Chinese City Employs USV to Monitor Illegal Sewage Discharge
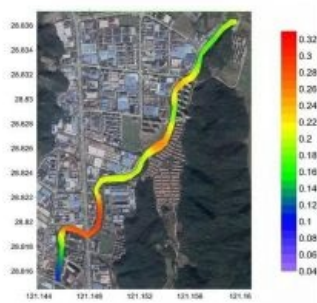

In order to detect any sudden outbreak of water pollution in the city's main river, the government department of Zhengjia, a coastal city in China, introduced an unmanned surface vehicle to its water monitoring routine to detect and restrain all illegal sewage discharge from companies alongside the riverbank.

According to the government officer, conventional water quality monitoring has been well developed regarding LAD analysis, but the sampling frequency and sampling spot density has been too low. The disadvantages of spot location deviation and scattered data distribution also make it hard to present the growth of water pollution comprehensively and quickly.

Water Pollution Monitoring

An automatic sampling station, many of which have been built in recent years, can only achieve full coverage in time; it cannot monitor the entire water area as the stations are built on fixed spots. This also lowers the accuracy and response speed of water pollution monitoring.

USV in China

Deployed with a total phosphorus flow injection analyser, a ME120 autonomous multi-purpose survey boat from OceanAlpha was utilised as a mobile on-line monitoring USV to monitor a designated river section.

Water Sampling Report

From 10 am to 5 pm on 7 August 2019, the USV conducted the mobile total phosphorus monitoring of the river section at the speed of 1 knot. The monitoring consisted of 84 monitoring spots and the total length was 3.5 kilometres. A water sampling report with sampling spot coordinates, time and sample amounts was generated automatically during navigation.

Total phosphorus distribution map

A USV can monitor a designated water area with high efficiency and at low cost. It can help environment managers to understand water quality comprehensively and quickly. As there is no human intervention in the data process, the accuracy and authenticity of the data is highly guaranteed. USVs have proved to be an effective supplement to the traditional river cross-section monitoring methods.