

Aquaculture Wastes

The Problem

Some types of fish farm operations can produce large amounts of waste. Wastes can include 1) particulate matter from fecal material and uneaten food, 2) nutrients associated with the preceding, and 3) chemicals and drugs, such as pesticides, disinfectants, and antibiotics. These wastes can negatively impact adjacent environments.

The Causes

In intensive feedlot-style aquaculture with netpens or cages there is no effective barrier between the farmed fish and the natural environment. As a result, waste materials are discharged directly into the surrounding environment.

Antibiotics and chemicals, such as pesticides, are used in fish farming as a means of controlling disease and eliminating unwanted pests. Many chemical pollutants, however, end up in the environment, often accumulating in sediments under fish farms.

The Context

The level of pollution produced by a fish farm is dependent upon the species farmed and the type of system used. Intensive production with no water treatment has the greatest potential for impacting local environments with waste discharges.

The ecological risks associated with the use of antibiotics and chemicals at fish farms are not fully understood, although it is believed that some of these products can persist in the environment for long periods of time. Pesticides used to rid farmed fish of sea lice may be especially harmful as they have been shown to be toxic to bottom dwelling organisms such as shellfish.

Closed aquaculture operations, such as recirculating systems, which treat and recycle their water, discharge small amounts of wastes. Low discharge aquaculture operations, such as inland ponds also release very little wastes when properly managed.

Raising several complementary species together in integrated aquaculture systems can help to reduce waste discharges. In these aquaculture systems wastes are recycled and production efficiency increased.

Farming mollusks, such as clams, mussels, and oysters, appears to have little negative environmental impact due to their low organic waste production. Mollusks, which are filter feeders, act as natural biofilters in the water, removing phytoplankton and organic particles.

Further Reading

SeaWeb Aquaculture Issues: Aquaculture Wastes

www.seaweb.org/resources/aquaculturecenter/issue_wastes.php