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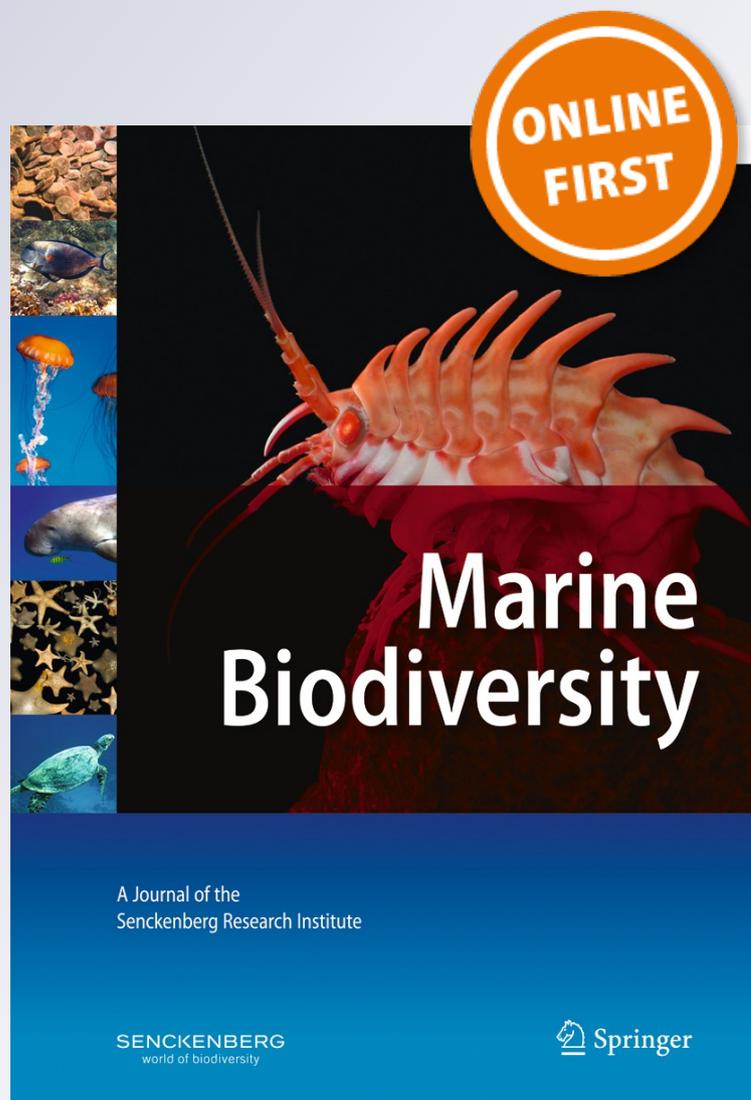
**Manon Mercader, Amélie Fontcuberta,  
Alexandre Mercière, Gilles Saragoni,  
Pierre Boissery, Lucas Bérenger, Rémy  
Dubas, et al.**

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# Observation of juvenile dusky groupers (*Epinephelus marginatus*) in artificial habitats of North-Western Mediterranean harbors

Manon Mercader<sup>1,2</sup> · Amélie Fontcuberta<sup>3</sup> · Alexandre Mercière<sup>1,2</sup> · Gilles Saragoni<sup>1,2</sup> · Pierre Boissery<sup>4</sup> · Lucas Bérenger<sup>3</sup> · Rémy Dubas<sup>3</sup> · Gilles Lecaillon<sup>3</sup> · Jérémy Pastor<sup>1,2</sup> · Philippe Lenfant<sup>1,2</sup>

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The dusky grouper, *Epinephelus marginatus* (Lowe, 1834) is an emblematic species of the Mediterranean Sea (Pastor et al. 2009). However, the species is classified as endangered by the International Union for the Conservation of Nature (IUCN); NW-Mediterranean stocks having suffered drastic decline, with remaining individuals being found almost exclusively in Marine Protected Areas (MPA) (Zabala et al. 1997). Since the early 1990's an increasing number of groupers is being reported along the shores of the NW-Mediterranean sea including an increasing proportion of small individuals (under 40cm) (Bodilis et al. 2003a). Despite the observation of few Young Of the Year (YOY) (under 10cm) on the eastern French coasts and Corsica, only one observation had been made in the Gulf of Lions (Bodilis et al. 2003b).

