

**SUCCESSIONAL DEVELOPMENT OF MICROFOULING AND
MACROFOULING ON FISH FARM NET ENCLOSURE**

RIKKA REYES

**A Master's Thesis Presented
to the Graduate Faculty of the
Institute of Marine Fisheries and Oceanology
College of Fisheries and Ocean Sciences
University of the Philippines Visayas**

**In Partial Fulfillment of the Requirements
for the Degree of
Master of Science in Ocean Sciences**

JUNE 2018

ABSTRACT

This study investigated the influence of net color (yellow and green), immersion period, and environmental conditions on micro- and macro-fouling development in marine fish farm. Yellow and green net panels in PVC frame were set-up at 1m depth and immersed for 60 days within fish farm vicinities of Igang Marine Station-SEAFDEC, Guimaras Philippines. *B. infantis* (15-26 %), *M. salsuginis* (34-50 %) and *P. lipolytica* (21-21 %) belonging to Gammaproteobacteria and Firmicutes group were the most abundant microfouling bacteria. On the other hand, species such as Bryozoan *Bugula sp.* (31-38%), tanaids Tanaidae (64-146 ind.100 cm⁻²), and nematodes Linhomoeidae and Oncholaimidae (142-189 ind.100cm⁻²) were the most abundant macrofoulants. MDS ordination revealed that micro- and macro-foulants formed at 7-day were significantly different between green and yellow nets (ANOSIM, $p < 0.05$). Macrofouling gastropods, fish eggs, and macroalgae were present on green at 7-day but only appeared in yellow nets at 15- day. This suggests that lighter color nets in fish farm may delay the development of biofouling. The effect of color, however diminished from 15-day due to the presence of brown film covering all nets. Total biomass, cover, and densities of biofoulant groups (invertebrates, macroalgae, and fish eggs) were not significantly influenced by color (ANOVA, $p > 0.05$) as previously reported. The identity of the foulants and succession pattern suggest the influence of trophic interaction such as predation and competition.

Keywords: biofouling, community shift, microfouling, macrofouling, marine fish farming