



# Distribution and Biology of the shrimp *Plesionika edwardsii* (Brandt, 1851) off the Azores.



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## Introduction

Traditional demersal stocks from the Azores (ICES sub-area Xa2) are intensively exploited. Crustaceans are virgin stocks and may be alternatively resources to explore. The shrimp *Plesionika edwardsii* is considered one of the resources with more commercial potential. However, biological information available for this species is scarce. To address this, survey data, conducted in the Azorean archipelago, with a systematic random stratified design and using two different types of traps (suspended and bottom) was analysed and resumed.

The objective of this poster is to resume the distribution and biology of the shrimp *Plesionika edwardsii* population off the Azores.

## Material and Methods

A systematic stratified random design, covering the range depth between 50 to 1100m, was used to sample coastal areas and the Princesa Alice bank in the Azores (ICES Xa2 sub area) (Fig 1). Samples come from crustacean surveys, carried out from 1999/2000, 2004 and 2006, targeting the entire crustacean assemblages including shrimps and crabs. Two types of traps were used alternated at the bottom or suspended, about 5m from the bottom, on the same string; oval plastic traps (Fathoms Plus®) at the bottom and biodegradable semi-cylindrical traps at the bottom or suspended (Fig 2). Each trap was baited with approximately 1 kg of salted mackerel (*Scomber japonicus*). The fishing gear, with 10 traps each and spaced at 50m, was deployed parallel to the bathymetric contour and soak time was standardized to about 24 hours. For each set several fishing information was recorded: date, GPS position, depth, bottom type, number of traps, soak time, time of deployment and retrieval, number of individuals and weight of the catch by species. Biological sampling follows Pinho et al. (2001). Individuals from total catch or from a sub sample were separated by species, counted and weighted. For each individual biological information was collected, including carapace length, weight, sex, condition (ovigerous/no ovigerous females).

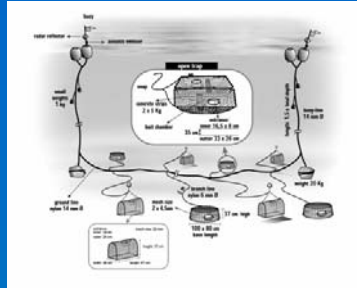


Figure 2 - Sampling gear

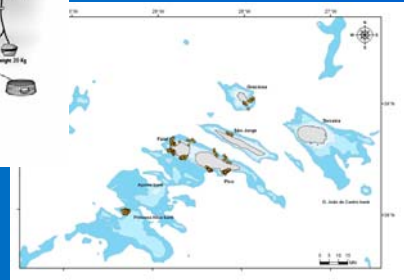
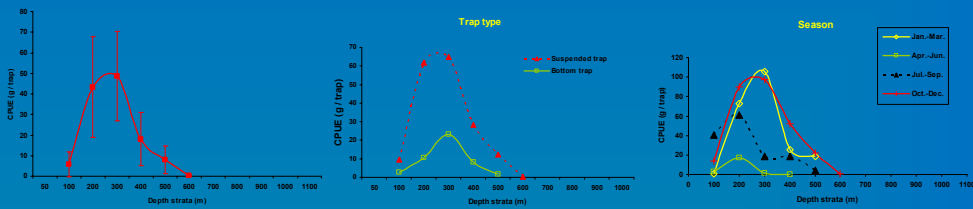


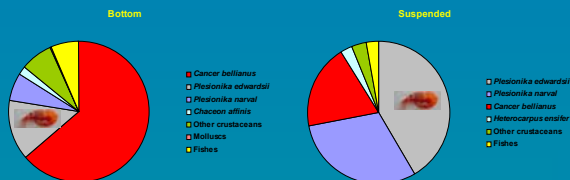
Figure 1 - Sampling areas.

## Results

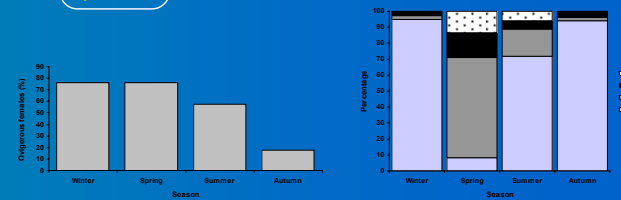
### Distribution:



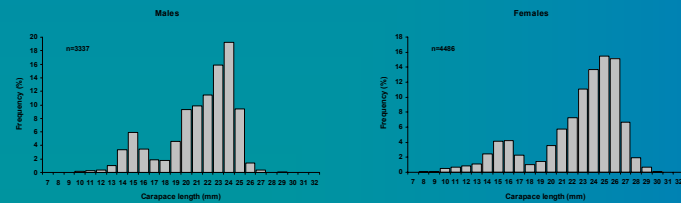
### By-catch:



### Reproduction:



### Length composition



### Growth:

Summary of *P. edwardsii* growth estimates from Azores.  $\Phi^{\circ} = \log k + 2 \cdot \log L_{\infty}$

| Arnsa  | Sex       | Von Bertalanffy growth parameters |      |       |                | Max. Size (mm) |
|--------|-----------|-----------------------------------|------|-------|----------------|----------------|
|        |           | $L_{\infty}$ (CC mm)              | $k$  | $t_0$ | $\Phi^{\circ}$ |                |
| Azores | M + F + I | 28.76                             | 0.79 | 0     | 2.82           | 31.3           |
|        | F         | 27.20                             | 0.85 | 0     | 2.80           | 31.3           |
|        | M         | 26.51                             | 0.59 | 0     | 2.62           | 29.8           |

### Discussion and Conclusions

Off the Azores *P. edwardsii* has been collected from 100 to 600m, mainly from 200 to 300m. Results suggested a seasonal movement from deep to shallow waters in summer. Length compositions are bimodal with a mean length around 22mm (CC) for males and 23mm (CC) for females. Females predominate in the shallow and deeper strata and almost in all length classes, particularly on the small and larger classes. Ovigerous females were present throughout all the year with peak spawning activity during spring and summer. Given the seasonal nature of both the distribution and spawning pattern it is possible that vertical movements of the species may be related to the reproduction process. Growth results show that females have greater growth rates than males.

Results suggested that this species have a commercial potential for exploitation. Suspended traps technology seems to be more effective to catch this species and a target fishery can be clean, i.e. with very small by-catch. However, the Azores region is a discontinued ecosystem where the habitat available for the species is limited, suggesting that only artisanal fisheries are sustainable. Knowledge on the spatial distribution and relationship between the different metapopulations around the Azores, including coastal areas and seamounts, are a priority to define a fishing strategy before the development of any fishery.

### Acknowledgments

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