

AQUACULTURE WORKING GROUP
Responses to NOSB Livestock Committee
Response No. 2 Species Examples

On September 8, 2006, the NOSB Livestock Committee posted an *Invitation for Public Comment on Aquaculture Standards* to solicit responses to various questions relating to proposed organic standards for aquaculture. On October 3, 2006, the Aquaculture Working Group (AWG) responded to these questions. This document is submitted to demonstrate how several major farmed species when grown under the organic aquaculture standards that are under consideration are substantially different compared to fish and shellfish grown in conventional aquaculture.

SALMON

Around the world, salmon are grown in ocean net pens. Concerns about salmon production and its impacts on the environment are similar to concerns about marine finfish production and other net pen based production methods. The proposed organic aquaculture standards are a significant development in addressing these concerns. They are comprehensive and cover all forms of net pen production regardless of the species produced. No comparable standards or regulations apply in conventional net pen production.

Salmon grown under the proposed standards would differ from salmon grown under conventional production in the following ways:

Chemicals, drugs and therapeutants. Antibiotics, hormones and parasitides would be prohibited. Any synthetic substances including pigments that are not allowed on the National List would be prohibited. As a result, many substances permitted in conventional salmon production would be proscribed or regulated in organic production.

Discharges. The proposed standards contain multiple requirements to limit, minimize, reduce or eliminate nutrient discharges. Starting with a requirement to comply with all relevant local, state and federal water quality laws, the proposed standards require the farmer to develop a Organic Farm Plan. In the case of net pen operations this OFP must include a nutrient management plan, integrated predator deterrence plan and a containment management system. These plans require the farmer to examine all available options to reduce and minimize nutrient discharges.

The organic farmer is precluded from feeding practices that do not minimize the environmental impact of nutrient discharges and must manage the farm to not exceed the assimilative capacity of the surrounding aquatic ecosystem. The nutrient management plan must include a monitoring program to ensure these goals are achieved. Compliance with the proposed standards requires significantly reducing densities and altering husbandry practices from those used routinely in conventional aquaculture. The proposed standards also encourage nutrient recycling through polyculture. For net pen operations the use of multiple species to increase nutrient recycling is mandated, where feasible, as part of the Organic Farm Plan.

Escapes. In order to mitigate the impacts of escapes the salmon farmer is precluded from using triploid or GMO stocks. If using traditional stocks that are genetically distinct from local “wild” stocks, the salmon farmer must develop and implement a containment management system. This must include measures to prevent escape, procedures to detect and document escapes should they occur, and required actions in the event of escape.

Predator control. In order to further reduce the risk of escapes due to predator attacks, net pen farmers must develop and implement predator deterrence plans. This plan must identify potential predators, appropriate deterrence methods, how predator behavior will be modified by the deterrence methods, document control methods and effects, contingencies for failure to achieve objectives, and how plan implementation conserves biodiversity in the ecosystem adjacent to and including the aquaculture facility.

None of these requirements that apply to discharges, escapes and predators are necessary in conventional aquaculture net pen production.

Disease. The proposed standards require farmers to proactively protect their animals from disease. The proposed standards require farmers to operate their farms in a manner that “prevents the spread of disease to all surrounding ecosystems.” This is the strictest disease standard for any animal production system in the world including current terrestrial organic livestock production. The requirements in the proposed standards are not practiced in conventional net pen operations.

Feed. The proposed standards establish the strictest standards for aquatic feed formulation in the world. Currently no existing salmon or marine finfish feeds would meet the standard. All feed ingredients other than fish meal and oil must be organic. Fish meal and oil can be only from sources that meet rigid criteria for sustainable harvesting. Unnatural high levels of lipids in feeds are proscribed. Natural levels of omega-3 fatty acids are required. Avian and poultry byproducts are proscribed. Feeds that meet the proposed standards would be very different from conventional formulations.

Biodiversity and ecosystem protection The proposed standards contain multiple requirements that the farmer preserve and protect biodiversity, and the functional integrity and quality of surrounding aquatic and terrestrial ecosystems. In their Organic Farm Plan farmers are required to demonstrate how they are achieving these goals. Conventional net pen salmon farms are not required to demonstrate how on-farm practices are preserving and protecting off-farm biodiversity, and ecosystem integrity and quality.

Animal welfare The proposed standards require that the welfare of the aquatic animals be protected. This includes the physical and environmental conditions in which salmon is farmed, the way the fish are handled at harvest, and humane slaughter. No similar standards exist for conventional salmon culture. In the event of unavoidable disease outbreaks the proposed standards obligate the organic farmer to remove animals from organic production in order to protect animal welfare and the surrounding environment.

TROUT

While most trout produced for US consumption are grown in raceways, many of the differences between conventional production of trout and production under the proposed organic aquaculture standards are the same as with salmon.

