



660 PENNSYLVANIA AVE., SE , SUITE 302, WASHINGTON, DC 20003

(202) 547-9359 ☎ FAX (202) 547-9429

2601 MISSION ST., SUITE 803, SAN FRANCISCO, CA 94110

(415) 826-2770 ☎ FAX (415) 826-0570

WWW.CENTERFORFOODSAFETY.ORG

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Ms. Valerie Frances
Executive Director
National Organic Standards Board
USDA-AMS-TMP-NOP
1400 Independence Avenue, SW
Room 4008 - So., Ag Stop 0268
Washington, DC 20250-0268

CC: submitted to www.regulations.gov

**Comments on National Organic Standards Board (NOSB)
Livestock Committee**

**Proposed Organic Aquaculture Standards:
Fish Feed and Related Management Issues (September 28, 2008)
Net Pens and Related Management Issues (September 28, 2008)**

The Center for Food Safety (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. CFS represents members throughout the country that support organic agriculture and regularly purchase organic products.¹

Since 2001, CFS has undertaken numerous efforts on behalf of its members to ensure that consumer preferences for stringent organic aquaculture standards are realized and to ensure that consumers receive accurately and meaningfully labeled “organic” aquacultural products. CFS has provided substantial, detailed and repeated comment to the NOSB at every potential opportunity, from the beginning of its recommendation formulation process, on actions by the Aquaculture Working Group and Livestock Committee.² These previous comments are reiterated herein.

¹ See generally <http://www.centerforfoodsafety.org>.

² See, e.g., CFS Comments, NOSB Livestock Committee, Interim Final Report of Aquaculture Working Group (April 5, 2006); CFS Comments, Invitation for Public Comment on Aquaculture Standards (September 8, 2006); CFS Comments, NOSB Livestock Committee, Recommendation on Aquaculture (March 16, 2007); CFS Comments, NOSB Livestock Committee Recommendation on the Use of Fish

Overview of Comments

The development of National Organic Standards for aquaculture could potentially help alleviate and reverse the environmental and human health impacts associated with current industrial aquaculture production methods. Applying the true holistic approach of organic system management to aquaculture could yield significant reductions in the documented negative environmental and health impacts of industrial aquaculture. A rigorous organic standard could 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. Crucially, not every form or method of fish farming is meant to be or can be made to be organic. NOSB cannot start from an assumption that all aquaculture can be made to fit organic principles, just as you cannot fit a square peg in a round hole.

The majority of consumers want to purchase organic seafood because it represents ecological soundness.³ Product safety values are inextricably linked to ecologically sound production processes and that linkage is a principle reason for Congressional passage of the Organic Foods Production Act (OFPA).⁴ Indeed, concerns over contaminants and ecological soundness are integral to both the end product and the underlying processes. Consumer concern and valuation of these two issues reflects that consumers expect organic seafood to be managed and raised in systems that are as ecologically sound as possible, and include ways to limit contact with environmental contaminants.

Unfortunately, the latest round of the development of potential future USDA Organic Aquaculture standards -- NOSB Livestock Committee Proposed Organic Aquaculture Standards for Net Pens and Fish Feed -- does not comply with the high organic standard. CFS has serious issues with both proposals, as they will fatally undercut any future organic aquaculture standard and are inconsistent with organic principles. We urge the full Board to reject them.

First, with regards to “Net Pens and Related Management Issues,” it is CFS’s position that the National Organic Standards Board should not allow fish produced by open ocean

Mean and Fish Oil in Organic Aquaculture (April 4, 2008); CFS Comments, NOSB, Comments on Development of Organic Feed Standards for Organic Aquaculture (September 4, 2008).

³ Identification and

Evaluation of Viable Market Opportunities for Organically-Grown Aquatic Products
The report is available at <http://www.ams.usda.gov/tmd/FSMIP/FY2004/NJ0428.pdf>

⁴ See e.g. 136 Cong. Rec. S1107-03 (Feb 8, 1990)(Sen. Leahy speaking about the Organic Foods Production Act and food contaminants and stating “Organic farming can be part of the solution by promoting ecological farming and improving food safety.”).

net pens to be certified organic. The fish farming of large carnivorous and migratory fish in open-water net pens runs contrary to the letter and spirit of organic food production, which is to produce safe, high-quality foods in an environmentally sustainable fashion. It also unnaturally and unlawfully confines many of these species, in contravention of their fundamental behavior: that of migratory, anadromous fish. Only fish produced in closed systems where all inputs are organic and all outputs can be controlled and contained should be certified organic. Producing fish this way may be a driving force in the fish farming market, but that is not enough reason to mislead consumers by applying to it an organic label.

Second, with regards to “Fish Feed and Related Management Issues,” CFS believes that the Board should not allow wild caught fish to be used to obtain “organic fish meal” or “organic fish oil.” The use of non-organic fish meal in organic aquaculture is contrary to law: use of wild fish as organic feed is contrary to the OFPA, its implementing regulations and prior NOSB recommendations, the Committee’s recent legal machinations in the proposed rule notwithstanding. Feed of up to 25% is not a “supplement,” in any common sense meaning of that word. Fishmeal, under the proposed definition of “livestock” is feed, not a “feed supplement” or “feed additive.” The use of wild-caught fish as organic feed is also contrary to the public’s demands and beliefs about organic: The public expects organic production methods to limit the environmental contaminants found in organic fish, not place huge loopholes that allow them under a different name. Use of fish meal from wild fisheries will elevate the level of environmental contaminants in the end seafood product. The use of wild caught fish also contradicts the public’s expectations of ecologically sound production methods: the public expects organic fish to be produced in an ecologically sound manner and use of fish meal produced from wild fisheries is not an ecologically sound practice. The Proposed Standard’s limitation of “sustainable” wild forage fisheries is not a practically enforceable limitation and will allow for further desecration of our oceans.

CFS believes that aquaculture systems that do not deploy fish meal and fish oil and can meet the recommended standards should be the first products into the “organic” market. There are substantial gains being made in displacing fish meal and fish oil in the diets of some marine species. The desire to enter the organic market can serve to further stimulate this urgently needed research.

I. CFS Comments on NOSB Livestock Committee Proposed Organic Aquaculture Standards: Net Pens and Related Management Issues

A. CFS Strongly Opposes the Revised Proposed § 205.255(k): That Open Water Net-pens and Enclosures Be Permitted Under the Standard

CFS strongly opposes the provisions allowing for the use of open water net pens. The Committee’s proposed regulations shows a 180-degree reversal on open water net pens, going from their proper exclusion from the organic standard to now including them outright. Proposed Standard at 7; compare with §205.255(j) (NOSB Feb 20, 2007). This stark reversal is severely disappointing, particularly in light of all the comments provided

to the committee explaining the foreseeable environmental and health risks of open water net pens and why they do not belong as organic products. Crucially, escapes from such aquaculture are seriously damaging our ocean's biodiversity and allowing such activity to be labeled "organic" is contrary to the USDA standard.

Only closed aquaculture facilities should be considered for producing fish and plants to be labeled organic and open water net pens should not be allowed. The numerous problems with the use of net pens are widely known and include:

1. NEGATIVE IMPACTS FROM UNAVOIDABLE ESCAPES

It is impossible to fully contain open water net pen aquaculture. 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. When fish escape from large aquaculture systems, they pose risks to populations of wild, native fish. These risks include the transmission of disease and parasites to wild populations, excessive competition for limited resources, and loss of biodiversity among fish species.⁵ The number of salmon escapees is immense, with up to a million fish escaping in a single occurrence.⁶

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.⁷ In 1990, approximately four million fish escaped from a fish farm in Norway.⁸ Recently, over 170,000 farm raised salmon escaped from a net pen after a storm in Maine.⁹ The Fish and Wildlife Service reports that "25-40% of the fish in the North Atlantic Ocean is of aquaculture origin."¹⁰ Weather, human error, and marine mammal and bird attacks all contribute to the release of fish from ocean pens. In the Northwest, approximately 600,000 farm raised Atlantic salmon have escaped. These invasive fish are surviving and successfully reproducing among the many species of endangered Pacific 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. 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 pens.¹¹

⁵ Pure Salmon Campaign. "Environmental Damage from Escaped Salmon". <http://www.puresalmon.org/pdfs/escapes.pdf>

⁶ 2005: nearly half a million salmon escaped from a Norwegian salmon farm.

