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Sonar tech, drones, satellites to detect waste in Incheon waters

Waste detection system under test operation with completion expected before 2026

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Incheon is testing a new waste detection system using drones and satellites, which will maximize the efficiency of locating and removing sea trash.

According to Incheon Metropolitan City, the system, being developed jointly with the Ongjin County government in the city's maritime territory, uses satellites, drones and sonar radar to monitor the country's western coastal waters and pinpoint the location of waste. First, a satellite scans the surface of the water to detect the presence of trash. Then, drones fly to the satellite-designated location for a closer inspection.

Below the waves, sonar radars will monitor for submerged waste resting on the seabed.

The three-pronged monitoring system, once having located waste, relays the data to the city government's smart maritime environment management center. The center then studies the data using AI and dispatches vessels directly to the target location to collect the trash. The vessels include one belonging to the city government which will clean



A conceptual image of a new maritime waste collection system being developed jointly by Incheon Metropolitan City and Ongjin County

Courtesy of Incheon Metropolitan City

the area and another trash-collecting vessel now being built by Ongjin County Office.

The Aviation Division under the city government's Maritime Affairs and Aviation Bureau said the new system will maximize efficiency in carrying out the environmentally oriented task and contribute to the city and country's carbon neutraliza-

tion initiatives. By directing the ships to the target locations via the fastest course, the ships can save fuel and time in performing their missions.

An Kwang-ho, chief of the Aviation Division, said the system, once fully deployed in 2025 to cover most of the city's waters, will make the sea cleaner. Recovering clean water has been one of Mayor Yoo Jeong-bok's

key administrative goals and pledges since last year when he was elected as mayor.

The city and county governments began developing the system jointly in 2022. They launched the initiative after winning a project bid opened by the Ministry of Oceans and Fisheries in search of ways to neutralize maritime carbon emis-



Officials and volunteers from eight district offices and companies in Incheon clean up a coastal area of Jawol Island in Incheon's Ongjin County, July 8.

Courtesy of Incheon Metropolitan City

sions. The ministry funneled 7 billion won (\$5.5 million) to the local governments for the project to be completed by the end of 2025.

The governments selected Jawol Island in Ongjin County, some 25 kilometers off the west coast, as the project's first testbed.

Jawol Island is one of the 100 islands in Ongjin waters, 74 of which are uninhabited. A weeklong test began on July 8 of the satellite and drones to see how well they can monitor and locate trash using virtual dummy trash modules. Their goal for now is to keep the waters around Jawol Island clean using the system's early version especially when tourists are expected at the island's beaches during the remainder of this year's summer.

To help keep Jawol Island clean, officials and volunteers from eight district offices and companies in Incheon, including Ongjin County Office and Incheon Techno Park, visited the island earlier this month to clean the coastal areas and check how vulnerable the island is to pollution.

The authorities plan to include Yeongheung Island, Deokjeok Island and other islands in Ongjin County under the system by 2025. Once the ministry's funding is depleted, additional parties like municipal governments, government agencies and companies are to be incorporated into the system management to expand its coverage to all coastal waters of Incheon.