

**The National Organic Standards Board
Aquatic Animal Task Force
Recommendation on Operations that Produce Aquatic Animals
May 30, 2001**

BACKGROUND and PURPOSE

The Organic Foods Production Act (OFPA) of 1990 authorizes the National Organic Standards Board (NOSB) to advise the Secretary of Agriculture on production and handling standards for organically produced agricultural commodities. The Secretary draws upon the recommendations of the NOSB in developing the standards of the National Organic Program (NOP). By including "fish used for food" in the definition of livestock, the OFPA also requires that any fish used for food that is labeled as organic must be raised in accordance with NOP standards. Therefore, any producer labeling a fish as organically produced must comply with all applicable requirements and restrictions for livestock production in the OFPA and the NOSB is responsible for advising the Secretary on standards for the production and handling of fish. To clarify the meaning of the term "fish", the NOP developed the term "aquatic animals" to refer to finfish and shellfish used for food either propagated in a selected, controlled environment (aquaculture) or taken from free ranging marine or fresh water populations (wild capture).

In recent years, there has been growing public interest in certification programs that address the production practices and environmental impacts related to the production of aquatic animals. As the OFPA authorizes the development of standards for aquatic animals, some of these certification programs have drawn upon organic practices and principles in developing their standards and several specifically identify the products they certify as organically produced. A number of individuals and organizations have presented testimony in support of organic standards for the production of aquatic animals at public meetings of the NOSB. Simultaneously, the implementation of standards for terrestrial animals in the NOP final rule has brought greater clarity and consistency to the meaning of organic livestock management in its entirety. In September 2000, the NOSB named six of its members to an Aquatic Animal Task Force to evaluate aquaculture and wild capture aquatic animal operations and to assess the feasibility of developing organic production and handling standards for their certification.

STRUCTURE and PROCESS

The Task Force determined that aquaculture and wild capture production systems were sufficiently unique to warrant separate consideration in the review process. The Task Force also concluded that it needed additional expertise to undertake a thorough analysis of the diversity of aquatic animal production systems under consideration. To address these concerns, the Task Force empanelled independent Working Groups on aquaculture and wild harvest production operations that included experts from the fields of fisheries management, production, marketing, and aquatic systems ecology. The Working Groups also included representatives from organic certification and marketing organizations. Each member of the Task Force was assigned to a Working Group and the chairs of the Working Groups were added to the Task Force. Recognizing that strongly divergent positions existed on numerous core issues, the Working Groups did not pursue consensus recommendations but opted for the fullest elaboration of alternative points of view. Beginning their deliberations in November 2000, the Working Groups engaged in an expansive dialogue over four months and presented their final reports at the NOSB meeting in Buena Park, CA in March 2001. The Task Force reviewed the Working Groups' findings and narrowed their recommendations to those contained in this report.

The Task Force has also drawn upon the work of the NOP to solicit public comment on organic certification standards for the production of aquatic animals. The two proposed rules for implementing the NOP (62 *FR* 65850 and 65 *FR* 13512) elicited numerous public comments on the feasibility of certifying aquatic animal production. Given the absence of consensus in these

preliminary comments, the NOP determined that a more focused analysis of the issues would be needed to facilitate the incorporation of standards into the NOP final rule. On March 13, 2000, AMS announced in the *Federal Register* plans to hold three public meetings to consider the certification of aquatic animal production. The announcement included a series of questions pertaining to wild capture and aquaculture production systems. AMS convened public meetings on April 10, 2000 in Mobile, Alabama, April 12, 2000 in Anchorage, Alaska, and May 3, 2000 in Providence, Rhode Island and received a total of 71 written and oral comments. AMS also participated in an organic certification workshop for wild capture operations in Seattle, WA on April 9, 2000 and the National Organic Aquaculture Workshop held at the University of Minnesota on June 23 and 24, 2000. Members of the NOSB attended each of these public meetings and workshops.

