

Standards Needed for Organic Aquaculture

The U.S. Department of Agriculture’s National Organic Standards Board (NOSB) has been working for several years to establish organic standards for aquaculture products (farmed fish) and will be voting on a set of proposed standards after their meeting November 17-20, 2008. Although organic standards will likely never be applicable to wild fish, which in many cases may be a better choice for consumers than farmed fish, the development of USDA organic aquaculture standards could be instrumental in giving fish farmers a market they need to sustainably produce fish and shellfish. However, it is crucial that the standards be more stringent than those currently proposed, in order to protect the credibility of the “organic” label and live up to the principles of organic production intended to protect the environment and consumer health.

Any USDA standard for organic aquaculture must include:

Aquaculture feed

Wild aquatic species must not be used as a source of feed for organic farm-raised aquatic animals. Wild fish are subject to many uncontrollable variables and prone to contamination from substances such as mercury and PCBs (polychlorinated biphenyls).¹ According to the NOSB definition, organic food production is based on minimal use of off-farm inputs and management practices that restore, maintain and enhance ecological harmony.² Regardless of whether wild fish are caught domestically or imported from abroad, depleting the environment of wild fish so that they may be used to feed fish raised in aquaculture facilities goes against the basic principles of organic production.

Instead, feed should come from certified organic agricultural inputs or from aquatic species that have been cultured under controlled and organic conditions. Options for supplementing organic feed include producing some nutrients within the tanks,³ using an algae-based feed,⁴ or reusing byproducts of one cultured species to feed another.⁵

No chemical inputs

Just as with organic production of meat, poultry, eggs, dairy, fruits and vegetables,⁶ no chemicals, pesticides, antibiotics, genetic modifications or artificial hormones should be used in aquaculture that is certified organic.

Separation from the surrounding environment/no net pens

To prevent effluent from being released into the surrounding marine environment or causing groundwater



Above: Misleading labeling already exists on seafood claiming to be eco-friendly. Consumers need clear standards for organic seafood products.

contamination at land-based systems, and to avoid escapes, which alter and often weaken the gene pool of wild populations, all organic aquaculture operations should be adequately sealed off from the surrounding environment. This could include closed tanks or lined ponds with walls high enough to prevent overflow. Net pens, which place farmed fish in open bodies of water, causing massive ecological and genetic pollution,⁷ must not be permitted.

Responsible water sourcing

Because it takes a tremendous amount of water to fill commercial-scale fish tanks for aquaculture production, it is important that organic standards consider water sourcing. Aquaculture facilities should not drain water from limited aquifers that are important for the local communities' water needs.

Re-circulating tanks/no flow-through

Flow-through aquaculture, which involves excessive consumption and expulsion of water, should not be permitted under organic aquaculture standards. Organic aquaculture operations should re-circulate 100 percent of their water, or use the portion that is not re-circulated for agricultural or conservation purposes. Organic aquaculture operations that are not fully re-circulating could use the non-circulated water to irrigate agricultural crops or to flow into wetlands, where nutrients will be filtered out of the water.⁸

Organic broodstock/larvae/fingerlings

Organic standards must mandate that certified organic farms raise their own brood stock, larvae and/or fingerlings or purchase them from an organically certified hatchery.

Zero effluent

All aquaculture results in a significant amount of solid waste.⁹ Organic standards must require that every aquaculture operation have a method in place to dispose of this byproduct without releasing it untreated into the surrounding environment or municipal systems. Potential methods for disposal include use in an integrated aquaponic system and reuse as fertilizer.

Low energy consumption

Powering a commercial-scale re-circulating aquaculture operation can be extremely energy-intensive.¹⁰ Standards must be developed in order to hold organic aquaculture to sustainable levels of energy use and carbon emissions. If any large-scale aquaculture operation is certified organic, it must have methods of alternative-energy production in use, such as conversion of solid waste to methane gas.¹¹

Conclusion

Fish farming presents a variety of issues that are not present in livestock production or horticulture. Standards ap-

propriate for aquaculture that fulfill the intent of the organic philosophy may include provisions that are different from NOSB's organic standards for livestock. NOSB must ensure that organic aquaculture is truly sustainable and that it lives up to the expectations of consumers. Creating an organic label for seafood simply because the industry desires one without adhering to organic principles sacrifices the integrity of the USDA organic seal and will erode consumers' confidence in the organic label.

Endnotes

1 "What you need to know about mercury in fish and shellfish." The Environmental Protection Agency, 2004. Available at: www.epa.gov/waterscience/fish/advice; "Public Health Implications of Exposure to Polychlorinated Biphenyls (PCBs)." U.S. Public Health Service, The Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services and The U.S. Environmental Protection Agency. Available at: www.epa.gov/fishadvisories/files/pcb99.pdf

2 Gold, Mary V. (Compiled by). "Organic Production/Organic Food: Information Access Tools." Alternative Farming Systems Information Center, National Agricultural Library, United States Department of Agriculture, June 2007. Available at: www.nal.usda.gov/afsic/pubs/ofp/ofp.shtml

3 Many re-circulating systems cultivate bioflocs (suspended organic particles and the attached bacterial microorganisms) to help maintain water quality by controlling nitrogen. The biofloc can also provide the fish or shellfish with a portion of their nutrients.

4 Several research projects, including one headed by Dr. Yonathan Zohar at the University of Maryland's Center of Marine Biotechnology, are experimenting with replacing the typical fish feed with algae-based feed. See: Block, Ben. "New fish farms move from ocean to warehouse." WorldChanging, April 29, 2008. Available at: www.worldchanging.com/archives/007998.html

5 BlueRidge Aquaculture in Martinsville, Virginia, is researching how to use byproducts from one species to feed another. For example, they hope to use the bones from tilapia left over after the filleting process, to feed cobia.

6 Gold, Mary V. Op cit.

7 Borgatti, Rachel and Buck, Eugene H. "Open Ocean Aquaculture," CRS Report for Congress, Received through CRS Web, RL32694, December 13, 2004.

8 Kent Sea Tech, a producer of Striped Bass in Californian, partners with local farms to use effluent water for irrigation of vegetable crops. See: "Conservation" Kent Sea Corp, 2001. Available at: www.kentseatech.com/technology/conservation.htm

9 Timmons, M.B. and Ebeling, J.M. Recirculating Aquaculture, (Ithaca, NY: Cayuga Aqua Ventures, 2007), Northeastern Regional Aquaculture Center No. 01-007, p. 171.

10 Ibid, p. 691

11 Dr. Yonathan Zohar at the University of Maryland's Center of Marine Biotechnology, mentioned above, is converting the solid waste from his research facility into methane gas. See: Block, Ben. "New fish farms move from ocean to warehouse." WorldChanging, April 29, 2008. Available at: www.worldchanging.com/archives/007998.html

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