Utilize Marine Food / Energy and Preserve Ecosystem

We are engaged in research on the use of food and energy resources in harmony with the marine ecosystem. We are conducting a water tank model experiment to investigate the interaction between structures and aquatic lives, simulation by a hydrodynamic and ecosystem coupled model, and an easy-to-use monitoring system for observing the aquatic lives. In the ocean, there are many issues that cannot be predicted by experiments and numerical analysis, so we will elucidate the issues for social implementation by field demonstrations. With the achievement of the SDGs and the realization of Society 5.0 in ocean use, we will aim for food and energy security, revitalization and sustainable development of the aging region.

**Numerical Simulation Using Hydrodynamic and Ecosystem Coupled Model**

- Mitigation of eutrophication, climate change, and environmental impact assessment
- Insoluble charcoal enclosed electrodes for electrolysis
- Underwater image controller
- Circular fish-eye camera
- Buoy for wireless image transfer
- Force measurement
- Ice group model
- Electricity
- Charcoal
- Alumina
- Filter
- Acrylic Resin
- Electrolyte Solution
- Rack & Pinion
- WHzer
- Turbine model (Tip speed ratio: 5)
- Cage aquaculture (Hypoxic water)
- Tidal current energy converter
- Wastewater Treatment Using Electrochemical Method
- Shrimp aquaculture (Aeration)
- Wave Harmonizer (Yuya Bay; off Hiratsuka)
- Motion-controlled ship with wave energy harvester