

藻礁好不好？從魚類、漁業到聲景

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殼狀珊瑚藻所形成的藻礁如同許多其他的沿岸海洋生態系都常遭受到陸源的沈積物和人類活動影響。桃園藻礁也是一個生物多樣性高且長年遭受到沿岸工業發展和污水影響的棲地。然而這樣的棲地同時受到強烈的季風及海浪擾動影響，一般的潮間帶網具及其他調查研究方式很難進行，而導致常有藻礁豐度低、多樣性低的言論。但是實際上有效的調查卻不多。因此本研究綜合幾種不同的採樣方式，來彌補採樣的誤差。其中我們更進一步採用聲景的錄音模式來回推漲潮期間，藻礁的生物活動及多樣性。我們從白玉工業區到觀新藻礁保護區之間，選擇五個樣點進行比較。目前的魚類調查和聲景結果，大潭藻礁具有最高的生物多樣性，和次高的生物量。我們也在不同的藻礁發現掠食性魚類的幼魚，如石斑、笛鯛和雙髻鯊。這都顯示藻礁淺水域也是這些經濟性魚類的重要育幼所。在本研究進行時，也發現嚴重的工業活動造成高濁度和大量魚類死亡。強烈建議工廠的污水監督和更大的保護區設置才能夠保護這個特殊的生態系及其生態及漁業的功能。

How is the Taoyuan algal reef; fish, fishery and soundscape

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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 inhabitant using traditional quantified netting method, hence knowledge of Taoyuan algal reef is limited and it was long believed to be a barren coast. Thus, we increased our survey efforts by combining different fish sampling method as well as underwater sound recording to estimate the human disturbance on a series of sites. While sound recording (soundscape) method might supplement the missed activities from cryptic marine creatures and fishes. We selected five different sites from reserves areas to site close to industrial area to represent the different level of human disturbance. To date, we have found both fish sampling methods and soundscape analysis indicated the Datang algal reef has highest diversity and higher abundance than other sites. We also recorded some juvenile reef predatory fishes, such as grouper, snapper and hammerhead shark, it suggested these fisheries species used this shallow water reefs as a nursery habitat. During this study, some mass dead fishes and high turbidity water have been observed from industry activities in algal reef. Marine reserve is needed to protect this extraordinary reef ecosystem from local development.

Keywords: Datang algal reef, industrial pollution, coralligenous reef