Finally, the Task Force took into consideration existing guidelines and standards applicable to the certification of aquatic animal production. The Task Force noted that the Codex Alimentarius Commission for the Production, Processing, Labeling and Marketing of Organically Produced Foods of which the United States is a member has determined that the products of hunting or fishing wild animals shall not be considered livestock under their guidelines. The Task Force also reviewed numerous existing certification programs that contain standards for organically produced aquatic animals. The Working Groups and Task Force also benefited from and greatly appreciate the insight and expertise of numerous individuals who produce, market, or study aquatic animals. Knowledge of how existing aquatic animal production systems function was indispensable in developing pertinent recommendations.

RECOMMENDATIONS

The development of standards for the production of aquatic animals represents a unique dimension of certification that will require careful consideration of the fundamental principles of organic management. The unique physiological and behavioral characteristics of aquatic animals make it impractical to develop standards by extrapolating from the requirements and restrictions that apply to terrestrial production systems. The OFPA provides the authority to develop standards for the production of aquatic animals and identifies the elements of a livestock production system that must be addressed in every organic system plan – livestock origin, feed ration, health care, living conditions, and identification. However, the OFPA does not contain provisions specifically intended for aquatic animals or address how standards developed from and for terrestrial systems should be applied to aquatic environments. Our intent has been to recommend standards for the production of aquatic animals that reflect an innovative approach to organic certification while remaining fully consistent with the statutory requirements of the OFPA.

A. Origin of Livestock

- Organically produced aquatic animals must be raised in a discrete population, similar to a herd of cattle or flock of poultry, that is brought under continuous organic management beginning no later than the second day of the animal's life.
- Aquatic animals captured from free ranging populations that have not been under a producer's continuous management beginning no later than the second day of the animals' life are not suitable for organic certification.

B. Livestock Feed

- Producers must provide organically produced aquatic animals with a total feed ration composed of agricultural products that are organically produced, except that nonsynthetic substances and synthetic substances included on the National List as feed supplements and feed additives may be used.

- Producers must provide organically managed aquatic animals with a feed ration consistent with the animals' natural dietary preferences.

Fish meal and fish oil should be added to the National List as allowed feed supplements for aquaculture production if the total content of fish meal and fish oil does not exceed 5 percent of the total feed ration.

C. Livestock Health Care Practice Standard

- Producers must establish and maintain preventive health care practices including selection of appropriate species, provision of a suitable feed ration, establishment of living conditions to allow for natural behaviors and stress reduction, and use of allowed medicines and vaccines as necessary.
- Producers may use temperature or pressure shock to induce triploidy in aquatic animals in their operation.

D. Livestock Living Conditions

- Organically managed aquatic animals must be raised within a secure, defined production system that accommodates the animals' health and natural behavior and minimizes the risk of escape.
- Producers must maintain healthy water conditions with respect to temperature, oxygen concentration, pH, and toxins including ammonia and carbon dioxide,
- Producers must maintain production systems, whether self-contained or located in open water, in a manner that does not contribute to the contamination of water or soil by nutrients, heavy metals, or pathogenic organisms. Producers should prioritize recycling of residual nutrients produced by the operation.
- Production systems located in open water must be sited and managed to minimize the potential for contact with prohibited substances including environmental pollution.

E. Identification

- Producers must maintain records sufficient to document the origin, feed ration, living conditions, and, as needed, health care practices applicable to each group of aquatic animals produced on their operation.

Discussion

The Organic Foods Production Act of 1990 (OFPA) is the statutory foundation for the certification of organic agricultural commodities. The Task Force developed its recommendations on aquatic animal standards for aquaculture and wild harvest production systems based on the ability of producers to comply with the livestock management requirements established in the OFPA. The requirements in the OFPA specific to livestock production are origin of livestock, feed ration, living conditions, health care, and identification.

