

Key Environmental, Social and Human Health Impacts of Commonly Farmed Fish

Sources: Aquaculture Dialogues and others

Abalone

Antibiotic use
Chemical use
Disease transfer
Fish meal/oil and kelp harvesting when using non-formulated feeds
Habitat impacts
Predator control

Channel Catfish (U.S and Asia)

Antibiotic use
Chemical use
Escapes
Habitat impacts
Mortality removal
Predator control
Water pollution and consumption

Clams

Benthic biodiversity (for bed-farmed mussels)
Escapes
Habitat impacts
Predator control
Source of seed stock

Mussels

Benthic biodiversity (for bed-farmed mussels)
Escapes
Habitat impacts
Predator control
Source of seed stock

Oysters

Benthic biodiversity (for dredge farmed oysters)
Disease transfer
Escapes
Habitat impacts (for dredge farmed oysters)
Predator control

Pangasius

Antibiotic/chemical use
Disease Transfer
Escapes
Fish meal/oil use
Habitat impacts
User conflicts
Water pollution & consumption

Salmon

Antibiotic use
Benthic biodiversity
Chemical use
Disease transfer
Escapes
Fish meal/oil use
Predator control
Water pollution
User conflicts
Contaminants in finished product (PCBs and dioxins)

Scallops

Benthic biodiversity (for bed-farmed scallops)
Escapes
Habitat impacts
Predator control
Source of seed stock

Seaweed

Habitat impacts
User conflicts

Shrimp

Antibiotic use
Chemical use
Disease transfer
Escapes
Habitat impacts
Fish meal/oil use
Predator control
Water pollution & consumption
User conflicts

Tilapia

Antibiotic use
Chemical use (specifically, methyltestosterone)
Escapes
Habitat impacts
Mortality removal
Predator control
Water pollution and consumption
User conflicts

Trout (freshwater)

Antibiotic use
Chemical use
Escapes
Habitat impacts
Fish meal/oil use
Water pollution and consumption
Predator control

Tuna

Antibiotic use
Benthic biodiversity
Disease transfer
Escapes (if ranched outside of native range)
Fish used for feed, increasingly fish meal and fish oil use
Source of seed stock (juveniles are usually captured and “ranched”)
User conflicts (between fishermen and farmers because of seed stock concerns)
Contaminants in finished product (Hg)

Impact Definitions

Antibiotic/Chemical Use – Inappropriate use of antibiotics and chemicals can have unintended consequences on the environment, wild species and human health.

Benthic Biodiversity – Chemicals and excess nutrients from food and feces associated with open-system fish farms, and harvesting techniques employed in some forms of mollusc culture, can disturb the flora and fauna on the ocean bottom (benthos).

Disease Transfer – Viruses and parasites can be transferred among farms and between farmed and wild species.

Escapes – Farmed species that escape from aquaculture facilities compete with native species for food and habitat and can alter the genetic make-up of wild stocks through interbreeding.

Habitat Impacts – As new farms are established, sensitive habitat can be destroyed and water can be diverted. Also, aquaculture operations can change the ecological make-up of the coastal environment and negatively effect local biodiversity.

Fish Meal/Oil Use – Fish caught to make fish meal and oil currently represent one-third of the global fish harvest. The use of fish meal and fish oil for aquaculture feeds, and the practice of feeding “trash” fish directly to culture species, has the potential to contribute to the depletion of wild fish stocks.

Predator Control – The use of chemical and physical means to control pests and predators can degrade natural habitat and cause stress to native species.

Source of Seed Stock – The capture of wild spat, larvae, and juvenile species to stock aquaculture farms can deplete wild populations and degrade the environment.

User Conflicts – The development of aquaculture operations can conflict with traditional uses and negatively affect the aesthetic beauty of coastal areas. Also, fish farming often employs a large number of workers, potentially placing labor practices and worker rights under public scrutiny.

Water Pollution and Consumption – Nutrients (from excess food and feces) from aquaculture operations can be released into the marine or freshwater environment, potentially leading to hypoxia or eutrophication. Some forms of aquaculture consume large volumes of freshwater, and the inland culture of saltwater or brackishwater species can lead to salinization of freshwater.