



660 PENNSYLVANIA AVE., SE, SUITE 302, WASHINGTON, DC 20003  
(202) 547-9359 • FAX (202) 547-9429  
2601 MISSION ST., SUITE 803, SAN FRANCISCO, CA 94129  
(415) 826-2770 • FAX (415) 826-0570  
WWW.CENTERFORFOODSAFETY.ORG

5 April 2006

National Organic Standards Board  
c/o Valerie Frances  
United State Department of Agriculture  
Room 4008 - South Building  
1400 Independence Avenue, SW  
Washington, DC 20250-0001

CC: Via E-mail: NOSB.Livestock@usda.gov

**Comments on the “Interim Final Report”  
of the Aquaculture Working Group (Winter 2006)**

Pursuant to the notice posted on the National Organic Standards Board (NOSB) web page, the Center for Food Safety (CFS) submits the following comments on the “Interim Final Report” of the Aquaculture Working Group (Report).<sup>1</sup> CFS is a non-profit, membership organization that works to protect human health and the environment by curbing the proliferation of harmful food production technologies and by promoting organic and other forms of sustainable agriculture. See generally <http://www.centerforfoodsafety.org>.

**Problems Associated With Industrial Aquaculture**

Fish farming is the fastest growing food production sector in the world. In the U.S., almost all of the catfish and trout and close to half of the salmon and shrimp sold to consumers are grown in aquaculture facilities. Since 1989, the aquaculture industry has increased significantly, particularly the Atlantic salmon sector, growing by 468 percent between 1989 and 1998. Altogether, there are more than 100 fresh and marine water species that are being grown under intensive farming practices. The growth of the aquaculture industry is encouraged by the government and is expected to dramatically increase over the next few years.

---

<sup>1</sup> See NOSB, Aquatic Animal Task Force available at <http://www.ams.usda.gov/nosb/AquaticAnimalsTaskForce/AquaticAnimalsTaskForce.html> (last visited March 30, 2006).

Unfortunately, the rapidly expanding aquaculture industry is already degrading and destroying entire aquatic ecosystems. Ecological impacts of industrial aquaculture include the destruction of fish biodiversity through the invasion of non-native farmed fish species, the spread of several pernicious fish diseases, and significant harm to federally protected marine mammals and birds. Additionally, the consumption of aquaculture-bred fish is raising serious human health and food safety concerns. Some of the human health concerns include the over-use of antibiotics and pesticides and the accumulation of toxins in farm raised fish. These problems will only escalate as the aquaculture industry expands.

Indeed, the impacts associated with industrial aquaculture are rapidly escalating as fish farming has quickly expanded without adequate federal oversight. There are already approximately 4,000 aquaculture facilities throughout the U.S. The types of facilities used range from net pens to ponds to enclosed land based systems. Each of these types of facilities are causing environmental and human health problems because of the lack of minimum national regulatory standards.

The problems with the use of net pens have been widely publicized in the media. Repeatedly, farmed fish grown in net pens are escaping and interacting with native species. For example, in the Northwest, approximately 600,000 farm raised Atlantic salmon have escaped. Although Atlantic salmon are not native in the Pacific Ocean, these fish are surviving and successfully reproducing among the many species of endangered Pacific salmon. Frequently, Pacific coast fishermen catch Atlantic salmon. On the East Coast, the number of farm raised Atlantic salmon that escaped from net pens last year is 1,000 times the number of documented wild Atlantic salmon. The Fish and Wildlife Service reports that 25-40 percent of the fish in the North Atlantic Ocean originated from aquaculture.

The large numbers of farmed fish invading our oceans is having a significant and profound impact on the biodiversity among wild fish species. Most farmed fish are not native to the area and are bred to be larger with smaller fins and more aggressive. When farmed fish mate with native fish, they affect the genetic integrity of the wild species by reducing the level of fitness. In addition, farmed fish compete with native species for habitat and food and spread diseases to the wild fish species. As a result of farmed fish frequently escaping from net pens, fish populations are suffering. During the recent listing of Atlantic salmon as an endangered species, the National Marine Fisheries Service/Fish and Wildlife Service identified the Atlantic salmon aquaculture facilities as one of the reasons for the decline of the wild species.