2004: one million farmed salmon in Chile escaped on one occasion in 2004.

2002: 600,000 salmon in the Faeroe Islands cleared pens during a storm. Pure Salmon Campaign "Environmental Damage from Escaped Salmon". <http://www.puresalmon.org/pdfs/escapes.pdf>

⁷ Eric Hallerman & Anne Kapuscinski, Ecological Implications of Using Transgenic Fishes in Aquaculture, 194 ICES Mar. Sci. Symp. 56, 59 (1992)

⁸ Walter Gibbs, Fish-Farm Escapees Threaten Wild Salmon, N.Y. Times, Oct. 1, 1996 at C4

⁹ Catastrophic Salmon Escape Prompts Calls for Moratorium on the Aquaculture Industry, available at <http://www.clf.org/hot/20010223.htm>.

¹⁰ 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>.

¹¹ Case Study No. 1., Growth-Enhanced Salmon, in CEQ and OSTP Assessment: Case Studies of Environmental Regulations for Biotechnology, at 23 (Jan. 2001).

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. Permitting organic aquaculture to come from open water net pens places the USDA's imprimatur on these operations, giving the public the false and misleading view that such facilities are not environmentally harmful.

Fish escapes occur in so-called "organic" systems as well. In fact, organic salmon farmers in Scotland are responsible for 70% of all reported escapes of Atlantic salmon thus far in 2008. According to figures published by the Scottish Government, in 2008 the total number of Atlantic salmon escapees (up to September 21st) is 44,657.¹² The Scottish company responsible for the greatest number of escapees, 30,000 over two incidences, was Balta Island Seafare in Shetland.¹³ This company is marketed as "organic" and is certified as such by the Soil Association.¹⁴

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.¹⁵ Moreover, the number on the endangered species list has reached 114 and includes populations of the chinook, chum, coho, and sockeye salmon.¹⁶ 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.¹⁷ 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. When farmed fish escape they can affect the genetic integrity and compete with Atlantic salmon for habitat and food.¹⁸

¹² The Scottish Government, Fisheries Department: Farmed Fish Escapes 2008. <http://www.scotland.gov.uk/Topics/Fisheries/Fish-Shellfish/18692/2008>

¹³ The Scottish Government, Fisheries Department: Farmed Fish Escapes 2008. <http://www.scotland.gov.uk/Topics/Fisheries/Fish-Shellfish/18692/2008>

¹⁴ <http://www.organic.shetland.co.uk/>

¹⁵ J.A. Musick, et al, Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America, 25 Fisheries 6, 19 (Nov. 2000).

¹⁶ 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>

¹⁷ 65 Fed. Reg. 69459 (2000).

¹⁸ See DOI and DOC, Guide to the Listing of a Distinct Population Segment of Atlantic Salmon as Endangered (Nov. 2000).

Given the fragile state of fish populations and aquatic ecosystems, allowing organic fish in ocean pens will contribute to the further devastation of wild 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.¹⁹ The proposed regulations allowing open water net pens that will exacerbate such a situation. It will also mislead the public about those significant environmental impacts.

Finally, allowing such activities is inconsistent with the goals of organic production and with the protection of biodiversity asserted in proposed §205.250(5). In the Final Rule, the definition of organic production was expressly amended to mandate that producers

must *conserve biodiversity* on his or her operation. The use of ‘conserve’ establishes that the producer must initiate practices to support biodiversity and avoid, to the extent practicable, any activities that would diminish it. Compliance with this requirement to conserve biodiversity requires that a producer incorporate practices in his or her organic system plan that are *beneficial to biodiversity* on his or her operation.²⁰

The definition itself provides that “organic production” is:

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.²¹

Accordingly, the proposed rules allowing open water net pens is contrary to this statutory duty to both “conserve” biodiversity and act in a beneficial manner with regard to biodiversity.

2. NEGATIVE IMPACTS FROM POLLUTANTS AND TOXINS IN OPEN WATER NET PEN RAISED FISH

Organic foods, whether from plants or animals, are produced under conditions that can be controlled. This cannot be said for fish grown in the open ocean, where they are exposed to and ingest or absorb many types of industrial and agricultural toxins. Further, there is no way of knowing what pollutants these caged fish are exposed to, or for how long or in what combination. Wild forage fish used for feed in aquaculture are similarly exposed, an issue covered in the next section on the proposed fish feed standard.

¹⁹ 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).

²⁰ 65 Fed Reg 80563.

²¹ 65 Fed Reg 80640

The presence of toxins in farmed fish is well documented. Farmed salmon in Norway were labeled as “organic” but found to contain PCBs.²² Wild rockfish living near salmon farms along the coast of British Columbia contained high levels of mercury, due to exposure to fish waste and uneaten feed draining from farms.²³ And farmed salmon were found to have higher levels of PCBs and dioxin than wild salmon, due to feed containing wild fish that were exposed to those pollutants in the ocean.²⁴ Adoption of the Proposed Regulation would mislead the public by equating these sources of food with other organic agriculture that are not similarly exposed to unknown combinations of harmful pollutants in this manner.

3. NATURAL BEHAVIOR

Organic systems should promote the natural behaviors of livestock. § 205.239(a); see also Proposed Standard: Fish Feed and Related Management Issues at 2. The Committee actually uses the “natural behavior” provision in support of why it calls for a piscivorous diet for organic fish in allowing for wild caught fish feed to be used, but expressly disclaims that its “interpretation of the importance of natural behaviors of livestock to extend to a prohibition of indoor operations or net pens.” *Id.* This contrarian application is an arbitrary and capricious interpretation of the standard, as the Committee decides to abide by it only when doing so suits its purpose (i.e., for feeds but not for net pens).

Net pen aquaculture is flatly contrary to the natural behavior of many fish that are proposed for organic certification. Anadromous fish like salmon are named as such because of their natural migratory behavior. These fish hatch in freshwater, swim downstream to saltwater where they spend much of their adult life, and then swim upstream to spawn.^{25,26} This is a reproductive strategy in temperate and polar latitudes because oceans in these regions are more productive than their freshwater counterparts.²⁷ Anadromous fish rely on their oceanic migration to supply them with sufficient food for a selective advantage to spawn successfully.²⁸ Expectedly, studies have shown farmed fish experience decreased reproductive success when compared to wild fish.²⁹ Additional studies have even found a decrease in the fitness of wild salmon as a result of escaped

²² Shaw, *PCBs, PCDD/Fs, and Organochlorine Pesticides in farmed Atlantic Salmon from Maine, Eastern Canada, and Norway, and Wild Salmon from Alaska*, *Environmental Science and Technology* 40:5347-5354 (2006).

²³ Debruyne, *Ecosystemic effects of salmon farming increase mercury contamination in wild fish*, *Environmental Science and Technology*, 40:3489-3493 (2006).

²⁴ Hites, *Global Assessment of Organic Contaminants in Farmed Salmon*, *Science*, 303(5655):226:229, (2004).

