14

LIFE
BELOW WATER

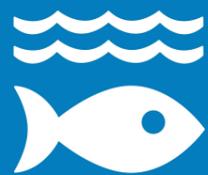## Research

Research and Development of AI Coastline Topography Change Detection Technology
The NYCU Department of Civil Engineering uses methods like satellite imaging, airborne LIDAR measurements, and UAV photography to conduct coastline topography change analysis. It uses artificial intelligence (AI) technology to improve coastal erosion and land loss issues caused by excessive coastal development, and also promotes the restoration of the natural coastal environment, reduces disasters, and achieves the goal of sustainable coastal development.

Creating an Intelligent Aquatic Garbage Cleanup Vessel to Protect Marine Ecology
As part of NYCU's University Social Responsibility (USR) smart IoT talent training program, the "Autonomous Underwater Vehicle" (AUV) team, composed of students from the Department of Mechanical Engineering, developed the "intelligent aquatic garbage cleanup vessel". They used "Rabboni sensors" as the core component in conjunction with machinery, sensor, solar energy, software, and wireless communication technology, in applying AIoT to marine environmental protection.

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27
Students who chose the Course Units

2
Course Units

Social Impact

Promoting Marine Conservation Through the Power of Clubs

The Ecology Conservation Club of the NYCU hospital promotes forest and marine conservation and takes action to protect the Earth's environment. Since its inception, the Club has consistently shared marine conservation knowledge on Facebook and promoted plastic reduction, beach cleanups, marine waste art, marine waste removal plans, marine conservation seminars, and family activities. The Club currently has over a hundred active members.

Student Cultivation

Protect the Ocean —Nanliao Beach Cleanup

In collaboration with the Hsinchu-Miaoli-Nantou Youth Volunteer Service Station, NYCU's Service-Learning Center organized a beach cleanup event on November 21, 2020. A total of 52 NYCU students participated in the event at Nanliao Beach. Instead of tongs, students wore reusable gloves to clear a large volume of waste, plastic bags, and plastic bottles, protecting the marine environment through concrete actions.

Service Learning—Beach Cleanup and Marine Waste Monitoring
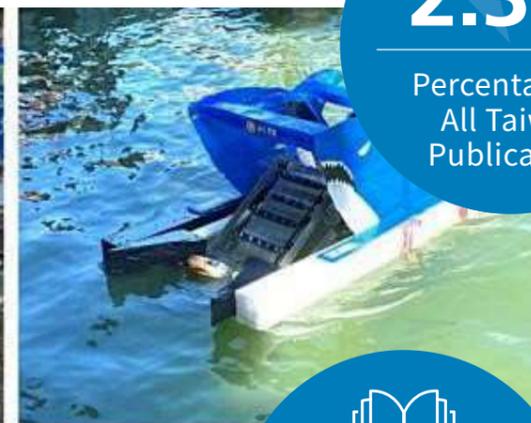
The Beach Cleanup and Marine Waste Monitoring service learning course teaches students to take actions to protect the marine environment, emphasizing the importance of sorting and analyzing marine waste after beach cleanups to understand the makeup of marine waste. Data gathered from such analysis can be used as research materials referenced for relevant government policies and solutions, thereby changing human behavior and protecting the ocean.

Stewardship

Plastic Reduction Policies

Starting July 1, 2019, in line with the government's plastic reduction policy, NYCU banned the use of single-use straws and plastic bags on campus, reduced the use of single-use utensils, implemented waste sorting, and made use of recycled PET bottles.

2.3%
Percentage of All Taiwan Publications

30
Publications in SCOPUS