

# Aquaculture: our future of food

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The ocean. A vast, mysterious, and priceless treasure found only on planet earth. Home to some of the most complex and distinct species in the world. Humans are closely connected to oceans.

Over the last several centuries, humans nearly harvested every living creature from the seas. Habitat loss, destruction of ecosystems, and even extinction of fish species, became the aftermath of the fishing industries. From the oceans, mass amounts of aquatic creatures such as fish, molluscs, and crustaceans were captured by 4.7 million fishing vessels in 2012, an ever expanding number. (FAO1, 2014 Page 18). Oceans are left forever changed.

Aquaculture is the solution. Using controlled environments and efficiently reproductive fish breeds, humans are able to raise large amounts of aquatic species for food. Shellfish and crustaceans are also farmed. In 2007, the global production of aquaculture was fully able to provide 15.7% of the protein needs for the entire world.

(FAO2, 2010 Page 3) Alongside, the environmental sustainability of aquaculture is rapidly improving. Global issues of pollution and diseases due to fish farming may pose a risk. However, these factors seem irrelevant against the pollution from agriculture or environmental damage caused by wild fishing. It is estimated that the world will need 150 million tonnes of fish products by 2030, a figure that wild fisheries simply cannot comply with.

(CAIA, 2012 Page 3) Therefore, the practice of aquaculture is a sustainable method of food production that both satisfy the growing appetite of the

modern world while supplementing the world with economic, social and environmental benefits.

“ Give a man a fish and you feed him for day, teach a man how to fish and you feed him for a lifetime,” said the Spanish scholar Maimonides nearly a millennium ago. Fish is a critical source of nutrition for the ever expanding demands of the modern world. The method of farming, feeding and harvesting of fish, shellfish and aquatic plants have been practiced by humans for centuries. It is not until 2012 when aquaculture accounted for nearly 42 percent of the total global seafood production. (FAO3, 2014 Page 46) Being the fastest growing food production industry in the world, aquaculture mostly thrives in Asian countries such as China, India, and Vietnam with global production value at 137. 7 billion USD in 2012.

(FAO3, 2014 Page 36) However, the negative impacts of aquaculture remains prevalent. China, being the largest producer of aquacultural products, has faced eutrophication and fish waste pollution as a result. (Liu and Diamond, 2005 Page 4) Counteractively, the Chinese government has set standards for regulating antibiotics and chemicals used as well as filtering pollution and waste. (NBSO, 2010 Page 15-16) Aquaculture is also able to alleviate the lack of activity commonly found in developing nations. Given time, links of food security, rural development, improved nutrition and established services can all be drawn to aquaculture. (FAO4, 2007 Page 4) In the past, rich resources of fish and marine life have supported the fishing industry and the mouths in the world.

Currently, treasures such as Bluefin tuna beneath the waters have become scarce. Without aquaculture, can the rapidly growing world of the future rely on empty oceans? For nearly three thousand years, aquaculture was practiced on the rice fields of central China. In the modern era, rivers and inland bodies of water become resources for aquaculture plants. Offshore open nets and hatcheries located near coastal regions are also commonly practiced. (MBASA, 2014 Page 1) In cities across British Columbia, the Kitasoo First Nations group depend on farming and processing salmon. The local fish processing plant generates 1.

4 million pounds of salmon annually and provides nearly one million dollars of wages in the local community. (CAIA, 2012 Page 2) On the national scale, aquaculture has employed over 14, 000 workers in addition to adding over one billion dollars to the Canadian GDP. The main species of farmed fish in Canada include salmon, trout, char, mussel, oyster and clam. (GC, 2013 Page 1) Aquaculture in Canada does experience competition from nations such as Chile with lower production costs. Due to the scale and high production values, Canadian aquaculture should be sold on a domestic market. This both promises income for the sellers and well as limits transportation or competition from reducing profits if sold foreign markets.

North America, Japan and Europe continues to be the largest importers of farmed fish. (FAO5, 2012 Page 2) As the developing world in South American and Africa begins to experience economic growth, the demand for meat products inevitably will increase. Fish, being affordable and healthy, can become essential for diets around the world. In Japan, the top importer of farmed fish, will need to continue this trade to fuel its cultural heritage of <https://assignbuster.com/aquaculture-our-future-of-food/>

fish- dominated diets. With such popularity, can the oceans provide enough for this carnivore's dilemma? Aquaculture, alike any other food production industry, undergoes constant development. The most common technique in raising fish utilizes inland or offshore waters to raise farmed fish.

In these cycles, fish excretion and leftover feed can leak and promote the growth of excess algae causing eutrophication and pollution. (MBASA, 2014 Page 1) New solutions to this issue include land-based containment systems without risk of disease or pollution created by the USDARS, now commercially available. (Work, 2013 Page 1) The process of implementing these systems may pose difficulties within developing nations. Controversy now arises surrounding the feed used for farmed fish including corn. A new source of plant-based feed including microbial organisms developed by AAAS promises efficiency and safety for growing fish.

(Work, 2013 Page 1) Alternatively, through the use of by-catch, feed used for aquaculture may become more available and offer natural sources of protein and amino acids found in wild fish. Aquaculture influences countries such as China, Thailand and Vietnam in a heavily socio-economic perspective. The prerogative of economic outcome may come with the sacrifice of environmental disadvantages. On the other hand, new technologies such as recirculating aquaculture systems filters waste effectively, while hindering disease and parasitism as well as reusing water sources. (Reynolds, 2012 Page 1) In summation, the growth of economic infrastructure in the world will drive the fish farming industry into new heights of technology-based environmental sustainability.

The Oceans. Home of the very lifeforms that evolved to become humans. People, although efficient, often fail to view fishing in a grand perspective. The industry of wild fishing had and still continue to cause tremendous damage to the native waters. Aquaculture, although not flawless, offers a renewable source of food to the modern world. On average, one pound of fish feed can be converted into equivalent amounts of fish mass.

(Bourne, 2014 Pg. 101) From this, controlled variables and regulations by the US and Canadian government forces aquaculture industries to oblige and reduce pollution or control diseases. Nevertheless, research shows that the nutritional value and health benefits of eating farmed fish greatly surpasses the risk of chemical use in aquaculture. (HSPS, 2006 Page 1) Food production has always been a top priority for mankind, but can it be successful in the future? Aquaculture may not be the answer for this evolving question, but it certainly offers potential to a sustainable and productive industry that fuels perhaps quite literally, food for thought.