

# Analysis of Chilean Aquaculture Environmental Interactions and Population Growth

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## ABOUT THE STUDY

The degree of interaction between the organism being cultivated and its physical and biological surroundings depends on whether it is an aquatic plant or animal being raised for human consumption. There are two parts to this assessment of recent literature on the relationship between aquaculture and the natural environment. The first is how aquaculture's use or output of materials directly impacts the environment. The second is the potential indirect effects of aquaculture on the environment, particularly the biological community. Research is done on possible and actual consequences on finfish, shellfish, and plant culture from both a positive and negative perspective. Each production combination, together with the biological and physical make-up of the area, has a significant impact on how aquaculture practices interact with the environment. Onshore aquaculture refers to the practice of aquaculture in wholly artificial facilities constructed on land, similar to fish tanks, ponds, or raceways, where the living conditions, such as water quality (oxygen), feed, and temperature, are managed by humans. As an alternative, they can be conducted in well-protected shallow waters near bodies of water (inshore aquaculture), where the cultivated organisms are exposed to a more naturalistic environment; or in enclosed areas of open water far from the offshore aquaculture, where the species are either cultured in cages, racks, or bags and are exposed to more varied natural conditions such as water currents (such as ocean currents) and temperature fluctuations. Fish farming is the form of aquaculture that is most prevalent. Fish are bred for sale in aquariums, ponds, or ocean cages, typically for human consumption. Usually, a place where young fish are released into the wild for recreational fishing or to boost the population of a species is referred to as a fish hatchery. World-wide, the top four fish species grown for food are carp, salmon, tilapia, and catfish. In the Mediterranean, young Bluefin tuna are collected by being

netted at sea and pulled gently onshore. In offshore pens, which occasionally feature floating HDPE pipe, they are further developed for the market. Australian scientists were successful in inducing southern Bluefin tuna to breed for the first time in tank-bound areas in 2009. Southern Bluefin tuna are also caught in the wild and fattened in grow-out sea cages in the southern Spencer Gulf of South Australia. Similar practices are used in the salmon farming portion of this industry; juvenile fish are taken from hatcheries and given a variety of maturation aids.

For instance, salmon, one of the most important fish species on the market, may be grown in a cage system. The salmon are kept in netted cages, ideally in open water with a strong current, and fed a specific food combination that encourages growth to do this. Another method, sometimes referred to as "sea ranching," has also been used in the industry. Before being released into marine waters to continue maturing, fish are briefly nurtured in a hatchery. Aquaculture is a particularly important economic industry in China. Aquaculture harvests climbed from 1.9 million tones to over 23 million tones between 1980 and 1997, expanding at an average rate of 16.7% per year, according to the Chinese Bureau of Fisheries. In 2005, China accounted for 70% of all manufacturing worldwide. Aquaculture is currently one of the areas of food production in the US that is growing the fastest.

Shrimp that is consumed in the United States is primarily farmed or imported. In recent years, salmon aquaculture has become a substantial export in southern Chile, especially in Puerto Montt, the Chilean city with the fastest population increase. An estimated 60 million people in Asia and Africa depend on fisheries and aquaculture for their livelihoods, according to a May 2014 United Nations assessment titled The State of the World Fisheries and Aquaculture. Therefore, the FAO reports that in 2016, women made up roughly 14% of all those directly employed in the primary sector of fisheries and aquaculture.

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