Eq. S1. Formalization of the GAM model selected.

$$\log(\text{density}_{iljk}) = \beta_{ljk} + f(CR) + \text{error}_{iljk}$$

where

i = 1,…,34 is the number of density evaluations for each observed combination of site, species and size class;

l= 1,2,3 site label;

j= 1,…, 7 species label;

k= 1,2,3 size class label;

β_{ljk} is the intercept changing with the site, species and size class;

$f(CR)$ is a smooth function estimated using thin plate regression splines with 5 knots.
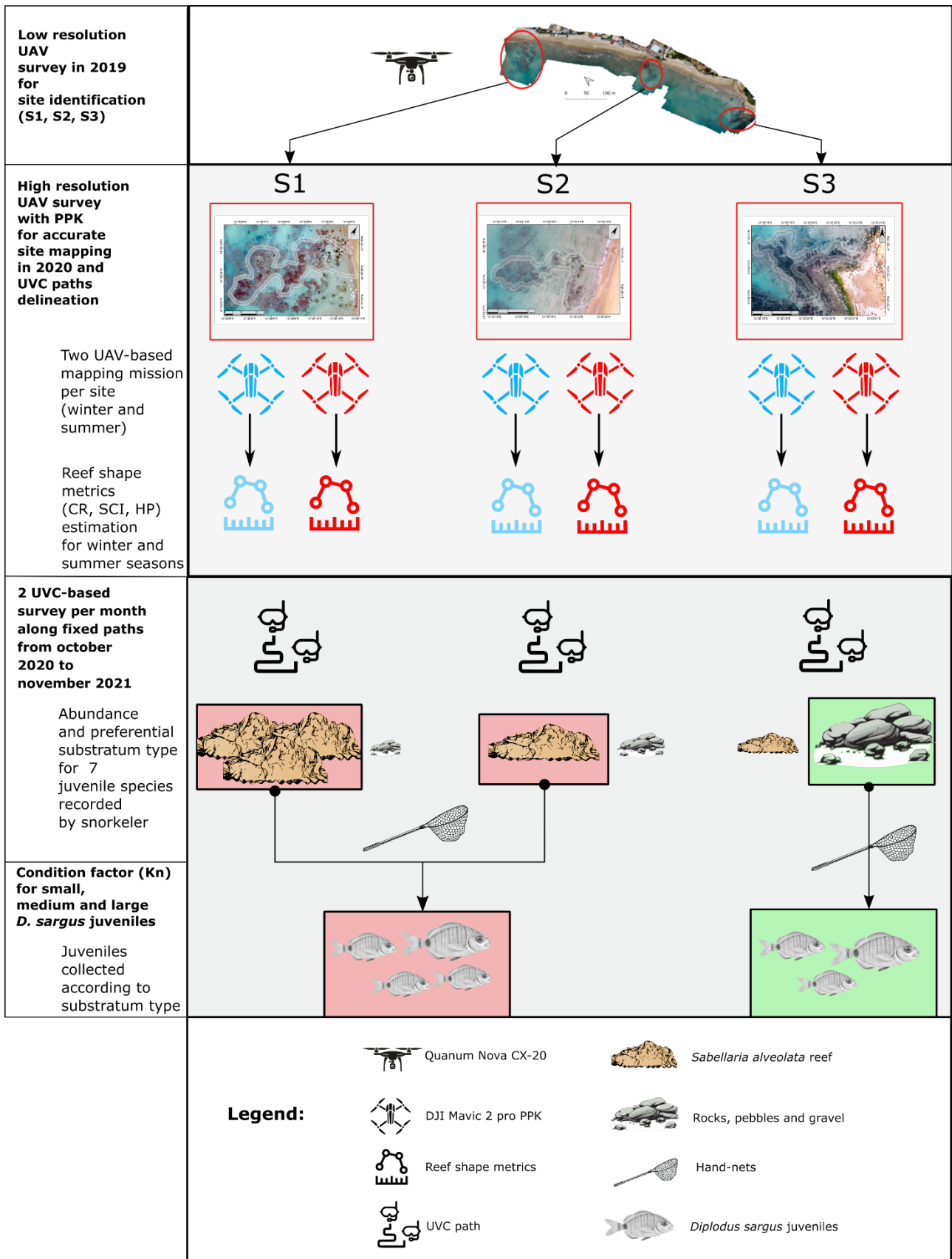
Fig. S1. The sampling design adopted for this work, including aerial UAV-based surveys, UVC campaigns and direct *D. sargus* juvenile sampling
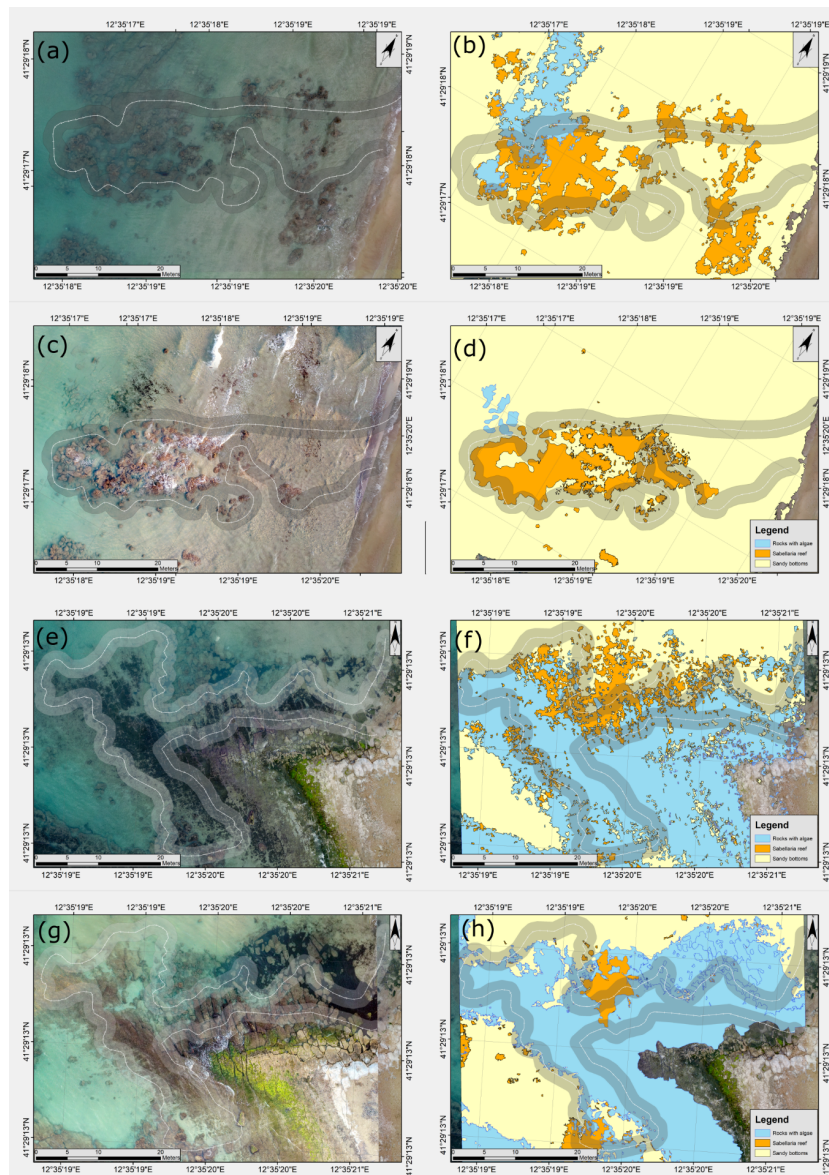
