

KITAZAWA LAB.

[Marine Food / Energy Utilization and Ecosystem Preservation]

Department of Mechanical and Biofunctional Systems

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

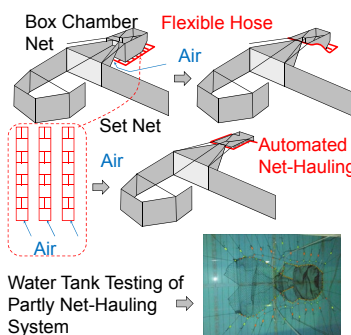
Marine Ecosystem Engineering

Dept. of Systems Innovation, Graduate School of Engineering

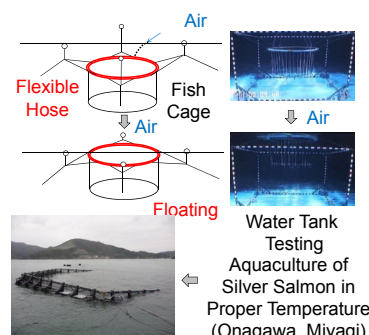
Utilize Marine Food / Energy and Preserve Ecosystem

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.

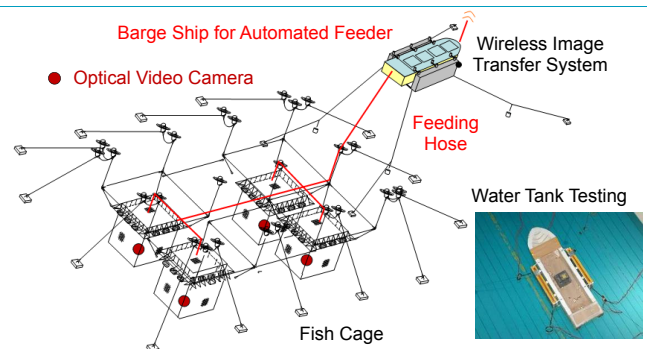
1. Innovative Marine Food Production System
2. Performance Evaluation and Environmental Impact Assessment of Marine Renewable Energy Devices
3. Prediction of Lake and Coastal Ecosystem by Hydrodynamic and Ecosystem Coupled Model
4. Treatment of Wastewater by Electrochemical Method



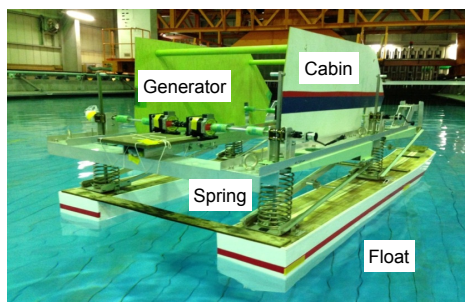
Automated Net-Hauling System



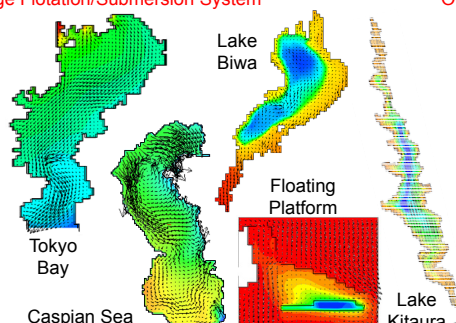
Fish Cage Flotation/Submersion System



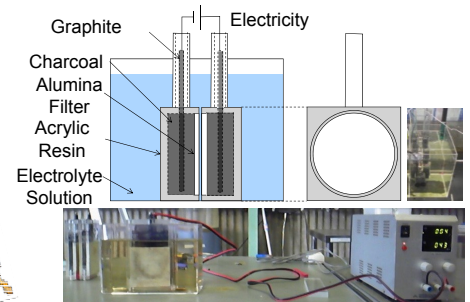
Offshore Submergible Aquaculture System



Motion-Controlled Ship with Wave Energy



Lake and Coastal Ecosystem Simulation



Wastewater Treatment by Electrochemical Method

Major Subjects

- **Innovative 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
- **Performance Evaluation and Environmental Impact Assessment of Marine Renewable Energy Devices:** Motion-controlled ship with wave energy; Innovative wave energy converter; Collision risk assessment of fishes to tidal or oceanic turbines
- **Prediction of Lake and Coastal Ecosystem:** Eutrophication; Climate change; Harmful algae; Toxin production, Hydrodynamic and ecosystem coupled model; Tokyo Bay; Lake Biwa; Lake Kasumigaura; Caspian Sea
- **Treatment of Wastewater by Electrochemical Method:** Oxygen supply; Hydrogen use for energy; Decomposition of nitrogen; Bio-fouling prevention; Charcoal electrode; Dielectric electrode; Titanium woven net