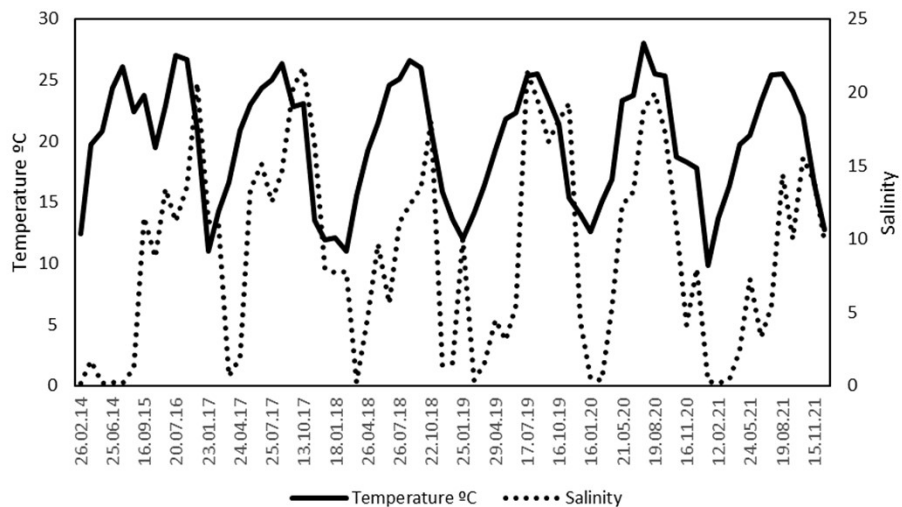


♂

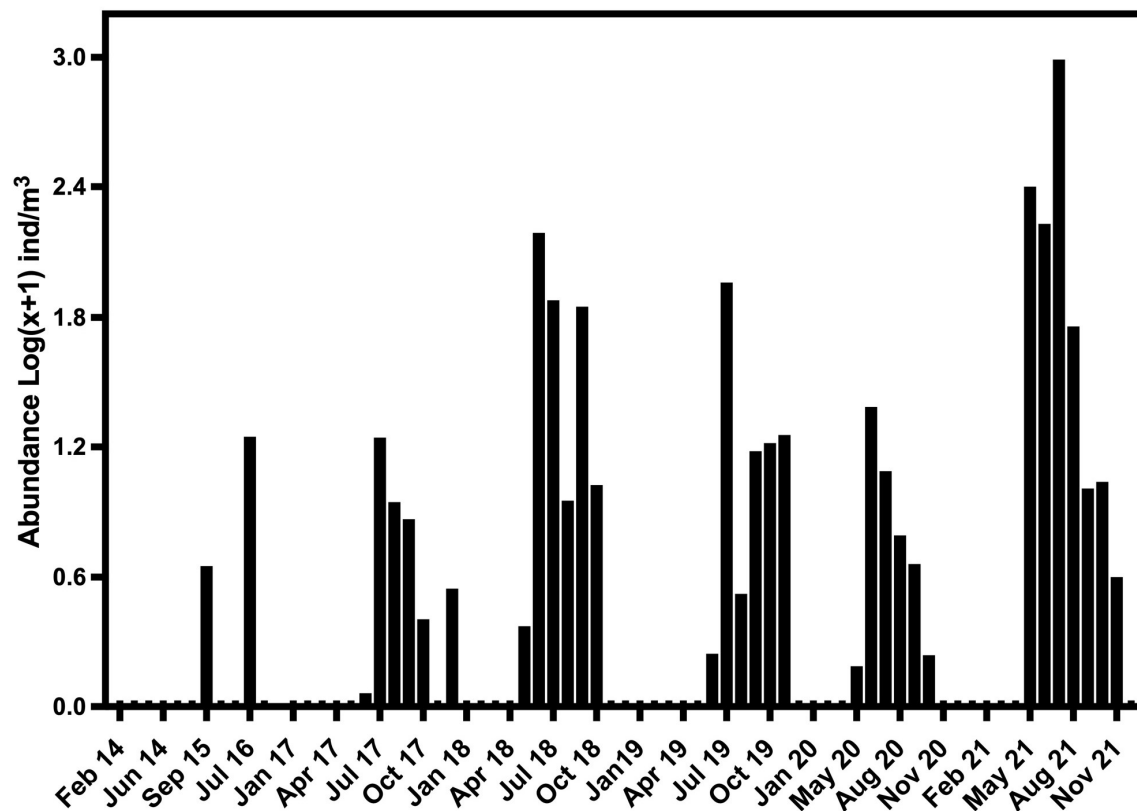


Results

Temperature and Salinity



Blackfordia virginica abundance

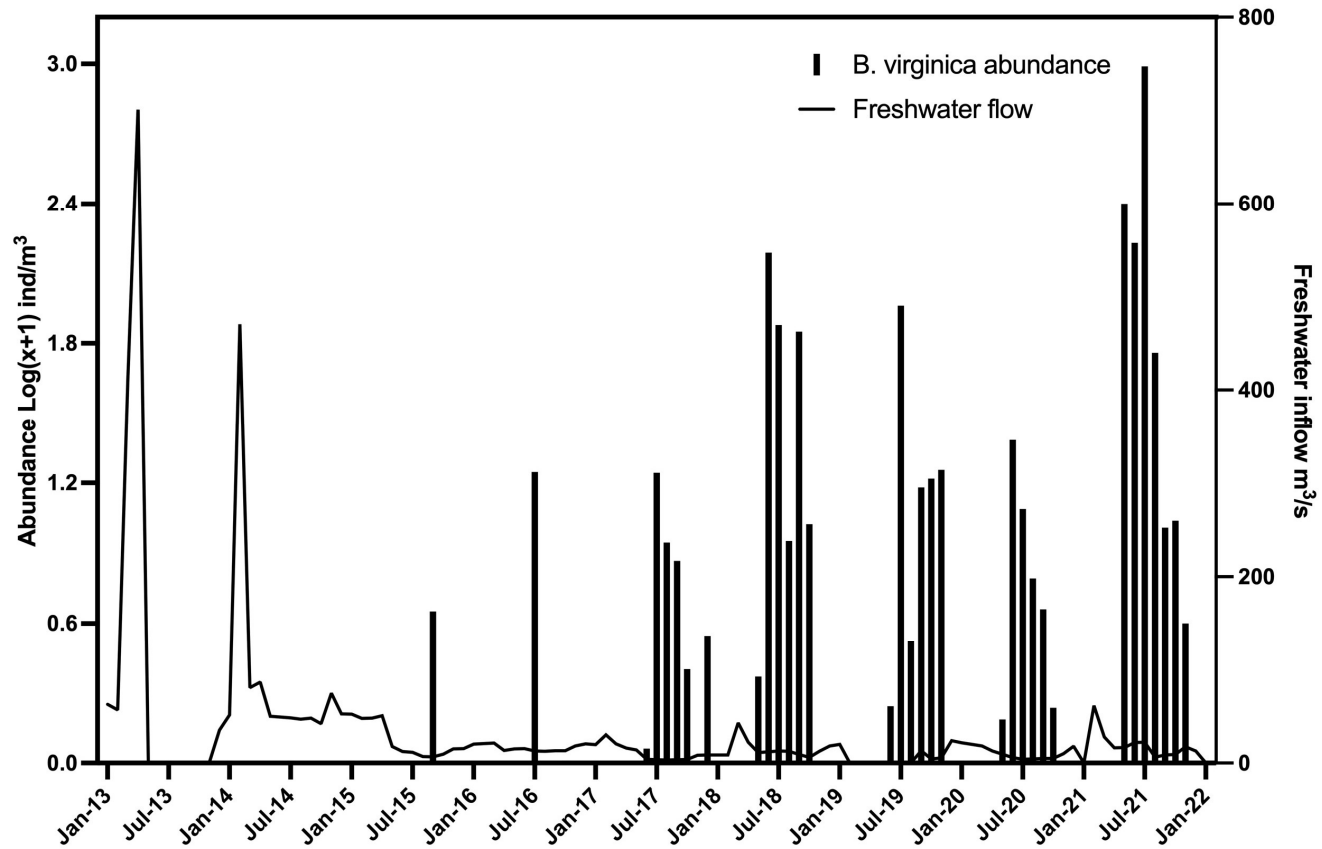


Occurrence May to December

