



Holacanthus limbaughi, and *Stegastes baldwini*, endemic fishes of Clipperton island, tropical eastern Pacific

Clipperton Atoll is the only coral atoll (and the largest coral reef) in the tropical eastern Pacific (TEP) (Glynn et al. 1996), and the most isolated reef in the tropical Indo-Pacific (950 km from the nearest shoals). This small (370 ha) reef's depauperate fish fauna (102 shorefish species) includes eight local endemics from a range of ecological and taxonomic groups (one holocentrid, one serranid, one holacanthid [Top photograph], two labrids, one pomacentrid [Bottom photograph], one blenniid, and one gobiid). None are coral dependent; neither are their nearest living relatives. They appear to have a mixture of western and eastern Pacific origins (Robertson and Allen 1996).

The level of endemism of the fish fauna of an isolated reef is affected by the frequency of local extinctions, habitat area, and the extent of recruitment from outside sources. Unlike some larger isolated Indo-Pacific islands, Clipperton and two other small,

isolated, TEP islands (Cocos and Malpelo) have a significant number of endemic shorefishes. In addition, the Clipperton endemics have survived a recent reduction by 2/3 in the extent of shallow habitat, due to closure of its lagoon about 100y ago, and its subsequent desalination. Knowledge of past climatic fluctuations, and rates of gene flow to nonendemic populations on TEP islands might indicate why such relatively high rates of island endemism occur in the region. How endemic shorefishes produce pelagic larvae and still maintain self-recruiting populations at small islands is not well understood. Hydrographic conditions may aid in the retention of larvae. It is also possible that the larvae of such endemics have developed special adaptations that reduce advective loss.

References

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