

## ROLE OF MANGROVE CONSERVATION IN LOCAL HIGH SCHOOL FISHERIES EDUCATION

*by:*

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Mangrove forests are wetland ecosystems commonly found between the land and sea. The presence of mangrove trees characterizes these ecosystems, the plant organisms that can tolerate high salt concentrations. Mangroves are abode by various organisms including charismatic waterbirds, commercial fish, and shellfish.

Philippine coastlines are covered with 230 thousand hectares of mangrove forests, which serve as nature's frontline defense against storm surges causing coastal flooding in low-lying communities, and effective carbon sequestration agents (Neri et al., 2021). This makes mangrove forests an efficient nature-based solution for climate change mitigation and adaptation. As the Philippines grapples with the impacts of climate change, conserving and restoring mangrove forests are key solutions to build resilience in vulnerable coastal communities.

The Bataan School of Fisheries (BSF) is a public high school institution specializing in fisheries education located at a coastal community in Orion, Bataan, Philippines, facing Manila Bay. The institution also hosts an extensive mangrove plantation area adjacent to the school's fishponds, which serve as a field teaching site for high school fisheries learners. At the same time, the fishponds also serve as an income-generating project for the school, which funds school expenditures. However, to this date, there were still no identified campus-led programs relating to campus-based mangrove conservation and restoration.

In the high school science curriculum, topics such as ecosystems, biodiversity, and disaster resilience are touched on (DepEd, 2016). Despite this, there is a pressing need to evaluate how these lessons are taught and applied given the contexts of the learners and their environment. Today's generation of students will live with the increasing impacts of the triple planetary crisis of climate change, biodiversity loss, and pollution for the rest of their lives, especially if no action is taken at the local or the global scale. Upon realizing the toll of this shared problem, it is just crucial to empower these learners to act, collaborate, and integrate their knowledge and skills in saving their common home.

The Philippine fisheries sector is also at the forefront of the battle against the climate crisis. The Filipino fisherfolk and their families live by the coasts, and they belong to the most vulnerable sectors against the risks of storm surges and sea level rise. While academic institutions like BSF hone the next generation of sufficiently skilled young workers in the fisheries industry, it also has to be a moral obligation of these academic institutions and their partners to build their capacities for climate resilience.

To build climate resilience, especially in coastal communities and the fisheries sector, the needs of the stakeholders must be identified. This is done through stakeholder mapping, interviews, focus group discussions, and workshops, which is preferably done in collaboration between the community, academe, their local government, and civil society organizations. When everyone is consulted in the process, harmonized collective action can be achieved.

Schools like BSF has an integral role to play in awareness raising, local research, and youth leadership and empowerment. Awareness raising may be integrated into the campus curriculum through the localization of climate action. This awareness among learners, through science or technical-vocational subjects, can be transformed into applied action that can transform communities that align with the academe's mission for community extension. Research subjects should encourage students to explore topics related to local climate action, including activities that promote sustainable fisheries, the

interconnection of mangroves and fisheries, and the conservation and restoration of mangroves. Since the BSF campus has an in-house mangrove plantation, it is recommended that the site also serve as a living laboratory for first-hand experience in learning about the value of these mangroves to coastal communities. This can also inspire budding researchers, which later can serve the fisheries sector. Lastly, if realized, this long-missed opportunity for BSF can finally provide a sense of agency for the learners to act for the planet. When empowered, these students can bring what they learned about saving the environment from their schools to their homes and communities.

In the end, the integration of mangrove conservation and restoration in fisheries education is ultimately tied to an operations-learning-extension framework. First, the environment must enable first-hand experience of learning about climate action and resilience like the explicit use of mangrove plantations as field sites of learning. To enable this, administrators, teachers, and staff need to be trained and empowered to show these ideas and practical lessons to the learners. When students experience and learn from these in the operations of their environment and when they are empowered to act for surrounding local environmental issues, they are likely to bring these lessons as applications in their communities, encouraging a bottom-up approach to local climate resilience.

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