Grouper's juveniles have a cryptic behavior and a preference for crevices, shelter availability being the determining factor for habitat suitability (La Mesa et al. 2002). They appear in shallow coastal waters, which makes them sensitive to littoral habitat degradation. The loss of coastal nursery habitat is of major concern for fish juveniles. Lately, the development of ecological restoration led, among other actions, to the deployment of artificial microhabitats (Biohut®) (Fig. 1a) along the French Mediterranean coast. Placed in harbors, they aim at restoring nursery function through habitat complexification. The settlement of juveniles (all species) on these structures has been monitored since 2013.

During this monitoring, four juvenile groupers were observed, making it the first record of settlement of this species on artificial structures and in harbors. Two first observations were that of a 5cm individual and a 7cm individual in Le Bruscat harbor on October 2013 and 2014 (Fig. 1b). Since then, two other groupers of 6cm have been seen in the Gulf of Lions, one in Marseillan (October 2014) and one in Port-Vendres (June 2015) (Fig. 1c).

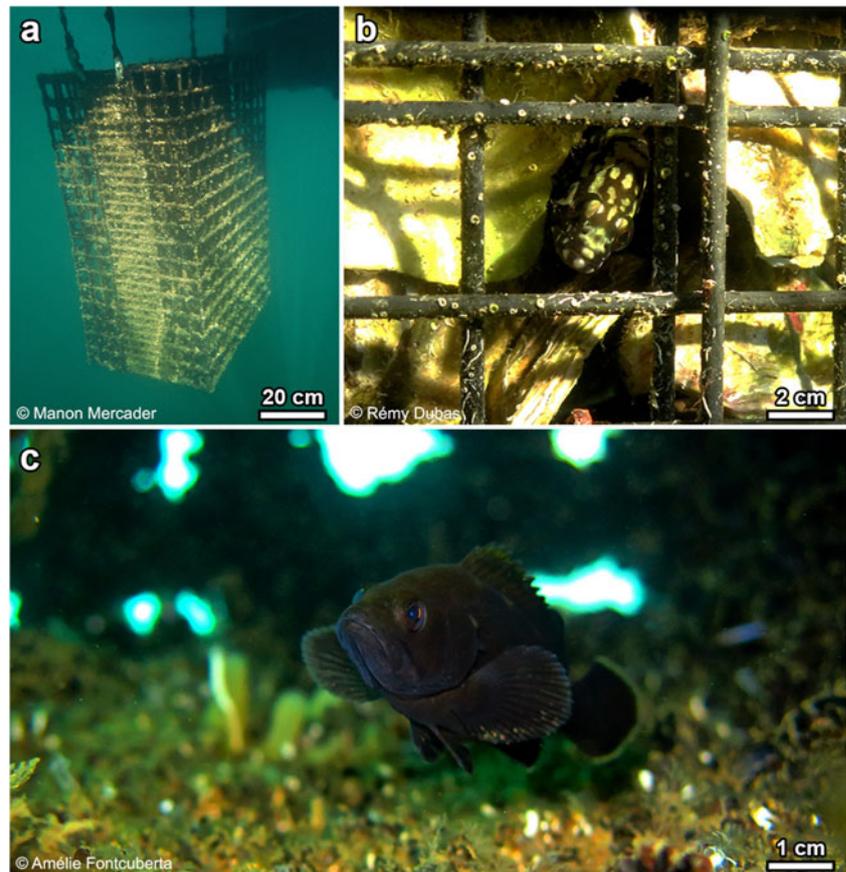
A key element in the assessment of local population recovery is the presence of YOY in an area where only very scarce observations were made. Also, the use of artificial habitats should be seen as a promising tool to complement protection measures like MPAs and moratoriums for the conservation of endangered coastal fish to increase their recovery.

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✉ Manon Mercader  
manon.mercader@univ-perp.fr

- <sup>1</sup> Centre de Formation et de Recherche sur les Environnements Méditerranéens, UMR 5110, Univ. Perpignan Via Domitia, F-66860 Perpignan, France
- <sup>2</sup> CNRS, Centre de Formation et de Recherche sur les Environnements Méditerranéens, UMR 5110, F-66860 Perpignan, France
- <sup>3</sup> ECOCEAN, 33 rue Chaptal, 34000 Montpellier, France
- <sup>4</sup> Agence de l'Eau Rhône-Méditerranée-Corse, Immeuble le Noailles, 62, La Canebière, 13001 Marseille, France

**Fig. 1** Artificial microhabitat fixed under pontoon (a) and juvenile groupers inside the habitats in Le Brus (2014) (b) and Port-Vendres (2015) (c)



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