Don't Take the Bait: Why USDA Organic Certification is Wrong for Salmon

Jessica Hass
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INTRODUCTION

As the global population grows and income levels rise, the demand for meat protein increases.1 The environmental impacts of land based meat production are well-known2 and significant enough that the meat economy “cannot move forward without significant changes in both supply and demand.”3 In what has been called the “blue revolution,” more and more consumers and producers are turning to seafood as an alternative.4 Fish are more efficient at converting feed into calories for human consumption and are “more amenable to industrialization.”5 In addition, fish is considered a healthier source of meat protein than “fat-laden land animals.”6

Unfortunately, natural fisheries are not an inexhaustible resource. Fishing “has wiped out 90% of large fish, including swordfish, cod, marlin, and sharks.”7 The annual global catch of fish from natural fisheries has

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4 Id. at 11. Some of the increase in fish consumption is due to marketing. A number of fish that were previously ignored have been given new names and are now popular sources of food. David A. Fahrenthold, Tastier Names Trouble for Seafood Stocks, WASH. POST, July 31, 2009, http://www.washingtonpost.com/wp-dyn/content/article/2009/07/30/AR2009073002478.html (last visited Feb. 6, 2010). For example, orange roughy is now widely overfished; it suffered no such threat when it was still known as a “slimehead.” Id.

5 ROBERTS, supra note 3, at 311.

6 Kona Blue Urges NOSB to Set Organic Standards for Finfish, BUSINESS WIRE, Mar. 27, 2007 [hereinafter Kona Blue].

7 Rebecca Goldberg & Rosamond Naylor, Future Seascapes, Fishing, and Fish Farming, FRONTIERS ECOLOGY & ENV’T (Feb., 2005), at 21.
not exceeded ninety million tons in over ten years. In 2004, the Food and Agriculture Organization of the United Nations (“FAO”) estimated that over half of all global marine fisheries were already “fully exploited.” This decrease in catch is not expected to improve; only 17% of fisheries are even capable of increased catch and studies conducted during the late 1990s suggest that fish stocks will show declining yields unless fishing practices change.

According to the Nature Conservancy, “[u]nsustainable levels of fishing are one of the greatest threats to oceans all over the world.” The modern fishing industry has even been called “the most destructive activity on Earth.” Overfishing not only depletes the population of large fish that are caught for food, but also has a long-term impact on oceanic biodiversity. Moreover, fishing gears and bottom trawls used in the fishing industry cause habitat degradation and overharvest of some ocean species reduces the ocean’s capacity to filter and detoxify contaminants.

Farming fish, or “aquaculture,” is an alternative method of producing fish for human consumption that could potentially relieve pressures on wild fish populations. An aquaculture facility uses an open sea net pen, stocks it with juvenile fish, and raises the fish until they are mature enough for harvest.
animal food-industry.” In 2002, sales of farmed fish in the United States exceeded $1 billion. More than a third of the total global commercial fish catch now comes from aquaculture production and farmed salmon constitute more than half of the salmon that is sold in international markets.

At the same time, Americans are increasingly worried about their food and “not only about its price but about its safety, its provenance and its healthfulness. There is a gathering sense among the public that the industrial food system is broken.” Over the last decade, organic food sales have increased 15% or more each year. The organic label is attractive because the underlying premise of organic production is that people should “take no unnecessary risks with the natural environment.” This philosophy was part of the movement that led to several state organic certification laws passed in the 1970s.

The organic market for meat has grown the most quickly. This comes as no great surprise as both the environmental impact of meat production and food safety concerns, particularly for beef, have both become better known. In terms of environmental harms, beef production requires ten times the average fossil fuel required to produce food and

visited Feb. 6, 2010).

19 Anderman-Hahn, supra note 9, at 1007. In fact, “fish farming is the fastest growing form of food production in the world.” CLOVER, supra note 13, at 299.
20 Anderman-Hahn, supra note 9, at 1007.
21 ROBERTS, supra note 3, at 270.
22 Goldburg & Naylor, supra note 7, at 21.
24 A. Bryan Endres, An Awkward Adolescence in the Organics Industry: Coming to Terms with Big Organics and Other Legal Challenges for the Industry’s Next Ten Years, 12 DRAKE J. AGRIC. L. 17, 18 (2007).
26 Endres, supra note 24, at 19.
27 Id. at 26. In 2005, organic meat sales climbed over 55% and have grown over 150%, since 2002. Id.
29 Leo Horrigan, Robert S. Lawrence & Polly Walker, How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture, 110 ENVTL. HEALTH PERSP. 445, 446 (2002) (“The average U.S. farm uses 3 kcal of fossil energy
the United States meat industry in 1997 produced “5 tons of animal waste
for every U.S. citizen.”

In 1990, the federal government passed the Organic Food Production Act (“OFPA”) to regulate organic production and organic certification for agricultural products through the United States Department of Agriculture (“USDA”).

