

A. Box, S. Deudero, A. Blanco, A. M. Grau, F. Riera, (2010). [Differences in  \$\delta^{13}\text{C}\$  and  \$\delta^{15}\text{N}\$  stable isotopes in the pearly razorfish \*Xyrichtys novacula\* related to the sex, location and spawning period](#)

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**Abstract:** In the present study, *Xyrichtys novacula* (Labridae) were sampled at five locations around the islands of Ibiza and Formentera (western Mediterranean Sea). Isotopic signatures of  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$  and the C:N ratio were analysed in relation to locality, sex and size differences.  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  partitioning was also studied in the reproductive spawning period. There were significant differences in the  $\delta^{13}\text{C}$  signature between localities for both sexes, but not for  $\delta^{15}\text{N}$ . Sex differences were also found with a mean  $\pm$ s.e. value of  $-17.38 \pm 0.06\text{‰}$  $\delta^{13}\text{C}$  and  $8.36 \pm 0.05\text{‰}$  $\delta^{15}\text{N}$  for females and  $-17.17 \pm 0.07\text{‰}$  $\delta^{13}\text{C}$  and  $8.80 \pm 0.06\text{‰}$  $\delta^{15}\text{N}$  for males. Increasing total length in both sexes was positively correlated with  $\delta^{15}\text{N}$  enrichment and a significant positive linear regression was established for both variables. During the reproductive spawning period, there were changes in  $\delta^{13}\text{C}$  fractioning with enrichment in postspawning females and males (with respect to prespawning and spawning periods) and  $\delta^{15}\text{N}$  impoverishment in postspawning females (with respect to prespawning and spawning periods).

*Xyrichtys novacula*

uses local food sources, as confirmed by  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ , and females and males use different food sources, thus avoiding intraspecific competition. This was confirmed by  $\delta^{15}\text{N}$  enrichment as size increased. Spawning leads to special requirements for gonad maturation, which is reflected in the isotopic signatures for both sexes.

**Keywords:** isotopic signature, ontogenic changes, reproduction, western Mediterranean