

## Organic Aquaculture Literature Review

The aquaculture sector is currently the fastest growing segment in international food markets. It accounts for more than 30 percent of the global supply of fish... Salmon is currently the most important organic fish species in terms of quantity and value. Production is located mainly in Ireland and the UK, but recently a Canadian company, Heritage Salmon Ltd., has started organic salmon farming in Chile... The expected price premium is between 30 and 50 percent compared to conventional products.

<http://www.globefish.org/index.php?id=2181>

Aquaculture (the farming of aquatic animals and plants), much like organic agriculture, is one of the world's fastest growing food sectors. Globally, aquaculture production has been growing at an average rate of 9 percent per year since 1970, compared with 2.9 percent for terrestrial farmed meat production and 1.3 percent for capture fisheries... Although no official statistical data are available concerning the global production of certified organic aquaculture products, it is estimated that total production in 2000 was only about 5 000 metric tonnes, primarily from European countries. This modest quantity represents about 0.01 percent of total global aquaculture production or about 0.25 percent of total European aquaculture production... In terms of animal meats, according to the FAO Food Balance Sheets (1997-1999 average) more food fish or seafood is currently being consumed than any other type of meat; food fish (from capture fisheries and aquaculture) representing 15.9 percent of total animal protein supply, followed by pig meat (15.2 percent), beef and veal (13.4 percent), and poultry meat (13.0 percent). In general, people living within Africa and Asia (including LIFDCs) are much more dependent on fish as part of their daily diets than people living within most developed countries and other regions of the world.

<http://www.fao.org/DOCREP/005/Y4137E/y4137e06.htm>

...Presented with the concept of organic seafood, some respondents spontaneously welcomed the idea, but subsequent discussions raised a number of questions across the groups, as there was some degree of confusion as to what 'Organic seafood' would actually entail. Consumers' attitudes towards organic fish were dictated by their attitudes towards organic products in general...

<http://www.seafish.org/pdf.pl?file=seafish/file/Seafish%20Farmed%20Seafood.pdf>

### **National consumer perceptions of organic salmon**

...In France organic fish was appraised to be of better quality, both in terms of taste and consumer's health. Whilst some consumers were concerned that the creation of a label specifically for organic salmon would result in an increase in price, others were also concerned about the difficulties in controlling the quality of overall chain of production.

... In Spain the respondents were largely unaware that most salmon is farmed, images of a capture-based production system continued to dominate consumer perceptions. The concept of fish farming and species manipulation was considered to be negative and consumers perceived farmed salmon to be associated with a poorer taste and being artificial....

...In Germany knowledge of fish farming amongst consumers was found to be scant; respondents tended to use meat production systems as a more familiar reference point. For the most part, consumers in Germany expressed negative attitudes towards mass production and the use of chemicals....

...Norwegian respondents had fairly extensive knowledge about salmon farming. Most respondents found difficulty in accepting the implications of organic principles for salmon farming, and this was especially so where knowledge of fish farming practices was greatest...

...In the UK consumers were also found to have fairly limited awareness of current fish farming practice. As with any organic food, all respondents felt freedom from artificial inputs was of fundamental importance if fish was to be farmed as organic...

...Overall, the majority of consumers remained skeptical that salmon could be farmed organically. Environmental impact was seen as a significant problem whilst for others the fundamental act of constraining a 'wild' fish in a cage in itself invalidated the concept.

<http://oregonstate.edu/dept/IIFET/2000/papers/aarset.pdf>

In a converted chicken coop behind his home, John Stewart sprinkles fish pellets over a 600-gallon tank brimming with 2-inch-long bluegills..."There's no mercury, no antibiotics in the feed and they're raised humanely; we don't crate them in cages in the ocean," said the 38-year-old Stewart. "Because we grow them indoors, there's no rainwater pollutants to contend with or bird-borne diseases, and no fish escapes."... He said it would be great for restaurants. They would be guaranteed a fresh product at a set price. He said his bluegills will sell for \$4 a pound.

<http://kennebecjournal.maintoday.com/news/local/911660.shtml>

Shrimpers and stone crab fishermen in the Florida Keys say they are hard pressed this year to find an abundant supply of product, or, if they do land a good catch, to find a fair price for it...The price of foreign, pond-raised shrimp has brought the wholesale price of shrimp down to about \$1.00 per pound -- not nearly enough to support a U.S. shrimping operation taking its catch from the ocean, fishery officials say...imported product from countries such as Vietnam are flooding the market with pond-raised shrimp.

