

# KITAZAWA LAB.

## [Marine Food / Energy Utilization and Ecosystem Preservation]

Center for Integrated Underwater Observation Technology

Marine Ecosystem Engineering

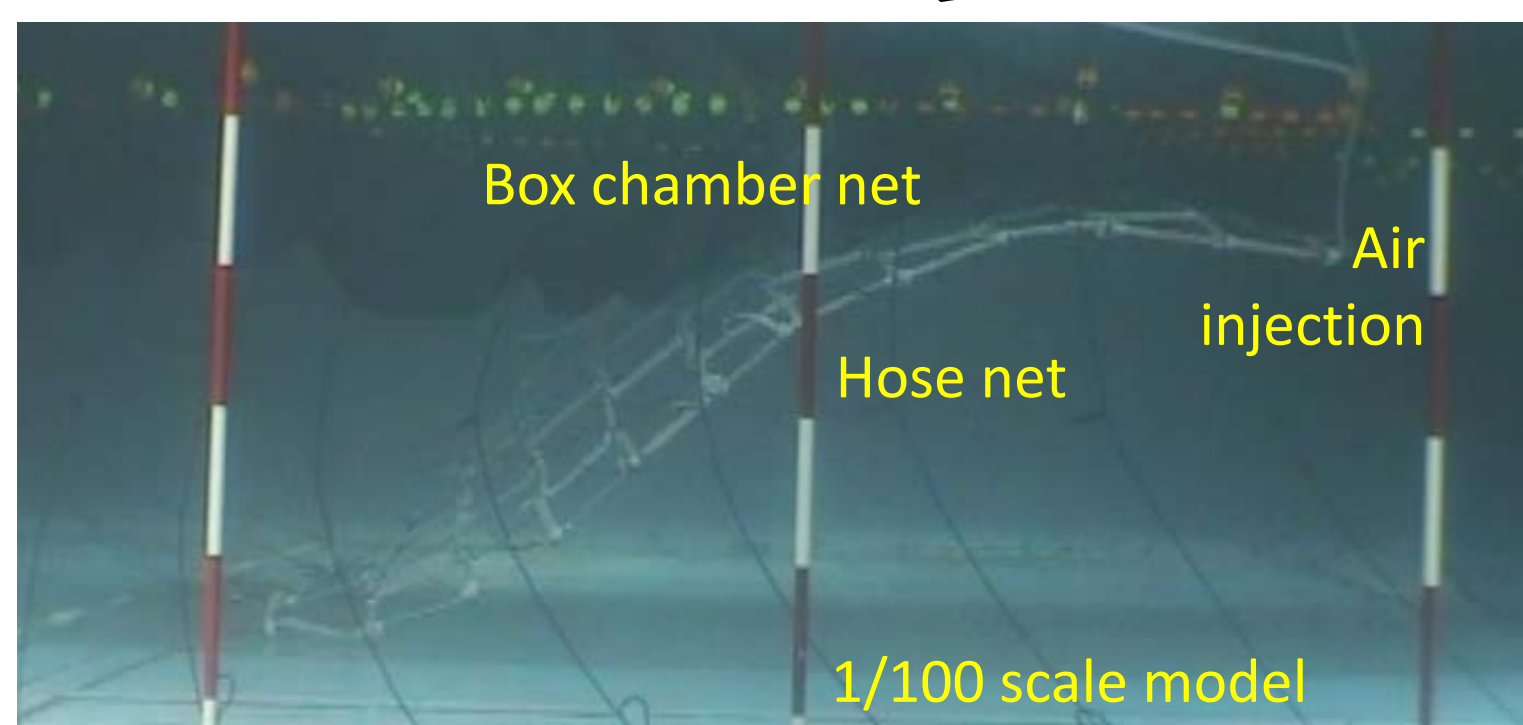
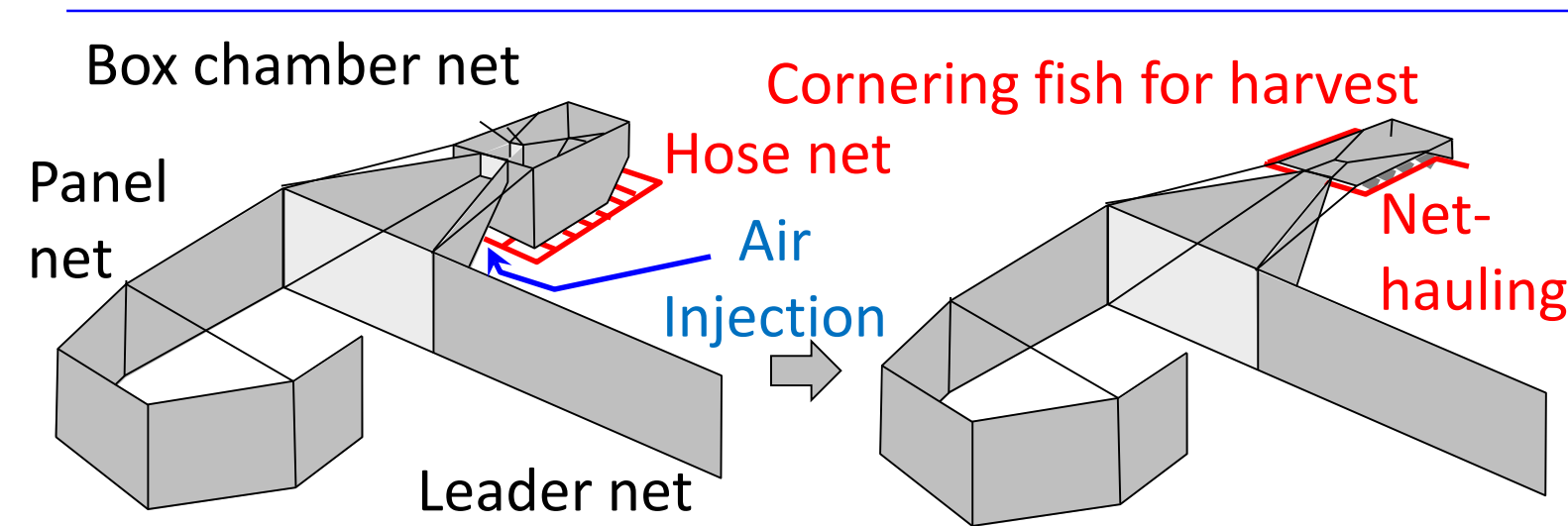
Dept. of Systems Innovation, Graduate School of Engineering

