Ocular Visitation and Identification of Physical and Chemical Features of the River Sites (Brgy. Mangalit and Brgy. Poblacion)

Due to the high problems arising starting from the garbage waste that we ignore on a daily basis and the pollution of rivers, we came up with the solution of restoring the wonders of nature in collaboration with the City Environment and Natural Resources Office (CENRO) and Institute of Arts and Sciences (IAS) under Mabalacat City College to conduct a project entitled, “River Restoration: Alleviating the Quality and Quantity of Life on the Freshwater Ecosystems.”

On August 09, 2023, Wednesday, together with the Program Head of BS Biology, Mr. Glen S. Nolasco, M.Sc., Ms. Frienchie Ann B. Yamauchi, Engr. Anne Jerni Peña, Environmental Management Specialist II, with the two CENRO personnel, and the OJT trainees from Bachelor of Science in Biology, namely Ms. Giselle O. Santos, Ms. Kanela P. Mandal, and Ms. Maria Crezyl P. Chua, they conducted an ocular visitation on the two sites of Dolores River located at Barangay Mangalit and Barangay Poblacion, and they also identify the physical and chemical features of the said river sites.

The data gathered during the ocular visitation and identifying the physical and chemical features of the river site (Dolores River) located at Brgy. Mangalit and Brgy. Poblacion are as follows:

1. **Chemical Features**
    a. **pH level**

During the ocular visitation at the Brgy. Mangalit, Mabalacat City, Pampanga of the target Dolores River (middle stream) to be the main project for the River Restoration, we collected, measured, and identified the pH level of the water randomly at the sites. The total average pH measured by the river is 7.29, which is neutral neither basic nor acidic.

Whereas at Brgy. Poblacion, Mabalacat City, Pampanga the total average pH measured at different sites of Dolores River is 7.54, which indicates that it is neutral because it has neither basic nor acidic qualities.

As supported by Cirino (2019), the electrically charged particles in a substance are measured by pH, which describes the substance's acidity or alkalinity (basicity). The pH level reaches from 0 to 14. The pH of acidic water is lower than 7. The pH of strongly acidic compounds can be zero. This category includes battery acid. The pH of alkaline water is 8 or greater. The pH of strongly alkaline compounds, such as lye, can reach 14. Pure water has a pH of 7 and is classified as "neutral" since it is neither acidic nor basic.

b. Temperature

During the ocular visitation at the Brgy. Mangalit, Mabalacat City, Pampanga, the total average water temperature measured at the different sites of Dolores River (middle stream) is 30.63°C whereas the total average temperature is 30.25°C.

On the other hand, at the Brgy. Poblacion, Mabalacat City, Pampanga, the total average water temperature measured at the different sites of Dolores River (middle stream) is 32°C whereas the total average substrate temperature is 30.05°C.

For a river or stream's water quality, the water temperature is crucial. It is the measurement of water in degrees Celsius or Fahrenheit (Leigh Environmental Initiative, 2011). Moreover, according to Aarrestad (2021), the temperature of rivers and streams naturally varies daily, monthly, and seasonally. The temperature of water can also change longitudinally from river system's headwaters (cold) to mouth (warm).

2. Physical Features

a. Depth

During the ocular visitation at the Brgy. Mangalit, Mabalacat City, Pampanga, the deepest part of the river that we measured has a depth of 12 inches, and the shallow part have a depth of 2 inches. Thus, the total average depth measured at the different sites of Dolores River (middle stream) is 7.78 inches.

Whereas at the Brgy. Poblacion, Mabalacat City, Pampanga, the deepest part of the river that we measured has a depth of 21 inches, and the shallow part has a depth of 11 inches. Thus, the total average depth measured at the different sites of Dolores River (middle stream) is 15.75 inches.

b. Width

After conducting multiple measurements of the width of the Dolores River in Brgy. Mangalit at random locations, the result was a total average of 1,374 centimeters.

The result of the data collected after measuring the width area at randomized locations in Brgy. Poblacion, Dolores River, showed a statistically significant mean value of 539.4 centimeters.

The shape and features of a river's valley are controlled by the natural boundaries of the landscape, such as the rock formation and terrain. The movement of water and sediment through the river also affects its shape and dynamics. This interaction of geological factors and water flow creates variability in how rivers change over time (Brierley and Fryirs, 2005).

Changes to the water and sediment flows, including human activities, can have long-lasting and irreversible impacts on fluvial systems, which are bodies of water formed by rivers. These disruptions can damage the river's natural functions and affect its ability to support the ecological system (Rhoads, 2020).

In addition, the following days are allotted for the other activities regarding the restoration of the river, such as recollection of floras (August 14), preservation of gathered flora samples (August 15), site clearing, and authentication of preserved specimens (August 24).

References

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Photo Documentation