As for the farmed fish that do not escape, the aquaculture practices used to produce and maintain these fish are contributing to the problems currently impacting the marine environment. For example, to grow carnivorous fish, such as salmon, requires the taking of a large number of wild fish for fishmeal. In many cases at least three pounds of wild fish are taken from the oceans to feed and produce one pound of farmed fish. Rather than alleviating pressure on wild fish species, aquaculture is further exacerbating the problem of over fishing. Moreover, aquaculture is contributing to the mortality of federally protected marine mammals and migratory birds. These fish predator species are attracted to the easy meal of fish contained in the net pens. As a result, these animals either become entangled in the netting and drown or killed by the aquaculture facility.

Fish farming also affects water quality. Nutrient and organic waste, such as excess feed and fish waste, is discharged directly into the nation's waterways from net pens, ponds, and contained facilities. Some of the harmful effects include toxic algae blooms, fish kills, and death of sea grasses and corals.

Once farmed fish reach the market, there are numerous human food safety issues that are currently being inadequately addressed. Unfortunately, many consumers are unaware that they are exposing themselves to greater health risks by consuming farmed fish as opposed to wild caught fish. Farmed fish are exposed to a variety of chemicals, including antibiotics to combat disease. By eating farmed fish treated with antibiotics, consumers are ingesting antibiotics that may be toxic and even cause fatal allergic reactions. The use of antibiotics in aquaculture also exacerbates the significant problem of antibiotic resistant bacteria. Bacteria that are resistant to antibiotics can harm human health by preventing the effective treatment of illness.

In addition, farmed fish have as much as four times the fat as wild fish. As a result of this higher fat content, farmed fish accumulate higher levels of dioxins, PCBs, and pesticides. The U.N. Food & Agriculture Organization (FAO) cautions that the risks of contamination from chemical and biological agents are far greater in farmed fish. These toxins can harm children by reducing cognitive function and lowering resistance to infection and can decrease fertility in adults.

For over twenty years, aquaculture has been promoted as a method of seafood production that will alleviate the over fishing pressure on wild fish stocks and meet the U.S. increasing seafood demands. Unfortunately, the federal government has encouraged the rapid growth of this sector of food production without requiring the aquaculture industry to follow environmentally sustainable regulations. As a result of this lack of federal oversight, fish farming is contributing to the decline of our oceans, rivers, and estuaries and subjecting unknowing consumers to potential health risks.

The development of national organic standards for aquaculture can go a long way toward reversing the environmental and human health impacts associated with current industrial aquaculture production methods. Applying the holistic approach of organic system management to aquaculture can yield significant reductions in the aforementioned impacts. To name a few, it can minimize the environmental impacts associated with facility siting, ensure that feed requirements are sustainable, provide for integrative approaches that protect and enhance biodiversity, and improve the quality and safety of food products through the prohibition of dangerous inputs such as antibiotics and pesticides. In order to realize these benefits, however, the resulting organic aquaculture standards must be stringent and reflect a primary commitment to developing low impact and sustainable production methods. The economic benefits to organic producers should be viewed as secondary and will only be realized and sustained if consumers know that their price premium-based purchases truly yield the environmental and human health benefits touted by the organic industry.

### **Specific Comments on the Draft Proposed Organic Aquaculture Regulations**

CFS believes that there are number of areas in which the current proposal can be tightened and made more rigorous, especially in the areas of biodiversity protection and conversion time frames, so that the standards maintain the integrity of organic production and handling principles and that consumers are presented with a product worthy of a premium price and their expectations.<sup>2</sup> Accordingly, CFS provides

---

<sup>2</sup> See NOSB, Final Recommendation: Principles of Organic Production and Handling (Oct. 2001).

the following suggestions and comments:

