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12 October 2006

National Organic Standards Board
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Comments on Invitation for Public Comment on Aquaculture Standards (September 8, 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 in response to the Livestock Committee's "Invitation for Public Comments on Aquaculture Standards" (Sept. 8, 2006). 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. See generally <http://www.centerforfoodsafety.org>.

I. Impacts on the Environment

On April 5, 2006, CFS previously submitted comments to the Board concerning the Aquaculture Working Group's Interim Final Report. In these comments, CFS outlined a number negative environmental impacts associated with aquaculture including the use of net pen systems. CFS continues to strongly oppose any allowance for the use of open water net pens in organic aquaculture systems and fully incorporates its past comments on the subject by reference herein.¹ Specific environmental impacts associated with the use of fish meal are further discussed below.

¹ CFS previous comments on the Aquaculture Working Group's Interim Report are available at <http://www.centerforfoodsafety.org/pubs/CommentsOrgAquaculture4.05.06.pdf>.

II. Comments from organic consumers and stakeholders on their expectations and explanations of the differences between organic aquaculture and conventional aquaculture methods and products.

CFS is aware of a survey concerning consumer perception of organic aquaculture conducted by the New Jersey Department of Agriculture, Fish & Seafood Program². The study, entitled “Identification and Evaluation of Viable Market Opportunities for Organically-Grown Aquatic Products”³ identifies a number of reasons consumers seek to purchase organic seafood. Ninety-five (95%) of consumers believe that the major advantage of organic seafood will be that it is chemical/pesticide free, and illustrates major concerns over contaminant levels in seafood.⁴ Additionally, fifty-nine (59%) of consumers stated they will purchase organic seafood because it represents ecological soundness.⁵ Rather incorrectly, the survey concludes that consumers focus solely on the end product of organic systems and not the process. While product safety - rather environmental considerations - may be a driving force behind organic purchases, such values are inextricably linked to ecologically sound production processes. Such a linkage is a principle reason for Congressional passage of the Organic Foods Production Act (OFPA).⁶ Indeed, concerns over contaminants and ecological soundness are comments about 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. This linkage should be recognized in viewing the proposed allowance of 12% fish meal - a practice that will increase contaminant levels in organic seafood and will support the ecologically damaging production method of using large quantities of wild harvested forage fish.

III. Use of Fish Meal

Will organic consumers find the temporary 12% fish oil and fish meal allowances acceptable and what will consumer reaction be if (in a worst case scenario) certain aquaculture products no longer qualify as organic after the seven year fish oil and fish meal allowance period expires?

² CFS is also in the process of polling its 40,000 True Food Network members to further assess their expectations of seafood labeled as organic. As soon as CFS has complete an analysis of the data collected, it will forward the results to the Board.

³ The report is available at <http://www.ams.usda.gov/tmd/FSMIP/FY2004/NJ0428.pdf>

⁴ *Id.* at 26.

⁵ *Id.*

⁶ 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.”)(emphasis added).

The Livestock Committee’s proposed allowance of 12% fish meal offered in this document comes without context as to why the Aquaculture Working Group’s prior proposal option to not allow fish meal was not chosen, how the 12% figure was reached and why seven years is suggested as a “temporary” allowance period. CFS believes that non-organic fish meal should not be allowed for use in organic aquaculture. CFS believes that the 12% fish meal allowance is wrong for several reasons:

- It Is Contrary to Law. Use of non-organic fish meal in organic aquaculture is contrary to the OFPA, implementing regulations and prior NOSB recommendations
- It Is Contrary to Consumer Expectations on Contaminants. Consumers expect organic production methods to limit the environmental contaminants found in organic fish. Use of fish meal from wild fisheries will elevate the level of environmental contaminants in the end seafood product.
- It Is Contrary to Consumer Expectations of Ecologically Sound Production Methods. Consumers expect 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.

1. Use of Conventional Fish Meal in Organic Aquaculture Is Illegal

The Aquaculture Working Group and Livestock Committee’s consideration of allowing up to 12% of the diet in fish meal ignores legal restrictions under the OFPA. A thorough analysis of the statute, regulations and NOSB recommendations makes it clear that use of fish meal from capture fisheries as a feed for organic aquaculture is illegal.

Pursuant to the OFPA, any fish used for food are defined as “livestock.”⁷ Furthermore, fish meal is a product derived from livestock and used for livestock consumption and, as such, is an “agricultural product.”⁸ Fish meal is also an edible material consumed by livestock for its nutritional value and as

⁷ 7 U.S.C §6502(11). The National Organic Program regulations define livestock as:

Any cattle, sheep, goat, swine, poultry, or equine animals used in food or in the production of food, fiber, or other agricultural-based consumer products; wild or domesticated game; or other nonplant life, except such term shall not include aquatic animals, or bees for the production of food, fiber, feed or other agricultural-based consumer products.” 7 C.F.R. §205.2

However, the definition’s exclusion aquatic animals is “pending future development of detailed standards for specific aquatic animals.” 65 Fed. Reg. 13512, 13517 (March 13, 2000).

