

Potential use of marinas as nursery grounds by rocky fishes: insights from four *Diplodus* species in the Mediterranean

M. Bouchoucha*, A. M. Darnaude, A. Gudéfin, R. Neveu, M. Verdoit-Jarraya, P. Boissery,
P. Lenfant

*Corresponding author: marc.bouchoucha@ifremer.fr

Marine Ecology Progress Series 547: 193–209 (2016)

Table S1. Definition of development stages for the four species studied. (a) Data from Ventura et al. (2014). (b), (c) and (d) Data from Vigliola & Harmelin (2001). SL = standard length. TL = total length. Total length (TL) refers to the length of the fish measured from the tip of the snout to the tip of the caudal fin. Standard length (SL) refers to the length of a fish measured from the tip of the snout to the posterior end of the midlateral portion of the hypural plate. Simply put, this measurement excludes the length of the caudal fin. Length used for development stages in Vigliola & Harmelin (2001) are given in SL. We estimated TL in our study. Relation between SL and TL are given in (Vigliola 1998): LT = a. LS with a = 1.257 for *Diplodus puntazzo*. a = 1.290 for *D. sargus*. a = 1.283 for *D. vulgaris*.

Development stage	SL (mm)	TL (mm)
(a) <i>D. annularis</i>		
Post-settlement		Settlement - 20
Intermediate		20 - 45
Pre-dispersal		>45
(b) <i>D. puntazzo</i>		
Post-settlement	Settlement - 21	Settlement - 26
Intermediate	21 - 43	26 - 54
Pre-dispersal	> 43	> 54
(c) <i>D. sargus</i>		
Post-settlement	Settlement - 23	Settlement - 30
Intermediate	23 - 49	30 - 63
Pre-dispersal	> 49	> 63
(d) <i>D. vulgaris</i>		
Post-settlement	Settlement - 24	Settlement - 30
Intermediate	24 - 40	30 - 51
Pre-dispersal	> 40	> 51

Fig. S1 Evolution of monthly average temperatures in the five marinas studied during the sampling period (April–August).

