FAQs

1:What is aquaculture?

Aquaculture involves cultivation of freshwater and saltwater populations under controlled conditions. In India, two types of aquaculture are practice, ie freshwater aquaculture and brackish water aquaculture. Freshwater aquaculture involves the breeding of freshwater fish like carp, catla, magur, freshwater prawn, freshwater pearl culture as well as ornamental fish farming. Brackish water aquaculture, has more salinity than fresh water, but less than sea water.

2: Mention few water sources for aquaculture?

Water source for aquaculture: Rivers, Lakes & Streams, Surface Water, springs, Wells, Groundwater, Municipal Supplies and Seawater.

Alternative Water Sources: Rainwater: It is free but unpredictable, only a Supplement, acidic in nature and also Poorly Buffered.

City Water: It is limited Potential, cost is more and also contains disinfectants eg, Chlorine
Saltwater Wells: Via Saltwater Intrusion,– High Cost

Recycled Water: We must use within the Permitting Guidelines

3: What are major objectives of aquaculture?

These are the major objectives of aquaculture:

1. Production of protein rich, nutritive, palatable and easily digestible human food supplies at low or reasonable cost.
2. Production of ornamental fish for aesthetic appeal.
3. Recycling of organic waste of human and livestock origin.
4. Providing means of sustenance and earning livelihood and monetary profit through commercial and industrial aquaculture.
5. Increasing standard of living by maximizing profitability

6. Production of sport fish and support to recreational fishing.
7. Production of commercial and sport fishery.

4: How much seafood is produced by aquaculture?

Globally, aquaculture supplies more that 50 percent of all seafood produced for human consumption – that percentage has been and will continue to rise. Conventional wisdom holds that traditional fisheries are producing near their maximum capacity and that future increases in seafood production must come largely from aquaculture. Experts at the United Nations Food and Agriculture Organization say we will need another 40 million tons of seafood worldwide per year by 2030 just to meet current consumption rates

5: Major problems in aquaculture:

Disease: Farmed fish have an increased chance of getting parasites such as sea lice,ect .Farmed fish are also exposed to diseases through the use of unprocessed fish to feed as their food source.

Secondary impacts: Because farmed fish need a food source, because most farmed fish are carnivorous, they are fed either whole fish or pellets made from fish. Species such as mackerel, herring and whiting are threatened from the pressure to create food for other farmed species.

Escapees: Farmed fish can escape from their pens, damaging both the environment and threatening native fish populations. They can also carry diseases or parasites that might kill native species. In addition, escapees that are able to breed with the wild stock can dilute the natural gene pool and threaten the long-term survival and evolution of wild species.

6: What is the fatty acid we are getting from fish and its uses?

Fatty types of fish are even more beneficial for heart health, because of their high amount of omega-3 fatty acids.Omega-3 fatty acids are absolutely essential for growth and development. The omega-3 fatty acid docosahexaenoic acid (DHA) is especially important, because it accumulates in the developing brain and eye . Fish and omega-3 fatty acids may also help with other mental disorders, such as bipolar disorder.

Omega-3 fatty acids is the key factor in both maternal and child mortality, consumption of omega-3 fatty acids during pregnancy reduces the risk of low birth weight. Consumption of fish is important for people who are suffering from HIV/AIDS, reduce susceptibility to secondary diseases.

7:What are the major couties investing on aquaculture?

Many countries are heavily investing their resources into aquaculture in the world, top 10 countries are listed:

1. China
2. Japan
3. India
4. Chili
5. Vietnam
6. Indonesia
7. Thailand
8. Bangladesh
9. Korea
10. Philippines

8: What are the pathoges affecting aquatic life and industry?

Major pathogens that are affecting the aquaculture industry include: bacteria, fungi, viruses and parasites. Thes three major bacterial fish pathogens (*Aeromonas hydrophila, Yersinia ruckeri and Vibrio fluvialis)* are causing annual economic loss in aquaculture industry. Gram-negative bacteria such as *Aeromonas, Edwardsiella, Flavobacterium, Francisella, Photobacterium, Piscirickettsia, Pseudomonas, Tenacibaculum, Vibrio and Yersinia; and Gram-positive bacteria such as Lactococcus, Renibacterium and Streptococcus.*

9: Why bacterial vaccines used and what are they?

To control pathogens some of the potent bacterial vaccines are developed. There are six types of bacterial vaccines are in use.

(1) bacterins (killed bacteria) such as the *Aeromonas salmonicida* bacterial vaccine that is currently available in the USA; (2) attenuated live bacterial vaccine such as the attenuated live *Edwardsiella ictaluri* vaccine that is commercially available in the USA; (3) toxoid vaccine containing inactivated bacterial toxins rather than the whole bacteria are the major once using in aquaculture industries. To prevent bacterial diseases, using vaccines instead of antibiotics has been proven to be effective and beneficial.

10: How aquaculture effecting environment?

The main environmental effects of marine aquaculture can be divided into the following five categories

1. Biological Pollution: Fish that escape from aquaculture facilities may harm wild fish populations through competition and inter-breeding, or by spreading diseases and parasites. Escaped farmed Atlantic salmon (*Salmo salar*) are a particular problem, and may threaten endangered wild Atlantic salmon in Maine. In the future, farming transgenic, or genetically modified, fish may exacerbate concerns about biological pollution.
2. Fish for Fish Feeds: Some types of aquaculture use large quantities of wild-caught fish as feed ingredients, and thus indirectly affect marine ecosystems thousands of miles from fish farms.
3. Organic Pollution and Eutrophication: Some aquaculture systems contribute to nutrient loading through discharges of fish wastes and uneaten feed. Compared to the largest U.S. sources of nutrient pollution, aquaculture's contribution is small, but it can be locally significant.
4. Chemical Pollution: A variety of approved chemicals are used in aquaculture, including antibiotics and pesticides. Chemical use in U.S. aquaculture is low compared to use in terrestrial agriculture, but antibiotic resistance and harm to non target species are concerns.

5. Habitat Modification: Marine aquaculture spreads over 26,000 marine hectares, or roughly 100 square miles. Some facilities attract marine predators, and can harm them through accidental or other techniques.

11: Define how Aquaculture economically important?

Aquaculture plays an important role in the economy, providing thousands of jobs in operations and maintained services. According to the Environmental Defense Fund, a non-profit environmental organization, global fisheries exports now earn more revenue than any other traded food commodity in the world. According to the reports of the National Fisheries Development Board, Government of India, during 2007-08 India contributed about 4.6% of the global fish production. 14.8 million employment opportunities have been generated by this sector up to 2009-2010.

12:What are the Common chemicals used in aquaculture?

Common chemicals used in aquaculture are EDTA (ethylene diamine tetra acetate) disodium salt for removing water hardness, sodium nitrate for algae formation, ammonium chloride for boosting water fertility and formaldehyde, a bactericide.

13:Name a few aquaculture and R&D research centers India.?

Aquaculture is practiced by both some of the poorest farmers in developing countries and by multinational companies.

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14: Explain what is biological pollution?

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15: Define it is economically important?

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