[http://mefe.iis.u-tokyo.ac.jp/index\\_e.html](http://mefe.iis.u-tokyo.ac.jp/index_e.html)

### Utilize Marine Food / Energy and Preserve Ecosystem

Based on **hydrodynamics**, we study the following subjects by means of **water tank model testing**, **numerical simulation**, and **field investigation** in collaboration with many research organizations and private companies.

1. **Marine Food Production System** mainly for Set Net Fishery and Aquaculture
2. Utilization of **Marine Renewable Energy**
3. **Environmental Impact Assessment** by Hydrodynamic and Ecosystem Coupled Model / **Treatment of Wastewater** by Electrochemical Method



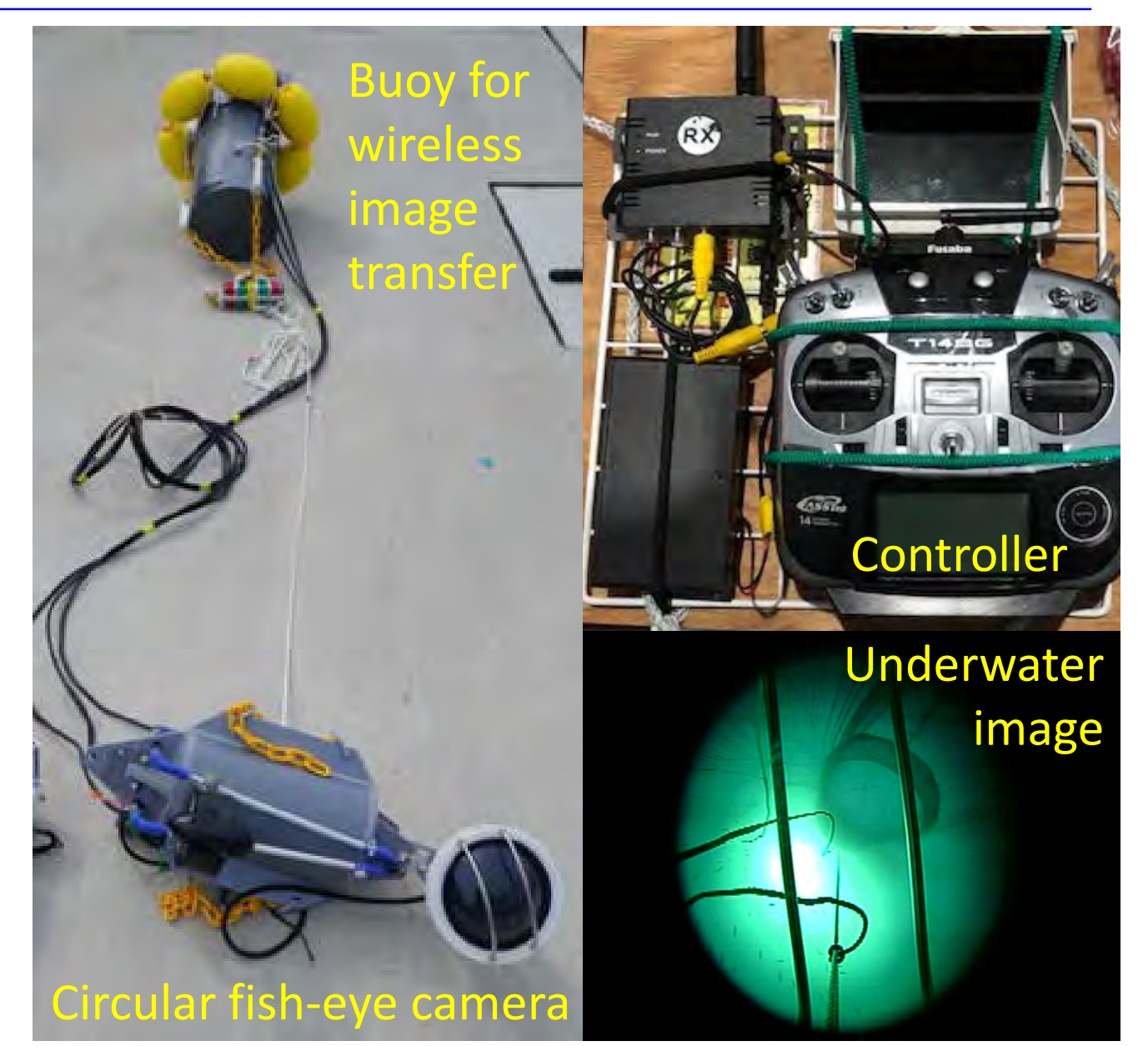
Automated Net-hauling System

Human-saving and labor-saving of net-hauling operation



Submersible Cage and Automated Feeding System (Onagawa Bay)

Culturing silver salmon in lower temperature using a submersible cage



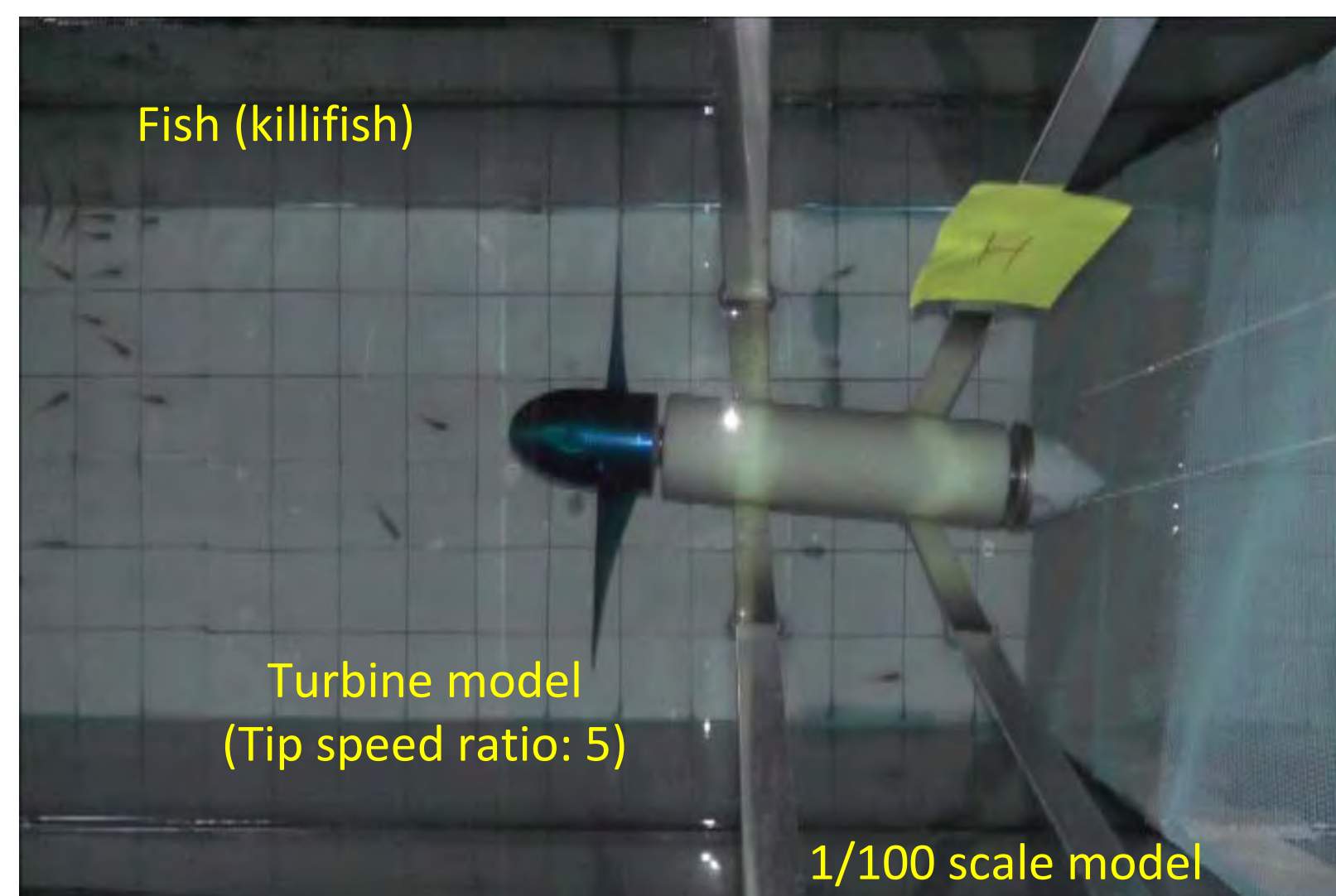
Reef-effect Observation (off Kamaishi)

