

1                    Adaptive capacity of reef-associated fishes to Climate Change

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## Abstract

14 Climate change is affecting the structure and function of marine communities in the  
15 eastern Pacific, and to anticipate possible consequences of these modifications, a better  
16 understanding of the natural adaptation potential of the species is needed. This study  
17 aimed to build a metric of adaptive capacity of reef fishes, and evaluate it using data from  
18 fish assemblages from 12 rocky and coral reefs of western Mexico. The index was  
19 developed using six life history traits from 719 fish-species distributed along the tropical  
20 Eastern Pacific. Our results indicated low adaptive capacity for big sized carnivore fish  
21 such as the tunas, totoaba and most groupers (*Mycteroperca* spp.); conversely, high  
22 values were attributed to species with fast life strategies such as anchovies, gobies, and  
23 blennies. The application of the index to census data showed that the adaptive potential  
24 of fish assemblages had an inverse latitudinal trend (higher in the southern reefs),  
25 resulting from the abundance of large-sized carnivores in the central and northern Gulf of  
26 California, and of small herbivores in the tropical region. As the index allows to estimate  
27 reef-fish species and communities' adaptive capacity in a straightforward and simple way,  
28 it may be a useful tool for marine conservation.