Livestock is defined as cattle, sheep, goats, in producing 1 kcal of food energy (in feedlot beef production, this ratio is 35:1).
pigs, and fish used for food.\(^{39}\) Current regulations for organic certification are essentially prohibitions on certain inputs used to produce agricultural products.\(^{40}\)

None of the current regulations describe organic production of fish,\(^{41}\) though a number of controversial regulations have been proposed.\(^{42}\) The debate surrounding organic certification for carnivorous fish such as salmon, an increasingly popular food,\(^{13}\) is particularly contentious. The Pure Salmon Campaign argues that current farm practices are so ecologically detrimental that they “[violate] core organic principles.”\(^{44}\) At the same time, aquaculturalists argue that wild caught salmon could never be “organic” because there is no way to certify that the salmon were fed organically raised fish.\(^{45}\) More importantly, buying wild caught salmon is not necessarily good for the environment; salmon are among those species that are overfished.\(^{46}\) Because the debate over salmon is central to the


\(^{40}\) See, e.g., 7 C.F.R. §§ 205.105, 205.603, 205.604 (2009).

\(^{41}\) When consumers request organic farmed salmon, Ana Sortun, chef and owner of Oleana, in Cambridge, Massachusetts, tells them “there is no such thing” and that “the term organic has no meaning . . . when applied to fish.” Pure Salmon Campaign: American Consumers Being Misled by ‘Organic’ Salmon Sold in the U.S., PR NEWSWIRE US, Mar. 12, 2007 [hereinafter American Consumers Being Misled].


\(^{45}\) Sung, supra note 36.

\(^{46}\) Iudicello et al., supra note 11, at 25.
discussion regarding regulations, regulations for salmon are the focus of this note.

This note begins with a discussion of the purpose of an organic label and organic certification in terms of protecting the environment, consumers, and producers. Part II describes current organic labeling requirements for livestock. Part III argues that the USDA certified organic label is an imperfect method of encouraging environmental sustainability and informing consumers. Part IV describes proposed regulations that would control organically produced fish. Part V argues that the current and proposed regulations for organically produced fish are ineffective and counterproductive. Finally, Part VI suggests alternative certification agencies and possible alternative regulations for fish.

I. WHY THERE IS A NEED FOR AN ORGANIC LABEL

The organic movement began with several intentions. First, the ultimate purpose of organic production is to leave the environment better off. The theoretical “over-arching tenet” behind organic farming is “its commitment to taking no unnecessary risks with the natural environment.” Organic producers avoid toxicity risks by using alternative materials and methods of production. This philosophy is explicitly written into the federal regulations that govern organic certification. To qualify as organic, the production practices “must maintain or improve the natural resources of the operation, including soil and water quality.”

Second, an organic label theoretically protects consumers who are willing to pay a price premium for organically produced food. When deciding which products to purchase, “[c]onsumers deserve clear assurance that their choice of organic products supports a safer and more sustainable environment.” However, some countries, such as Norway, Ireland,
and Scotland\textsuperscript{54} certify fish as “organic” and sell it in the United States, even though chemicals have been used to control parasites and diseases.\textsuperscript{55} Without a standard that defines “organic,” it is difficult for consumers in the United States to know what they are actually buying or whether they are willing to pay a price premium.\textsuperscript{56}

Third, a regulated organic label protects producers who benefit from charging a price premium for their product.\textsuperscript{57} At the high end, growers can receive up to 250\% more for organic products.\textsuperscript{58} It would hardly be fair to allow a producer to charge a premium for food he or she claims is organic, but was not actually organically produced. Although the number of organic producers could increase, the price differential appears to be driven by demand and will likely be preserved even if supply changes.\textsuperscript{59} Like other organic producers, producers of organic fish would also be able to charge a price premium.\textsuperscript{60}

II. THE ORGANIC FOODS PRODUCTION ACT AND CURRENT REGULATIONS FOR ORGANIC PRODUCTION OF LIVESTOCK

The Organic Foods Production Act (“OFPA”) was passed in 1990.\textsuperscript{61} The OFPA requires the establishment of the National Organic Standards Board (“NOSB”).\textsuperscript{62} The purpose of the NOSB is “to assist in the development of standards for substances to be used in organic production and to advise the Secretary on any other aspects of the implementation of this chapter.”\textsuperscript{63} Six subcommittees, including one that focuses on livestock issues, work on specific aspects of the organic program.\textsuperscript{64}