Wide-angle monitoring using a fish-eye camera



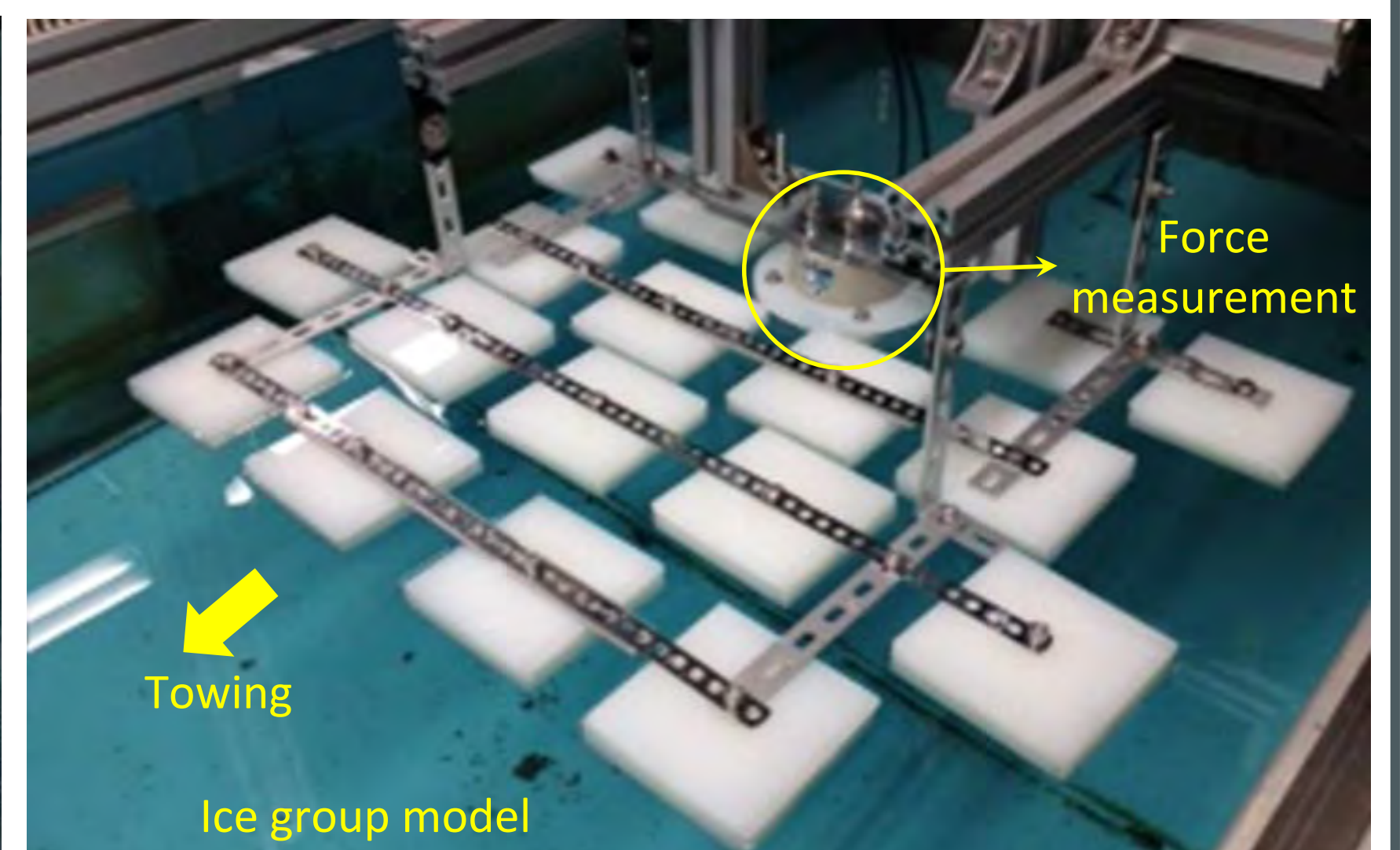
Wave Harmonizer (Yuya Bay; off Hiratsuka)