Max. abundance 976.1 ind. m⁻³
July 2021

Results

B. virginica Abundance vs Freshwater Inflow

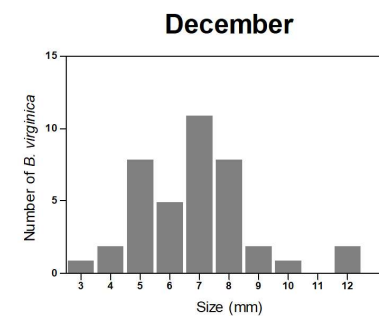
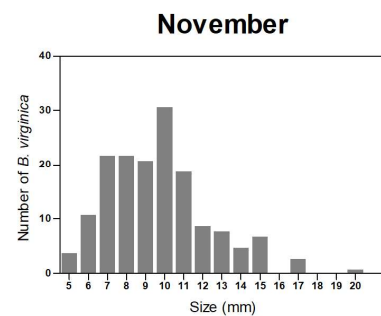
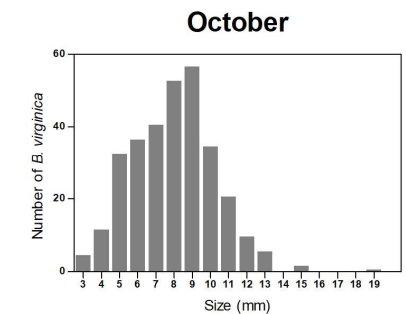