²⁵ U.S. Fish and Wildlife Service. “Salmon of the West”
<http://www.fws.gov/salmonofthewest/salmon.htm>

²⁶ Oregon Department of Fish and Wildlife. http://www.dfw.state.or.us/swwd/migratory_alt.html

²⁷ Gross, M.R. et al. “Aquatic Productivity and the Evolution of Diadromous Fish Migration”. *Science*. 239.4845 (Mar. 1988): 1291-1293.

²⁸ McDowall, R. M.. “Anadromy and homing: two life-history traits with adaptive synergies in salmonid fishes?” *Fish and Fisheries*. 2001, vol 2: 78-85.

²⁹ Fleming, A. et al. “An experimental study of the reproductive behaviour and success of farmed and wild Atlantic salmon (*Salmo salar*)”. *Journal of Applied Ecology*. 1996. vol. 33: 893-905.

farm salmon.³⁰ Furthermore, farmed Atlantic salmon have been observed to exhibit spinal deformities.³¹ It should be clear that contained units or a net pen system do not allow the “natural behavior” of anadromous fish and are, in addition, detrimental to their health and reproductive success. The proposed regulations do not support that the environment for these fish will be supportive of their “health and natural behavior.” § 205.254.

B. The Proposed Regulation’s § 205.255(k) (1)-(6) Limitations Do Not Alleviate These Significant Failings

If an activity or practice is environmentally unsound, unsustainable and damaging, providing minimal constraints on that activity is like putting lipstick on a pig. Net pen aquaculture is damaging to fisheries and the environment *per se* and putting de minimis restrictions on the practice does not change that it is fundamentally unsound ecologically. Damaging escapes cannot be contained from net pens. Putting an organic label on this activity does not change this core fact; it just misleads the public and contravenes the standard.

For example, the proposed regulation requires that the net pens be “situated in such a manner as to avoid migratory routes of native species” and not to “disturb reproductive patterns of local wild fish populations.” Proposed Reg. at 7; § 205.255(k)(1). Yet this requirement ignores the fact that impacts on biodiversity can and will happen wherever these facilities are established. The proposed limitation would likely be proven quite ineffective and unenforceable. Anadromous fish, like salmon, are those that hatch in freshwater, swim to saltwater to mature, and return to freshwater to spawn. The freshwater migration routes of salmon have been extensively studied. For example, salmon are known to travel great distances during migration, some more than 3,000 miles.³² Sockeye salmon may travel between 100 – 650 miles to spawn,³³ and chinook and chum salmon may travel over 2,000 miles to spawn,³⁴ with chinook salmon covering up to 30 miles in a single day.³⁵ While much is known about the migratory routes of salmon, according to the Alaska Department of Fish and Game, “little is known about the navigation mechanisms or cues they use on the high seas.”³⁶ Furthermore, “little is

³⁰ McGinnity, P. et al. “Fitness reduction and potential extinction of wild populations of Atlantic salmon, *Salmo salar*, as a result of interactions with escaped farm salmon.” Proceedings: Biological Sciences, Vol. 270, No. 1532 (Dec. 7, 2003), pp. 2443-2450. Published by: The Royal Society.

³¹ Silverstone, A., Hammell, L. “Spinal deformities in farmed Atlantic salmon”. Canadian Veterinary Journal. 2002; 43: 782-784.

³² U.S. Fish and Wildlife Service. “Salmon of the West”
<http://www.fws.gov/salmonofthewest/salmon.htm>

³³ Crossin, G.T., et al. “Energetics and morphology of sockeye salmon: effects of upriver migratory distance and elevation.” Journal of Fish Biology 65.4 (Sept. 2004): 788-810.

³⁴ Alaska Department of Fish and Wildlife. Wildlife Notebook Series: Chinook, Chum
<http://www.adfg.state.ak.us/pubs/notebook/fish/chinook.php>,

<http://www.adfg.state.ak.us/pubs/notebook/fish/chum.php>

³⁵ Keefer, M. L., et al. "Upstream migration rates of radio-tagged adult Chinook salmon in riverine habitats of the Columbia River basin." Journal of Fish Biology 65.4 (Oct. 2004): 1126-1141.

³⁶ Alaska Department of Fish and Wildlife. Wildlife Notebook Series: Sockeye.
<http://www.adfg.state.ak.us/pubs/notebook/fish/sockeye.php>

known of the ocean migrations of coho salmon”³⁷ specifically, or “how salmonids and other aquatic organisms orient and home in larger-scale natural systems”³⁸ in general. According to the information available regarding the expansive nature of salmon migration, an open water net pen system would interfere with the natural behavior of anadromous fish. Furthermore, a net pen system would be unable to avoid the migratory routes selected by wild fish due to the lack of existing information on the behavior and patterns of salmon during ocean and homing migration.

Third, the proposed regulation includes a laundry list of requirements for net pen producers of aquaculture, § 205.255(k)(2)-(5), but guts those potentially helpful requirements by making them less than mandatory. For example, § 205.255(k)(2) notes that net pen producers must comply with § 205.253, but only to the extent “practicable.” Same for § 205.254 – implement all “practicable” measures. Similarly, facility managers must only implement all “practicable” measures to minimize escapes. § 205.255(k)(4).³⁹ Buffer zones must only be “consider[ed],” not mandatory. § 205.255(k)(2)(ii).

The result is that open water net pen aquaculture is permitted to be certified organic with virtually no mandatory, meaningful or workable constraints on it. These requirements do not and cannot remedy the overarching failing of the Proposed Regulation in allowing these harmful activities to become certified organic.

II. *CFS Comments on NOSB Livestock Committee Proposed Organic Aquaculture Standards: Fish Feed and Related Management Issues*

A. CFS Strongly Opposes the Revised Proposed §§ 205.252, 205.301(b)(1), and 205.612 which would allow wild-caught fish to be used as feed for “organic” fish

The Center for Food Safety does not believe that wild caught fish should be certified as organic or that wild-caught fish should be used as food for organic fish. The issue of allowing the use of wild caught fish meal and fish oil is of critical concern to consumer and environmental groups like CFS. Consumers equate the organic label as an identifier of food produced in a more environmentally benign manner. The most thorough polling data on consumer attitudes toward organic seafood have found that nearly 60% of consumers will purchase organic seafood with the understanding that the organic seafood product is better for the environment.⁴⁰ Underlying this expectation is a recognition that organic systems are designed to avoid ecologically damaging production methods. CFS adheres to the understanding that organic systems are designed to avoid ecologically

³⁷ Alaska Department of Fish and Wildlife. Wildlife Notebook Series: Coho.
<http://www.adfg.state.ak.us/pubs/notebook/fish/coho.php>

³⁸ Keefer, M.L. et al. “Route selection in a large river during the homing migration of Chinook salmon (*Oncorhynchus tshawytscha*).” *Canadian Journal of Fisheries and Aquatic Sciences*. 63.8 (Aug. 2006): 1752-1762.

³⁹ That the proposed regulation includes the requirement for reporting and monitoring escapes is a strong admission that an escape-free open water net pen system is impossible.

⁴⁰ New Jersey Department of Agriculture, Fish & Seafood Program, “Identification and Evaluation of Viable Market Opportunities for Organically-Grown Aquatic Products.” (Feb. 2006) available at <http://www.state.nj.us/seafood/Organicsumm.pdf>

damaging production methods. Efforts to allow fish meal and fish oil derived from wild caught fish directly undermine this public expectation.

Moreover, it is contrary to the intent of organic practices as established by current regulation. Under the existing regulations “organic production” is defined to be a system that integrates practices that “promote ecological diversity and conserve biodiversity.” 7 C.F.R. §205.2. The USDA has stated that the intention of this definition is to require the use of the preservation biodiversity and reflects a dynamic, interactive relationship with such conservation efforts.⁴¹ The use of fish meal and fish oil derived from wild fisheries as feed for organic aquaculture contradicts such intent. Proposals for adopting “sustainability” criteria for use of wild caught fish trimmings in organic aquaculture feed will cause significant and potential protracted enforcement issues. Accordingly, CFS believes that the NOSB’s aquaculture recommendations should exclude the use of wild caught fish in “organic” fish meal and fish oil.

