

KITAZAWA LAB.

[Marine Food / Energy Utilization and Ecosystem Preservation]

Center for Integrated Underwater Observation Technology

Marine Ecosystem Engineering

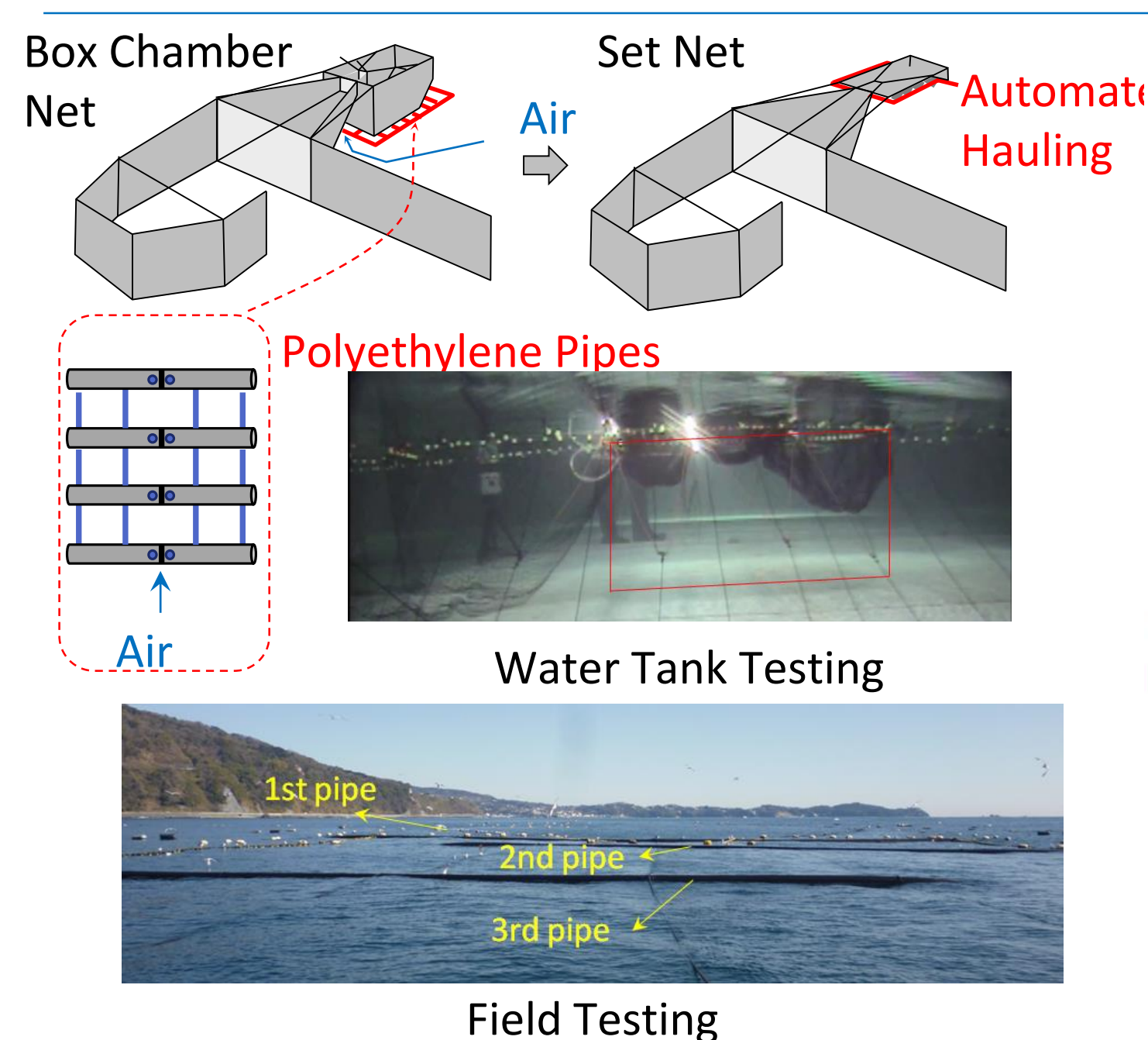
Dept. of Systems Innovation, Graduate School of Engineering