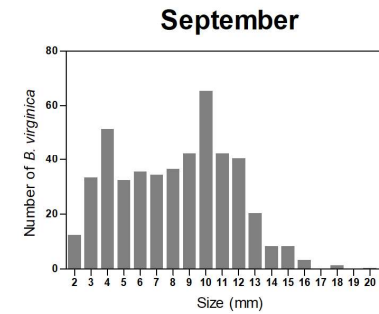
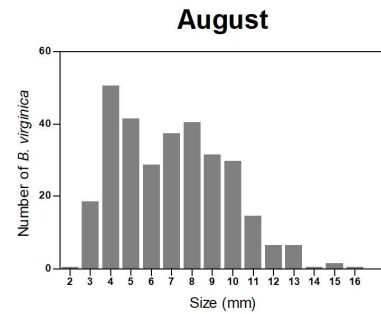
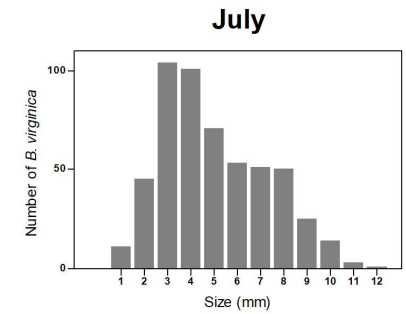
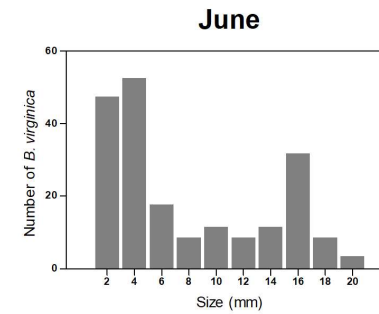
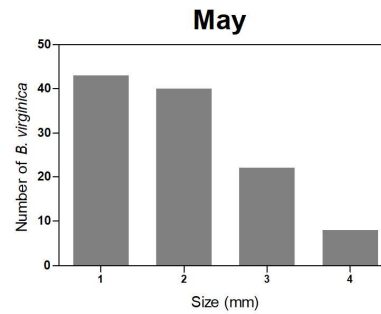