It is true that the Stevens Amendment amended that Act to allow the possibility of wild fish to eventually be labeled organic. However USDA has not implemented any regulations on how this would be done or when. The reality is that there are substantial, perhaps insurmountable, challenges to labeling wild as “organic” and that the “wild” label no longer needs or wants “organic.” Attempting to implement a regulation allowing wild feed as a “supplement” in this manner would simply be an end-run around that requirement.

B. The Use of Wild Fishmeal Is an Unsustainable Practice and Harms The Environment

NOSB needs to face the reality that some types of fish farming are simply not possible to be organic because they are unsustainable practices. Farming large, carnivorous fish that require massive amounts of wild-caught fish as feed, to the detriment of the ocean’s biodiversity and the public’s understanding of what is organic, fall into that non-organic category.

Fish meal and fish oil are used for carnivorous species such as salmon. The fish meal and fish oil comes from wild caught fish such as mackerel, herring, menhaden and anchovies. Scientists estimate that producing a pound of farmed-raised shrimp, stripped bass or salmon requires more than twice the amount of wild caught fish.⁴² The use of wild caught forage fish to support any farmed fish, whether it is designated organic or not, does not conserve biodiversity and directly affects the health and sustainability of marine ecosystems.⁴³ As the U.S. Ocean Commission stated, “obtaining fishmeal from

⁴¹ 65 Fed. Reg. 80550 (Dec. 21, 2000); See also USDA, Report and Recommendations on Organic Farming (1980)(USDA recognizing that organic agriculture seeks “to establish ecologically harmonious, resource efficient, and nutritionally sound agricultural methods.”)

⁴² See Pew Oceans Commission, America’s Living Oceans: Charting A Course for Sea Change (2003) at 73-79 (discussing marine aquaculture) *available at* http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/env_pew_oceans_final_report.pdf

⁴³ See Pew Oceans Commission, Marine Aquaculture in the United States (citing Naylor, et al,

traditional wild harvest practices may increase the pressure on fisheries that are fully exploited.”⁴⁴ Protecting forage species is a key starting point for the ecosystem management of fisheries including protection of biodiversity. Forage fish play a significant role for ocean predators and form the fundamental base of the food web for aquatic and non-aquatic predators. These fish are an important food source for much other ocean life, including striped bass, bluefish, whales, sea birds and seals. A number of studies suggest that depletions in forage fisheries harm the availability of food for numerous predators from wild striped bass to migratory seabirds.⁴⁵ Allowing organic systems to support the depletion of wild forage fish for use as fish meal will continue to harm ecosystems and negatively affect biodiversity in contravention of the existing regulations. While the 25% of a feed ration limitation may alter this equation, fish meal’s use will still support an industrial-style system that supports large catches of forage fish for use as fish meal. The use of large quantities of wild caught forage fish to support any farmed fish, whether it is called organic or not, does not conserve biodiversity and directly affects the health and sustainability of marine ecosystems.⁴⁶

A regulatory standard that allows organic systems to support the depletion of wild forage fish for use as fish meal and fish oil will harm ecosystems and negatively affect biodiversity in contravention of the existing organic regulations. Aquaculture already consumes 40% of the world’s fishmeal, up from 10 % two decades ago, and is set to outstrip the world’s fishmeal supply by 2050.⁴⁷ Meanwhile aquaculture feed already consumes over half the world’s fish oil and is expected to outstrip the supply by 2015.⁴⁸ Even attempts to limit what types of fisheries may be used to derive “organic” wild caught fish meal are not likely to live up to the mandates to “promote ecological diversity and conserve biodiversity” found at 7 C.F.R. §205.2.⁴⁹ For example, the use of currently “under exploited” fisheries as wild caught sources may still lead to significant impacts on biodiversity.⁵⁰

Effect of Aquaculture on World Fish Supplies, *NATURE* 405:1017-1024 (2000))

⁴⁴ U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century* (2004) Commission, at 331, available at

http://www.oceancommission.gov/documents/full_color_rpt/welcome.html

⁴⁵ See National Coalition for Marine Conservation, *Taking the Bait - Are America’s Fisheries Out-Competing Predators for Their Prey?* (August 2006)(highlighting a number of studies examining the effects of diminished forage fish availability on various predators).

⁴⁶ See Pew Oceans Commission, *Marine Aquaculture in the United States* (citing Naylor, *et al.*, *Effect of Aquaculture on World Fish Supplies*, *Nature* 405:1017-1024 (2000))

⁴⁷ Halweil, *Farming Fish for the Future*, *WorldWatch* Report 176, Worldwatch Institute, at 20 (2008).

⁴⁸ *Id.*

⁴⁹ The USDA has stated that the intention of this definition is to require the use of the preservation biodiversity and reflects a dynamic, interactive relationship with such conservation efforts. 65 Fed. Reg. 80550 (Dec. 21, 2000); See also USDA, *Report and Recommendations on Organic Farming* (1980)(USDA recognizing that organic agriculture seeks “to establish ecologically harmonious, resource efficient, and nutritionally sound agricultural methods.”).

⁵⁰ See e.g. BirdLife International, “Hold the anchovies - Magellanic Penguins need them,” (Aug. 1, 2007)(describing how a paper in *Science* reveals that attempts to develop an “under exploited” anchovy fisheries for fish meal lacks oversight for addressing impacts on wildlife) available at http://www.birdlife.org/news/news/2007/01/anchovy_overfishing.htm; see also World Birdwatch, “Peru’s marine life losing out to fishfarms” (Sept. 2006)(describing decrease in bird and mammals populations because of exploitation of the Peruvian anchovy fishery) available at

As indicated in the New Jersey Department of Agriculture polling, nearly 60% of consumers will purchase organic seafood with the understanding that the organic seafood product is better for the environment. Underlying this expectation is an understanding that organic systems are designed to avoid ecologically damaging production methods. The allowance of fish meal directly undermines this consumer expectation. Moreover, it is contrary to the intent of organic practices as established by current regulation. Under the existing regulations “organic production” is defined to be a system that integrates practices that “promote ecological diversity and conserve biodiversity.”⁵¹ The use of fish meal as feed for organic aquaculture contradicts such intent.

C. Contaminants From Fish Meal

The fish meal issue is also directly intertwined with consumers’ significant expectation on the level of contaminants in organic seafood.⁵² Farmed salmon has been documented to have a much higher concentration of environmental contaminants than wild salmon.⁵³ Among these environmental contaminants are PCBs, polychlorinated biphenyls once used as lubricants and coolants but banned in the 1970’s due to their extreme toxicity. Although these chemicals have been banned for many years, they are long-living pollutants that cycle through the ecosystem and still persist in the environment today. Scientists also believe that PCBs are carried in the air from other countries where the chemicals are still being used.⁵⁴ In 2000, a technical review body of the European Commission found that fish meal in Europe was the animal feed that was most heavily contaminate with PCBs and dioxins.⁵⁵ A small study done in Canada examined the concentrations of environmental contaminants in farmed salmon and found that the levels of contaminants, such as PCBs and dioxins, were three to six times the levels recommended by the World Health Organization.⁵⁶ A sampling done in Scotland found

http://www.birdlife.org/news/news/2007/01/peru_wbw.pdf

⁵¹ 7 C.F.R. § 205.2. The USDA has stated that the intention of this definition is to require the use of the preservation biodiversity and reflects a dynamic, interactive relationship with such conservation efforts. 65 Fed. Reg. 80550 (Dec. 21, 2000); See also USDA, Report and Recommendations on Organic Farming (1980)(USDA recognizing that organic agriculture seeks “to establish ecologically harmonious, resource efficient, and nutritionally sound agricultural methods.”)