Trout production under the proposed organic aquaculture standards would differ from conventional trout production in the following ways: (1) lower rearing densities; (2) use of certified organic feed ingredients; (3) no antibiotic use; (4) lower levels of nutrients (metabolites and indigestible material) in effluent water through lower rearing densities and advanced settling and removal practices; (5) humane slaughter practices; and (6) levels of omega-3 fatty acids in edible products equivalent to levels found in wild trout.

CATFISH

In the United States, virtually all catfish are produced in earth ponds with minimal water exchange. An organic catfish production facility would be managed with significant differences from conventional catfish production. Differences under organic production with the proposed standards would include:

Pond location. Adequate buffers would be established for terrestrial catfish ponds from conventional cropland, forestland, or from other aquaculture. This buffer is to prevent drift risks from the spraying of pesticides and other substances. Many conventional catfish farms are situated adjacent to such land uses. The organic facility would require a nutrient management plan that is not employed in conventional catfish production.

Effluent discharge. A significant difference from conventional catfish farming is the requirement for the effluent discharge to not exceed the assimilative capacity within 25 meters of the site boundary. In conventional catfish farming, most effluent quickly moves past this 25-meter zone. This requirement would require adding settling ponds or catchment areas to organic catfish farms.

Conversion to organic production. Existing catfish ponds would have to be fallow or operated organically for a period of one year before beginning organic production.

Feed. Soybean meal represents 40-50% of the typical catfish ration, and for organic catfish, all feed ingredients must be organic. Catfish feeds contain small amounts of either fishmeal and/or animal by-products; they also typically use a blend of wild fish and catfish oils to coat pellets. Under organic production, the fish meal and oil must be sourced under strict limitations, and the use of wild fish would be proscribed.

Antibiotics. In conventional catfish production, antibiotics are regularly administered during the fingerling stage to treat a variety of diseases. This use in fingerling production would be eliminated. In grow-out production antibiotic use would be completely eliminated (except for anticipated catastrophic losses, in which case the crop would be sold as conventional, and the pond would be removed from organic program for a year).

Algicides and herbicides. Several chemicals that are currently used regularly as algicides, herbicides, and therapeutants would be eliminated. For example, diuron is widely used to control algae that cause off-flavor, and its use would be eliminated. Copper sulfate is another widely-used algicide which use would be eliminated. Herbicides

used for weed control, and other common farm chemicals, would be eliminated. Eliminating the use of algicides would lower production rates in catfish ponds.

TILAPIA

In commercial aquaculture, tilapia are grown in a variety of systems including in earth ponds, in tanks in recirculating systems, and net pens. In each case water discharges must be managed under an Organic Farm Plan with a nutrient management plan to minimize environmental impacts.

With earth ponds location criteria as described for catfish above would apply and a one year conversion period may be necessary. The use of algicides and herbicides would be proscribed. For net pen culture in lakes and streams many of the same requirements as discussed above for salmon culture would apply.

Conventional tilapia culture practices involve the use of methyl- testosterone for sex reversal of small fish to obtain all male stocks. In organic production the use of this hormone would be proscribed. The inducement of triploidy is also prohibited.

In some growing systems, predator control is required. The OFP must include a detailed predator deterrence plan.

As in the other species described above, the proposed organic aquaculture standards would differ from conventional tilapia production with: (1) lower rearing densities; (2) use of certified organic feed ingredients; (3) no use of antibiotics and other medications; (4) lower levels of nutrients (metabolites and indigestible material) in effluent water through lower rearing densities and advanced settling and removal practices; and (5) humane slaughter practices.

SHRIMP

Virtually all shrimp consumed in the United States is grown in earth ponds. Therefore many of the features for organic management of catfish ponds apply to shrimp ponds.

In addition, under organic production as proposed, stocking rates would be much lower than for conventional production and thus feeding rates and nutrient load in the effluent would be lower than in conventional shrimp farming. The significant reductions in allowable fishmeal portions of the formulated feeds coupled with reduced stocking densities will encourage organic shrimp farmers to cultivate a healthy pond phytoplankton and zooplankton bloom to increase the natural biota that would decrease the use of off farm inputs. All of this would be well documented in the required nutrient management plan.

The proposed standards encourage the use of compost as a fertilizer thereby significantly reducing feed inputs from off-farm sources. In addition, compost utilization should play a significant role in the recycling wastes and nutrients from other organic farming operations as well as enabling local sourcing of feed and fertilizer inputs.

Under organic production, chemicals frequently used in conventional shrimp pro-

duction would be prohibited. Use of sodium bisulfate and tripolyphosphate would be prohibited.

Aquaculture Working Group
Aquatic Animal Task Force
October 6, 2006