### **Proposed Amended § 205.2, Definition of “Livestock.”**

Regardless of the paper’s explanation, as proposed, the definition of livestock is inconsistent with text of the Organic Foods Production Act (“OFPA” or “Act”). Report at 6. The Act defines livestock as “any cattle, sheep, goats, swine, poultry, equine animals for food or in the production of food, fish used for food, wild or domesticated game, or other nonplant life.” 7 U.S.C. § 6502 (11). The Working Group’s proposed regulatory definition of livestock broadens the term “fish” as used in the Act to include “aquatic animals.” “Aquatic animals” is then later defined to include “finfish, mollusc, crustacean or other aquatic invertebrate.” The legislative history of the Act does not provide any indication that Congress meant to expand the term “fish” to include other “aquatic animals.”<sup>3</sup> The common definition of “fish” means “an aquatic animal” (not all) and “any of numerous cold blooded strictly aquatic craniate vertebrates that include the bony fishes.”<sup>4</sup> The correct legal test is not whether the regulation includes “fish” within the scope of the livestock definition but whether the regulatory definition is consistent with the one Congress legislated, and, as proposed it is not consistent.

To be consistent with the OFPA the proposed amendment should read:

Livestock. Any cattle, sheep, goat, swine, poultry, equine animals, or ~~aquatic animals~~ fish used for food or in the production of food, fiber, feed, or other agricultural-based consumer products; wild or domesticated game; or other nonplant life.

If producers seek to include additional aquatic animals, such as molluscan shellfish, they should seek amendment to the Act. Throughout this comment, CFS uses the term “fish” instead of “aquatic animal” so as to be consistent with the text of the OFPA.

### **Proposed § 205.250. Aquaculture General.**

Subsection (5) - As written, proposed §205.250 suggest that facilities have a negative duty not to cause a vague notion of “significant harm” to the environment. Any aquaculture facility must comply with the laws of the United States. This should mean that a aquaculture facility can do no “significant harm” to the waters of the United States or it would be in violation of the Clean Water Act, Endangered Species Act. CFS believes that in order to garner organic status any aquaculture facilities should fulfill a positive duty, a higher standard, to the environment. Mitigation of all environmental adverse effects should be a ground floor organic aquaculture as well as ensuring the survival of all affected wild stocks or other species in the ecosystem of the facility. The facilities should fulfill the goal/duty of helping to

---

<sup>3</sup> See Sen. Rep. 101-357 at 292 (only reference in original OFPA legislative history is that USDA and NOSB “develop standards for aquaculture products.”).

<sup>4</sup> Merriam-Webster’s Collegiate Dictionary, 11<sup>th</sup> Ed. (2004).

provide for the recovery of any threatened wild stocks in the ecosystem and the recovery of any struggling or damaged ecosystem it affects. Accordingly, CFS believes that subsection (5) should be amended to reflect this standard.

Biodiversity of natural aquatic ecosystems, functional integrity of aquatic environments, and the quality of surrounding aquatic and terrestrial ecosystems must be protected. Wherever possible, facilities must be designed and operated to enhance biological diversity, mitigate environmental harm, and improve recovery of wild fish stocks. All aquatic animals possessed and grown in an aquaculture facility must be in compliance with all applicable local, state, and national laws.

Additional subsections - Proposed section § 205.250 should add several other important principles concerning disease prevention and feed. CFS recommends the following additions:

(8) Aquaculture facilities shall be designed, operated and managed in a manner that prevents the spread of disease within in the facility and surrounding ecosystems and to native fish species.

(9) All feed and feeding practices must be consistent with organic principles including the use of organic feed that is derived from environmentally sustainable sources.

### **Proposed § 205.251. Origin of Aquaculture Animals.**

Subsection (a). - The proposed standard for when organic management begins is vague and too discretionary as written. In particular, as proposed the language “or beginning no later than when 5% of total market weight has been achieved” does not provide a consistent standard as to when organic management begins and leaves the time frame for the instigation of organic management solely up to the aquaculturist. Such a regulation creates a potential loophole for misinterpretation and could allow aquaculturists to forego initiation of organic management standards for a significant period of time.

First and foremost, “total market weight” is not defined in the regulation leaving the term open to interpretation; Does the term mean the weight or size of a fish when it is first marketable in any fashion? Does the term refer to some “objective” industry guidance of the preferred weight or size for marketability?

Second, the explanation table provided for the 5% total market weight standard provides no additional clarity. The table is provided “for information purposes only” and “does not mandate specific weights at which organic management must begin.” As a result, the regulation as a whole would allow a producer to arbitrarily judge when 5% of total market weight is achieved so as to begin organic management. Allowing such an arbitrary exercise of judgment is contrary to the goals of creating a common, consistent organic standard and will invite abuse.

