Performance of a shipwreck as an artificial fish habitat along Goa, west coast of India

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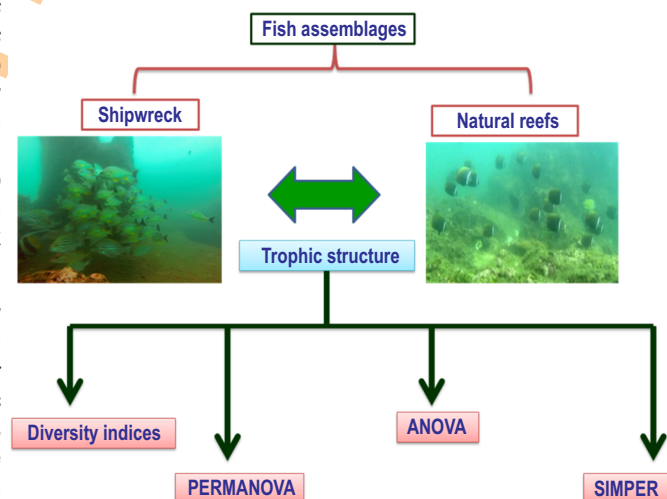Dr. R. B. Raizada

Abstract

Aim : The objective of the study was to test the hypothesis that submerged shipwrecks along the western coast of India can function as artificial fish habitats with trophic structure of fish assemblages similar to natural rocky reef habitats.

Methodology : The fish assemblages on shipwreck and natural reefs were analysed from September 2013 to December 2016 using diver assisted underwater visual census (UVC). Data collected on fish assemblages were used to compare the fish trophic structure between shipwreck and natural reefs using diversity indices, permutational multivariate analysis of variance and similarity percentage analysis.

Results : Fish abundance was two times greater on shipwreck than on natural reefs and the major trophic guilds on shipwreck were omnivores and carnivores. Multivariate analyses showed a distinct fish trophic structure on shipwreck from that of natural reefs and certain fish species differentiated the trophic structure of shipwreck from natural reefs. The high densities of *Pomadasys furcatus, P. guoraca, Pempheris multiradiata, Lutjanus indicus, L. fulvus, Ostorhinchus compressus,, Epinephelus coioides, E. erythrurus, Monodactylus argenteus* and *Heniochus singularis* contributed significantly to the average dissimilarity for fish assemblages in shipwreck from natural reefs. This has helped to differentiate the fish communities on shipwreck from natural reefs.

Interpretation : This study showed that shipwreck and natural reefs differ significantly in fish trophic structure. Fish species richness and abundance were significantly higher on shipwreck than natural reefs. Therefore, the Greater species richness, abundance and diversity of fish communities on shipwreck could be a result of unique, complex and heterogeneous habitat features existing within the wreck.

Key words: Fish diversity, Grande Island, Habitat complexity, Natural reef, Shipwreck