Results

Size range: 1 - 20 mm

Smaller sizes found in May
(2 ± 0.9 mm)

Higher sizes found in
November (9.7 ± 2.7 mm)

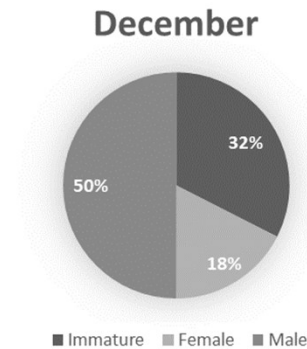
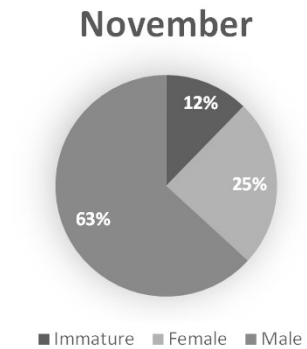
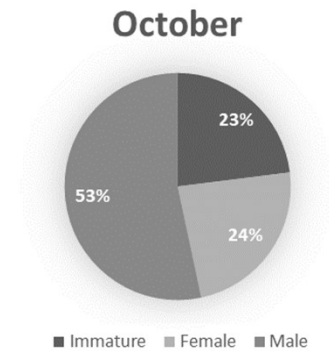
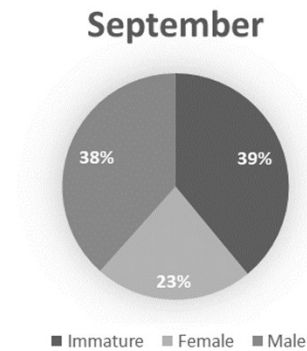
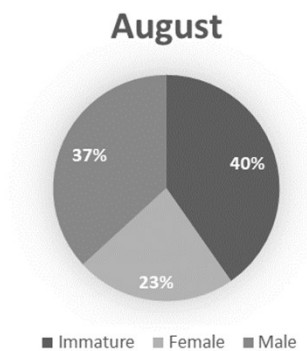
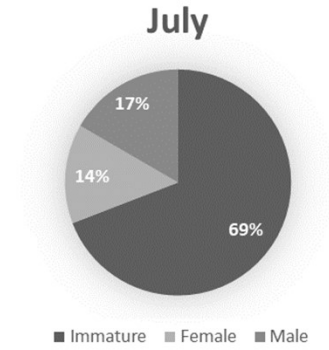
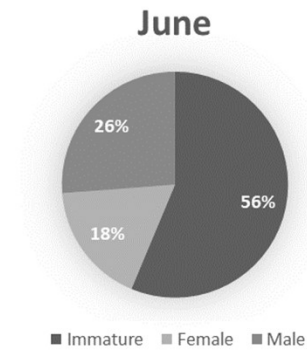
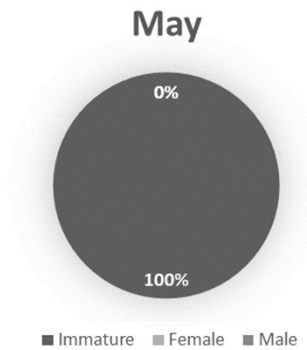