Consistent with the provisions for non-fish livestock found at 7 C.F.R. § 205.236, the regulation should be purely temporal in nature and provide that organic management should begin no later than two days after the beginning of exogenous feeding.

(a) Aquatic animals grown in aquaculture to be sold as organic must have been under continuous organic management beginning no later than the second day after the beginning of exogenous feeding, ~~where applicable by species, or beginning no later than when 5% of total market weight has been achieved, whichever is greater. However, in either case,~~ Substances prohibited in §205.602 and §205.604 are not allowed during earlier life stages;

Subsection (f) - CFS does not believe that use of sex-reversed broodstock should be used for development of monosex stocks. Allowance of the use of such broodstock will mean that organic production still is encouraging treatment of broodstock with steroidal or other hormones. Encouraging use of such substances in any manner is inconsistent with the principle of organic production which where possible emphasizes the “use of cultural, biological, and mechanical methods, as opposed to using synthetic materials to fulfill specific function within” organic systems.<sup>5</sup>

Subsection (h) - CFS strongly agrees that the use of genetic engineering and cloning techniques are incompatible with organic production. To further ensure this prohibition, the subsection should be amended to be consistent with the existing regulations and read:

Cultivation of ~~genetically modified aquatic animals~~ fish and plants created through the use of excluded methods are is prohibited.

Subsection (i) - The subsection should be amended to ensure that any determination that hatchery progeny are not “commercially available” must be a determination that is made in a manner consistent with the existing and/or to be implement (consistent with recent amendments to OFPA) regulatory requirements for “commercially unavailability” determinations. See Sec. 797, H.R. 2744 (FY ‘06 Agricultural Appropriations Bill amending, inter alia, 7 U.S.C. § 6517(d)) Furthermore, as envisioned the term “sustainable manner” is far too vague and provides no standards upon which judge the compatibility of particular collections of wild fish for use as broodstock. This could corrected by adding specific criteria for the making of any such a “sustainability determinations” to the new commercial availability regulations.

### **Proposed §205.252. Aquaculture feed.**

The Center for Food Safety does not believe that wild caught fish should be certified as organic and, in this context, does not support the adoption of Option A. Nevertheless, should Option A be used CFS has the following comments:

---

<sup>5</sup> See NOSB, Final Recommendation: Principles of Organic Production and Handling (Oct. 2001).

## **Option A**

Subsection (f). Use of Third Party Accreditation - If the regulations are going to allow wild caught fish meal and fish oil to be certified then CFS recognizes the positive intent of seeking to ensure “organic” wild fisheries are managed sustainably. As envisioned, the proposed regulation would require the NOP to recognize the Marine Stewardship Council (MSC) or others as the third party accreditors of certifiers that certify as to as yet established “sustainability” criteria for the first tier of creating acceptable wild caught organic fish meal. While the MSC accreditation is designed to be consistent with the ISO 17011, the USDA would have to establish a means of recognizing third party accreditation, such as the MSC, before implementing such a regulation. See generally, [http://www.msc.org/html/content\\_464.htm](http://www.msc.org/html/content_464.htm) (MSC accreditation). Absent such a step, this subsection is unworkable because this directly confronts the NOP’s current refusal to recognize third party accreditors of organic certifiers.

Subsection (g) - CFS would strongly support the requirement of a 1:1 feed to fish ratio so that any use of wild fish for organic feed is done without damaging the sustainability of the feed fishery and ensures the long-term future of the feed fishery.

## **Options A/B**

Subsection (k)/subsection (h). Contaminants.- CFS accepts the use of the term “unavoidable residual environmental contamination” which is “background levels of naturally occurring or synthetic chemicals that are present in the soil or present in organically produced agricultural products that are below established tolerances.” 7 C.F.R. § 205.2. However, CFS finds that the use of the term “unavoidable” places an affirmative burden upon fish feed producers to avoid contaminants. As such, the regulation should be amended to be consistent and state:

Contaminants ~~may~~ must be removed from fish oil to the maximum extent possible with activated carbon or with any process using water as a solvent.