⁵² See Center for Food Safety, *The Catch With Seafood: Human Health Impacts of Drugs & Chemicals Used by the Aquaculture Industry* (2005) available at <http://www.centerforfoodsafety.org/thecatchwithseafoodaquaculturereport.cfm>

⁵³ Ronald A. Hites et al., *Global Assessment of Organic Contaminants in Farmed Salmon*, 303 SCIENCE 226 (Jan. 9, 2004) [hereinafter “Hites, et al.”], available at http://www.pewtrusts.com/pdf/salmon_study.pdf.

⁵⁴ Robert McClure & Lisa Stiffler, *Sound’s Salmon Carry High PCB Levels but State Says Health Benefits of Eating the Fish Outweigh Risks*, Seattle Post-Intelligencer, Jan. 15, 2004.

⁵⁵ European Commission, *Opinion of the Scientific Committee on Animal Nutrition on Dioxin Contamination of Feedingstuffs and Their Contribution to the Contamination of Food of Animal Origin* (2000), available at http://ec.europa.eu/food/fs/sc/scan/out55_en.pdf

⁵⁶ Michael Weber, *What Price Farmed Fish*, 28, SeaWeb, (2003) (citing M.D.L. Easton et al., *Preliminary Examination of Contaminant Loadings in Farmed Salmon, Wild Salmon and Commercial Salmon Feed*, 46 (7) Chemosphere 1053 (Feb. 2002)), available at http://www.seaweb.org/resources/sac/pdf/WhatPriceFarmedFish_low.pdf.

“surprisingly high” levels of PCBs, and United Kingdom samplings found levels of DDT and chlordane in nearly all samples of farmed salmon.⁵⁷

In the largest study ever to compare pollutants found in wild and farmed salmon, Ronald Hites sampled and analyzed over two metric tons of farmed and wild salmon from around the world.⁵⁸ The study found that farm-raised salmon contained significantly higher concentrations of environmental contaminants than those found in wild-caught salmon.⁵⁹ The study also reported that farmed salmon obtained from Europe contained higher concentrations of contaminants than those farmed in North and South America.⁶⁰ In May 2005, the authors of this study issued a new study finding that to achieve a cancer risk “in the middle of the U.S. EPA’s acceptable risk range consumption of farmed salmon must be effectively eliminated.”⁶¹

Farmed fish contain much higher levels of environmental contaminants than do wild fish because they are fed a diet that is high in fish oils and fish meal that is primarily obtained from small pelagic fish. Small pelagic fish in polluted waters accumulate these chemicals in their fat. Fish that are higher on the food chain, such as salmon, consume these contaminated fish and accumulate the chemicals in their fat.⁶² Fewer chemicals accumulate in wild salmon because their diet contains less of the contaminated fats and because they get more exercise, reducing their own fat levels.⁶³

There are significant human health risks in consuming toxic environmental contaminants such as these. Environmental contaminants such as PCBs and dioxins are “considered among the most toxic of man-made chemicals and are thought to cause cancer, disrupt the endocrine system, cause developmental and reproductive problems, and other health problems.”⁶⁴ The Hites study used health guidelines set by EPA to assess the health risks of environmental contaminants. EPA sets health guidance levels for PCBs in wild-caught fish, and FDA sets the limits for commercially-sold fish.⁶⁵ The Hites study found that the contaminant levels did not exceed FDA’s limits but far exceeded EPA’s levels. Hites’ study relied upon EPA’s standards, finding that EPA’s approach is “designed to manage health risks by providing risk-based consumption advice regarding contaminated fish,” whereas FDA’s approaches “are not strictly health-based, do not address the health risks

⁵⁷ Id.

⁵⁸ Hites, et al., at 226.

⁵⁹ Id. at 227.

⁶⁰ Id. at 228.

⁶¹ J.A. Foran, et al., Risk-Based Consumption Advice For Farmed Atlantic and Wild Pacific Salmon Contained With Dioxins and Dioxin-like Compounds, *Envtl. Health Persp.* 552-6 (May 2005).

⁶² Id.

⁶³ See Gina Kolata, Farmed Salmon Have More Contaminants Than Wild Ones, Study Finds, *NY Times*, Jan. 9, 2004; Juliet Eilperin, Farmed Salmon Raise Concerns, *Wash. Post*, Aug. 11, 2004, at A03.

⁶⁴ Weber, at 28 (citing J.K. Huwe, Dioxins in Food: A Modern Agricultural Perspective, 50 *J. Agric. Food Chem.* 1739 (2002)).

⁶⁵ Environmental Working Group, PCBs in Farmed Salmon (EPA’s standards were updated in 1999 based upon the most up to date science whereas FDA has not updated its limits since 1984. The limits set by each agency are dramatically different. EPA’s limits are 500 times more protective than the limits set by FDA.), available at <http://www.ewg.org/reports/farmedPCBs>.

of concurrent exposure to more than one contaminant, and do not provide guidance for acceptable levels of toxaphene and dioxins in fish tissue.”⁶⁶

The Hites study concluded by finding that the “consumption of farmed salmon may result in exposure to a variety of persistent bioaccumulative contaminants with the potential for an elevation in attendant health risks.”⁶⁷ This study and others indicate that fish meal usage, especially in salmon aquaculture, is directly linked to an increase in the contaminant levels of the end product. Allowing use of fish meal derived from wild caught fish is in direct conflict with such the public’s expectations that there are fewer contaminants in organic fish and, if allowed as proposed here, will mislead the public because these feed sources would not be organic.

The proposed rule acknowledges the dangers these harmful contaminants present, including a provision in § 205.252, Aquatic Livestock Feed, requiring that fish meal and oil used must be “monitored for heavy metal levels and persistent organic pollutants including persistent bioaccumulative toxins (PBTs) and mercury, cadmium, lead, arsenic and tin.”⁶⁸ However, the same provision requires that such contaminants must only be removed from the organic feeding system *only* “if found to have amounts above regulatory levels in commercially available fish meal and oil ...”⁶⁹ Thus, the proposed “organic” standard would allow the same level of contaminants in fish meal as those permitted for general commercial, industrial agriculture and fish meal and oil. Stated plainly, there will be *no difference with regard to contaminants between “organic” feed and general commercial feed.*

This provision is a microcosm of the proposed standard’s end-oriented direction. Rather than setting a higher bar for organics -- in accordance with the OFPA and Organic Principles – and risk losing the ability to label salmon and other predatory fish as “organic,” the proposal merely lowers the “organic” bar to the level of existing commercial standards. Such action is misleading and unlawful.

D. The Interpretation of Wild Fish Feed as a “Feed Supplement” is Arbitrary, Capricious and Contrary to Law

In order to be certified as organic, the OFPA requires that livestock must be fed “organically produced feed that meets the requirements of this title”⁷⁰ and this standard is

⁶⁶ Hites, et al., at 228 (citing EPA, 2 Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories: Risk Assessment and Fish Consumption Limits (2000), *available at* <http://www.epa.gov/ost/fishadvice/volume2/index.html>); Ctr. for Food Safety & Applied Nutrition, Food & Drug Admin., Fish and Fisheries Products Hazards and Controls Guidance, *available at* <http://www.cfsan.fda.gov/~acrobat/haccpc09.pdf>.

⁶⁷ Id. at 229.

⁶⁸ NOSB Livestock Committee Proposed Organic Aquaculture Standards: Fish Feed and Related Management Issues, Recommendation, § 205.252 Aquatic Livestock Feed (m).

⁶⁹ Id.