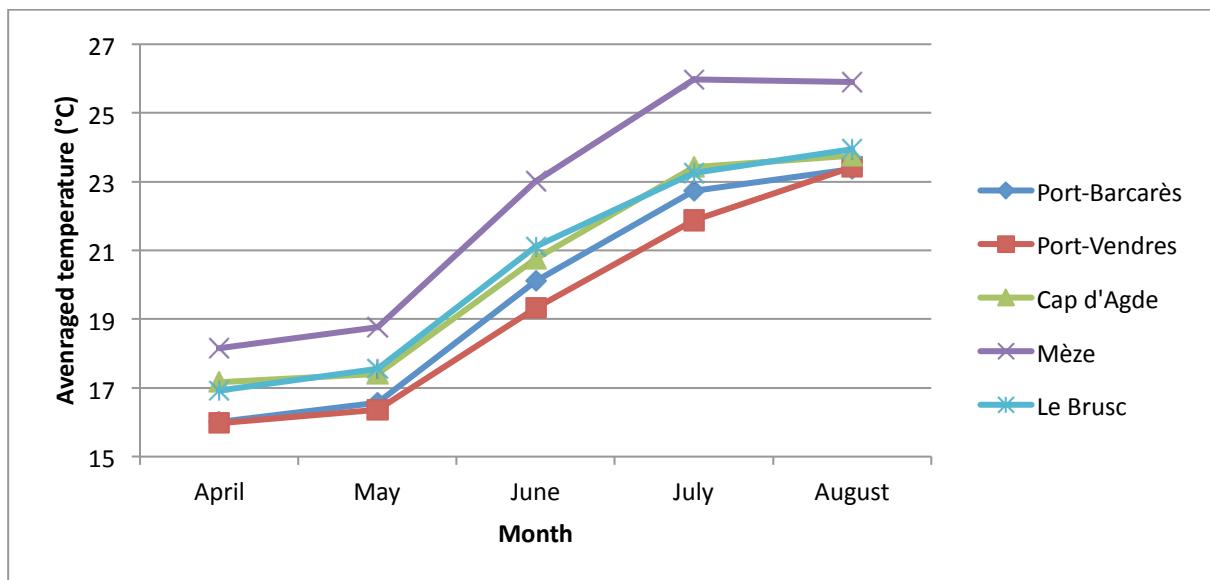