Fig. S2. High spatial resolution mapping of *Sabellaria* reef using UAV-based orthophotmosaic and imagery classification. Orthophoto mosaic of the S2 site in summer (a) with the resulting classification derived by object-based image analysis (OBIA) leading to feature extraction and identification of the three main seabed cover classes (rocks with algae, *S. alveolata* reef and sandy bottoms) (b). Orthophotomosaic of the S2 site in winter (c) with the resulting classification based on OBIA (d). Orthophotomosaic of the S3 site in summer (e) with the resulting classification based on OBIA (f). Orthophotomosaic of the S3 site in winter (g) with the resulting classification based on OBIA (h). Note the modification of reef boundaries and cover. The mean snorkeler's UVC path with a covered area of 570 m² (190 m L x 3 m W) for the S2 site and 600 m² (200 m in L x 3 m W) for the S3 site, derived by multiple GPS tracks interpolation is reported in grey.
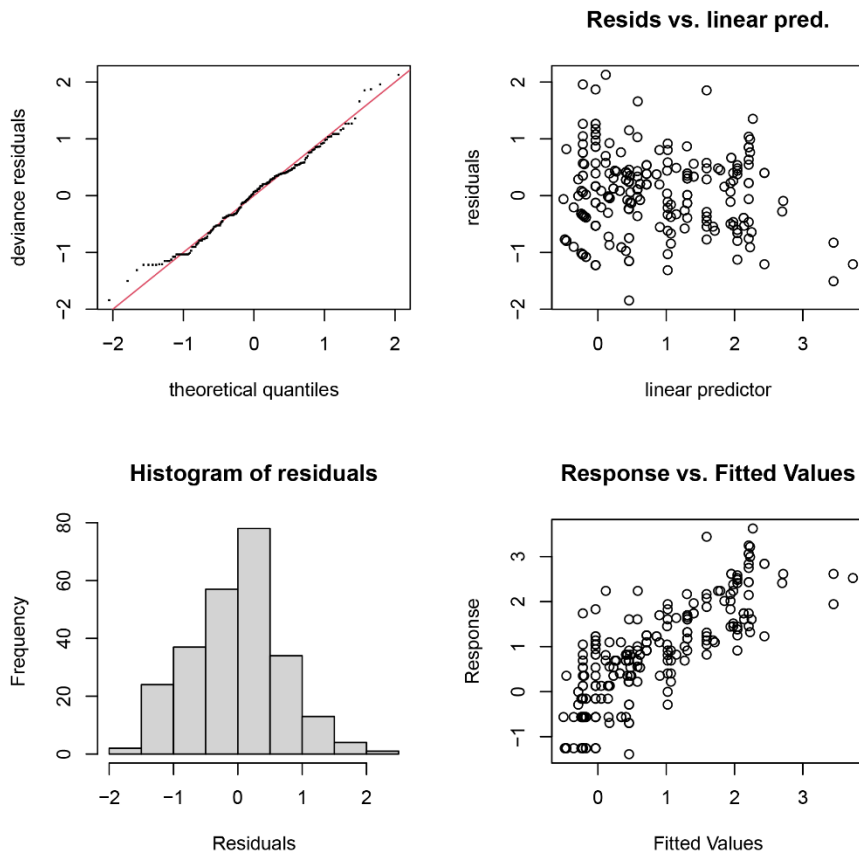
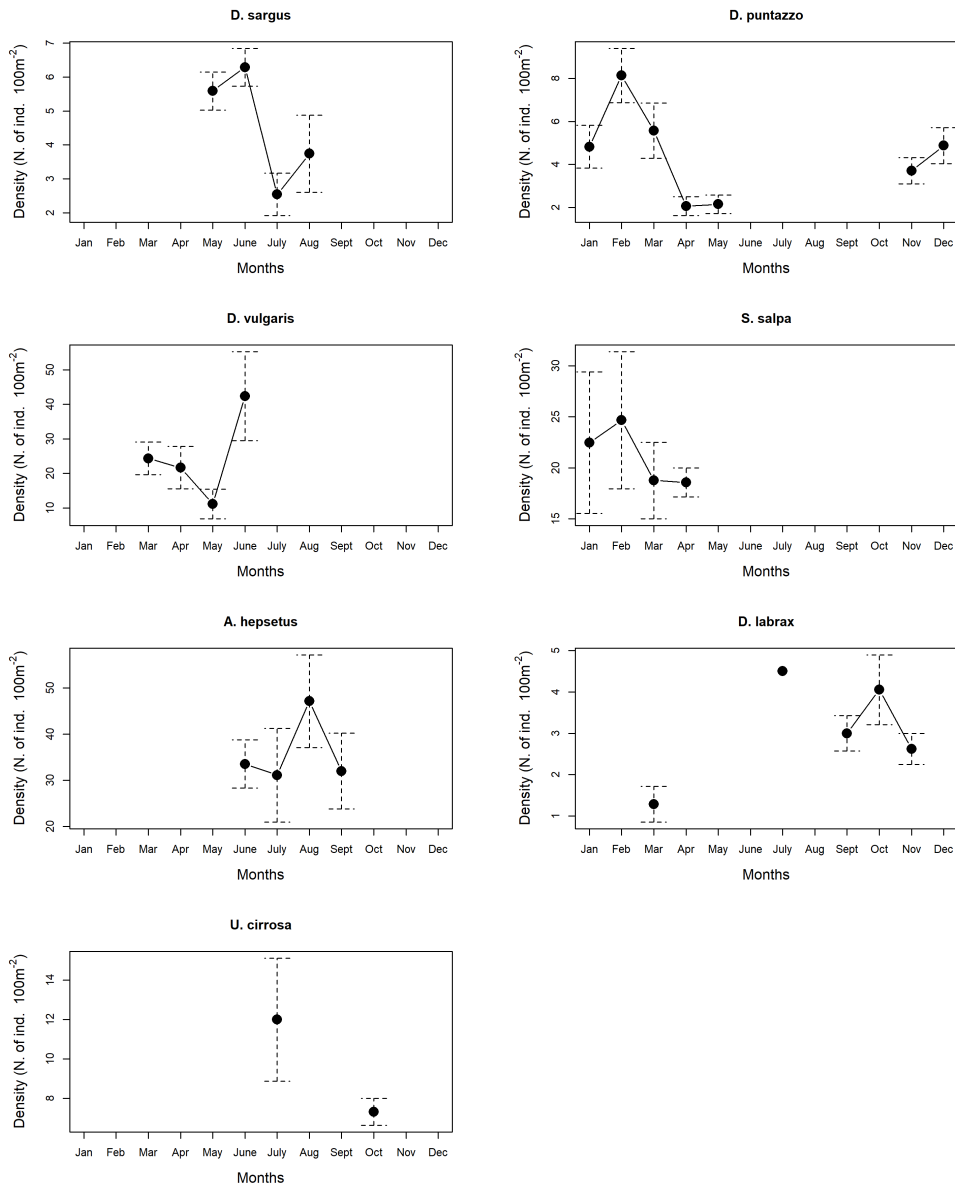Fig. S3. Diagnostic plots of the selected GAM model derived from the 'gam.check' function of the R library 'mgcv'.

Fig. S4. Monthly mean densities (expressed as N. of individuals 100 m⁻²) of the seven juvenile species (N = 3395) censused among the three study sites from October 2020 to November 2021.

Table S1. Results of accuracy assessment on the OBIA classification based on UAV imagery acquired at each study site during summer and winter. Producer's Accuracy (PA) and User's Accuracy (UA) by class.

Seabed cover classes	Site S1				Site S2				Site S3			
	Summer		Winter		Summer		Winter		Summer		Winter	
	PA	**UA**	**PA**	**UA**	**PA**	**UA**	**PA**	**UA**	**PA**	**UA**	**PA**	**UA**
Sabellaria reef	100.0%	70.0%	100.0%	80.0%	100.0%	70.0%	83.3%	70.0%	87.5%	77.8%	100.0%	70.0%
Rocks with algae	75.0%	75.0%	80.0%	80.0%	75.0%	75.0%	100.0%	100.0%	81.3%	92.9%	76.9%	100.0%
Sandy bottom	77.8%	93.3%	83.3%	100.0%	77.8%	93.3%	83.3%	90.0%	100.0%	90.0%	90.0%	90.0%
Overall Accuracy (%)	81.8%		86.7%		91.8%		86.7%		87.9%		86.7%	