

Integrated multitrophic aquaculture

Abstract

There has been a growing concern in recent years about the impacts of aquaculture on the environment and natural resource supplies. It is estimated that 85% of the phosphorus, 80-88% of the carbon, 52-95% of the nitrogen and 60% of the mass feed input in aquaculture ends up as a particulate matter, dissolved chemicals or gasses. Uncontrolled nutrients released by aquaculture operations harm the industry in at least three ways: reduced water quality, loss of valuable nutrients and adverse effects on the health of cultured organisms. This situation has to be corrected. The most prominent characteristic of some aquaculture production systems is the presence of biofilters, which helps in internally treating the water containing waste from the cultured organisms. The future of aquaculture must be based on the development of sustainable environment-friendly systems such as the Integrated Multitrophic Aquaculture. This provides an effective way of treating aquaculture water and can be done by bacteria, microalgae, macroalgae and suspension feeders.