Wild Capture Production Systems

Origin of Livestock

The first consideration in assessing aquatic animal standards for wild harvest production systems is to determine the point at which the OFPA requires a producer to select the animals produced on their operation. Some working group members maintained that the OFPA provides for a comprehensive interpretation of the term "fish" and that all aquatic animals, including those

spending their entire life in the wild, could potentially be organically produced. These members based their position on the conviction that organic production is derivative of natural systems and that aquatic animals sustainably captured in the wild that have, with reasonable assurance, been free from contact with prohibited substances should be considered organic. Proponents of this approach to certifying wild aquatic animal production cited the analogous provisions in the OFPA for the certification of wild crop operations. From their perspective, a producer is not responsible for intentionally introducing the animals that they ultimately capture if the production system in its entirety meets all applicable requirements for organic certification.

Other working group members stated that organic certification must reflect an intentional management system in which a producer establishes and manages a distinct group of animals from the earliest feasible stage of production. These members maintained that producers exercise no positive oversight over individual animals within populations of free ranging aquatic animals and can do nothing to prevent, or even detect, contact with prohibited substances. They asserted that the continuous oversight of organically raised aquatic animals must begin with the intentional selection of the animals being produced. They agreed that the OFPA does not require the introduction of the plants produced on a wild crop operation but maintained that the statute specifically restricts that provision to plants. These members concluded that only operations that introduce and continuously manage a discrete population of aquatic animals analogous to a herd of ruminants or flock of poultry are suitable for certification.

The Task Force concludes that the origin of livestock requirement in the OFPA mandates that a producer must be responsible for introducing the specific animals produced on their operation. This principle is reflected in the origin of livestock provisions in the NOP final rule: regardless of the age at which organic management begins, all animals are identified, assembled in a discrete, contained population, and managed under a producer's continuous oversight. These requirements are not satisfied in wild harvest systems in which a producer has no managerial responsibility or direct contact with the animal until the time it is captured. The Task Force did consider the special case of wild capture operations that include juvenile life stages of aquatic animals reared in and released from a hatchery. The Task Force supports using hatchery production in organic aquatic animal production but does not find that it adequately addresses the origin of livestock requirement in wild capture operations. Hatchery raised juveniles are typically used to support established wild populations and a producer capturing mature adults would be unlikely to distinguish the origin of a specific animal.

Livestock Feed

Section 6509(c)(1) of the OFPA requires that producers provide livestock "organically produced feed that meets the requirements of this title." The Task Force understands this provision to require that the producer must provide an adequate amount of feed materials appropriate to the species and that each component of the diet is an allowed material. Under the NOP final rule for terrestrial livestock production, any feed ingredient that can be organic – that is, feed materials that are agricultural commodities – must be organically produced. The NOP final rule also establishes two categories of nonorganically produced feed products – nonsynthetic, nonagricultural substances and synthetic substances included on the National List – that may be added to livestock feed. The feed provisions in the final rule, which are supported by the recommendations of the NOSB, establish that a producer must pro-actively supply the animals on their operation with a balanced and complete feed ration. The Task Force concludes that a producer who captures wild aquatic animals has no direct involvement in providing their feed materials and is incapable of fulfilling the managerial responsibility required by the OFPA.

Livestock Health Care

While health care practices in organic livestock production are predicated upon prevention of stress and illness, the need for natural and synthetic forms of intervention is well established. The

OFPA specifies several allowed and prohibited therapeutic practices, directs the NOSB to develop additional guidance, and includes livestock medications among the substances suitable for addition to the National List of allowed synthetics. The NOSB has crafted its recommendation on preventive health care practices to include provisions mandating the selection of appropriate species, allowing for the physical comfort and natural behavior of confined animals, and performing physical alterations in a manner that minimizes the animal's pain and stress. The NOP final rule incorporates these provisions and includes the requirement that producers cannot withhold treatment from a sick animal, even if such treatment resulted in the loss of its certification. In summary, organic livestock health care management mandates that a producer monitor the health of livestock and use a variety of therapies including natural and synthetic medications to promote livestock well being when the animal's welfare is in jeopardy. A producer capturing aquatic animals from the wild cannot perform either the pro-active or mandatory intervention responsibilities required in organic livestock health care management. The Task Force concludes that wild capture operations do not satisfy the health care management requirement established in the OFPA.

