

**FORMAL RECOMMENDATION BY THE
NATIONAL ORGANIC STANDARDS BOARD (NOSB)
TO THE NATIONAL ORGANIC PROGRAM (NOP)**

Date: November 19, 2008

Subject: Aquaculture – Net Pens and Related Issues

Chair: Rigoberto Delgado

Recommendation

The NOSB hereby recommends to the NOP the following:

Rulemaking Action: X

Guidance Statement:

Other:

Summary Statement of the Recommendation (including Recount of Vote):

After trying to resolve inherent incompatibilities between terrestrial and aquatic livestock, the NOSB realized the need to create an independent set of standards for aquaculture. Based on earlier proposals approved by the NOSB, and presented by the AWG, this recommendation includes regulation related to the specific aspects of health, facilities, and living conditions of aquatic livestock not included in a previous recommendation. The recommendation also includes a listing of terms defined. An adjustment to the structure of the National List related to aquatic agriculture is included also.

During the discussion and approval of the Aquaculture Working Group's proposed standards for finfish presented at the 2007 Spring meeting of the NOSB, it became clear that there was a need for further analysis and review on the allowance of net pens and related management issues in organic aquaculture. Consequently, the current recommendation seeks to modify that section from the rule language that had been originally recommended by the AWG. Stringent environmental considerations have been inserted for net pens in proposed sections § 205.254 Aquaculture living conditions and § 205.255 Aquaculture facilities.

NOSB Vote: **Motion:** Hubert Karreman **Second:** Jeff Moyer

Board vote: Yes - 10 No- 4 Abstain- 0 Absent - 1

Summary Rationale Supporting Recommendation (including consistency with OFPA and NOP):

This recommendation is a modification of the aquaculture recommendation passed by the NOSB at the Spring 2007 meeting, which see.

Response by the NOP:

**National Organic Standards Board (NOSB)
Final Recommendation**

**PROPOSED ORGANIC AQUACULTURE STANDARDS:
Net Pens and Related Management Issues**

November 19, 2008

Introduction:

For the past three years the NOSB with the assistance of the Aquaculture Working Group (AWG) has been in the process of introducing organic aquaculture standards under the umbrella of the livestock section of the Rule. After trying to resolve inherent incompatibilities between terrestrial and aquatic livestock, the NOSB realized the need to create an independent set of standards for aquaculture. Based on earlier proposals approved by the NOSB, and presented by the AWG, this recommendation includes regulation related to the specific aspects of health, facilities, and living conditions of aquatic livestock not included in a previous recommendation. The recommendation also includes a listing of terms defined. An adjustment to the structure of the National List related to aquatic agriculture is included also.

Background:

During the discussion and approval of the Aquaculture Working Group's proposed standards for finfish presented at the 2007 Spring meeting of the NOSB, it became clear that there was a need for further analysis and review on the allowance of net pens and related management issues in organic aquaculture. Consequently, the following section was modified from the rule language that had been originally recommended by the AWG.

NOSB Vote:

Moved: Hubert Karreman

Second: Jeff Moyer

Yes: 10

No: 4

Abstentions: 0

Absent: 1

Recommendation

This is a recommendation for rulemaking and to augment the previous recommendation on aquaculture approved by the NOSB on Spring 2007.

§ 205.2 Terms defined.

Livestock Any cattle, sheep, goat, swine, poultry, equine, or aquatic animals used for food or in the production of food, fiber, feed or other agricultural-based consumer products; wild or domesticated game; or other non-plant life, except such term shall not include bees for the production of food, fiber, feed, or other agricultural-based consumer products.

§205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling.