Results

May all immature

Female/Male - 1.0:1.9

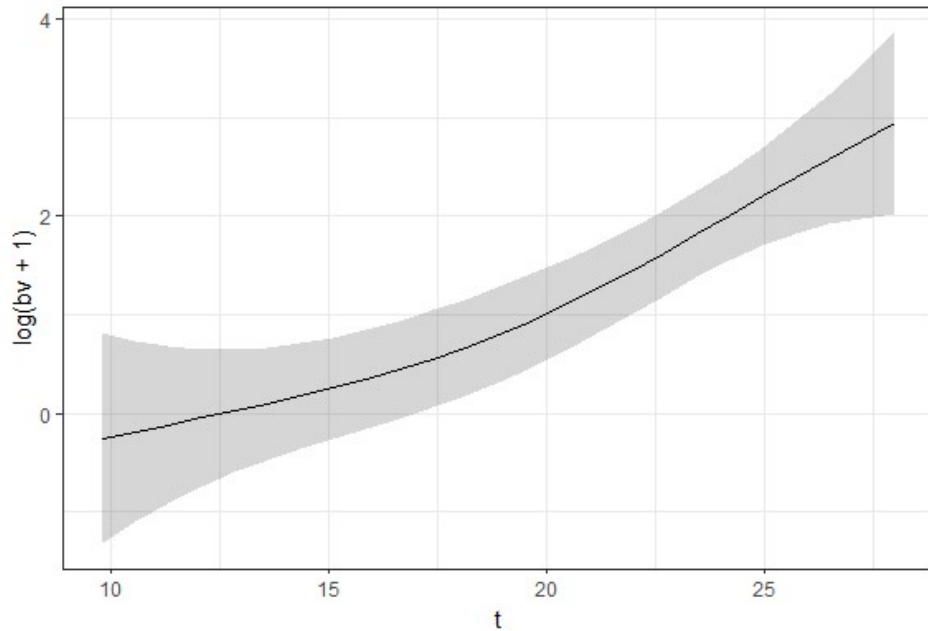
Mature *B. virginica*: size ranging from 3 to 20 mm.



Results

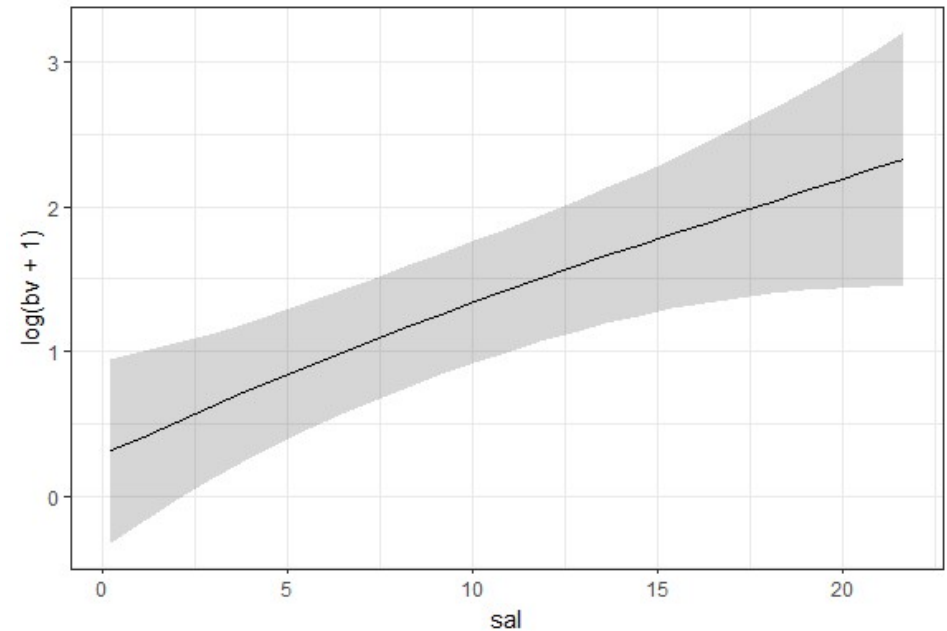
Effects of temperature and salinity on *B. virginica* abundance (GAMs)

Temperature



Deviation: 30.7%

Salinity




Deviation: 14.8%

Final Remarks

- *B. Virginica* abundance has increased in the last years: well established population in the Guadiana River.
- Reduction/regulation of freshwater inflow (Alqueva dam) is the main factor influencing the establishment of the population.
- Higher temperature and salinity positively influences *B. virginica* abundances.
- Future studies on the impact of *B. virginica* in the planktonic community.