<http://www.southeasternfish.org/News/Fishermen%20decry%20lean%20catch,%20foreign%20competition.htm>

...Of a sample of 1,416 respondents to a nationwide mail survey on seafood consumption, 53% consumed catfish at least occasionally, with an average catfish consumer eating catfish 3.3 times per month. Consumers indicated a greater preference for farm-raised catfish than for wild-caught catfish, but they placed farm-raised products low on their lists of factors that would increase their consumption of catfish... 30% of nonconsumers said they would try farm-raised catfish when they were provided with an anonymous description of a farm-raised finfish product that was taken from an U.S. farm-raised catfish advertisement...

<http://msucare.com/pubs/bulletins/b1134.pdf>

### *United States*

...The NFI Survey of attitudes to the fishing industry mentioned earlier also included some questions about aquaculture. Nearly half the respondents thought aquaculture was a good alternative to wild-catch fishing and only 4% thought it was a bad alternative, however, 28% said they 'didn't know'. Few respondents were aware of issues associated with aquaculture like feed quality (21% aware), use of antibiotics (16%), or farmed stocks escaping and breeding with wild stocks (14%). But a higher percentage of respondents (one third) agreed that escaped salmon would damage natural stocks of fish, while 44% 'didn't know'. Over half of respondents (56%) didn't know whether aquaculture contributed to the pollution of the ocean. About a third of respondents (34%) disagreed with the statement that there were no differences between wild and farm-raised fish, while 45% indicated they 'didn't know'. In addition, 26% of respondents indicated they preferred wild caught fish to those raised in farms. When asked about ecolabelling to assure purchasers the product had been harvested sustainably, about one in three respondents claimed they were aware of this kind of labeling.

[http://www.australian-aquacultureportal.com/publications/BRS\\_Public%20Perceptions\\_Eyre\\_Related%20Research.PDF](http://www.australian-aquacultureportal.com/publications/BRS_Public%20Perceptions_Eyre_Related%20Research.PDF)

... Opinion Dynamics Corporation interviewed 500 people of Hispanic descent. The interviews were conducted in six markets: Miami, Atlanta, Boston, Houston, Chicago, and Los Angeles. The interviews, which lasted an average of 18 minutes in length, Hispanics appear to be far less concerned with whether seafood is domestic or imported than the overall American population. Most of the study population (53%) does not have a preference between imported and domestic seafood; past research has shown that a majority of Americans will almost always prefer a domestic product to an imported one. While Hispanics may not be concerned with the country of origin of their seafood, they do have a strong preference for seafood caught in the wild as opposed to farm raised.

<http://www.fl-seafood.com/industry/reports/hispstudy/index.html>

...So far, public opinion towards aquaculture in many countries appears to be generally positive, but this may be because its public profile remains low or because the industry is mainly export oriented. In some cases, aquaculture is regarded as another form of agriculture (livestock production). One report indicated that the general public is rather oblivious of aquaculture. Aquaculture is also generally regarded as a means of increasing food production, increasing revenue, and providing employment. However, some public concern (sometimes strong) is expressed about the visual and environmental impact of aquaculture, and the competition which it is perceived to create for fishermen. Negative public attitudes towards aquaculture on a national scale often only occur if a local problem is not quickly resolved. However, the tourism industry is clearly a major opponent of aquaculture (particularly coastal aquaculture) in many countries of the region....

<http://www.fao.org/docrep/x2410e/x2410e06.htm#4.3%20issues%20of%20public%20concern>

...Consumers did not indicate a preference or non-preference for farm-raised oysters, nor did they indicate having a farm-raised product as a reason to consume oysters or consume oysters less frequently. Further research could be conducted to see if consumers would perceive farm-raised oysters to be safer with certain advertising messages....

<http://www.mdsg.umd.edu/oysters/meeting/abstracts/abstract78.html>

Reactions to farm-raised clams were more negative than positive especially among Boston consumers. Inferior taste (compared to wild caught) was a key perceived negative to farm-raised clams. Positive reactions to farm-raised clams centered on lack of sand (grit), less salt, and more consistency.

[http://www.fl-seafood.com/industry/reports/clams\\_rep9-16.pdf](http://www.fl-seafood.com/industry/reports/clams_rep9-16.pdf)

Bart Reid had been struggling hard to keep his West Texas shrimp farm afloat since April, when U.S. regulators relaxed the rules covering organic food. Reid was suffering because the rules under the U.S. Department of Agriculture's National Organic Program were altered, taking seafood out of the program. It meant he couldn't label his Permian Sea Shrimp product "USDA organic," which prompted retailers to cancel purchases...He said he could charge \$5 a pound wholesale for the organic shrimp, compared with \$2 for conventional shrimp....

<http://www.commondreams.org/headlines04/0529-06.htm>