- (a) Synthetic substances and ingredients, except as provided in §205.601, §205.603, §205.609 or §205.611;
- (b) Nonsynthetic substances prohibited in §205.602, §205.604, §205.610 or §205.612;

§205.201 Organic production and handling plan

- (a) The producer or handler of a An organic production and handling system plan must include:
 - (7) Regarding aquaculture operations, the organic system plan for aquaculture systems should include:
 - (i) A map of the production area that indicates the boundaries of organically managed areas, adjacent natural areas, and non-organically managed areas that may influence the operation, and water circulation patterns.
 - a. The location of all known point and non-point sources of prohibited substances and other potential contaminants must be included on the map.
 - b. Locations of water sampling stations must be identified on the site map.
 - (ii) A description of the materials used for all types of structures.
 - (iii) Documentation of environmental conditions in the growing area, including water quality and land use in contiguous watersheds.
 - (iv) A description of a water quality monitoring program that indicates parameters measured, frequency of measurement, and location of sampling stations.
 - (v) A description of measures that will be implemented to minimize impacts of culture operations on aquatic ecosystems and wildlife, including discussions of:
 - a. Impacts of farm structures (if any), growing practices, and harvest methods.
 - b. Benthic deposition.
 - c. Estimates of nutrient flows, including recycling of nutrients from anthropogenic sources and adequacy of wild forage in the water column.
 - (vi) List of animal and plant species that use the habitat, including those designated as threatened or endangered. If threatened or endangered species are present, the plan must indicate how culture and harvest activities are in compliance with applicable laws that protect such species.
 - (vii) A description of biosecurity practices to prevent to the occurrence and spread of diseases or parasites.
 - (viii) A waste management plan that provides for:

- a. Reuse, recycling and proper disposal of nets, ropes, waste products, grade-outs and dead-stock.
- b. Composting or recycling of waste biological materials to the extent practicable.
- c. Control of offensive odors.

(ix) A schedule for surveillance and methods of removing accidentally released culture materials or equipment from beaches or natural waters adjacent to the culture site;

(x) A process for the resolution or mitigation of complaints, conflicts, and other multi-stakeholder issues.

(xi) An organic operation plan for an aquaculture operation using net pens must include the following:

- a. Justification for the location of the net pens including a detailed description of how the location minimizes impact to surrounding environment, limits waste accumulation, and minimizes impact to the migratory and reproductive patterns of local wild fish populations, other local species like predators and birds and any other flora or fauna.
- b. Nutrient management plan which describes waste management approaches, monitoring system for all nutrient inputs outputs and waste, and location of any and all farms or net pens in the vicinity that could impact, positively or negatively, the nutrient management process of the net pen seeking certification.
- c. A description of anti-fouling practices.

(b) A producer may substitute Requirements of this subpart.

(c) The annual review of the organic system plan shall consider incorporating new technologies for monitoring contamination when new technologies become available and can be used with reliable and consistent interpretation.

§ 205.237 Terrestrial Livestock feed.

§ 205.238 Terrestrial Livestock Health Care Practice Standard

§ 205.239 Terrestrial Livestock Living Conditions

§ 205.253 Aquatic Animals health care.

(a) The aquaculture producer must establish and maintain preventive health care practices that optimize animal welfare and minimize animal stress and pain by implementing the following procedures and practices:

- (1) provision of a source of nutrition inclusive of live and formulated feeds sufficient to meet minimum nutritional requirements, including vitamins, minerals, protein and/or amino acids, fatty acids, energy and other necessary dietary or nutritional components in compliance with §205.611 and §205.612;
- (2) maintenance of life-supporting water rearing conditions, including control of potentially toxic metabolic compounds (ammonia and carbon dioxide) within known physiological tolerance ranges for the species, and the maintenance of water temperature, oxygen concentration, and pH within known life-supporting values for the species and the prevention of extended excursions to stressful extremes. Efforts to maintain such conditions must be documented by a monitoring and record-keeping program for these and other species specific key water quality parameters that affect health. The frequency of such monitoring shall depend on the culture system, site, species, life stage, and environmental characteristics;

(3) establishment of biosecurity measures known to reduce risk of entry of pathogens into the aquaculture production system or between the aquaculture production system and wild aquatic animals. These may include such measures as allowing only entry of broodstock tested and found free of reportable pathogens, animal vector control, and limited human entry by use of fences or barriers and locked entry points. In recirculating systems sanitation procedures must include scheduled removal of accumulated particulate organic matter. Culture water used in the system must be from a source tested and determined free of reportable pathogens and free of known vectors of diseases or disinfected to remove such infectious disease agents. In open water systems, if animals are potentially exposed to known infectious agents, this risk may be mitigated if approved vaccines and vaccination procedures are available. Biosecurity measures should not be used to justify growing conditions that compromise aquatic animal health from elevated stress and associated immunosuppression;