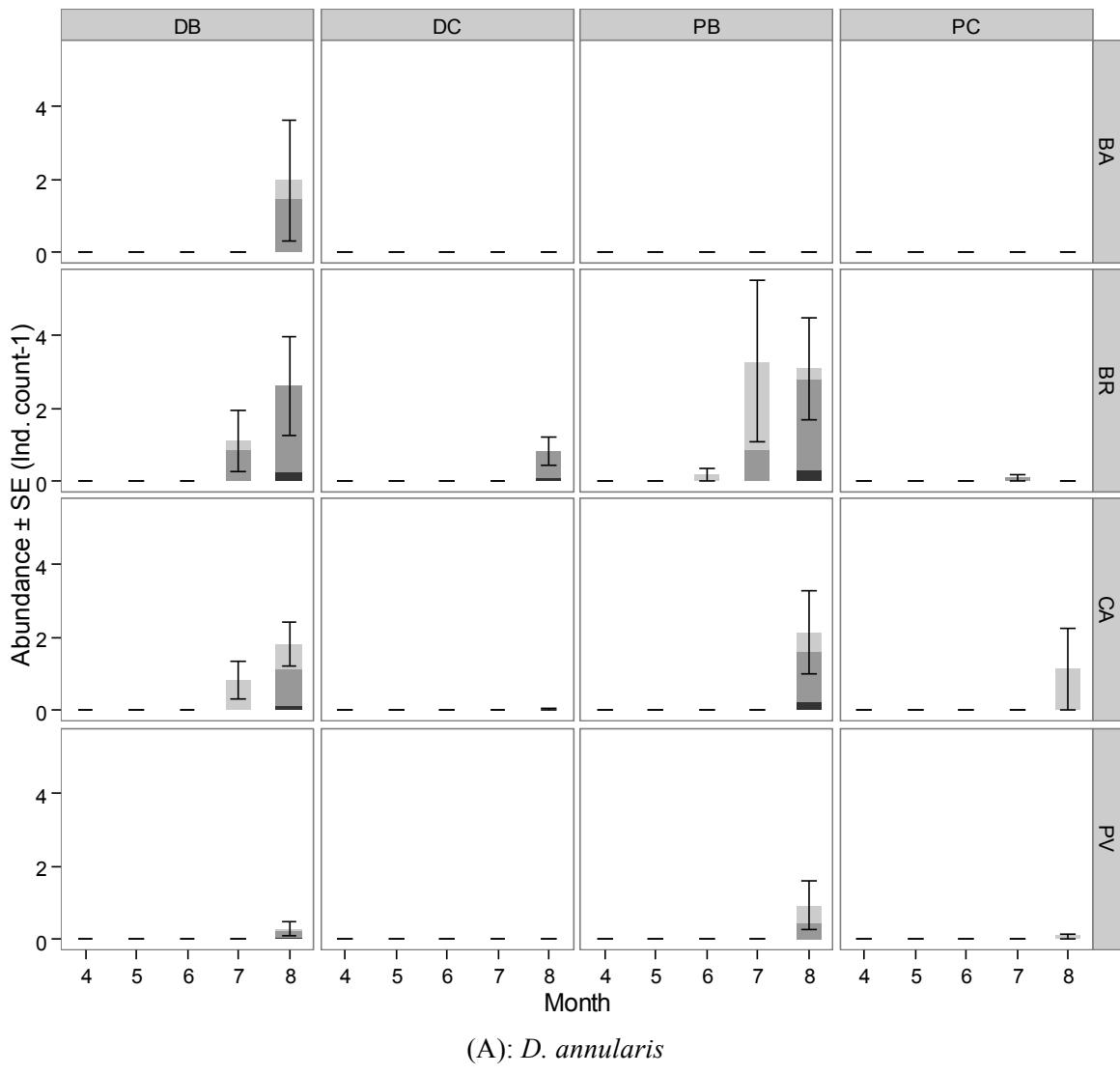
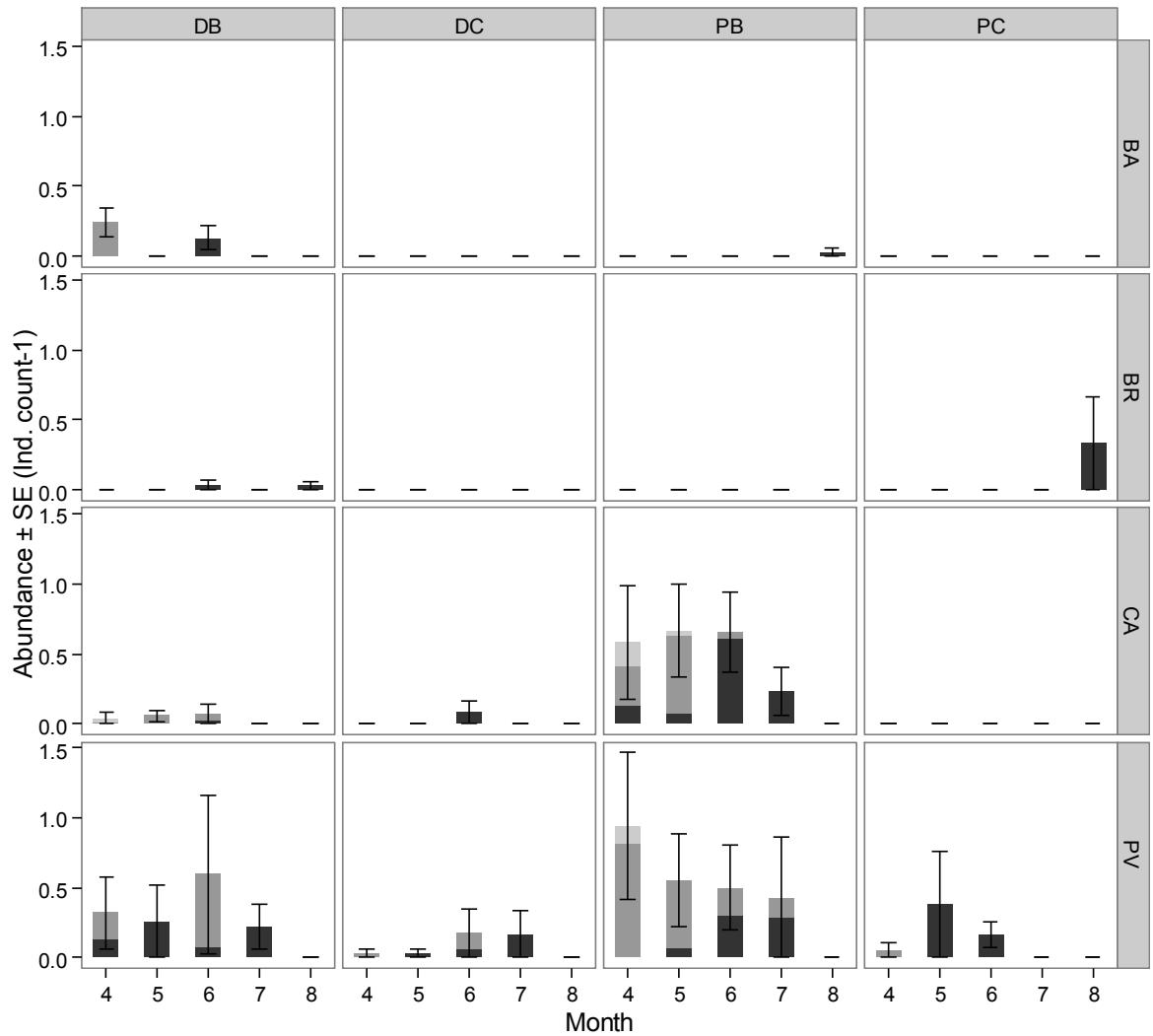