Motion-controlled ship with wave energy harvester



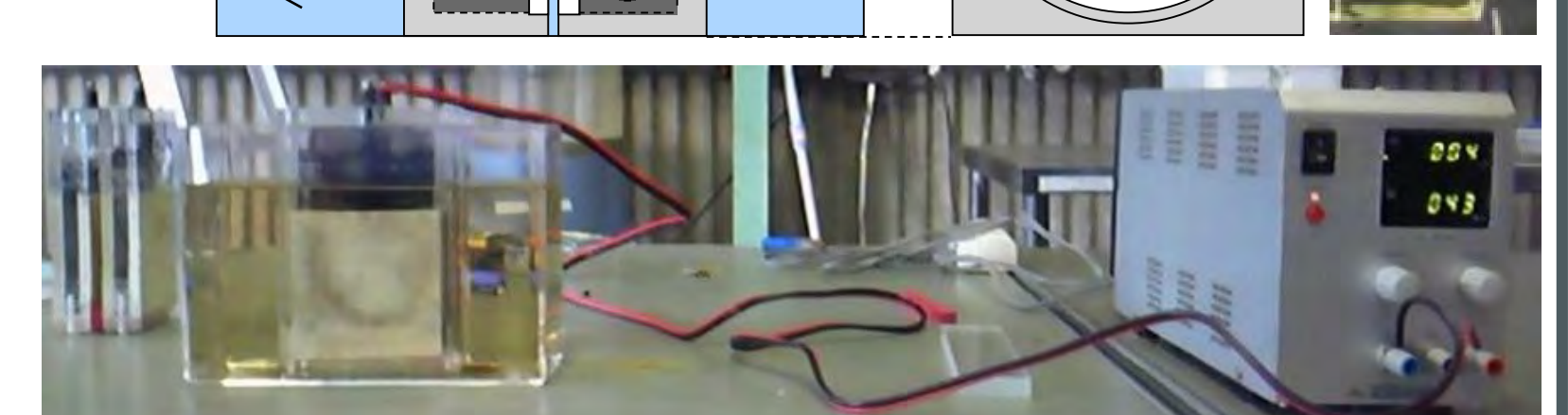
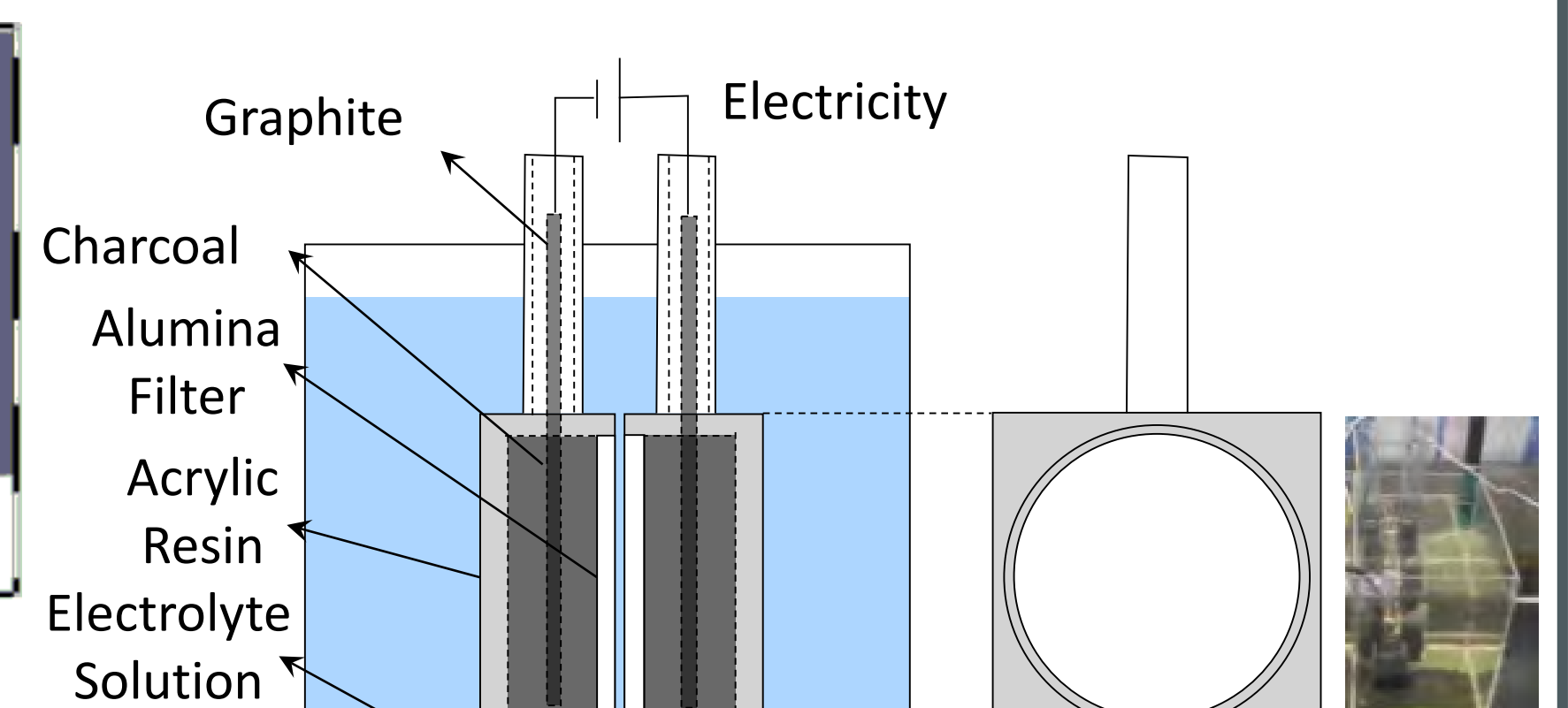
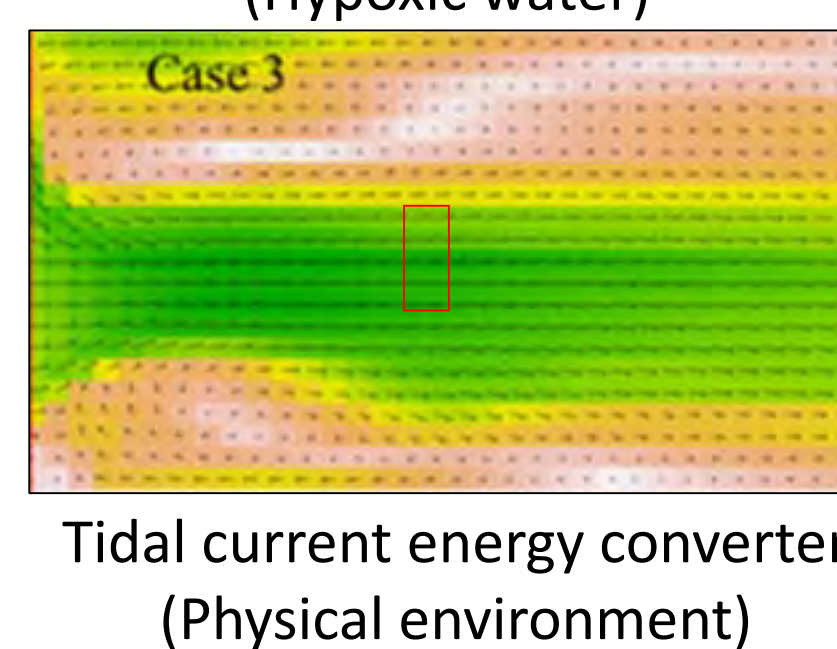
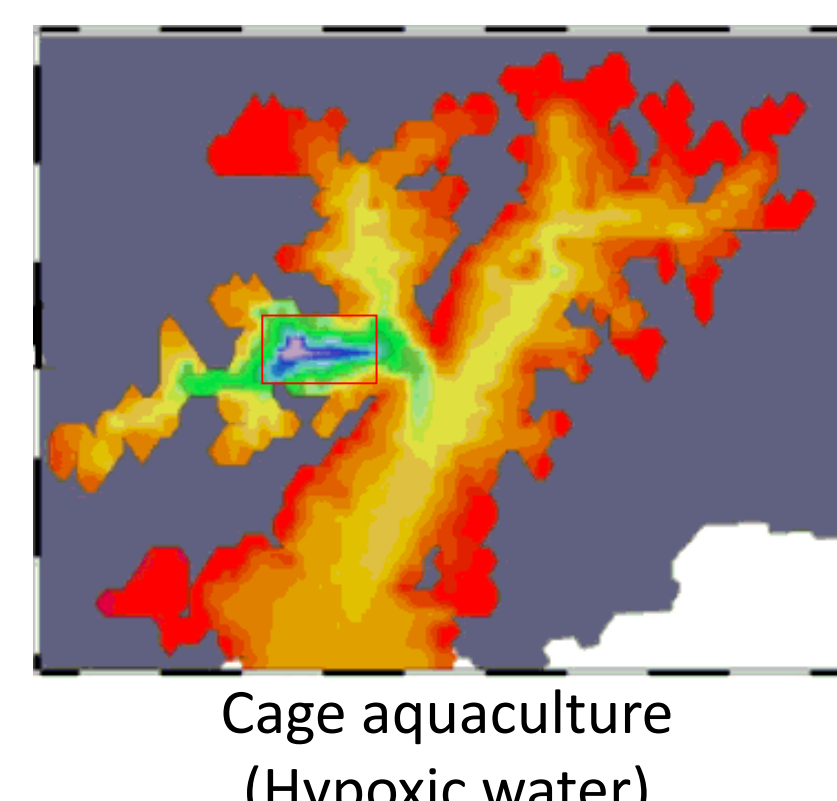