(4) administration of vaccines, other veterinary biologics, and approved natural supplements, such as supplementation or treatment of healthy animals with beneficial bacteria, appropriate to the species and location in compliance with §205.611 and §205.612;

(5) medication records must be kept indicating materials used, rates and methods of application, and applications dates. Records need to identify all lots of aquatic animals treated. Records of medical treatment are required for all treatments and are not limited to substances in compliance with §205.611; and

(6) use of multiple species of plants and animals to reduce disease problems (including but not limited to cleaner fish that “groom” other fish), fowling (including but not limited to growing species of algae that can use the nutrient run-off from the net pen) is encouraged.

(b) When preventive practices and veterinary biologics are inadequate to prevent disease, a producer may administer synthetic medications, provided that such medications are allowed under § 205.611.

(1) parasiticides allowed under § 205.611 may be used on aquatic broodstock, but none that are to be sold, labeled, or represented as organically produced.

(c) The producer of organic aquaculture products must not:

(1) sell, label, or represent as organic any aquatic animal or edible product derived from any aquatic animal treated with antibiotics, any substance that contains a synthetic substance not allowed under § 205.611, or any substance that contains a nonsynthetic substance prohibited in § 205.612;

(2) administer any type of animal medication or therapy, other than vaccination, in the absence of illness;

(3) administer hormones for growth promotion, prevention of reproductive maturation, and sex reversal;

(4) administer synthetic parasiticides except as allowed under § 205.611;

(5) administer animal drugs in violation of the U.S. Food and Drug Administration regulations, and vaccines in violation of U.S. Department of Agriculture regulations; and

(6) withhold medical treatment from a sick animal in an effort to preserve its organic status. All appropriate medications must be used to restore an animal to health when methods acceptable to organic production fail. Lots of aquatic animals treated with a prohibited substance must be clearly identified by lot number and shall not be sold, labeled, or represented as organically produced. Except for earthen ponds not lined with impervious barriers, facilities containing aquatic animals during medical treatment are not required to undergo conversion periods specified in paragraphs (l) and (m) of § 205.255 Aquaculture facilities.

(7) Whether or not diseased fish are treated, they may not be sold as organic

§ 205.254 Aquaculture living conditions.

(a) Aquaculture systems must establish and maintain living conditions as documented in the Organic System Plan that accommodates the health and natural behavior of the aquatic animals, including:

- (1) an environment operated within the tolerance limits characteristic of the aquatic animal and stage of development by monitoring and maintaining water quality appropriate for the production system and species, including temperature, pH, salinity, photoperiod, dissolved oxygen, ammonia, and nitrite concentrations, without sudden changes or prolonged exposure to extremes; and
- (2) containment that allows the animals:
 - (i) to exercise swimming behavior within the culture unit;
 - (ii) minimal potential for injury, and.
 - (iii) appropriate population or biomass densities, as recommended by species, that promote natural behaviors and limits aggressive and dominant behaviors from other aquatic animals.

(b) A comprehensive integrated predator management plan, which employs non-lethal deterrents as a first course of action, shall be developed and implemented as part of the organic system plan. Any encounter with predators must be noted and reported to the ACA and inspector.

- (1) The culture system must be managed to minimize the risk of losses of cultured stock, stress to cultured aquatic animals caused by predators, and harm to predators.
- (2) Organic aquaculture facilities must develop an integrated Predator Deterrence Plan as described in the Organic System Plan that identifies potential predators, appropriate deterrence methods, how predator behavior will be modified by application of deterrence methods, documentation of 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. Examples of such control measures include but not limited to site selection, physical barriers, repellents, and legal predator deterrence methods.
- (3) Lethal measures may be taken only when predators threaten human safety or are necessary for predator welfare and must include appropriate documentation. Lethal measures must be in compliance with local laws and the laws of the United States. There is an absolute prohibition on predator mortality if the species is listed nationally or globally as vulnerable, endangered, or critically endangered (i.e. present on the International Union of Conservation in Nature (IUCN) red list)
- (4) Underwater acoustic deterrent devices of any kind shall not be permitted

(c) Non-organic aquatic animals may be used in aquaculture production systems for controlling pests, such as weeds, snails, algae, and parasites. Triploid animals may be employed provided that the animals are legal to culture, not labeled organic, and readily separated at harvest from the aquatic animals under organic management.

