Ecological impacts of Cage Farming: A Case Study of Lake Victoria, Kenya

Authors : Mercy Chepkirui, Reuben Omondi, Paul Orina, Albert Getabu, Lewis Sitoki, Jonathan Munguti

Abstract : Globally, the decline in capture fisheries as a result of the growing population and increasing awareness of the nutritional benefits of white meat has led to the development of aquaculture. This is anticipated to meet the increasing call for more food for the human population, which is likely to increase further by 2050. Statistics showed that more than 50% of the global future fish diet will come from aquaculture. Aquaculture began commercializing some decades ago; this is accredited to technological advancement from traditional to modern cultural systems, including cage farming. Cage farming technology has been rapidly growing since its inception in Lake Victoria, Kenya. Currently, over 6,000 cages have been set up in Kenyan waters, and this offers an excellent opportunity for recognition of Kenya's government tactic to eliminate food insecurity and malnutrition, create employment and promote a Blue Economy. However, being an open farming enterprise is likely to emit large bulk of waste hence altering the ecosystem integrity of the lake. This is through increased chlorophyll-a pigments, alteration of the plankton community, macroinvertebrates, fish genetic pollution, transmission of fish diseases and pathogens. Cage farming further increases the nutrient loads leading to the production of harmful algal blooms, thus negatively affecting aquatic and human life. Despite the ecological transformation, cage farming provides a platform for the achievement of the Sustainable Development Goals of 2030, especially the achievement of food security and nutrition. Therefore, there is a need for Integrated Multitrophic Aquaculture as part of Blue Transformation for ecosystem monitoring.
Keywords : aquaculture, ecosystem, blue economy, food security