http://mefe.iis.u-tokyo.ac.jp/index_e.html

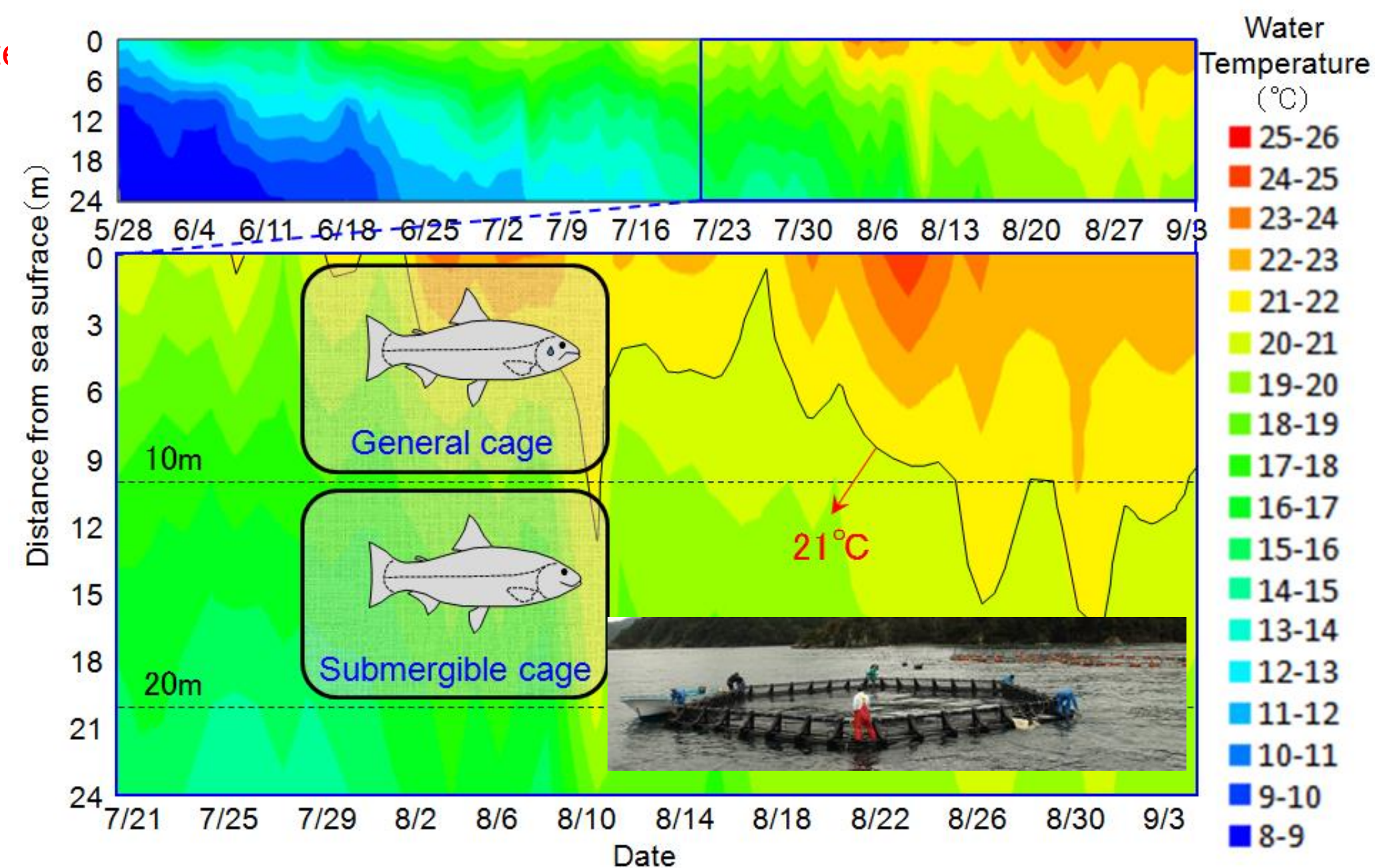
Utilize Marine Food / Energy and Preserve Ecosystem