§ 205.255 Aquaculture facilities.

(a) Aquaculture facilities shall be designed, operated and managed in a manner that seeks to maximize the welfare and minimize the stress of cultured aquatic animals, and prevents the spread of disease within the facility and to all adjoining ecosystems and native fish species.

(b) Construction and operation of organic aquaculture facilities shall not compromise the structure and function of adjoining aquatic and terrestrial ecosystems as described in the Organic System Plan.

(c) Water sources for aquaculture facilities must be selected carefully and managed to avoid environmental contaminants that can harm human health.

(d) Facility boundaries shall be identified clearly.

(e) Organic aquaculture facilities shall provide buffers from potential contamination sources including pesticide drift and other possible contaminants from conventional aquaculture as documented in the Organic System Plan.

(f) Pond berms and tank tops shall be designed and constructed to prevent contamination from the environment during a 100-year flood event.

(g) Potentially adverse environmental impacts from aquaculture production must be minimized. The rate of effluent discharge must not exceed the natural assimilative capacity of an area within 25 meters of the site boundary. For the purpose of this paragraph, the “site” described in the Organic System Plan is an identified area of land or a water body owned or licensed or leased and managed as certified organic by the facility operator.

(1) The aquaculture facility must include a suitable waste management approach which must:

- i. Meet a performance target of recycling a minimum of 50% of nutrients (Nitrogen and Phosphorus).
- ii. Have discharge levels that meet all local, state, federal or territorial requirements for nutrient discharge into water way to minimize or even improve the immediate or surrounding environment.

(h) Every organic aquaculture facility must develop a Nutrient Management Plan that evaluates the technical and economic feasibility of options appropriate for the culture system to recover solid and dissolved waste nutrients in other plant and animal crops. Options may include using settled solids as a soil amendment, suspended solids to grow filter-feeding aquatic animals, and dissolved nutrients as a nutrient source for terrestrial crops or aquatic plants.

(i) Construction and operation of aquaculture facilities shall not impair water quality to require a change in the designated use of receiving waters and must not salinize or otherwise contaminate soils.

(1) Structures used in aquaculture production must not contain or be treated with prohibited materials, except as provided § 205.611 or § 205.612.

(j) Aquaculture facilities must be managed with all reasonable security measures (mechanical, physical, and biological barriers) with the goal of eliminating escapes caused by predators, adverse weather conditions (including floods), facility malfunction, facility damage, or other causes. Facilities must be operated with preventative measures against possible escapes into the natural environment of the aquatic animals in production. The Organic System Plan must describe measures to prevent escape, procedures to detect and document escapes should they occur, and actions to be undertaken in the event of escape.

(k) Open water net-pens and enclosures are permitted in situations where water depth, current velocities and direction, stocking densities, and other factors act to adequately disperse metabolic products in order to minimize any negative impacts on the environment in areas surrounding the pen location(s). Monitoring shall be employed to ensure that the natural assimilative capacity at the site is not overburdened and that performance standards and targets are met. An organic conversion period of at least one year, or one production cycle, whichever is less, shall be required.

(1) The net pens must be situated in such manner that avoid migratory routes of native species and do not disturb reproductive patterns of local wild fish populations, as well as the habits of other local species like predators and birds and any other flora or fauna.

(2) Only native fish of local genotype shall be cultured. Non-native species or native species with significant genetic divergence compared to wild stock (i.e. due to selective breeding or other processes), may not be certified as organic if produced in net pens. Operations with escapes greater than 0.5% of cultured stock (within any containment device) over the course of a grow out season shall have their organic status revoked.