Guadiana Lower Estuary monitoring station



METABASE Explorer
The Marine Ecological Time Series database

IGMETS WGZE
Associated Working Groups

Guadiana Lower Estuary

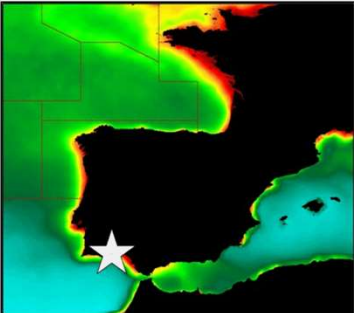
southwest Iberian Peninsula

Latitude: 37.1749 Longitude: -7.4078

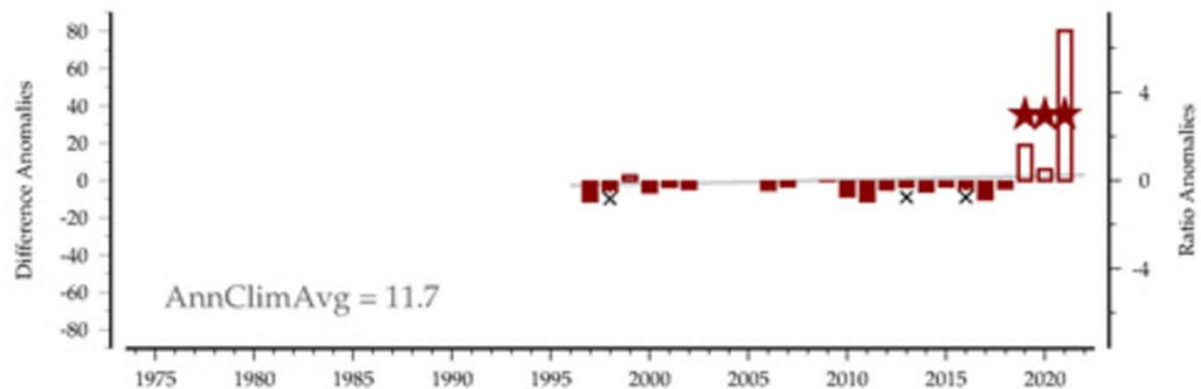
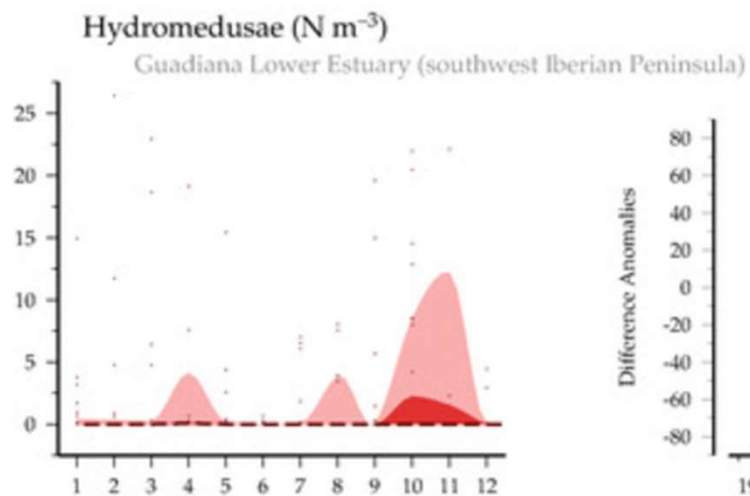
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Joana Cruz, Joao Pedro Encarnacao, Ines Cerveira,
Luis Chicharro, Marco Mattos, Pedro Morais, Vania Baptista

Related Web Sites:
[Centre of Marine Sciences (CCMAR)] [www.ccmar.pt]

Related Time Series:
[Cascais Bay] [Guadiana Estuary (lower)]
[Guadiana Estuary (upper)]



The Guadiana Lower Estuary sampling site is located between 37°13' 15.03" N, 007°24' 49.86" W and 37°07' 44.04" N, 007°24' 06.36" W, and includes two sampling stations: in the estuary mouth and in the plume.





Thank you!

Funding

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