

{rokbox title=| Genetic differentiation for female and male. Violin plot with boxplot of the FST index of genetic differentiation estimated according to Weir and Cockerham (1984) :: Image: Authors|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-investigating-sex-biased-goñi-2026-thumb-et-al.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-investigating-sex-biased-goñi-2026-et-al.jpg{/rokbox}

Laura Benestan, Alicia Dalongeville, **Raquel Goñi**, **Sandra Mallol**, **David Díaz**, Oscar Puebla, Stéphanie Manel, 2026.

[Investigating Sex-Biased Dispersal in a Vulnerable Marine Invertebrate, the European Spiny Lobster \(*Palinurus elephas*\)](#).

Ecology and Evolution. Volume 16. Issue 6. Jun 2026. <https://doi.org/10.1002/ece3.73617>

Abstract: Does dispersal differ between the sexes? This question, anchored in a body of rich theoretical literature, has received little empirical attention in marine invertebrates. Yet, dispersal is a key ecological process with profound implications for species management and conservation. In this study, we investigated sex-biased dispersal in the European spiny lobster (*Palinurus elephas*

) by sampling females and males from six marine reserves and their surroundings in the northwestern Mediterranean. By genotyping 180 individuals at 8390 markers, we found that both sexes exhibited panmixia. Genetic differentiation estimates did not differ significantly between sexes, despite a tendency toward slightly higher and more geographically structured estimates in females. Additionally, we identified 72 sex-linked markers with significant differences in heterozygosity between females (fully heterozygote) and males (fully homozygote). These markers not only allowed the sex assignment of 61 individuals of unknown sex but also provided the first evidence for a ZZ/ZW sex determination system in *P. elephas*.

Beyond their fundamental insights, these sex-linked markers hold strong applied potential for species management, particularly in fisheries where sex-specific regulation exists. Our findings underscore the power of genomic markers to study sex-biased dispersal, elucidate sex determination systems, and facilitate sex assignment, with important implications for species conservation and management.

Keywords: European spiny lobster, fisheries management, sex-biased dispersal, sex determination system.