

Table S1. Linking habitat and abiotic conditions to fish presence in ecological niche modelling and examples.

	Environmental layer (units)	Linking habitat and abiotic conditions with fish presence	Examples
Specific habitat	Euclidean distance from mangrove habitats (meter)	Mangrove habitats have been associated as nursery and spawning grounds for fish. They also function as a refuge and feeding area for other groups of fish [71]. The distance from the habitat help to associate the frequency with which the different species of fish preferentially occur.	[36]
	Euclidean distance from rocky shores habitats (meter)	Rocky beach habitats offer rocky reef environments and cliffs where some fish inhabit [72]. Much cryptic fish seek these environments for food and protection.	[73]
	Mean grain size (phi)	The size of the sediment grains is linked to the hydrodynamic conditions of the sea due to the action of the wind and tide; coarse sizes correspond to higher energy levels. Some fish will prefer high or low energy levels or will prefer coarse or fine sediment. Some crustaceans live in fine sediments and are a food source for soft bottom detritivores. Some infaunal fish require specific textures to live into the substrate.	[74-77]
Marine substrate	Sediment sorting (phi)	Another condition that complements the grain size is sediment sorting. This dispersion metric reflects stable or heterogeneous hydrodynamic conditions or different sedimentary processes configuration. For example, in the Laguna de La Paz, the streams contribute sediments and organic matter dragging coarse grain sizes that mix with the mud, promoting a specific inferred environment with high sorting values.	[36]
	Calcium carbonate content (mass percentage)	CaCO <sub>3</sub> comes from fragments of calcareous organisms associated with rhodolite mantles, coral colonies, and mollusk shell banks that, eventually, with geological time have exceptionally formed calcareous environments. Cryptic fishes prefer these environments to search for tubes and protect themselves; also to acquire food. Coral fish are associated with bioturbation processes in corals and other symbiotic relationships [78]	[36]

**Marine bottom  
geomorphology**

Depth (meter)	The depth of the sea has been a widely used variable to characterize the presence of marine organisms. Some fish are adapted to shallow depths, and others can tolerate greater depths.	[22, 73]
Slope and aspect (degrees)	Slope and aspect have been widely used in ENM and help to characterize at a level of landscape [15, 62]. Given the diversity of environments in the study area, these variables, as well as the depth contribute to configuring geoforms where fish can settle with preference.	[10, 22, 73, 79].