

Human disturbance on fish, fisheries and marine soundscape in an intertidal coralline algal reef, Taoyuan

Monday, 1 April 2019 11:30 (30 minutes)

Coralline or coralligenous algal reef, like many other coastal marine ecosystems, are vulnerable to land-source sedimentation and human disturbance. The Taoyuan coralline algal reef is a biodiverse area recently threatened by coastal developments and industrial waste runoff. As the reef lies in an area highly disturbed by monsoons, it is difficult to survey the algal reef fish community using traditional netting method, hence knowledge of Taoyuan algal reef is limited and it was long believed to be a barren coast. We employed multiple sampling methods and underwater sound recording (soundscape) to determine fish community response to human disturbance. We selected five different sites ranging from the marine reserve to sites adjacent to the industrial area to represent different levels of human disturbance. To date, we have found both fish sampling methods and soundscape analysis indicated the sites in Datang algal reef are areas of high fish biodiversity and abundance. We also recorded juvenile predatory reef fishes, such as grouper, snapper and hammerhead shark, indicating that these fisheries species use these shallow water reefs as a nursery habitat. During this study, we observed highly turbid effluent discharge from the industrial area as well as a mass fish death incident beside the discharge point. We suggest a marine reserve to protect this extraordinary reef ecosystem from local development.

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Session Classification: Soundscape Conference