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EFFECTS OF THE TRAWLING BAN ON DEMERSAL FISH COMMUNITIES IN THE MARINE ENVIRONMENT OF HONG KONG, SOUTH CHINA

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Fishery resources in Hong Kong have been over-exploited since the 1970s. In 2010, there were still around 400 trawlers operating in local waters. These trawlers nonselectively catch marine organisms of all sizes, while exerting severe physical damage to the benthic ecosystem. To mitigate the associated impacts of overfishing and trawling, the Government of the Hong Kong Special Administrative Region has imposed a territory-wide trawling ban across local marine waters since 31 December 2012. This study aims to investigate if the trawl-ban policy is effective to facilitate recovery of demersal fish resources, in terms of species diversity, abundance and biomass, in Hong Kong. Under an approved scientific permit, trawl surveys were conducted using a commercial shrimp trawler in eastern (EW), western (WW) and southern waters (SW) of Hong Kong from July 2012 to November 2014. A total of 244 fish species from 75 families were encountered. The fish communities in July-September (wet season) and October-November (dry season) between 2012 (pre trawl-ban), 2013 and 2014 (post trawl-ban) were compared. The results showed that there were significant differences in community structure of the demersal fishes among the three years and the three zones. In both wet and dry seasons, there was significantly higher Shannon's diversity index (H') in 2012 and 2013 than in 2014. Significantly higher biomass and species richness of the fishes were also recorded in the dry season of 2013 when compared to 2012 and 2014. Spatially, the abundance, biomass and level of disturbance in EW were significantly higher than those of WW and SW, but the species richness, H' and evenness index (J') of EW were the lowest among the three zones. The current trawl surveys will be continued until May 2016. Trophic levels and population dynamics of selected fish species will also be studied to verify if there is ecosystem recovery brought by the trawl-ban.