Additionally, the draft report makes the incredible assertion that § 205.671 of the Final Rule is “not applicable for aquaculture since tolerance levels established by the US Environmental Protection Agency are generally for pesticide levels in terrestrial crops.” Report at 13. This statement is not only erroneous, but suggests an intentional deflection of the health issues posed by environmental toxins in fish. The committee members are assuredly well versed in the fact that the EPA has a long history of assessing the presence of environmental toxics in fish in order to assist states in their release of advisories limiting or avoiding consumption of certain fish. To ignore this data and dismiss EPA’s monitoring role borders on gross negligence.

As with pesticides, the EPA’s toxicology and data on fish should provide a framework for establishing situations where § 205.671 is applicable to fish when the presence of unavoidable residual environmental contaminants reaches certain levels. For example, the EPA recommends that a person eat only one 8 oz. meal of fish per month when the fish tissue PCB concentration is between 0.024 and 0.048 ppm,

wet weight.<sup>6</sup> At a minimum, the organic standards should amend § 205.671 by adding a provision as follows:

When residue testing in fish detects unavoidable residual contaminants at levels that are greater than Environmental Protection Agency recommended monthly fish consumption limits established for consumption of one fish meal per month, the fish product must not be sold, labeled or represented as organically produced.

Subsection (l)/subsection (i). Pigmentation - CFS believes the only pigmenting compounds that should be allowed are those that are derived from agricultural products that have produced and handled in a manner consistent existing organic regulations. Additionally, in order to avoid misrepresentation to consumers, the use of such pigmentation should be disclosed on the labels of all end products. The use of the term “source” is vague and should be clarified. Amend as follows:

Organic sources of Only pigmenting compounds processed from agricultural products that have been produced and handled in accordance organic requirements and allowed by the U.S. Food and Drug Administration for inclusion in aquaculture feeds may be used. Use of such pigmenting compounds must be disclosed on the principal display panel of all raw or processed aquaculture products labeled “100% organic,” “organic” and “made with organic.”

Subsection (n)(7)/ subsection (k)(7) Genetically Modified Organisms.-CFS finds the exclusion of genetically engineered organisms essential to organic certification.<sup>7</sup> In addition, the proposed regulation should be amended to be consistent with the language used in other places of the National Organic Program regulation and state “genetically modified organism or any other excluded method or product thereof . . .” The excluded method definition is broader than genetically modified organisms and provides a broader protection, for example, against the use of cloned fish. See 7 C.F.R. § 205.2 (defining “excluded methods”).

(7) use any genetically modified organism or any other excluded method or product thereof as a feed ingredient; or

Subsection (n)(3)/subsection (k)(3). Use of Mammalian and Poultry Slaughter By-Products - CFS recognizes that the current organic livestock regulations prohibiting the feeding of mammalian or

---

<sup>6</sup> See EPA, Polychlorinated Biphenyls (PCBs) Update: Impacts of Fish Advisories available at <http://www.epa.gov/ost/fish/pcbs.pdf> (last visited Mar. 29, 2006)

<sup>7</sup>See generally Center for Food Safety, “Genetically Engineered Fish” available at <http://www.centerforfoodsafety.org/geneticall3.cfm> (last visited Apr. 3, 2006) (containing numerous associated web pages detailing the scientific literature concerning the potential devastating environmental impacts associated with genetically engineered fish).



poultry slaughter by-products to mammals or poultry and greatly reduce the risk of transmissible spongiform encephalopathies (TSEs) in organic livestock. See 205.236(b)(5). However, the Working Group's discussion of the byproducts issue errantly suggests that "no compelling scientific rationale" exists to support the prohibition on byproduct use in aquaculture. As early as 1997, prions were detected in spawning salmon.<sup>8</sup> Research on whether feed containing BSE infected material can cause species transfer of TSEs to farmed fish remains a question being researched.<sup>9</sup> The United Kingdom feedstuffs regulation prohibits the feeding of "processed animal protein (includes mammalian meat and bonemeal, poultry meal, feather meal etc)" and "gelatine from ruminants" to non-ruminant farm animals including fish.<sup>10</sup> As a result, CFS believes that the aquaculture standards should take a precautionary approach and remain consistent with the feeding standards for other organic livestock. CFS supports the proposed regulations that bans the use of mammalian and poultry slaughter by-products.

