Progress Report: SDG 14 (Life Below Water) – Chukwuemeka Odumegwu Ojukwu University (COOU)

2024/2025 Session

Executive Overview

Chukwuemeka Odumegwu Ojukwu University (COOU) contributes to **Sustainable Development Goal 14 (SDG 14: Life Below Water)** by advancing sustainable aquaculture, conducting research on aquatic ecotoxicology, and mitigating land-based plastic pollution entering inland river networks. Located within the Anambra River and River Niger basin system in Anambra State, COOU addresses SDG 14 through its **Department of Fisheries and Aquaculture** (Igbariam Campus) and circular economy infrastructure projects. Anchored on the university's **"3Vs Agenda" (Values, Viability, Visibility)**, COOU protects freshwater and downstream marine ecosystems by training aquaculture professionals, developing sustainable fish production models, and intercepting land-based waste before it reaches marine corridors.

Key Areas of Progress & Implementation

1. Sustainable Aquaculture & Fisheries Workforce Development

To reduce pressure on wild fish stocks and promote sustainable inland fisheries:

- **Accredited Degree Training:** COOU operates an accredited Department of Fisheries and Aquaculture within the Faculty of Agriculture at the Igbariam Campus. The program received full accreditation from the National Universities Commission (NUC), equipping students with technical skills in aquatic resource management, fish breeding, and aquatic ecosystem conservation.

- **Commercial Fish Farm Operations:** The department maintains functional fish ponds and hatchery facilities on campus. These facilities serve as practical training labs for students and produce commercial catfish, demonstrating sustainable aquaculture practices that minimize nutrient discharge and environmental degradation.

2. Interception of Land-Based Marine Debris & Plastic Waste

Because over 80% of marine plastic debris originates from inland river networks, COOU targets land-based sources of water pollution:

- **Digital Recycling Infrastructure (COREDI):** Through the British Council-funded Community Recycling Digital Infrastructure project, COOU develops Internet of

Things (IoT) monitoring systems and reverse-logistics channels to collect and divert polyethylene terephthalate (PET) plastic waste from urban drainages and local riverbanks.

- **River Basin Runoff Reduction:** By establishing plastic waste collection hubs in host communities near the Anambra River system, the university prevents plastic litter from degrading into microplastics and flowing downstream into marine environments.

3. Aquatic Ecotoxicology, Water Quality & Bio-Monitoring Research
COOU academics across the Natural Sciences and Agriculture faculties investigate the impacts of pollution on aquatic flora and fauna:

- **Water Quality & Contaminant Profiling:** Faculty researchers monitor physicochemical parameters, heavy metal accumulation (such as lead and iron), and bacterial contamination in surrounding rivers, streams, and aquaculture ponds.

- **Pesticide & Runoff Assessment:** Research evaluates the ecotoxicological impacts of agricultural runoff—such as synthetic fertilizers and pesticides—on non-target aquatic organisms, helping local farming communities adopt eco-friendly soil and crop management practices.

4. Community Extension & Post-Harvest Aquatic Value Chains

- **Smallholder Aquaculture Advisory:** Extension agents from the Department of Fisheries and Aquaculture provide training to local fish farmers in Anambra State on pond water quality management, disease control, and sustainable feeding strategies.

- **Post-Harvest Loss Mitigation:** University researchers train local fish processors in improved smoking and preservation techniques to prolong product shelf life, reduce post-harvest waste, and maximize the economic value of regional aquatic harvests.

Performance Summary against SDG 14 Targets

SDG 14 Target Area	COOU Operational & Academic Contribution	Impact Level
14.1 Prevent & Reduce Marine Pollution from Land Activities	COREDI smart plastic tracking, campus waste collection, and riverbank waste interception projects.	**High** (Regional River Basins)
14.2 Sustainably Manage & Protect Marine/Freshwater Ecosystems	Water quality monitoring and aquatic ecotoxicology research on local river systems.	**High** (Academic & Environmental R&D)
14.4 & 14.7 Sustainable Aquaculture & Fisheries Economic Benefits	NUC-accredited Fisheries & Aquaculture department, commercial catfish hatchery, and extension support.	**High** (Anambra State Agro-Sector)
14.a Increase Scientific Knowledge & Aquatic Technology	Peer-reviewed research on aquatic ecosystems, fish breeding technologies, and bio-feed formulation.	**Moderate to High** (Scientific Community)

Strategic Recommendations for Acceleration

1. **Establish an Inland Aquatic Ecosystems Research Observatory:** Construct a specialized research station along the Anambra River basin to continuously monitor river health, fish biodiversity, and microplastic concentration levels in local waterways.
2. **Develop Insect-Based Sustainable Aquaculture Feeds:** Invest in research substituting fishmeal in commercial aquaculture feeds with alternative protein sources (such as Black Soldier Fly larvae), reducing reliance on wild-caught ocean forage fish.
3. **Formalize River Clean-up & Student Conservation Corps:** Launch university-backed volunteer riverbed clean-up campaigns in collaboration with local riverine communities to remove solid waste from tributaries feeding into the River Niger system.

Signature:  Date: 24/09/2026

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