***Dissertation Title*: Quantifying the disturbance-diversity relationship in shellfish gleaning**

***Colloquium*: GIS approach in quantifying the intensity of small-scale intertidal fisheries**

Dawn Iva P. Satumbaga, PhD Cand.

Adviser: Dr. Rene N. Rollon
Co-adviser: Dr. Giovanni A. Tapang
Reader: Dr. Gizelle A. Batomalaque

ABSTRACT

Intertidal gleaning is a small-scale fishery that provides coastal communities with a suite of benefits, including income, subsistence, recreation, and social bonding; however, intensive practice may also cause considerable pressure on intertidal resources. Despite its potential impacts, few studies have mapped and quantified its intensity at fine spatial resolutions within a contiguous space. At this scale, resource and area management can be made more precise. This study uses a spatial approach through GIS analysis, combining GPS tracking and Kernel Density Estimation (KDE) to map and quantify gleaning intensity in an intertidal sandflat in San Juan, Batangas, Philippines. From April to July 2026, gleaning patches created by raking for *Meretrix* sp. were traced and mapped during six low-tide phases across 21 sampling days. Discreet gleaning frequencies and KDE were derived from the raw patches to arrive at a spatial map of gleaning intensity. A catch size profile of *Meretrix* sp. was recorded during each low-tide phase, and in-situ samples were collected across 26 sampling plots representing different KDEs. This colloquium will present results from mapping and quantifying gleaning intensity, and explore potential factors that influence this spatial distribution, including proximity to the community, tidal position, and gleaning windows. It will also explore possible signatures of impact on the main target species *Meretrix* sp. Results may contribute to understanding the sustainability of gleaning and inform strategies for long-term resource management.