### **Proposed §205.253 Aquaculture Health Care**

In most places the proposed regulations mirror and, in some places, strengthen the livestock provisions found at 7 C.F.R. §205.238. In particular, CFS supports the absolute prohibition on synthetic parasiticides contained at proposed subsection (c)(4).

Subsection (a) - CFS notes that provisions (a)(5) & (6) should be read to require that the conditions and physical accommodations should be developed on a species specific basis.

Subsection (c) - CFS also believes that prohibition on hormones should be extended beyond growth hormones so that hormones are not allowed in the production of sex-reversed brood stock used to produce monosex stocks. The subsection should be amend as follows:

(3) Administer hormones for growth promotion, prevention of reproductive maturation and sex reversal.

### **Proposed §205.254 Aquaculture Living Conditions**

Subsection (a) - CFS supports this provision and believe the provision should be interpreted to prevent

---

<sup>8</sup> CJ Gibbs and CL Bolis, Normal Isoform of Amyloid Protein (PrP) in Brains of Spawning Salmon, Mol. Psych., 2:2, 146-47 (1997).

<sup>9</sup> D. Matthews and BC Cooke, The Potential for Transmissible Spongiform Encephalopathies in Non-Ruminant Livestock and Fish, Rev. Sci. Tech. Off. Int. Epiz., 22:1, 283-296 (2003).

<sup>10</sup> See DEFRA, "Guidance Note on Feed Controls in the Transmissible Spongiform Encephalopathies Regulations 2006" available at <http://www.defra.gov.uk/animalh/bse/animal-health/feedbanguide.pdf>

the use of anadromous fish from being used in any organic aquaculture systems that does not allow such species to migrate and spawn per their natural behavior.

Both subsections (A)(1) & (2) should be amended to reflect that in establishing such systems the conditions must reflect a species specific approach.

Subsection (b). - The proposed provisions concerning predation loss are not integrated into the organic regulations requirements for greater biodiversity planning. The existing regulations define organic production as a production system that fosters conservation of biodiversity. 7 C.F.R. § 205.2 (defining “organic production”). The NOP has stated that:

Many commenters stated that the final rule should include a definition of "organic production" that required that certified operations must preserve or protect biodiversity. These commenters stated that the preservation of biodiversity is a requirement in many existing organic certification standards, including the Codex guidelines. They also stated that the NOSB had included the requirement to preserve biodiversity in its definition of organic. We agree with the intent of these comments but prefer the term, "conserve," to "preserve" because it reflects a more dynamic, interactive relationship between the operation and biodiversity over time. We included a definition for organic production as "a production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity." 65 Fed Reg. 80548, 80550 (December 21, 2000)(emphasis added).

To that end the NOSB has recommended specific use of biodiversity planning in organic plans.<sup>11</sup> The aquaculture regulations must be clear that all predator deterrence plans must be consistent with the organic principle and aim of conserving biodiversity. Accordingly the regulation should be amended as follows:

The culture system must be managed to minimize the risk of losses of cultural stock and stress to culture aquatic animals caused by predators. Organic aquaculture facilities must develop an integrated predator deterrence plan that identifies potential predators, appropriate deterrence methods, how predator behavior will be modified by application of deterrence methods, contingencies for failure to achieve objectives, ~~and~~ documentation of control method and effects and how such plans are consistent with the goal of conserving biodiversity.

### **Proposed §205.255 Aquaculture Facilities**

Subsection (a). - The language is far too discretionary. The use of language “shall take into

---

<sup>11</sup> See NOSB, Modification of Organic System Plan <http://www.ams.usda.gov/nosb/FinalRecommendations/Aug05/OrganicSystemPlan.pdf>.

consideration” would allow an aquaculture facility to be sited anywhere so long as there is some minimal look at the environment of the proposed site. Such a cursory look would not be consistent with the environmental ethic at the core of the organic standards. The provision should take concrete steps to ensure that the locating of an aquaculture facility does not harm the surrounding aquatic and terrestrial ecosystems. The provision should also be consistent with CFS’s proposed amendments to § 205.250 that seek to enhance the recovery and preservation of existing wild fisheries. Additionally, there should be an outright prohibition about locating facilities in marine protected areas, critical habitat for endangered species or other sensitive areas. Accordingly, the language should be amended to read:

