

## **The preliminary studies for the coexistence of fisheries and offshore wind farms in Taiwan**

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### **Abstract**

Taiwan already built 682 MW capacity of onshore wind power and 8 MW capacity of offshore wind power. Taiwanese government is promoting making offshore wind power and sets a goal of 520 MW capacity of offshore wind power installed by 2020, 5.5GW installed by 2025 and as much as 22 GW by 2030. The planned sites of the offshore wind farm in Taiwan mainly located on the coast of Taiwan Strait and some sites overlap with traditional fishing grounds. Offshore wind power is actively promoted in Taiwan, but the impacts of marine environment and fishery development are not clear. As a result, the fishermen worry that the fishing ground will shrink and the implementation of offshore wind turbines will damage the marine ecology system.

Taiwan Fisheries Research Institute (FRI) opened few projects to study and develop new fishery models which could coexist with the offshore wind farms since 2017. Therefore, we start a program to understand the varies of the marine ecology and plan the scheme of overlapping waters of offshore wind power and fishery, including the investigation of the marine environment and the fishing species in the offshore wind power potential sites; and make some experiments on the artificial surface seaweed farm and offshore aquaculture facilities of the seaweed and shellfish. The initial results showed the variation of the marine environment in the western Taiwan was affected by the monsoon and current, and the distribution of the zooplankton was related to primary production. High diversity of benthos was observed in the potential offshore wind farm off Changhua. In addition, the seedlings by asexual reproduction of *Sargassum hemiphyllum* var. *chinense* could create the seaweed forest quickly, and many kinds of creature were found around seaweed. The mortality rate of the oysters cultivated in the offshore was lower than that near the coast, and it showed the high potential for the offshore aquaculture of shellfish.