Livestock Living Conditions

The provision of livestock living conditions that are appropriate for the species of animal, the size of their population, and their stage of development are an integral consideration in organic livestock management. These considerations must also be addressed in the design of facilities used to temporarily confine livestock. The NOP final rule focuses on living conditions that allow animals to express their natural behavior by providing free movement, access to a suitable outdoor environment, and appropriate bedding and shelter. Some working group members contended that no living conditions could be more natural and therefore suitable to organic production than the open waters in which wild aquatic animals are born and mature. However, other working group members maintained that, as with the provisions for livestock origin and feed ration, natural systems do not equate to organic production. These members maintained that organic management requires that a producer intentionally engage in the production process by using practices and materials sanctioned by the OFPA. With regards to living conditions, this requirement entails establishing a distinct, defined space that provides livestock with appropriate shelter and mobility and protects them from prohibited practices and inputs. Since a producer of wild aquatic animals is not responsible for performing this task, they cannot fulfill the OFPA's managerial requirement to do so.

Livestock Identification

The OFPA requires that a producer maintain sufficient records to document that each animal or flock of poultry that he or she sells as organic was produced on their operation. The OFPA also requires producers to keep records on all feeds, feed supplements, and medications administered to livestock on the operation. Maintenance of a comprehensive audit trail is fundamental to the integrity and viability of certification. In principle, producers of wild captured aquatic animals are capable of documenting that a specific animal was captured at a given time and location and handled in accordance with the standards from that time on. However, such records do not provide consumers with an authentic management history since the producer had no direct involvement with the animal prior to its capture. By comparison, the records required under the NOP final rule document the source of the animal, when it was brought under organic management, and how it was fed, cared for, and housed, and slaughtered. The Task Force concludes that while a wild capture producer can document which animals were caught on their operation, such records do not fully convey the information that is required by the OFPA.

Summary of Wild Capture Production Systems

The Task Force concludes that operations that capture wild aquatic animals do not reflect the degree of producer management, continuous oversight, and discretionary decision-making that

are characteristic of an organic system. The regulated capture of aquatic animals from wild populations is unquestionably a managed system, but it does not afford producers the opportunities to exercise the specific production responsibilities that are required by the OFPA. Producing aquatic animals without violating the livestock origin, feed ration, health care, and living conditions requirements in the OFPA does not make for an organic production system. The inclusion of those requirements in the OFPA necessitates that they be pro-actively managed and that in doing so a producer intentionally choose materials and practices that are consistent with the standards. Since wild capture aquatic animal operations do not allow producers to make these essential decisions, the Task Force recommends that the NOSB not develop standards for the certification of aquatic animals captured in the wild.

The Task Force acknowledges the point of view that sustainable natural systems, as the functional model for organic production, could themselves be considered organic. However, the Task Force maintains that such an understanding obscures the continuous producer-level decision making that is essential to the meaningful differentiation of organic production. Advocates of certifying wild harvest aquatic animal operations argue that natural systems that are protected from deleterious human impacts (specifically unsustainable capture levels and contact with prohibited substances) should be certifiable. However, the Task Force does not consider those conditions to represent a sufficient degree of intentional producer oversight to differentiate between organic and nonorganic management. The Task Force believes that organic management must be predicated on the producer's site-specific application of a recognized standard reflecting allowed and prohibited practices and materials. The organic certification of wild captured aquatic animals essentially implies that entire ecosystems can be organic, whereas the OFPA places the boundaries for certification at the level of the operation.

As previously stated, the regulated capture of wild aquatic animals is a managed system, albeit one in which many critical management issues exceed the individual producer's influence. Although the Task Force concludes that organic certification is not appropriate for such systems, we recognize the increasing importance of providing consumers with the fullest and most accurate information possible on the production and handling of food. The Task Force encourages the wild harvest aquatic animal operations industry to explore other certification efforts outside of the National Organic Program that addresses areas of differentiation they want to highlight to consumers.

