



Capacity does not equal threat: why *Percnon gibbesi* is not a risk for *Posidonia oceanica*

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Animal behaviour is a key component of biological invasions, particularly when invasive animals exhibit ecological generalism, allowing them to consume a wide range of foods and exploit diverse habitats (Machovsky-Capuska et al. 2016). The invasive crab *Percnon gibbesi* exemplifies this trait (Puccio et al. 2006; Marić et al. 2016; Bada et al. 2022), which has facilitated its rapid spread in the Mediterranean (Katsanevakis et al. 2011). Laboratory studies further demonstrate its capacity to graze on both *Posidonia oceanica* and common Mediterranean macroalgae

(Puentes and Anton 2025; Pizarro-Borrull et al. 2025).

P. gibbesi poses a genuine threat to macroalgal communities on shallow rocky habitats (Pizarro-Borrull et al. 2025; Anton and Puentes 2025). Within its preferred 0–4 m range (Moranta et al. 2025), crab and macroalgae fully co-occur, and the species reaches higher densities and grazing rates than most native Mediterranean herbivores (Pizarro-Borrull et al. 2025). The key question, however, is whether *P. gibbesi* poses an ecosystem-level threat to *P. oceanica* (Gallardo et al. 2016; Santana-Garcon et al. 2023).

Puentes and Anton (2025) argue that *P. gibbesi* could pose a severe risk to shallow *P. oceanica* meadows. This is unlikely, as crab and seagrass distributions overlap only marginally and the actual impact depends on co-occurrence (Moranta et al. 2025). Since *P. oceanica* typically spans 0–35 m (Traganos et al. 2022, p. 9), the 0–4 m fringe represents less than 14% of its potential distribution. Overlap is further reduced by the widespread retreat of the species' upper limit due to persistent anthropogenic impacts and climate change (Jordà et al. 2012; Montefalcone et al. 2019). In the Balearic Islands, for example, *P. oceanica* meadows cover 630 km² between 0 and 35 m, but its coverage between 0 and 5 m accounts only for 10% of this area (official data provided by *Institut Balear de la Natura*, Balearic Government). Thus, any impact of *P. gibbesi* on *P. oceanica* is likely limited, even in winter when its preferred food, macroalgae, declines (Anton and Puentes 2025).

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Overstating unlikely threats to this seagrass risks diverting attention and resources from the well-documented pressures it already faces. New stressors should, of course, be considered when supported by evidence, but marine conservation is best served by focusing on the ecologically meaningful causes of *P. oceanica* decline.

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