

# **Report on Survey of Fisheries Resources in Hong Kong (2010-2015)**

## **Executive Summary**

To study the long-term goals, direction and feasible options for the sustainable development of local fisheries, the Committee on Sustainable Fisheries (the Committee) established by the Government of Hong Kong Special Administrative Region released its report in 2010. The Committee recommended a number of measures, which formed the policy blueprint for promoting the sustainable development of fisheries in Hong Kong. The three main directions for promoting the industry's sustainable development include: 1) encouraging modernisation and sustainable modes of operation; 2) controlling the fishing effort of capture fisheries; and 3) conserving and enhancing marine resources. Following the recommendations by the Committee, the Government implemented a ban on trawling in Hong Kong waters that came into effect on 31 December 2012. To complement the trawl ban, other relevant fisheries management measures have also been introduced, including the establishment of a registration system for local fishing vessels, limiting new entrants, restricting fishing activities of local non-fishing vessels and prohibiting fishing activities of non-local fishing vessels to promote the sustainable development of fisheries in Hong Kong.

To assess the changes in fisheries resources after the implementation of the trawl ban and other relevant fisheries management measures, AFCD initiated the monitoring of local fisheries resources in 2010. Demersal fisheries surveys using

stern and shrimp-trawlers were conducted at 16 stations across four areas in Hong Kong (i.e. north-eastern, south-eastern, south-western and north-western waters) every two months from 2010-2015. Pelagic fisheries surveys using purse seiners were also conducted at 9 sampling stations in three areas (i.e. north-eastern, Port Shelter and southern waters) every three months from 2011 to 2015. Samples collected were sorted, identified, measured and weighed to gather information for analysis. The main goal of this study is to review and analyse the changes in demersal and pelagic fisheries resources and representative commercial families in different areas of Hong Kong based on survey data, with a focus on the comparison of resources before and after the trawl ban as an initial assessment of effectiveness. To that end, AFCD has commissioned the South China Sea Fisheries Research Institute (SCSFRI) to perform the scientific analysis of the data obtained to harness expert knowledge and experience on fisheries resources studies in the South China Sea.

Survey findings indicated that the effectiveness of the trawl ban on the recovery of demersal fisheries resources was greater than that of pelagic fisheries resources. The biomass of the total demersal catch has increased considerably after the implementation of the trawl ban, different areas showed varying trends and the increase in total biomass was more evident in the south-eastern and north-western waters during specific seasons. Total abundance trends showed a slight recovery, likely indicating that some of the catch may have increased in size. The recovery of the total pelagic catch was relatively unclear, likely due to the mobile nature of pelagic resources. Moreover, the results exhibited high spatial and temporal variations, and different trends were found in different seasons and areas. The use of a longer time-series may help elucidate trends and dynamics for different resources.

Some commercial fisheries resources have seen a general increase in Hong Kong waters after the implementation of the trawl ban. For demersal fisheries resources, the biomass of flatheads (Platycephalidae), ponyfishes (Leiognathidae) and threadfins (Polynemidae) have increased; whereas the abundance of seabreams (Sparidae) and crabs (Portunidae) have increased. For pelagic fisheries resources, the biomass and abundance of pomfrets (Stromateidae) and shads (Clupeidae) have both increased. Size-based indicators are simple yet useful metrics in assessing the performance of fisheries management measures and results show that both the weight and length of Bartail flathead (*Platycephalus indicus*) and Belanger's croaker (*Johnius belangerii*) have increased within three years after the trawl ban, suggesting an initial positive change in Hong Kong fisheries resources in response to the fisheries management measures.

Individual families showed varying degrees of recovery in different areas of Hong Kong after the implementation of the trawl ban. In north-eastern waters, the abundance and biomass of seabreams (Sparidae) and hairtails (Trichiuridae); and the abundance of threadfin breams (Nemipteridae) have increased. In south-eastern waters, the abundance and biomass of seabreams (Sparidae), pomfrets (Stromateidae), threadfin breams (Nemipteridae) and crabs (Portunidae); flathead (Platycephalidae) abundance and croaker (Sciaenidae) biomass have increased. In south-western waters, the abundance and biomass of flatheads (Platycephalidae) and shads (Clupeidae) have increased; and the biomass of threadfins (Polynemidae) have increased. Lastly, in north-western waters, the abundance and biomass of shads (Clupeidae) and croaker (Sciaenidae) biomass have increased. Patterns of recovery also varied with season, for example, in wet season, both abundance and biomass of hairtails (Trichiuridae) and mantis shrimps (Squillaeidae) have increased in eastern

waters, whereas threadfin breams (Nemipteridae) and ponyfish (Leiognathidae) biomass have increased in western waters. In dry season, both lizardfishes (Synodontidae) and barracudas (Sphyraenidae) have increased in eastern waters and soles (Soleidae) have increased in western waters.

According to the SCSFRI, the total engine power of the fishing fleet operating in Hong Kong waters in 2006 (before the trawl ban) was about 270 000 kilowatts or nearly double of the environmentally sustainable level. According to the analyses of the current study, based on the relevant fisheries production and engine power analyses of 2013-2015 (after the trawl ban), the estimated maximum sustainable yield for Hong Kong fisheries resources is about 27 800 tonnes equivalent to an estimated engine power of about 166 000 kilowatts. At present, the engine power of the fishing fleet operating in Hong Kong waters is about 136 000 kilowatts and the estimated fisheries production within Hong Kong waters is about 22 000 tonnes. Hence, the findings of this report indicate that both the fisheries production and fishing effort within Hong Kong waters after the implementation of fisheries management measures are maintained at a sustainable level.

In summary, the demersal fisheries resources showed more significant recovery than pelagic fisheries resources. The relatively unclear recovery of pelagic fisheries resources may be related to the mobility and seasonal migratory characteristics of pelagic fishery resources, as well as the possible indirect influence of trawling. The assessment of fisheries resources in Hong Kong is affected by various factors and regular surveys are recommended to be conducted for the continuous monitoring of the long-term changes of the fisheries resources in Hong Kong.

The results of this study generally demonstrate signs of recovery of the fisheries resources in Hong Kong waters after the implementation of the trawl ban and other relevant fisheries management measures. The establishment of Fisheries Protection Areas, which aims to protect the important fisheries spawning and nursery grounds in Hong Kong would further enhance fisheries resources and hence help the sustainable development of local fisheries in the long run.

**South China Sea Fisheries Research Institute (SCSFRI)**  
**December 2017**