Location of organic aquaculture facilities ~~shall take into consideration~~ must ensure the maintenance of the aquatic environment and surrounding aquatic and terrestrial ecosystem. ~~Siting of such facilities should support and enhance the restoration or recreation of self-sustaining functioning wild fisheries, and the preservation of high-quality and threatened wild fisheries. No facilities can be located in marine protected areas, critical habitat for endangered species or other areas protected or preserved under federal, state or local law for the purpose of maintaining the natural environment.~~

#### Subsection (k)

##### 1. Use of Open Water Net Pens Should **Not** Be Permitted

CFS strongly opposes the provisions allowing for the use of open water net-pens. Regardless of containment management plans, open water net pens are highly susceptible to breakage and breach and it must be assumed their use means escape of non-native fish. As demonstrated by the current use of ocean pens for aquaculture, the accidental release of fish is considerable. Indeed, on average, 15% of farmed fish escape.<sup>12</sup> In 1990, approximately four million fish escaped from a fish farm in Norway.<sup>13</sup> Recently, over 170,000 farm raised salmon escaped from a net pen after a storm in Maine.<sup>14</sup> The Fish and Wildlife Service reports that “25-40% of the fish in the North Atlantic Ocean is of aquaculture origin.”<sup>15</sup> Weather, human error, and marine mammal and bird attacks all contribute to the release of fish from ocean pens. Recognizing that fish repeatedly escape from net pens, the Council on Environmental Quality has been stated that it “must be assumed that escapes will occur” from net

---

<sup>12</sup> Eric Hallerman & Anne Kapuscinski, Ecological Implications of Using Transgenic Fishes in Aquaculture, 194 ICES Mar. Sci. Symp. 56, 59 (1992)

<sup>13</sup> Walter Gibbs, Fish-Farm Escapees Threaten Wild Salmon, N.Y. Times, Oct. 1, 1996 at C4.

<sup>14</sup> Catastrophic Salmon Escape Prompts Calls for Moratorium on the Aquaculture Industry, available at <http://www.clf.org/hot/20010223.htm> (last visited Apr. 2, 2001).

<sup>15</sup> Fish and Wildlife Service, Biological Report on the Status of Atlantic Salmon: Threats to Wild Salmon, available at <http://news.fws.gov/salmon/asalmon75.html>. (last visited Apr. 10, 2000).

pens.<sup>16</sup>

Once cultured fish, organically managed or otherwise, escape from ocean pens, endangered species and species approaching “endangered species” status will likely be severely impacted. The rapidly decreasing fish population levels are evident in a recent study showing that there are 82 species of fresh water fish in North American waters that are near extinction.<sup>17</sup> Moreover, the number on the endangered species list has reached 114 and includes populations of the chinook, chum, coho, and sockeye salmon.<sup>18</sup> Even the number of Atlantic salmon have dramatically decreased leading the Department of Interior and Department of Commerce to list this species as endangered under the ESA.<sup>19</sup> These agencies stated that one of the reasons for the decline of this species is due to aquaculture because farmed fish can spread diseases to wild Atlantic salmon and when farmed fish escape they can affect the genetic integrity and compete with Atlantic salmon for habitat and food.<sup>20</sup>

Given the fragile state of fish populations and aquatic ecosystems, allowing organic fish in ocean pens will likely contribute to the further devastation of the Atlantic salmon and other fish populations. Already, introduced non-native fish from aquaculture facilities are believed to have contributed to the decline of eight fish species listed under the Endangered Species Act.<sup>21</sup> Regulations that may exacerbate such a situation are inconsistent with the goals of organic production and with the protection of biodiversity asserted in proposed §205.250(5).

## 2. Conversion Period of One Year is Not Supported

CFS opposes a proposed conversion period of one year or less. Land based production systems require a three year conversion period and aquaculture facilities should meet the same standard. See 7 C.F.R. §205.202. No rationale is given as to why aquaculture facilities should face a reduced transition. This section should be amended to read:

---

<sup>16</sup> Case Study No. 1., Growth-Enhanced Salmon, in CEQ and OSTP Assessment: Case Studies of Environmental Regulations for Biotechnology, at 23 (Jan. 2001).

