



Centurion
UNIVERSITY

*Shaping Lives...
Empowering Communities...*

COLLABORATING WITH LOCAL COMMUNITY TO MAINTAIN AQUATIC ECOSYSTEMS



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1. Empowering Communities for Sustainable Aquatic Ecosystems

Centurion University, through its School of Fisheries, actively collaborates with the local communities to restore and maintain shared aquatic ecosystems. This collaboration is evident from various initiatives and programs undertaken by the university in partnership with the surrounding communities:

2. Cleaning and Monitoring of Community Ponds

The Sita Sagar Lake is located at Paralakhemundi, Gajapati Dist. (18o 46' 52" N Lat. and 84o 07' 02" E Long.) covering a water spread area of around 67.211 hectares.

The School of Fisheries, Centurion University of Technology and Management primarily focuses on the overall development of the fishing/aquaculture communities with substantial student involvement. Several programs have been conducted along with the farming communities to maintain community freshwater ponds.

The students have been working for the development of the fisherman communities along with the SHGs groups and local panchayat members. These activities include:

1. Weed Clearing in the Community Ponds

The students helped the locals by cleaning their weed choked ponds during their cleanness programs.

2. Regular Monitoring of the Ponds

The students along with the villagers collect the soil and water samples from their community pond, which is analyzed at the aquaculture laboratory of the School of fisheries. Weekly samples were collected from the pond and analyzed for major parameters necessary for fish production (Dissolved Oxygen, Ammonia, pH, Temperature, Hardness, Alkalinity etc). Based on the report, management methods are suggested.

3. Pond Management

The fish farmers from the nearby area do visit the school in-order to take suggestions from the faculty for any problem occurring in their pond during their rearing period.

4. Disease Surveillance

Students regularly collect fish, water and soil samples from the Rasur Lake and analyse these in the pathology laboratory. The analysis identified a number of bacterial organisms, identified but these were within the acceptable level.



Figure 1. Weed clearing and pond water monitoring

3. Fish Breeding Programs for Fisher Folk

Fish Breeding Program for Fisherfolk was conducted for providing training and demonstration to the fish farmers. The aim of the program was to promote seed production activities and availability of quality seeds for higher level production. Further, for the upliftment of the economic status by securing higher production in small areas (backyard) through ornamental fish farming. The fish farmers from local areas enthusiastically participated in the program. The following activities were performed during the program.

1. Breeding of Indian Major Carps (IMC) and Exotic Major Carps (EMC)

Carp brooders were collected from the wild and brought to the Fish Rearing Centre of School of Fisheries, CUTM. The brooders were acclimatized and observed for maturity. During the demonstration program, the brooders were induced with gonadotropic hormone and shifted to the spawning pool, a component of Circular carp hatchery, along with fisherfolk.

The brooders responded early in the morning and then the eggs were shifted to the hatching pool. The spawns were observed by fisherfolk on the next day followed by a nursery rearing system. The same program for another carp species also followed and demonstrated to the fisherfolk along with the students.

2. Breeding of Commercially Important Ornamental Fishes

Commercially important ornamental fish brooders were procured from the ornamental fish market, Kolkata and acclimatized in Ornamental Fish Laboratory, SoF, CUTM. The setup and identification characters for the species were explained and demonstrated to the fisherfolk along with students.

The breeding of the most domestically conserved ornamental fish, Gold fish, was performed and demonstrated to fisherfolk. During demonstration, information about different other ornamental fish species like Angel fish, Gouramies, Live Bearers and Cichlids were also focused.

3. Ranching Program

The most popular fish in India was introduced by the School of Fisheries, CUTM to Rasur Lake, Ram Sagar and Sita Sagar during the program along with the fisherfolk. The community enthusiastically participated in the programs conducted and offered gratitude for the ranching.

Rasur Lake

The Rasur lake (18o 47' 56" N Lat. and 84o 07' 54' E Long.) is a seasonal lake located at Village R. Sitapur, Paralakhemundi, Gajapati Dist. During summer, the lake becomes dry and the fish stock mortality occurs annually. For providing fish as food for the fisherfolk, introduction of new fish stock (ranching) is important. The School of Fisheries along with its students conducted a program of Rasur Lake Ranching during 09 September 2019.

The fast growing, biologically sustainable and best-consumed fish was released by the School of Fisheries, CUTM to Rasur Lake during the program along with the fisherfolk. The species introduced were *Hypophthalmichthys molitrix*, *Ctenopharyngodon Idella* and *Cyprinus carpio* along with Indian Major Carps. Everyone in the neighbourhood participated in the program with enthusiasm and expressed their thanks for the ranching.

Ram Sagar Reservoir

The School encourages sustainable development while minimising if not totally eliminating any detrimental effect on the environment. For this noble cause Ramsagar reservoir was selected where the School planned for the optimal development of this natural ecosystem. Plants like Water Hyacinth (*Eichhornia crassipes*), Giant Salvinia (*Salvinia molesta*), and water cabbage/ lettuce (*Pistia stratioides*) were identified as the reason for severe damage to the wetland ecosystem.

Hence, the School conducts monthly weeding during the months of April to May, 2019 and April to May, 2022 to clear the lake for easy navigation and better fishing activities. To control and prevent infestation, the School also introduced Grass carp (*Ctenopharyngodon idella*). Which is a valuable biological control for aquatic weeds. They can provide economical long-term protection from many weeds.

Furthermore, the fingerlings of Indian Major Carps and Exotic Carps were introduced to the Ram Sagar reservoir on 15 October 2019 in collaboration with the State Fisheries Department for enhancing fish production.

Sita Sagar Reservoir

Sita Sagar reservoir is in the Gajapati district of Odisha. The reservoir is spread over about 67.211 hectares in the Paralakhemundi block. The reservoir is surrounded by a town with an inlet of polluted drain water of the locality. The faculty members and students of the School of Fisheries, Centurion University of Technology and Management are periodically monitoring and evaluating the water bodies. The School primarily focuses on overall development of the fishing communities through the ecosystem approach to fisheries management.

The reservoir was found contaminated with domestic, hospital, and municipal waste which drained into the waterbody. Several programs have been conducted for improving the physicochemical properties of the waterbody with the involvement of residents, SHGs (Self Help Groups), and LSGD (Local Self Government Department) to maintain the water bodies in a good condition.

The School of Fisheries regularly monitors the water bodies by assessing the biodiversity and water quality parameters. Monthly samples during the months of October to December, 2019 and January to February, 2021 were collected and analyzed to monitor the parameters necessary for fish production like Dissolved Oxygen, Biological Oxygen Demand (BOD), Ammonia, pH, Temperature, Hardness, Alkalinity, etc.

Since, the waterbody has quite a low DO (1-2 mg/L) and high BOD (4-5 mg/L) awareness programs were conducted the days of national importance (Fish Farmers Day; World Fisheries Day; World Water Day, World Environment day) for the residents in the reservoir surroundings to stop and prevent further water pollution and discharge of garbage and sewage into the water body. It is necessary to restore the natural drains and actions are taken up to in-situ measures like de-weeding, and ranching for improving the ecosystem.

The clearing programs were conducted regularly during the months of April to May, 2019 and March to June, 2022 by the School in the reservoir premises with the involvement of students, staff, stakeholders, SHGs, and LSGD. This mainly focuses on the removal of plastic material, weeds and predatory fish species. The School of Fisheries also conducted Ranching during 15 October 2019 in collaboration with the State Fisheries Department for enhancing fish production.

