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Recreational boating as a vector of spread of non-indigenous species around the Mediterranean Sea

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This study seeks to identify the hotspots for the secondary spread of non-indigenous species (NIS) resulting from recreational boating travel patterns across the Mediterranean Sea, and investigate the potential for internal spread within each study region. Three Mediterranean regions will be sampled for: 1) NIS richness in the marinas and NIS richness and abundance from recreational vessels; 2) biopollution level of transient recreational boats; 3) geographic range of NIS within each region; 4) hull cleaning and travel history of recreational boats. The results will then be tested with other abiotic factors to determine which factors are significant in contributing to making some marinas more high-risk for the presence and transfer of alien species. Finally, a spatial connectivity network analysis will be presented of the 30 sampled marinas by combining a risk-level for each marina along with recreational boating travel patterns. Marina selection is based on the busiest marinas for recreational boaters in each region in combination with securing permission and feasibility. Samples for *Amathia verticillatum* will be collected from each region and genetically tested to determine if they share the same initial or secondary source of invasion.