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

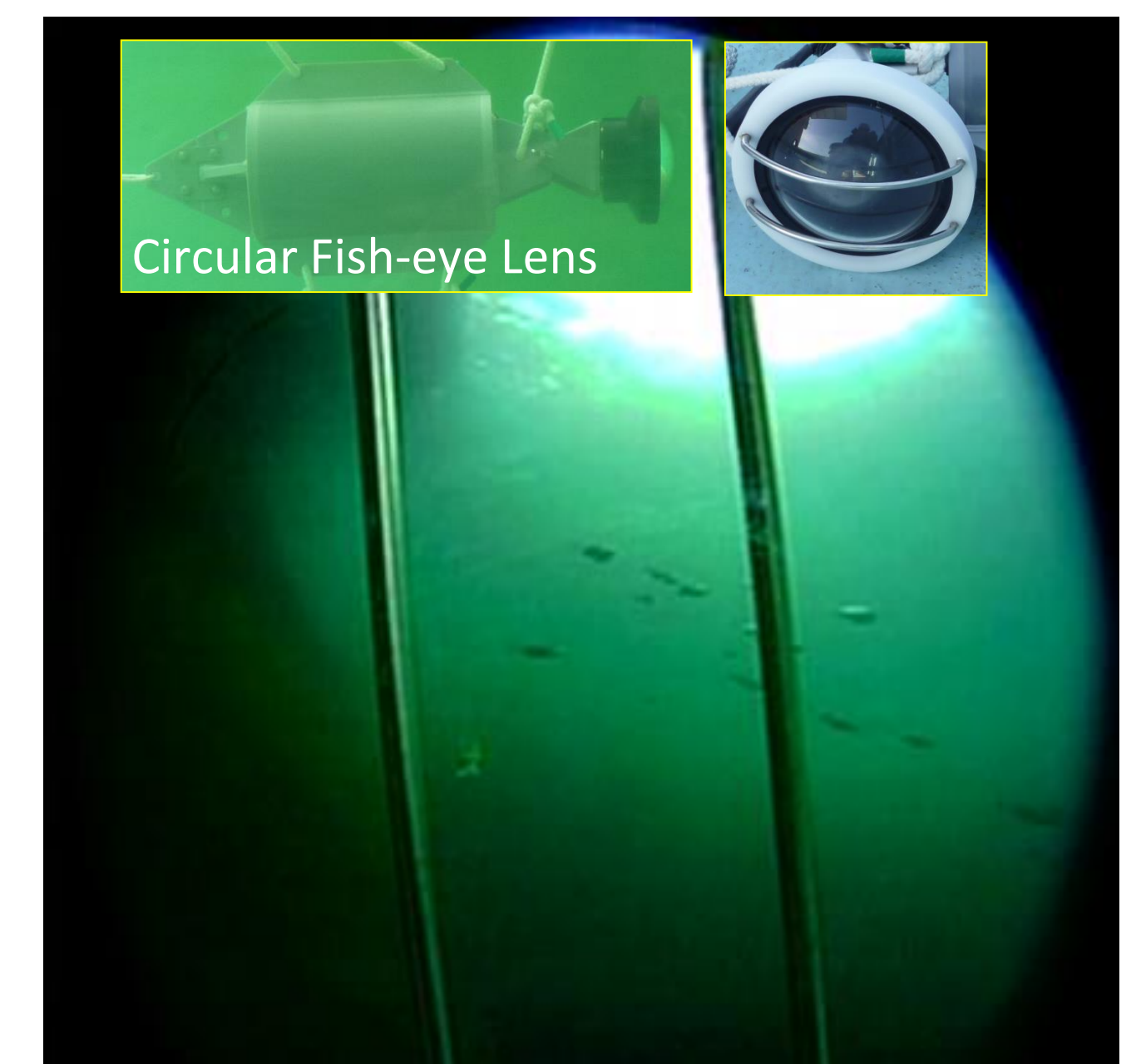
1. **Marine Food Production System** mainly for Set Net Fishery and Aquaculture
2. Utilization and **Environmental Impact Assessment** of **Marine Renewable Energy Development**
3. **Prediction of Lake and Coastal Ecosystem** by Hydrodynamic and Ecosystem Coupled Model and **Treatment of Wastewater**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



Automated Net-hauling System (Ajiro, Shizuoka)



Adjusting Shipment of Silver Salmon by a Submergible Cage (Onagawa, Miyagi)