⁷⁰ 7 U.S.C. §6509 (c)(1).

also reflected in the current USDA regulations.⁷¹ The Courts have interpreted these provisions to require organic livestock to have a feed ration that is 100% organic.⁷²

Further, aquaculture feed expressly must be organic. The NOSB Livestock Committee's Proposed Regulations: Fish Feed and Related Management Issues – Recommendation, includes “§ 205.252 Aquatic Livestock Feed” which explains in relevant part that:

*(e) Aquaculture feeds must be composed of feed ingredients that are certified organic, except that non-synthetic substances and synthetic substances allowed by § 205.611 and § 205.612 may be used as feed additives and supplements.*⁷³

This requirement—that organic products be fed 100% organic feed--of course creates a significant legal obstacle to “organic” fish farming: aquaculture is heavily dependent on wild forage fish for the main source of feed for growing large carnivorous fish and wild is not organic. Despite the Stevens Amendment to the OFPA, USDA has never enacted regulations outlining how wild could be certified as organic. In fact, the practical challenges to permitting wild to be organic would be significant, possibly impossible. Therein is the problem: fish farming for salmon and other predatory fish requires wild fish feed as its most important source of feed and nutrients, but that feed is not organic, so the end product therefore would not be eligible to be organic. While such a standard would be a meaningful organic standard, it would leave only herbivorous fish like catfish and tilapia as likely eligible for a USDA organic label, at least until a cost-effective and sustainable organic source for fishmeal was found. And leaving off the table the potentially lucrative markets for fish such as salmon or tuna.

The Committee's response to this is an attempt to circumvent this organic requirement by defining wild forage fish out of the “feed” requirements: to call the wild fish meal a “supplement” instead of actual feed. There are exceptions to the 100% organic feed ration requirement, namely in the form of allowances for use of non-synthetic and allowable synthetic substances as feed additives and feed supplements.⁷⁴ § 205.252(e).

Unfortunately for the Committee, fish meal for use in aquaculture does not fall within the supplement or additive exceptions. Any final conclusions to the contrary would be arbitrary and capricious agency action.

⁷¹ 7 C.F.R. §205.237.

⁷² See *Harvey v. Johanns*, 396 F.3d 28, 43, n.7 (1st Cir. 2005).

⁷³ NOSB Livestock Committee's Proposed Regulations: Fish Feed and Related Management Issues, September 28, 2008, Recommendation § 205.252 Aquatic Livestock Feed (e).

⁷⁴ 7 C.F.R. §205.237(a).

1. *Fish Meal Is Feed and Feed Must be Organic*

First, wild fish fishmeal and fish oil used to feed carnivorous fish, are *feed*. This is made clear by the regulatory definitions of the Act. The definition of “feed” in the OFPA regulations includes all “Edible materials which are consumed by livestock for their nutritional value” and “encompasses *all* agriculture commodities.”⁷⁵ So feed, which must be 100% organic, includes all “agricultural commodities.” “Agricultural products” is in turn defined as

“any agricultural commodity or product, whether raw or processed, *including any commodity or product derived from livestock*, that is marketed in the United States for human or livestock consumption.”⁷⁶

So “agricultural commodities” include all commodities “derived from livestock.” And “livestock” in turn is defined in the Committee’s proposed aquaculture regulations (or the definition amended) to be:

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.⁷⁷

The definition adds “aquatic animals” to what is defined as livestock. “Aquatic animals” used “in the production of food, fiber, feed, or other agricultural-based consumer products” includes wild forage fish used for aquaculture feed. Accordingly, wild-caught fishmeal and fish oil, made from wild fish, is “derived from livestock” and therefore an “agricultural commodity,” and by definition “feed,” because it “encompasses all agricultural commodities.” And aquaculture feed must be composed of feed ingredients that are certified organic.

2. *Feed is Distinct from Feed Supplements and Additives*

Nor can forage fish meal properly be considered both “feed” and a “feed supplement.” In the Final Rule’s preamble, USDA made clear that it had made changes to the definition to “feed supplement” in order to expressly clarify that they were in fact separate and distinct categories of substances. From the 2000 preamble:

4) *Provisions for Feed Supplements and Feed Additives*. The proposed rule provided that nonagricultural products and synthetic substances included on the National List could be used as feed additives and

⁷⁵ 7 CFR § 205.2

⁷⁶ 7 C.F.R. § 205.2 (emphasis added).

⁷⁷ NOSB Livestock Committee, Proposed Aquaculture Regulations, Net Pens Recommendation, § 205.2 Terms Defined.

supplements. Many commenters stated that allowing nonagricultural products and synthetic substances as feed supplements contradicted the definition for "feed supplement" found in the proposed rule. That definition stipulated that a feed supplement must, itself, be a feed material, and the definition for "feed" in the proposed rule precluded using nonagricultural products and synthetic substances. These commenters requested that either the definition of "feed supplement" be changed to make it consistent with the allowance for nonagricultural products and synthetic substances or else that the term be dropped from the final rule.

...

We amended the definition in the final rule to state that a feed supplement is "a combination of feed nutrients added to livestock feed to improve the nutritional balance or performance of the total ration." We retained the second component of the proposed definition, which described how a feed supplement could be offered to livestock. We amended the definition of "feed additive" to "a substance added to feed in micro quantities to fulfill a specific nutritional need; i.e., essential nutrients in the form of amino acids, vitamins, and minerals." The definitions for "feed supplement" and "feed additive" in the proposed rule were originally recommended by the NOSB. While our intent in the proposed rule was to codify as fully as possible the recommendations of the NOSB, we agree with commenters that the proposed definitions were incompatible with the overall provisions for livestock feed. **The definitions in the final rule are consistent with the NOSB's objective to create clear distinctions between feed, feed supplements, and feed additives while clarifying the role for each within an organic livestock ration.**⁷⁸

It is true that fish meal has been allowed to be used in the production of organic poultry and hogs as a "feed supplement", but that was under the previous definition of "livestock" in which "aquatic animals" such as fish were excluded. This is a crucial distinction because it means that, by changing the definition of "livestock," fish went from a "nonagricultural" product to an "agricultural product," which means fish food is now feed and must be organic.⁷⁹ A "nonagricultural substance" is defined as "a substance that is not a product of agriculture, such as a mineral or bacterial culture, and that is used as ingredient in an agricultural product."⁸⁰ This used to include fishmeal because fish were expressly excluded from the definition of livestock: "except such term shall not include aquatic animals..."⁸¹ No longer – fish are not expressly defined as livestock. And as such they are "agricultural" substances rather than nonagricultural substances, which requires them to be organic if they are used as feed. Again, the Final Rule's preamble:

⁷⁸ 65 Fed Reg 80570 (December 21, 2000) (emphasis added).

⁷⁹ See also NOSB Livestock Committee's Proposed Regulations: Fish Feed and Related Management Issues, September 28, 2008, Recommendation § 205.252 Aquatic Livestock Feed (e) ("Aquaculture feeds must be composed of feed ingredients that are certified organic")

⁸⁰ 7 C.F.R. § 205.2

⁸¹ Id.

Livestock Feed

All agricultural ingredients used in raw and processed livestock feed that is labeled as "100 percent organic" and "organic" must be organically produced and handled in accordance with the requirements of these regulations.

...

In the definition of "agricultural product," the Act includes product marketed for "livestock consumption." This means that NOP regulations have applicability to livestock feed production.

...

The NOP requires that livestock under organic management must only be fed organically produced agricultural ingredients.⁸²

3. Fish Meal Used to Feed Fish Cannot Be Properly Considered An Additive or Supplement

First, a feed additive is defined under regulations as "a substance added to feed in *micro* quantities to fulfill a specific nutritional need; i.e. essential nutrients in the form of amino acids, vitamins, and minerals."⁸³ Clearly, use of fish meal in aquaculture – up to 25% -- cannot be considered added to feed in "micro quantities." Up to a fourth of the total feed cannot be considered "micro."