⁸ 7 U.S.C. § 6502(1).

such a “feed.”⁹ The existing regulations provide that “the producer of organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and, if applicable, organically handled.”¹⁰ Accordingly, any feed that consists of, whole or in part, the agricultural product of fish meal, must be organically produced and handled.¹¹ As recently determined in the case of Harvey v. Johanns,¹² the OFPA requires that all livestock be fed a feed ration that is a 100% organic. As the court asserted, such an interpretation of “total feed ration” is consistent with the legislative history of the OFPA.¹³

It is clear that there are currently no organically caught wild fish. Creation of fish meal without the 100% use of organic fish means that fish meal cannot be a feed and agricultural product that conforms to the requirements for use in livestock that are raised organically. This does not mean that fish meal can never be organic feed, it means that an organic fish meal industry will have to develop by creating fish meal from species of fish produced organically initially without the use of any fish meal.¹⁴

CFS is aware that 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 additive and feed supplement.¹⁵ Fish meal for use in aquaculture does not fall within these exceptions. First, a feed additive is defined under regulations as “a substance added to feed in micro quantities to fulfill a specific nutritional need; ie. essential nutrients in the form of amino acids, vitamins, and minerals.”¹⁶ Clearly, use of fish meal in aquaculture, up to even 12%, cannot be considered added to feed in “micro quantities.” Second, a feed supplement is “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

⁹ The term “feed” encompasses all agricultural commodities, including pasture ingested by livestock for nutritional purposes. 7 C.F.R. §205.2

¹⁰ 7 C.F.R. §205.237.

¹¹ CFS notes that the fish species used to make fish meal are commonly referred to as forage fish.

¹² 396 F.3d 28 (1st Cir. 2005).

¹³ Id. at 43, n.7 (citing S. Rep No. 101-357 1990 USCCAN 4656,5222 and stating that livestock must be fed 100 percent organically grown feed).

¹⁴ See NOSB Livestock Committee Directive for Fish Meal, Nov. 21, 2004 (stating “Organic Fishmeal will not be available unless standards for Wild Caught Organic Fish and/or Aquaculture are developed.”).

¹⁵ 7 C.F.R. §205.237(a).

¹⁶ 7 C.F.R. §205.2.

available; or (3) further diluted and mixed to produce a complete feed.”¹⁷ When used in aquaculture fish meal is not a feed supplement. 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 12% would be a supplement to otherwise organic feed. While the NOSB has determined that existing fish meal preserved with natural substances could be a feed supplement, the Board clearly concluded that this did not apply to the use of fish meal in organic aquaculture.¹⁸ The National Organic Program concurred that the NOSB’s fish meal decision applicability to aquaculture standards was left for future consideration by the Board.¹⁹

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, an 88% organic feed ration is not a 100% organic feed ration as required under the OFPA and the implementing regulations.

2. Use of Conventional Fish Meal Is Contrary to Consumer Concerns on Contaminants

The NJ Department of Agriculture survey suggests that there is no consumer concern about fish feeds. The survey found “no discussion of possible implications for marine ecosystems of feeding fish to higher-level predators” and “discussion centered entirely on the diets being unnatural.”²⁰ However, this is not the case. The fish meal issue is directly intertwined with consumers’ significant expectation on the level of contaminants in organic seafood.²¹

¹⁷ Id.

¹⁸ See NOSB Livestock Committee Directive for Fishmeal, Nov. 21, 2004 (stating “the status of fishmeal for use in organic aquaculture will be considered during the development of NOP aquaculture standards.”). The NOSB added that should standards and definitions for the production of organic fishmeal are developed then organic fish meal must be used as Feed, feed supplements or feed additives for any organic livestock. It follows from this recommendation that any determination that existing fish meal is a feed supplement is at best temporary and not applicable to organic aquaculture uses. NOSB Livestock Committee Directive for Fishmeal, Nov. 21, 2004; See also NOSB, Final Recommendation, Livestock Feed Standard (June 2, 1994)(stating “Feed supplements fed to livestock directly or as a supplement to feed rations shall be certified organically produced”).

¹⁹ See USDA Response to NOSB Feedback on Issue Statements: Fishmeal, Inerts, Antibiotics, and Scope of Authority, Issue 1. Fishmeal (Mar. 10, 2005); See also, 65 Fed Reg. 13529 (Mar. 13, 2000)(USDA concurring that it will later develop detailed aquatic animal standards because of differences from the management of other livestock).

²⁰ NJ Dept of Ag Study at 20.