AQUACULTURE

Origin of Livestock

The production of aquatic animals in an aquaculture system begins with the introduction of juvenile life stages such as seed, gametes, fertilized eggs, fry, and smolts from one or more species. The Task Force concludes that the OFPA requires a producer to pro-actively select the animals that are organically managed on his or her operation. The Task Force recommends that juvenile life stages be brought under organic management no later than the second day of the animal's life. This "day old" standard is identical to the provision in the OFPA for using chicks from nonorganic operations in organic poultry production. Beyond the allowance for introducing day old animals reared on nonorganic operations, all juvenile life stages raised in hatcheries must be managed in compliance with organic standards. The intent of this recommendation is to allow the introduction of nonorganically managed aquatic animals but to require that they remain under continuous organic management beginning no later than the second day of life.

Livestock feed

How to apply the OFPA's feed ration requirements to the tremendous diversity of herbivorous, piscivorous (fish eating), and omnivorous diets found among aquatic animals was unquestionably the most challenging aspect of the deliberations on aquaculture. No other issue so clearly

illustrates the practical difficulty of adapting a statute that was drafted for the traditional species raised in terrestrial livestock operations to aquaculture production. Section 6509(c)(1) of the OFPA requires that producers feed livestock "organically produced feed that meets the requirements of this title." Under the NOP final rule for terrestrial livestock production, agricultural feed ingredients such as pasture, grains, and legumes must be organically produced. The OFPA's classification of aquatic animals as agricultural products necessitates that natural feed materials derived from them including fish meal and fish oil must also be organically produced. Since the Task Force is recommending against the certification of aquatic animals captured from wild capture systems, the vast majority of fish meal and fish oil that are currently used in aquaculture will be prohibited in organic production. The Task Force recognizes the consequences of this position for aquaculture operations that are dependent upon fish meal and fish oil but must adhere to an approach that is consistent with the OFPA and the final rule.

The Aquaculture Working Group gave extensive consideration to aquatic animal nutrition including the potential approaches to allowing fish meal and fish oil in organic production. The Working Group concluded that the fundamental requirement in organic feed management is to provide a balanced and complete feed ration exclusively composed of allowed materials that closely resembles the animal's natural dietary preferences. Applying this principle to piscivorous aquatic animals, they concluded that there is no allowable natural or synthetic alternative to a feed ration including appropriate amounts of protein derived from fish meal and fish oil. The Working Group determined that the complete substitution of protein derived from plants or terrestrial livestock for sources derived from aquatic animals is unacceptable for naturally piscivorous species. While agreeing up to this point, the Working Group split on the best way to address the inherent need for fish meal and fish oil in the diets of piscivorous species. One group supported creating a National List allowance for fish meal and fish oil in amounts appropriate to the dietary needs of a species provided that the feed material was produced from a sustainably managed fishery. The second group could not support an open-ended allowance for fish meal and fish oil but was open to allowing such materials as feed supplements provided that they did not exceed a certain percentage (5% was discussed) of the total feed ration.

The Task Force concurs that organic livestock producers must provide a complete, balanced, and naturally palatable diet and that this requirement mandates including fish meal or fish oil in the diets of piscivorous aquatic animals. While section 205.237 of the final rule requires agricultural components of the feed ration to be organically produced, it also allows nonsynthetic substances and synthetic substances included on the National List as feed additives and supplements. The Task Force recommends that up to 5% of the total feed ration may include nonorganic fish meal and fish oil as feed supplements to provide natural sources of amino acids and Omega 3 fatty acids. The Task Force recognizes that this recommendation will restrict the species of aquatic animals that can be raised organically. There is also potential for operations that manage algae blooms to raise herbivorous aquatic animals in a manner comparable to ruminants grazing on pasture. By-products of these herbivorous species raised on organic operations could provide a source of organic fish meal and fish oil for organically raised piscivorous species.