Nor can wild feed be properly considered a "feed supplement." A feed supplement is defined as "a combination of feed nutrients added to livestock feed to improve the nutrient balance or performance of the total feed ration and intended to be: (1) diluted with other feeds when fed to livestock; (2) offered free choice with other parts of ration if separately available; or (3) further diluted and mixed to produce a complete feed."⁸⁴

As noted above, "feed" and "feed supplement" are two distinct categories of substances: "The definitions in the final rule are consistent with the NOSB's objective to create *clear distinctions* between feed, feed supplements, and feed additives while clarifying the role for each within an organic livestock ration."⁸⁵ And, as explained above, fish is now by definition feed and thus cannot be a feed supplement.

What the proposed regulations are essentially attempting to do is create an exception to the 100% organic feed requirement for aquaculture by calling feed a "supplement." This is similar to what happened in Harvey v. Veneman, when the Secretary attempted through regulation to create an exception to the rule that dairy livestock must be fed organic feed for herds being converted to organic production.⁸⁶ Similar to what is being

⁸² 65 Fed Reg 80577, 80582.

⁸³ 7 C.F.R. §205.2.

⁸⁴ Id.

⁸⁵ 65 Fed Reg 80570 (December 21, 2000).

⁸⁶ Harvey v. Johanns, 396 F.3d 28, 43-44 (1st Cir. 2005).

proposed here regarding percentages of wild fish “feed supplements” being allowed over different periods of time, the challenge regulation allowed converting herds to be feed non-organic feed of a certain percentage for a set period of time.⁸⁷ As the Committee argues here with regard to aquaculture feed, the Secretary defined the “phased conversion process” because the OFPA was silent on the question of dairy herd conversion and the agency thus had the freedom to enact reasonable regulations on the subject.⁸⁸ The 1st Circuit disagreed, holding that the “Secretary’s creation of such an exception to the challenged provision of the Rule is contrary to the plain language of the Act,” and struck down the regulation.⁸⁹

Further, when used in aquaculture, fish meal is not a feed *supplement*: it is the main course. Only a tortured reading of the definition “fish meal” would suggest that it is a combination of feed nutrients and that use of up to 25% would be a “supplement” to otherwise organic feed. The Committee notes that in the past fish feed has been used to feed organic hogs and poultry and thus there is no difference in allowing it for aquaculture.⁹⁰ Yet there are major differences between these types of uses. First of all, fish feed is only used in much smaller amounts for hogs and poultry. However due to the high cost of fish meal and fish oil, there is almost no fish meal/fish oil included in feed for factory farmed chicken operations in the U.S.⁹¹ Additionally, in swine operations, fish meal/fish oil is chiefly included only in the diets of young swine and sows, at minuscule levels.⁹² The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) suggest a 5% maximum inclusion rate of fish meal (menhaden) in swine diets at all stages.⁹³ This inclusion rate is based on “palatability, nutrient availability, protein quality, nutrient interrelationship, and the method of processing and feeding.”⁹⁴ The Fishmeal Information Network (FIN)⁹⁵ recommends an inclusion rate of no more than 3% in poultry during chick rearing, between 2-5% for broilers and 2% inclusion for layer chickens.⁹⁶ All of these percentages are at least five levels of magnitude less than the proposed 25% fish feed allowance in the aquaculture standard.

Further, the fact of the matter is that fish feed is *integral* to the diets of these fish – it is not a mere “supplement” as it might be considered with hogs or poultry; rather is the

⁸⁷ Id.

⁸⁸ Id.

⁸⁹ Id.

⁹⁰ NOSB, Livestock Committee, Aquaculture Standards, Response to Comments, February 20, 2007 at 33.

⁹¹ Dubois, Mike. Sales Manager for Agriproducts, Omega Protein, Inc. *Personal Communication*. Oct. 22, 2008

⁹² Dubois, Mike. Sales Manager for Agriproducts, Omega Protein, Inc. *Personal Communication*. Oct. 22, 2008

* Omega Protein, Inc. is the largest manufacturer of fish meal and fish oil in the US.

⁹³ Murphy, Janice. “Comparative Feed Values for Swine,” Ontario Ministry of Agriculture, Food and Rural Affairs. Order No. 03-003. January 2003. *available online at* <http://www.omafra.gov.on.ca/english/livestock/swine/facts/03-003.htm#inclusion>

⁹⁴ Ibid.

⁹⁵ The Fishmeal Information Network (FIN) is an information resource and a source of contacts for fishmeal, its supply chain and its role in the nutrition of farm livestock.

⁹⁶ Fishmeal Information Network. “Feeding fishmeal and oil to farmed land animals,” 2002. *available online at* www.fin.org.uk

principle source of crucial nutrients. For these fish, without the fishmeal and oil, *you don't have a meal, period*. There would be nothing to “supplement.” The Committee recognizes as much: in an earlier response the Committee argued that this feed was necessary because to deny it to the farmed fish would deny them “*certain nutrients essential* for growth and health.”⁹⁷

But that admission proves the point. These nutrients are the *key* to the fish’s diet, not a “supplement” in any logical meaning of the word. “*Compared to other terrestrial animal and plant proteins, fishmeal is unique* in that it is not only an excellent source of high quality animal protein and essential amino acids, but is also a good source of digestible energy, essential minerals and vitamins, and lipids, including the essential polyunsaturated fatty acids.”⁹⁸ This “dependency” on fishmeal and fish oil is “primarily due to their more exacting dietary requirements for high quality protein, essential fatty acids and trace minerals.”⁹⁹

E. The Committee Wrongly Starts from the Assumption That There Must Be USDA Organic Salmon and Carnivorous Fish

The Committee’s view that this standard should pass muster because these nutrients cannot be gained from “plant-derived feed ingredients alone”¹⁰⁰ is completely wrongheaded. That admission should be enough to show the Board that these types of fish simply cannot be made in adhering to organic principles and should be excluded from the aquaculture standard, at least until an organic source of these nutrients can be found and used in a manner in line with the organic standard.

The Committee also previously stated that “to only allow organic certification of low trophic level species would greatly limit organic aquaculture under USDA standards.”¹⁰¹ This cannot possibly be an adequate basis upon which to allow certification! Of course the standard would be limited – but it would also be *meaningful*. USDA does not and should not certify every type of animal meat just because not doing so would leave out that animal from potential certification. The Committee also says that “organic certification would be allowable under other less rigorous foreign standards.”¹⁰² This too misses the point. The United States once was, and should be, the world’s leader in environmental standards rather than the laggard it has become. We should set the highest bar for such standards, not lower our own standards just because others have. Having a world-class, truly-organic aquaculture standard would actually set USDA’s standard apart from others and make it much more meaningful.

⁹⁷ Id. at 34.

⁹⁸ Tacon, Albert, G.J. *State of Information on Salmon Aquaculture Feed and the Environment*, Aquatic Farms, Ltd. September 2005., at 6, available online at http://www.westcoastaquatic.ca/Aquaculture_feed_environment.pdf (emphasis added)

⁹⁹ Id. at 7.

¹⁰⁰ Id.

¹⁰¹ Id.

¹⁰² Id.

In 2003 carnivorous finfish species consumed 52.8% and 81.9% of the total fishmeal and fish oil used in compound aquafeeds, with farmed salmon alone consuming 13.9% and 51% of total fishmeal and fish oil used within aquafeeds, respectively.¹⁰³ Clearly, if these activities are to be “sustainable” in the long-run they must reduce their dependence on these finite commodities. By certifying this harmful practice as “organic,” the proposed standard would further exacerbate this problem, in contravention of organic principles. The standards should instead create incentives to find sustainable solutions to these problems by prohibiting such practices to be certified organic pending further research into other feed sources.