²¹ 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>

Farmed salmon has been documented to have a much higher concentration of environmental contaminants than wild salmon.²² 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 persists in the environment today. Scientists also believe that PCBs are carried in the air from other countries where the chemicals are still being used.²³

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 dioxin.²⁴ 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.²⁵ A sampling done in Scotland found “surprisingly high” levels of PCBs, and United Kingdom samplings found levels of DDT and chlordane in nearly all samples of farmed salmon.²⁶

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.²⁷ The study found that farm-raised salmon contained significantly higher concentrations of environmental contaminants than those found in wild-caught salmon.²⁸ The study also reported that farmed salmon obtained from Europe contained higher concentrations of contaminants than those farmed in North and South America.²⁹ In May 2005, the authors of this study issued a new study finding that to achieve

²² 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.

²³ 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.

²⁴ 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

²⁵ 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.

²⁶ Id.

²⁷ Hites, et al., at 226.

²⁸ Id. at 227.

²⁹ Id. at 228.

a cancer risk “in the middle of the U.S. EPA’s acceptable risk range consumption of farmed salmon must be effectively eliminated.”³⁰

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.³¹ 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.³²

There are significant human health risks in consuming toxic environmental contaminants. 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.”³³

The Hites study mentioned above 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.³⁴ 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 of concurrent exposure to more than one contaminant, and do not provide guidance for acceptable levels of toxaphene and dioxins in fish tissue.”³⁵

³⁰ 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).

³¹ Id.

³² 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.

³³ Weber, at 28 (citing J.K. Huwe, Dioxins in Food: A Modern Agricultural Perspective, 50 J. Agric. Food Chem. 1739 (2002)).

³⁴ 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>.

³⁵ 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

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.”³⁶ 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. If consumers expect fewer contaminants in organic fish, allowing use of fish meal derived from wild caught fish is in direct conflict with such expectations.

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

As indicated in the NJ 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.”³⁷ 7 C.F.R. §205.2. The use of fish meal as feed for organic aquaculture contradicts such intent.

Fish meal and fish oil are used for carnivorous species such as salmon and shrimp. The fish meal and fish oil come 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.³⁸ While the 12% 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.³⁹ As the U.S. Ocean Commission stated, “obtaining fishmeal

Nutrition, Food & Drug Admin., Fish and Fisheries Products Hazards and Controls Guidance, available at <http://www.cfsan.fda.gov/~acrobat/haccpc09.pdf>.

³⁶ Id. at 229.

³⁷ 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.”)

³⁸ 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/pdf/env_pew_oceans_final_report.pdf

³⁹ 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))

from traditional wild harvest practices may increase the pressure on fisheries that are fully exploited.”⁴⁰

Protecting key forage species is a key starting point to the ecosystem management of fisheries including protection of biodiversity. Forage fish play a significant role for ocean predators and form a fundamental base of the food web for aquatic and non-aquatic predators. 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.⁴¹ 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.

IV. Sources of Fish Meal

In attempting to mitigate the ecological impacts associated with fish meal use, the Board suggests that an option is to allow only fish meal made from forage fish harvested from fisheries that are overburden or do not meet a “maximum sustainable yield” basis. CFS believes such a process would be extremely difficult, if not impossible, to verify absent an extraordinary new traceability system for fish meal manufacturers. Regardless, the proposed use of domestic or foreign fisheries management classifications is similarly unworkable, and it would not serve the objective of preventing ecological harm to fisheries for several reasons.

First, the existing domestic fisheries management system does not adequately account for the health of forage fisheries and is widely recognized as being inadequate. 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.⁴² 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.⁴³

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

⁴⁰ 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

⁴¹ 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).

⁴² 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.

⁴³ See e.g. Taking the Bait (discussing flaws and failures in current fisheries management approaches as they relate to forage fish).

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.

In sum, CFS believes that the use of wild caught fish meal is an 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-carniverous fish. Once that market is established it will allow the industry to revisit the issue of fish meal by potential making the availability of organic fish meal a possibility.

V. Use of Byproducts

As noted previously, on April 5, 2006, CFS previously submitted comments to the Board concerning the Aquaculture Working Group's Interim Final Report. In these comments, CFS outlined several reasons why, at this time, the existing regulations' prohibition of the feeding of mammalian or poultry slaughter by-products should be extended to fish. Among the reasons are that prions have been detected in spawning salmon, research concerning the transmission of TSEs to fish is ongoing and the U.K. feedstuffs regulation includes such a prohibition.⁴⁴ CFS believes that the Committee's conclusions about the lack of risk associated with the use by-products are at best premature and, at worst, unfounded given the general paucity of scientific assessment on this issue.

Conclusion

CFS appreciates the Livestock Committee's diligent work in the development of its proposed amendments to the National Organic Program's regulations for the purposes of allowing organic aquaculture. CFS respectfully urges the Board to adopted the suggestions contained herein to ensure that both consumer expectation is met and that organic aquaculture systems truly promote ecological diversity and conserve biodiversity.

Respectfully submitted,

/s/

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⁴⁴CFS previous comments on the Aquaculture Working Group's Interim Report are available at <http://www.centerforfoodsafety.org/pubs/CommentsOrgAquaculture4.05.06.pdf> at 8-9.