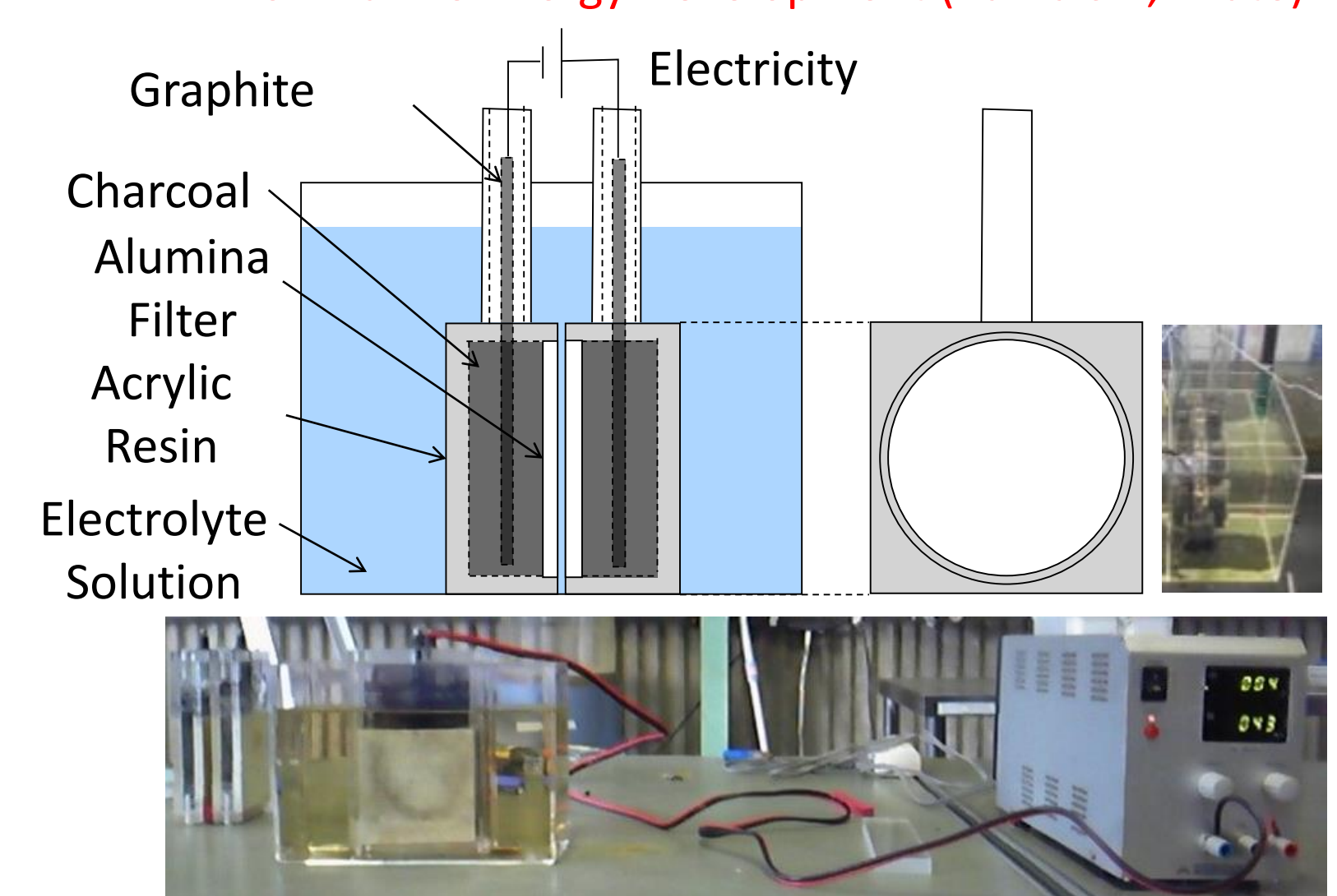
Investigation of Fishery in the Demonstration Field of Marine Energy Development (Kamaishi, Iwate)



Motion-Controlled Ship with Wave Energy Harvester



Collision Risk of Fishes to Tidal Turbines



Wastewater Treatment by Electrochemical Method

Major Subjects

- **Marine Food Production System:** Automation of fishery; High productivity; Automated net-hauling system in set net fishery; Automated feeding system in aquaculture; Automated flotation/submersion system of fish cage; Seafood self-sufficiency; Employment of new or young workers.
- **Marine Renewable Energy Development:** Motion-controlled ship with wave energy harvester; Innovative wave energy converter; Investigation of fishery and environmental impacts in the demonstration field of marine energy development; Collision risk assessment of fishes to tidal or oceanic turbines.
- **Prediction of Lake and Coastal Ecosystem and Treatment of Wastewater:** Hydrodynamic and ecosystem coupled model; Tokyo Bay; Lake Biwa; Lake Kasumigaura; Lake Suwa; Caspian Sea; Gokasho Bay; Ariake Sea; Oxygen supply; Hydrogen use for energy; Decomposition of nitrogen; Bio-fouling prevention; Charcoal electrode; Dielectric electrode; Titanium woven net.