<sup>17</sup> J.A. Musick, et al, Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America, 25 Fisheries 6, 19 (Nov. 2000).

<sup>18</sup> U.S. Fish and Wildlife Service, U.S. Listed Vertebrate Animal Species Report by Taxonomic Group as of 11/1/2000, available at <http://endangered.fws.gov/wildlife.html>

<sup>19</sup> 65 Fed. Reg. 69459 (2000).

<sup>20</sup> See DOI and DOC, Guide to the Listing of a Distinct Population Segment of Atlantic Salmon as Endangered (Nov. 2000).

<sup>21</sup> See Goldberg and Triplett, Murky Waters: Environmental Effects of Aquaculture in the U.S., at 51 - 52; DOI and DOC, Guide to the Listing of a Distinct Population Segment of Atlantic Salmon as Endangered (Nov. 2000).

~~(k) Open water net-pens and enclosures are permitted where water depth, current velocities and direction, stocking densities, and other factors act to adequately disperse metabolic products in order to minimize accumulation of discharged solids on the bottom sediments under the net pens. However, water currents should not be excessive to cause the fish to expend excessive energy to swim and to be unable to consume food. Monitoring shall be employed to ensure that the natural assimilative capacity at the site is not overburdened. Facility managers shall take all practicable measures to prevent transmission of diseases and parasites between cultured and wild aquatic animals. Use of multiple species of aquatic plants and animals to recycle nutrients must be included in every management plan. Except as may be provided in § 205.601 or § 205.602, chemical treatment of biofouling organisms on nets is not allowed. An organic conversion period of three years immediately preceding harvest of the fish at least one year, or crop cycle, whichever is less shall be required~~

Subsection (l). Facilities With Direct-Soil Water Contact - Subsection (l) fails to encourage the creation of organic aquaculture facilities as part of larger integrated farming systems. As proposed, subsection (l) would allow a facility with direct soil-water contact to convert to production after one year or even less. This is clear circumvention of the requirements of §205.202 which require land conversion to occur over a three year period. Accordingly, any facility with direct soil and water land contact must convert with the surrounding land over three years. Absent the adjacent land converting over three years, the facility could be subject to direct contact with prohibited materials or run off from the land that is deemed not convert organic in land terms but would somehow be acceptable in aquatic terms. This section should be amend to read:

Production systems with direct soil-water contact are allowed provided that the land and water undergo a conversion period ~~of one year or crop cycle, whichever is less,~~ of three years occurs under organic management before production can be certified organic as specified in § 205.202, Land requirements.

Subsection (n) - Subsection (n)(4) again uses language, “shall take into consideration,” that is far too discretionary. The regulation should be amended so that appropriate stocking rates for each species are required. Accordingly, the regulation would be amended to read:

Stocking density levels ~~that take into consideration~~ appropriate for the particular species being produced that ensure animal health and overall well-being, including the natural schooling characteristics of the species.

### **Proposed §205.258 Farmed Aquatic Plants**

Subsection (b) -Subsection (b)(1) is again inconsistent with the overall three year transition period required for organic production. As written a pond or containment vessel would only require that no prohibited methods be used on the system preceding organic production. No rationale is given as to

why one conversion is acceptable for such facilities. This regulation should be consistent with the requirements in the three year land requirements found at §205.202. Accordingly, the regulations should be amended as follows:

any pond or containment vessel from which algae are intended to be represented as “organic,” must have had no prohibited substances as listed in § 205.105, applied for a period of ~~one year~~ three years immediately preceding harvest of the crop . . .

### **Conclusion**

The Center for Food Safety (CFS) would like to acknowledge and thank the expertise, effort and time devoted by the Aquaculture Working Group in the development of its proposed amendments to the National Organic Program regulations for the purposes of allowing organic aquaculture. The Aquaculture Working Group’s Interim Final Report to the USDA, National Organic Program and the National Organic Standards Board (NOSB) reflects the expenditure of significant energies and contains many fine attributes. CFS urges that its suggested amendments be adopted so that resulting organic aquaculture standards reinforce existing organic principles and that organically labeled products and the systems used to create such products conserve and improve the environment and conform to consumer expectation.

Respectfully submitted,

Joseph Mendelson III  
Legal Director