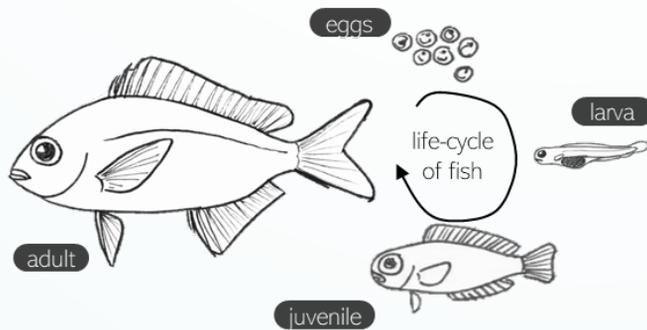




Marine Parks Featured Story

Juvenile Fish Survey at Marine Parks and Marine Reserve

Importance of juvenile fish resource



The Juvenile phase is an important life-history stage for fishes through which they grow to adulthood, replenish wild fish numbers and produce the next generation for maintaining healthy populations in the long run.

Juvenile fish resource is one of the key components in the marine ecosystem. Juvenile fishes generally use sheltered coastal habitats as nursery, for example mangrove bed, seagrass bed and macroalgal bed (*Sargassum* bed), which not only offer juvenile fish protection against predators, but also abundant food for their continuous growth.

Examples of juvenile species using habitats different from their adults



Girella punctata (largescale black fish)

Juveniles associate with seaweed; adults inhabit rocky reefs in coastal areas.

Lutjanus russellii (russell's snapper).

Juveniles associate with mangroves; adults inhabit rocky reefs and coral communities.



The studied Marine Parks and Marine Reserve

Hong Kong's diverse coastal habitats can act as potential juvenile fish nurseries. These habitats are also found in our marine parks and reserve. Studying juvenile fish resources and the potential nursery role of these coastal habitats can help us better protect and manage our juvenile fish habitats and resources in Hong Kong.

This study targeted three Marine Parks and the Marine Reserve including Yan Chau Tong Marine Park (YCTMP), Tung Ping Chau Marine Park (TPCMP), Hoi Ha Wan Marine Park (HHWMP) and Cape D'Aguiar Marine Reserve (CDMR). There were three reference sites, at Port Island, So Lo Pun and Tai Tam Bay.

Tung Ping Chau Marine Park

Sargassum bed – one of the important areas in Hong Kong;
Coral habitat – one of the highest diversity and coverage of hard corals in Hong Kong.

Yan Chau Tong Marine Park

Mangrove bed – extensive mangrove mudflat with all eight species of true mangrove recorded in Hong Kong at Lai Chi Wo;

Seagrass bed – one of the largest patches of Japanese eelgrass bed (*Zostera japonica*) in Hong Kong.

Hoi Ha Wan Marine Park

Coral habitat – high hard coral diversity and coverage.

Cape D'Aguiar Marine Reserve

Numerous hard coral species in **coral habitats** and has **Sargassum bed**.





Methods used in this Study



Small-scale purse seine

Four sampling methods were used to collect juvenile fish in different types of habitats. Small-scale purse seine and fishing cages were used at most types of habitats. Beach seine targets juveniles occurring in the shallow waters of mangrove and seagrass beds. Night-time light traps aimed at catching younger juveniles.



Beach seine



Night-time light traps



Fishing cages

DNA barcoding was adopted to ensure the accuracy of species identification, as some juveniles could be too small to be identified by observing their external features.

Key findings

78% of the 122 juvenile fish species collected and identified was found in the three Marine Parks and the Marine Reserve.



Number of species among the three Marine Parks and the Marine Reserve



The seagrass bed and mangrove bed at Yan Chau Tong Marine Park and *Sargassum* bed at Tung Ping Chau Marine Park are juvenile fish hotspots – where high diversity of juvenile fish was found.

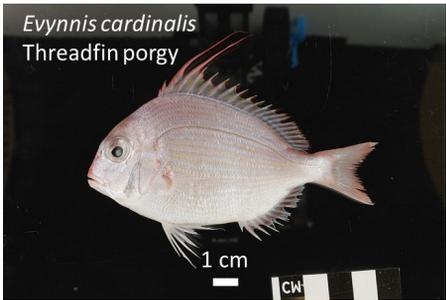


16 species found in the study were new to Hong Kong's existing species list of juvenile fish, bringing the total record to 292 species.

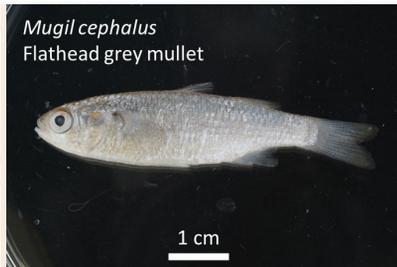
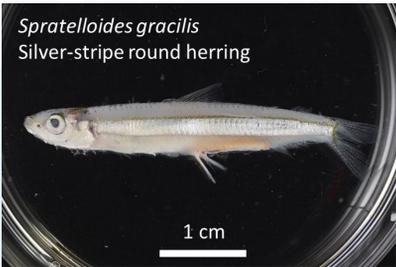
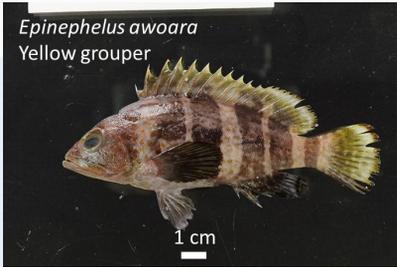


5.8% increase in the number of species in the studied Marine Parks when comparing to a similar study conducted in 2012–2014.

Examples of juvenile fish species in the three Marine Parks and the Marine Reserve

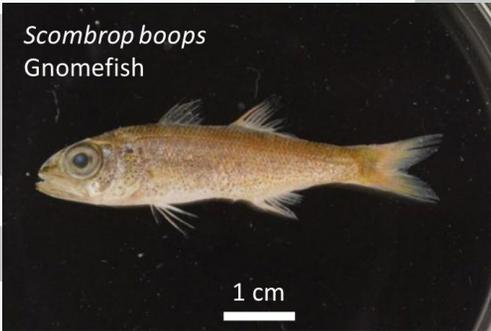


Commercial species were also found to be abundant in these Marine Parks and the Marine Reserve, examples of species include groupers, seabreams and mullets. For example, threadfin porgy (*Evynnis cardinalis*), a globally Endangered species, was found in large number at Hoi Ha Wan Marine Park.



Examples of commercially important species found among the Marine Parks and the Marine Reserve in the study

In the *Sargassum* beds at Tung Ping Chau Marine Park, juveniles of gnomefish (*Scombrops boops*) were recorded. This species is a deep-sea temperate species and was a new species record for Hong Kong.



Management of Marine Parks and Marine Reserve

A total of six marine parks and one marine reserve have been designated in Hong Kong. Marine parks are created for the purpose of conservation, public education, scientific studies and recreation. Activities compatible with the objectives of marine parks are generally allowed.

On the other hand, recreational activities are prohibited in marine reserve and the area is protected for conservation, education and scientific studies.



Juvenile fish resource is one of the key components in the marine ecosystem. This study demonstrated the rich juvenile fish diversity and the presence of their essential habitats in marine parks and the marine reserve in Hong Kong.

The juvenile fish hotspots found in marine parks further indicates the importance of regulating human activities, hence reducing its impact, in these areas.

About this featured story

This featured story is a joint product of Agriculture, Fisheries and Conservation Department (AFCD) and the State Key Laboratory in Marine Pollution, City University of Hong Kong.



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