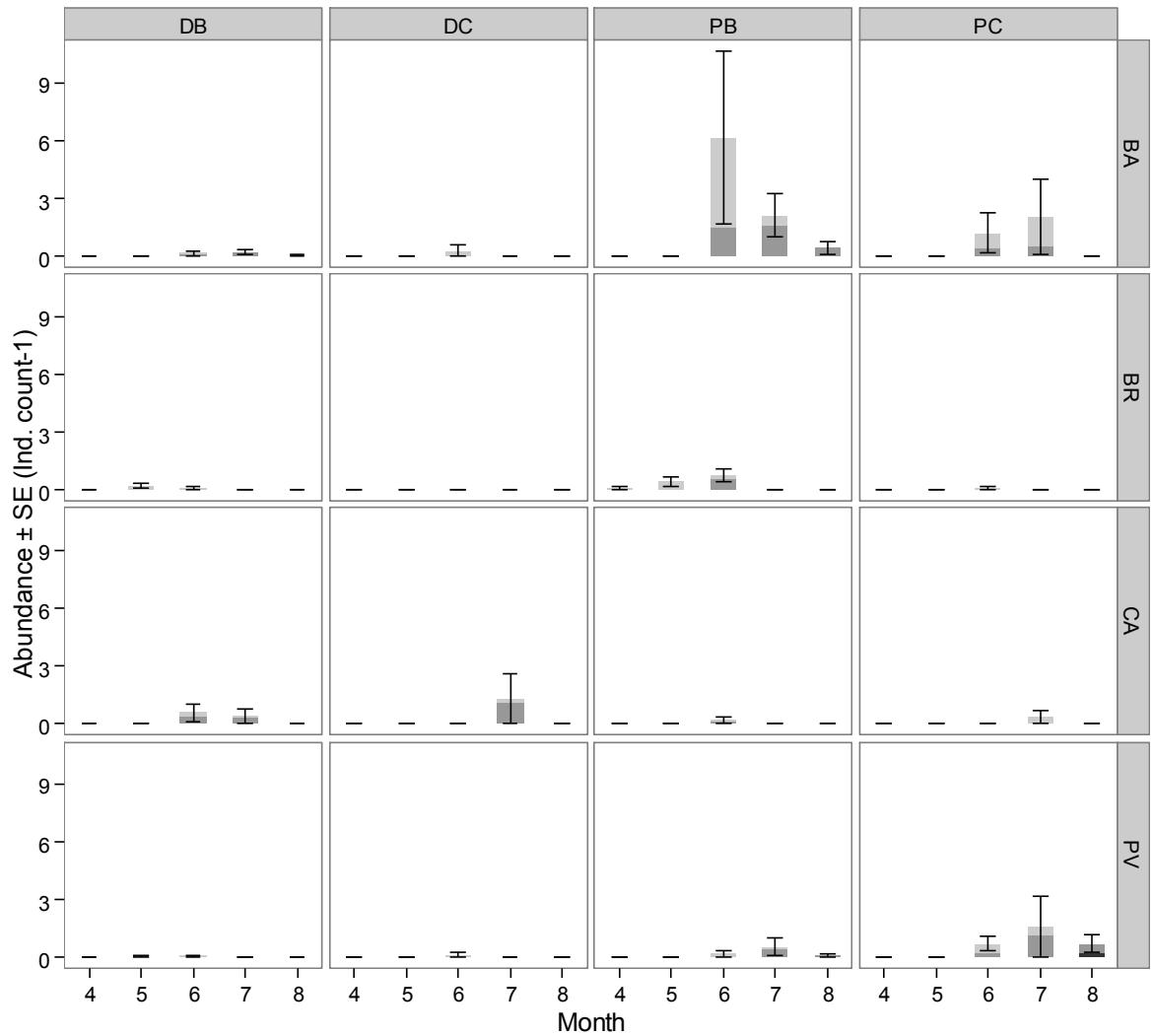