Health Care Management

The Task Force concludes that the preventive health care management principles outlined in the OFPA and reflected in the NOP final rule are readily transferable to aquatic production systems. Producers must document in their organic system plan that they have factored breed selection, feed ration, living conditions, and sanitation practices into a production environment that fosters pest and disease resistance among the aquatic animals they raise. The Task Force also supports the allowance for vaccines and veterinary biologics, natural therapeutic agents, and synthetic medications included to the National List in aquaculture production. Finally, the Task Force recommends allowing a producer to use temperature or pressure shock as a physical alteration to induce triploidy in aquatic animals. Triploidy can be an effective technique for inducing infertility

and can reduce the risk that aquatic animals that escape from confinement will establish feral populations.

Livestock Living Conditions

The Task Force identified three essential components in the requirements for livestock living conditions in organic aquaculture systems: the provision of a species appropriate production environment; the preservation of environmental quality in the surrounding ecosystem; and the continuous separation of organically and nonorganically managed populations of aquatic animals. The Task Force concludes that a producer must satisfy these requirements by maintaining a production system that restricts the movement of aquatic animals within fixed, recognized boundaries. These systems can include ponds, netpens, raceways, re-circulating systems, and other enclosed operations in which the producer is responsible for introducing the organisms and retains an active role in managing their development.

The determination of appropriate living conditions must be species-specific and the Task Force believes that the guidelines developed in the final rule for terrestrial species can be adapted to aquatic animals. Responsiveness to species' fundamental behavioral and physiological requirements must be the primary consideration in this determination. Evaluating the potential adverse environmental impacts of an organic aquaculture operation is both a species and site-specific determination. Of particular concern in aquatic systems is the potential for nutrients from undigested food and feces to move into the ecosystem. While it is preferable for systems to contain and recycle the nutrients they introduce in production, a completely closed loop is not possible on every operation, including terrestrial ones. The Task Force concludes that net pen systems that use polyculture with seaweeds, molluscs, or other organisms to capture excess nutrients may meet the requirements of an organic system. Recycling nutrients is central to organic farming, whether or not discharge of those nutrients would cause significant harm. Organic farm plans/standards require nutrient cycling in all organic systems regardless of the size of the operation. The Task Force also concludes that the potential for contact between prohibited substances and organically managed aquatic animals in open water netpen systems can be managed through monitoring included in the organic system plan. The prohibition on contact with prohibited substance, particularly those not intentionally introduced into the production process, contains some allowance for genuinely unavoidable and incidental contact. Finally, the Task Force concludes that livestock living conditions in organic aquaculture production must be adequately secure to prevent escape of aquatic animals to the wild or movement of nonorganically managed animals from the wild on to an operation producing a similar species.

Identification

The Task Force concludes that an aquaculture operation that complies with the recommended provisions for origin of livestock, feed ration, health care management, and living conditions can satisfy the identification and record keeping requirements in the OFPA.

MOLLUSC PRODUCTION

Systems currently used to produce molluscs such as oysters, scallops, clams, and mussels represent a synthesis of wild capture and aquaculture production systems. Mollusc production incorporates several of the elements characteristic of aquaculture that are also required in an organic livestock production system. For example, mollusc producers establish a selected population of juvenile animals on a production site with distinct boundaries that has been sited for its environmental suitability. Molluscs are filter-feeding animals that typically utilize naturally occurring microalgae for their nutritional requirements. While filter-feeding represents a natural process and can benefit the environment by cycling excess nutrients, it does not conform with the Task Force's understanding of the OFPA's requirement that producers provide livestock with an organically produced feed ration. Similarly, there appears to be little or no pro-active health

care management in the mollusc production once juvenile life stages leave the hatchery and become established on the operation. There does not appear to be any conflict between mollusc production and the identification requirements of the OFPA.

In considering the mollusc production as a complete system, the Task Force concludes that there is insufficient compatibility with the requirements of the OFPA to warrant the development of certification standards for such systems. The Task Force concludes that mollusc producers are not called upon to make a sufficient number of the management decision imposed by the statute nor could certification standards create significant differentiation between organic and nonorganic operations.