Definition of habitat suitability models in prediction of the effects induced by stress factors and climate change on small pelagic fish.

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The distribution of small pelagic species (SPPs), which represent significant resources at a global level from both an ecological and socioeconomic point of view, could change due to climate change, altering the "match-mismatch" dynamics of these species vulnerable to inside their ideal environmental window. Our objective is to evaluate the potential effects of various climate change scenarios on the distribution of SPPs in the Mediterranean basin, based on current data on habitat suitability for the species under discussion. The evaluation of the "optimal" species-specific environmental variability will allow a comparison between the current scenario and the long-term one (in the next 50 and 100 years). The distribution of the target species will be examined in relation to various oceanographic variables, biological, chemical and physical. These data will act as a catalyst for more comprehensive models that will determine the limits and thresholds of a species' resistance to particular stressors, also taking into account any local factors (e.g., eutrophication, increase in thermophilic species [e.g., Sardinella aurita], underwater noise). Because the synergistic effects of climate variability and species suitability mediate habitat suitability, it is essential to apply models with a robust data base on species-habitat interactions that incorporate knowledge of the full spectrum of processes that shape productivity and the distribution of species.