Fig. S2. Mean abundances (ind. count⁻¹) of the juveniles of *Diplodus annularis* (A) , *D. puntazzo* (B) , *D. sargus* (C) and *D. vulgaris* (D) observed per month, marina (Port-Vendres [PV], Port-Barcarès [BA], Cap d'Agde [CA] and Le Brusc [BR]) and habitat type (DB, DC, PB and PC). Results for Mèze are not represented since a total of only 3 individuals were observed in this marina. Colors correspond to the three development stages chosen in this study: post-settlement in light grey, intermediate in dark grey and pre-dispersal in black. Error-bars represent the standard error around the mean abundance found when all development stages were combined.

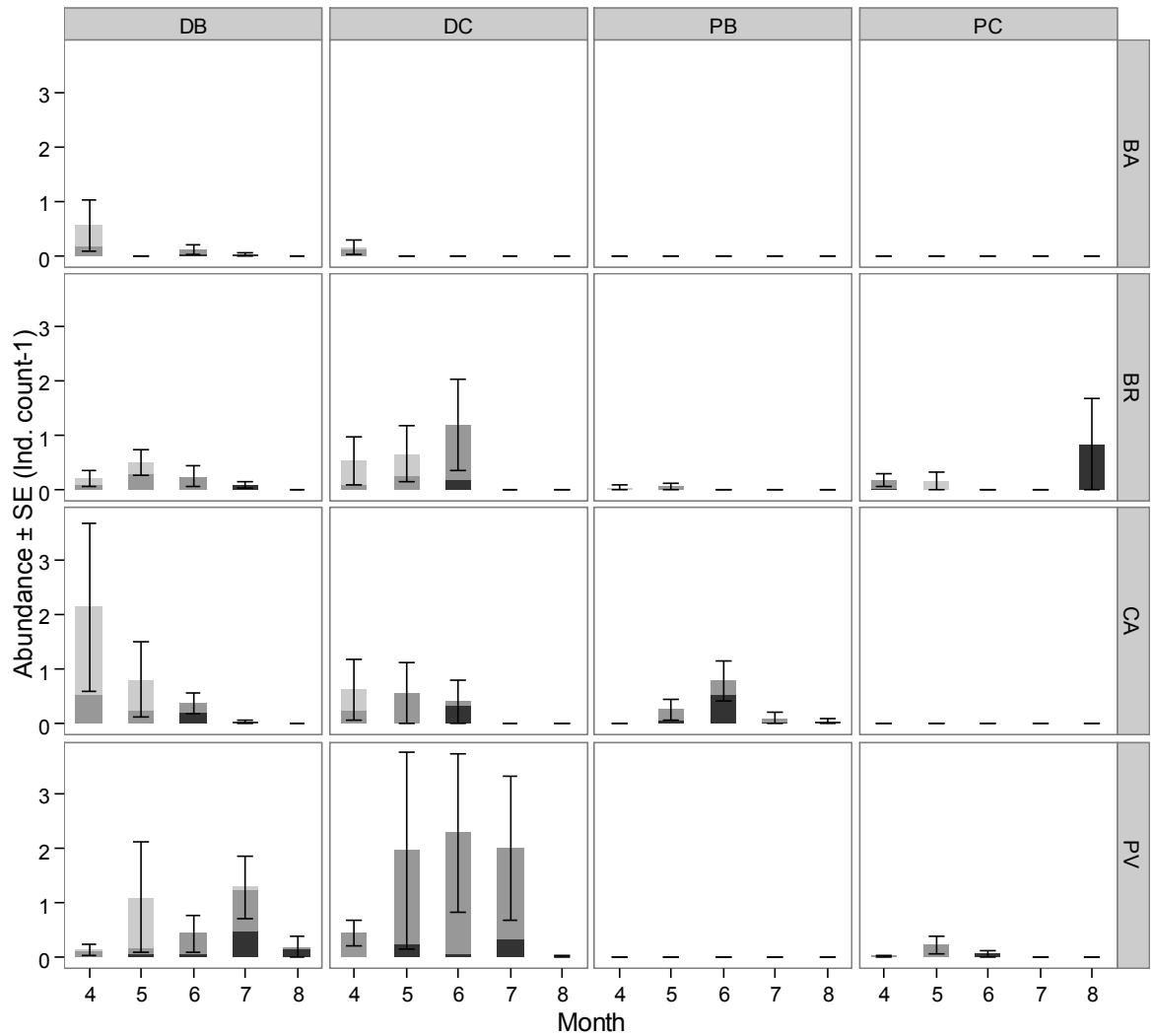




(B): *D. punctazzo*



(C): *D. sargus*



(D): *D. vulgaris*

LITERATURE CITED

- Ventura D, Jona Lasinio G, Ardizzone G (2014) Temporal partitioning of microhabitat use among four juvenile fish species of the genus *Diplodus* (Pisces: Perciformes, Sparidae). *Marine Ecology*:1-20
- Vigliola L (1998) Contrôle et régulation du recrutement des Sparidae (Poissons, Téléostéens) en Méditerranée : importance des processus pré- et post-installation benthique. Thesis, Université Aix-Marseille II
- Vigliola L, Harmelin-Vivien M (2001) Post-settlement ontogeny in three Mediterranean reef fish species of the genus *Diplodus*. *Bulletin of Marine Science* 68:271-286