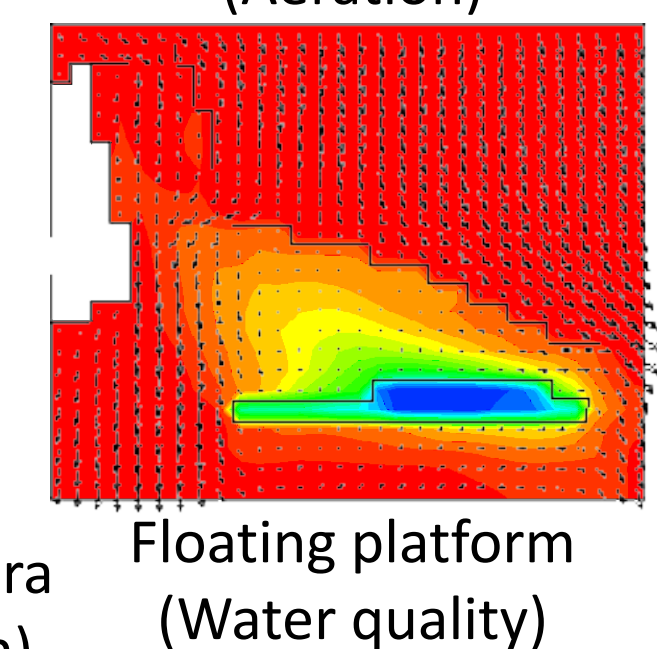
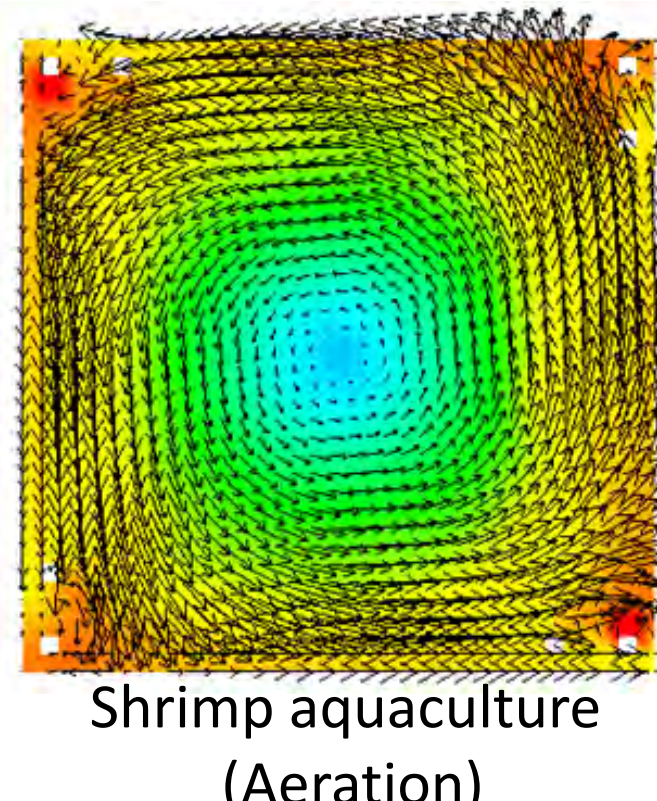
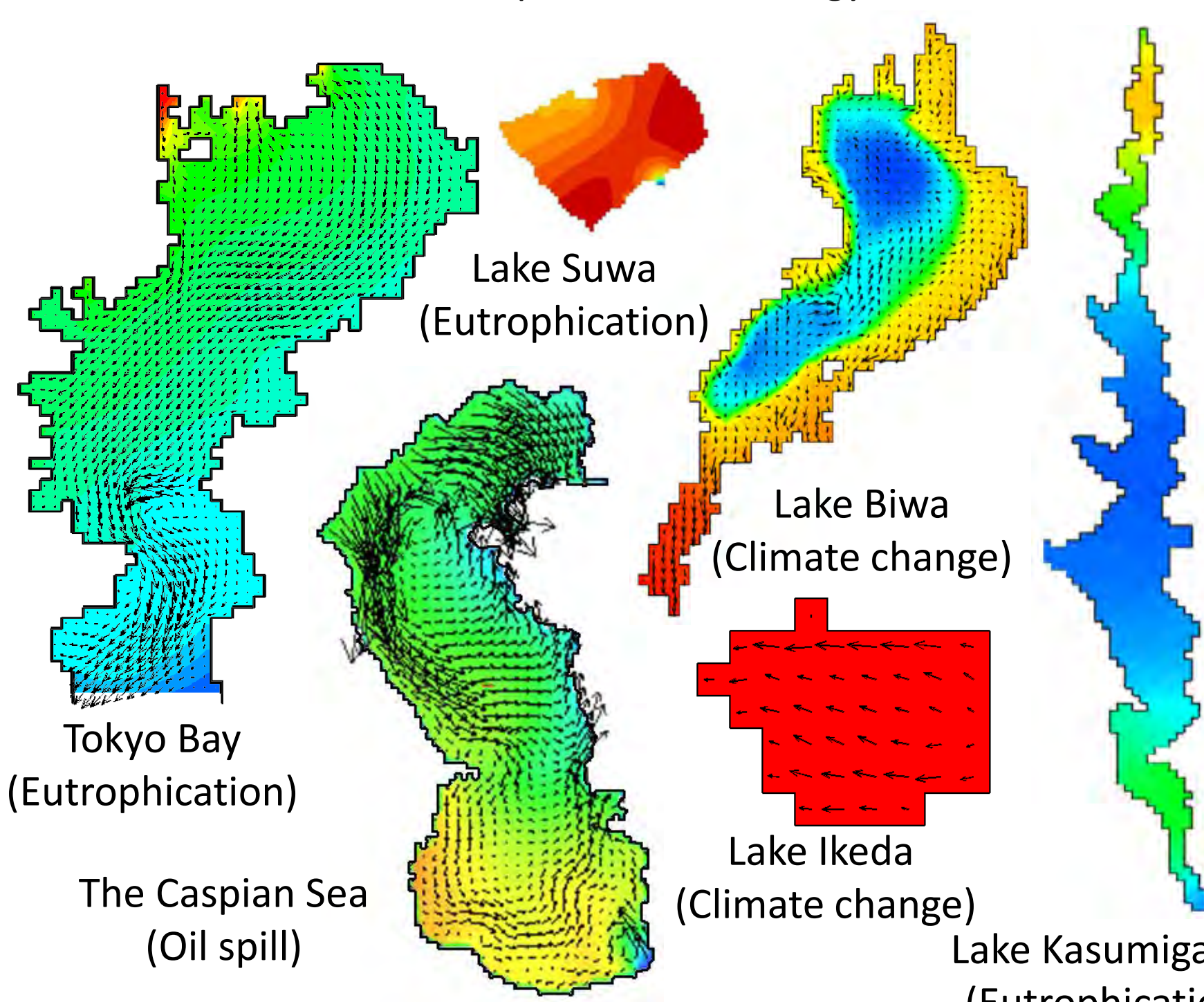
Collision Risk of Marine Animal to Turbine Blades

Observing collision and behavior of fish considering similarity law



Ice Group Interfering with Marine Structure

Hydrodynamic force on a single ice in the group of ices



Wastewater Treatment Using Electrochemical Method

Insoluble charcoal enclosed electrodes for electrolysis

Numerical Simulation Using Hydrodynamic and Ecosystem Coupled Model Mitigation of eutrophication, climate change, and environmental impact assessment