(3) Net pen producers shall implement all practicable measures stated in § 205.253. Producers must implement measures to prevent transmission of diseases and parasites between cultured and wild aquatic animals and must:

- i. Site net pens in such a manner as to prevent contamination and disease from conventional fish pens or native fish populations taking into account factors like current and seasonal changes.
- ii. Consider buffer zones for other potential sources of contamination by any substances not allowed in organic production.
- iii. In salt water systems, keep records indicating salinity levels on a weekly basis.
- iv. Keep medication records indicating materials used, rates and methods of application, and application dates.

(4) Net pen producers shall implement all practicable measures stated in § 205.254

(5) Facility managers shall implement all practicable measures to minimize escapes and must have in place a protocol for monitoring and reporting on escapes.

(6) Net pen anti-fouling practices.

- i. Most anti-fouling on the nets should be a physical or biological control, or if it is chemical then it has to be listed on the national list of allowed materials specifically for that use.
- ii. Except as may be provided in § 205.609 through § 205.612, chemical treatment of bio-fouling organisms on nets is not allowed.
- iii. Copper based anti-fouling materials are prohibited from use

(7) Use of multiple species of aquatic plants and animals for recycling nutrients is encouraged along with pen rotation to allow for site regeneration.

- i. If species of aquatic plants and animals are used they must be native species or local genotypes.

(8) Farm level effluents and the potential influence of other aquatic farms must be shown not to exceed the natural assimilative capacity of the surrounding ecosystem.

(9) In all cases, benthic habitats surrounding net pens must be shown to not have significant measurable changes in chemistry and biodiversity.

(l) Production systems with direct soil-water contact are allowed, provided that a conversion period of 36 months occurs between the date of the last application of prohibited substances and the harvest of aquatic animals under organic management and intended to be certified organic.

(m) Production systems with containment units of plastic, fiberglass, metal concrete or other cleanable surfaces able to hold water are allowed, provided that the unit is filled with water to its capacity and then drained and cleaned before production can be certified organic.

(n) Recirculating systems are permitted if the system supports the health, growth, and well-being of the species, including:

- (1) stocking or biomass density appropriate for the particular species being produced to ensure animal health and overall well-being, including the natural behavioral characteristics of the species; and

- (2) the provision of emergency life support systems to provide appropriate maintenance of water quality, especially dissolved oxygen levels, in the event that primary life support systems fail.

§ 205.256 Aquaculture additional [Reserved].

§ 205.257 Molluscan shellfish [Reserved].

§ 205.609 Synthetic substances allowed for use in organic aquatic crop production.
[Reserved]

§ 205.610 Nonsynthetic substances prohibited for use in organic aquatic crop production.
[Reserved]

§ 205.611 – Synthetic substances allowed for use in organic aquatic livestock production.

In accordance with restrictions specified in this section the following synthetic substances may be used in organic aquatic livestock production:

a) As disinfectants, sanitizer, and medical treatments as applicable.

b) As topical treatment, external parasiticide or local anesthetic as applicable.

c) As feed supplements—None.

d) As feed additives.

(e) As synthetic inert ingredients as classified by the Environmental Protection Agency (EPA), for use with nonsynthetic substances or synthetic substances listed in this section and used as an active pesticide ingredient in accordance with any limitations on the use of such substances.

(f) Excipients, only for use in the manufacture of drugs used to treat organic livestock when the excipient is: Identified by the FDA as Generally Recognized As Safe; Approved by the FDA as a food additive; or Included in the FDA review and approval of a New Animal Drug Application or New Drug Application.

(g)–(z) [Reserved]

§ 205.612 Nonsynthetic substances prohibited for use in organic aquaculture livestock production.

The following nonsynthetic substances may not be used in organic aquatic livestock production:

(a) Fish meal and fish oil from wild caught fish and other wild aquatic animals, *Except* if produced from sustainable food grade fisheries or sustainably-managed forage fisheries and fed in the following step-wise levels: a maximum total of 25% during year 1 through 5 after this regulation is implemented, a maximum total of 15% during year 6 through 8, and a maximum total of 10% during year 9 through year 10, and a maximum total of 5% during year 11 and 12, with the percentages by weight of feed being averages over the production cycle of the aquatic animal.

(1) fish meal and fish oil may not be stabilized with synthetic stabilizers unless allowed on §205.611

(b)–(z) [Reserved]