In sum, the fish meal used in the feed ration of an organic fish must be obtained from organic sources. No such source for organic fish meal exists at this time. Further, non-organic fish meal derived from wild caught forage fish meets neither the status of feed additive nor feed supplement under existing USDA regulations. Simply put, a 75% organic feed ration is not a 100% organic feed ration as required under the OFPA and the implementing regulations.

F. The Requirement that Wild Fish Feed Only Come From “Sustainably-Sourced” Forage Fisheries Does Not Mitigate the Environmental Damage Or Make the Proposed Rule Lawful

In attempting to mitigate the ecological impacts associated with proposed fish meal use, the proposed rule is that wild fish feed only be used that come from fisheries that have not been classified as “at risk.”¹⁰⁴ The proposed rule lists various descriptors that cannot have been used in the classification in order for the forage fishery to be used to feed organic fish, including “depleted”, “overfished”, and includes a catch-all of “and any other comparable classification.”¹⁰⁵

The proposed measures would also not serve the objective of preventing ecological harm to fisheries for several reasons. First, CFS believes such a process is unworkable – that it would be extremely difficult, if not impossible, as a practical matter, to verify absent an extraordinary new traceability system for fish meal manufacturers. There is a complete absence of agreed standards and criteria for assessing the sustainability of these fisheries. According to some estimates, the National Marine Fisheries Service does not know whether 70% of all of the nation’s fish stocks are overfished or not.¹⁰⁶ Moreover, at

¹⁰³ Tacon, Albert, G.J. *State of Information on Salmon Aquaculture Feed and the Environment*, Aquatic Farms, Ltd. September 2005., at 55, available online at http://www.westcoastaquatic.ca/Aquaculture_feed_environment.pdf (emphasis added)

¹⁰⁴ § 205.252(l).

¹⁰⁵ *Id.*

¹⁰⁶ See e.g. Marine Fisheries Conservation Network, ShellGame: How the Federal Government is Hiding the Mismanagement of Our Nation’s Fisheries (2006), available at http://www.conservefish.org/site/pubs/network_reports/shellgame_lowres.pdf.

present 81.8% and 55% of total reported global fishmeal and fish oil production, respectively, is not reported down to a single species level.¹⁰⁷

Second, the existing domestic fisheries management system does not adequately account for the health of forage fisheries and is widely recognized as being inadequate. Further, the single-stock management approaches used in such designations has been criticized for its failure to sufficiently consider and protect greater ecosystem management of fisheries.¹⁰⁸ Little or no consideration is given within any sustainability criteria used toward the consideration of wider ecosystem implications such as trophic interactions, habitat destruction, and potential social, economic, and environmental risks. Concerns have also been raised considering the long-term sustainability and ethics of using potentially food-grade fishery resources for animal feeding rather than for direct human consumption.

Beyond the U.S., reliance on fisheries management designations to protect against the ecological impacts cause by forage fisheries depletion would be even less satisfactory. Many countries lack mechanisms to oversee fisheries or do so in ways that are much more flawed than the severely critiqued U.S. system. Moreover, fisheries in international waters lack any such authority to designate the status of the fishery as overburdened.

Nor would requiring a “sustainably-sourced” wild fish feed label remedy this failing. The public would still be led to believe that USDA approves of this practice and deems it “organic” through the imprimatur of the organic seal. Since “sustainably-sourced” is an unenforceable and undefined standard, the label would be misleading.

In sum, CFS believes that the use of wild-caught fish meal is an inherently unsustainable practice that does not have a place in organic production systems. Final regulations on organic fish production should prohibit such a practice. A prohibition on the use of wild caught fish meal will also serve to stimulate development of an organic system that produces non-carnivorous fish. To avert the looming feed crisis and take pressure off wild stocks, aquaculture needs to wean itself from fish-based feed. And NOSB’s organic standard should be a leader in this regard rather than kowtow to the industry’s efforts to market “organic” carnivorous fish. Supportive government policies mandate aquaculture in more-efficient and environmentally friendly species such as carp, catfish, and shellfish.

Conclusion

The ability to adhere to the process of organic production should drive what products are available to consumers and the desire to market a certain product as “organic” should not compel a contortion or dilution of the existing standards. One of the most basic steps in changing our approach to fish farming is changing our mindset towards it. In a world

¹⁰⁷ Tacon, Albert, G.J. *State of Information on Salmon Aquaculture Feed and the Environment*, Aquatic Farms, Ltd. September 2005., at 35, available online at http://www.westcoastaquatic.ca/Aquaculture_feed_environment.pdf (emphasis added)

¹⁰⁸ See e.g. Taking the Bait (discussing flaws and failures in current fisheries management approaches as they relate to forage fish).

that depends increasingly on farmed seafood but that faces impending fish feed shortages, this shift means favoring species that are lower on the food chain, including seaweeds, shell-fish, and herbivorous fish instead of farming large predatory fish. Just as the wild caught fisherman utilized the marketplace without organic labels to gain a premium and reputation for quality, aquaculturists can use their purported environmental gains to develop markets through other eco-labels.

But there's big money to be made in salmon farming—all the more if your fish sell for the premiums that official USDA organic certification confers. So the people in charge of drawing up organic aquaculture standards seem hell-bent on drafting regulations that conform to the current state of salmon farming, rather than insisting that salmon farmers conform to what most consumers would consider reasonable organic requirements.

Just because “fish” is included in the definition of livestock does not mean that every form of fish farming should be organic, just as every form of cattle or poultry farming is not organic. Industrial farm animal production operations, like CAFOs (confined animal feeding operations), offer insight into the inherent inability of some farming methods to be considered organic. CAFOs are large animal production operations in which hundreds or thousands of cows, pigs or chickens are kept in extremely close quarters and are fed a grain-based diet rather than grazing or feeding in pastures.¹⁰⁹ These confined conditions require operational practices that have many environmental and health consequences, both to the public and the livestock. Cattle have been found to develop internal abscesses as a result of a grain-based diet, which is an unnatural diet for ruminants.¹¹⁰ Natural animal behavior and movement is restricted due to the large number of animals squeezed into cages, which leads to stress and increased susceptibility to disease.¹¹¹ To avoid and treat disease, animals in CAFOs must be administered large quantities of antibiotics.¹¹² Livestock may also be physically altered to counter aggressive behavior that may cause injury to other animals. For example, hogs' tails are “docked” to avoid tail-biting and chickens' beaks and nails are clipped to avoid extreme pecking and scratching.¹¹³ It becomes apparent that, in order for a CAFO to be “productive”, animals are not allowed to exhibit their natural behavioral or physical characteristics. The farming method is inherently un-organic.

NOSB has to face the fact that for some types of aquaculture, the answer is simply no—that is, when it comes to certain species, organic standards just won't work. CFS calls on the Board to reject these new standards on fish feeds and open water net pens and limit its recommendation of what is organic to those aquaculture activities that can truly adhere to organic principles and standards.

¹⁰⁹ Gurian-Sherman, Doug. Union of Concerned Scientists Publication. “CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations.” April, 2008.

¹¹⁰ Pew Commission on Industrial Farm Animal Production Report. “Putting Meat on the Table: Industrial Farm Animal Production in America”. P. 33

¹¹¹ Pew Commission on Industrial Farm Animal Production Report. “Putting Meat on the Table: Industrial Farm Animal Production in America”.

¹¹² Gurian-Sherman, p. 13.

¹¹³ Pew Commission on Industrial Farm Animal Production Report. “Putting Meat on the Table: Industrial Farm Animal Production in America”. P. 33

Respectfully submitted,

George A. Kimbrell
Staff Attorney
The Center For Food Safety