\textsuperscript{54} American Consumers Being Misled, supra note 41.
\textsuperscript{55} Groups Praise Committee Recommendation, supra note 44.
\textsuperscript{56} See id. (quoting Joseph Mendelson, Legal Director for the Center for Food Safety).
\textsuperscript{57} Gary D. Thompson, Consumer Demand for Organic Foods: What We Know and What We Need to Know, 80 Am. J. Agric. Econ. 1113, 1115 (1998) (making note of the “large size of many organic price premiums”).
\textsuperscript{58} Timothy A. Park & Luanne Lohr, Supply and Demand Factors for Organic Produce, 78 Am. J. Agric. Econ. 647, 647 (1996).
\textsuperscript{59} Id. at 653.
\textsuperscript{60} Kona Blue, supra note 6.
\textsuperscript{63} Id.
\textsuperscript{64} Notice of Meeting of the National Organic Standards Board, 73 Fed. Reg. 54,781 (Sept. 23, 2008).
To be labeled or sold as USDA certified organic, agricultural products must be produced and handled in accordance with requirements set forth in the federal regulations that govern the National Organic Program ("NOP"). Producers who intend to sell organic products are required to “develop an organic production or handling system plan that is agreed to by the producer or handler and an accredited certifying agent.” The plan describes the producer’s practices and procedures, provides a list of substances that will be used in production, describes monitoring and record-keeping systems that will ensure compliance, and describes “management practices and physical barriers to prevent commingling of organic and nonorganic products.”

To receive or maintain organic certification, agricultural producers must comply with all related regulations; pay all required fees; “establish, implement, and update annually an organic production or handling system plan that is submitted to an accredited certifying agent;” permit inspections and allow certifying agents to have access to all production areas and handling systems; maintain records for a minimum of five years; and notify the certifying agent of any application or drift of prohibited substances or changes in operations that affect compliance with the regulations.

The regulations that set the standards for organic agricultural production are essentially lists of permitted and prohibited inputs. Organic produce must be produced and handled without the use of certain synthetic and nonsynthetic substances. Processed foods are certified organic if they are produced and handled without the use of nonagricultural substances and nonorganic agricultural substances. In addition,
the regulations provide standards for handling and processing\textsuperscript{77} and pest management practices.\textsuperscript{78} The certification process includes annual on-site inspections\textsuperscript{79} and annual payment of the certification fee and submissions of information.\textsuperscript{80}

III. LIMITATIONS TO ORGANIC REGULATIONS

Unfortunately, current USDA labeling regulations are flawed in several ways. First, the regulations are far removed from the underlying premises of the organic movement.\textsuperscript{81} Ideally, an organic label indicates a production philosophy that emphasizes environmental sustainability, good care for the animals, and social awareness.\textsuperscript{82} Before USDA regulations were promulgated, “‘organics’ represented, in large part, a social movement with a commercial consequence.”\textsuperscript{83}

In reality, it would be difficult to mandate an approach to agriculture that truly encompasses the goals of the organic movement because “it is conceptual and open to interpretation.”\textsuperscript{84} The organic labeling requirements are merely lists of acceptable and unacceptable inputs so the primary goals of the organic label are not really met.\textsuperscript{85}

Second, although the OFPA purports to assist consumers in choosing products, consumers do not necessarily influence the regulations that are ultimately passed. Meetings for the NOSB are public, but “typical organic food consumers rarely read about the board, its meetings or its interest in their input.”\textsuperscript{86} Consumers may be interested in submitting their comments to the NOSB, but notices are “rarely placed in mainstream

\textsuperscript{77} 7 C.F.R. § 205.270 (2009).
\textsuperscript{78} 7 C.F.R. § 205.271 (2009).
\textsuperscript{79} 7 C.F.R. § 205.403 (2009).
\textsuperscript{80} 7 C.F.R. § 205.406(a) (2009).
\textsuperscript{81} The Organic Consumers Association has initiated a “Safeguard Organic Standards” campaign based on the premise that “the U.S. organic community has built a multi-billion dollar alternative to industrial agriculture. Now large corporations, aided and abetted by the USDA and members of Congress, are moving to lower organic standards and seize control.” Organic Consumers Association, SOS: Safeguard Organic Standards, http://organicconsumers.org/sos.cfm (last visited Feb. 6, 2010). The campaign implores followers, “For the sake of the earth and our health we must stop them.” Id.
\textsuperscript{82} See Endres, supra note 24, at 32.
\textsuperscript{83} Id. at 21.
\textsuperscript{84} Klonsky & Tourte, supra note 74, at 1119.
\textsuperscript{85} See id. (noting that these requirements do not further “promot[e] processes devoted to maintaining ecological harmony”).
\textsuperscript{86} Clark, supra note 25, at 333.
newspapers, food co-op mailings, environmental group newsletters or food safety/pesticide advocacy notices.”

Third, USDA organic certification connotes food that is safer even though it may not be. The Organic Consumers Association goes so far as to tell its members “not only is organic safer, healthier and more nutritious, it’s an important part of being able to . . . reduce food-borne illnesses and diet-related diseases.” But at the first meeting of the NOSB in 1992, then Assistant Secretary of Agriculture Joann Smith said that OFPA should not be considered a “food safety” law. She “admonished the board to make sure it did not characterize organic food as safer than regular food, since there is no scientific proof to that effect.” Regrettably, instead of setting high standards, the USDA approach seems to be that the “lowest common denominator” establishes the rule for food safety.

Fourth, as regulations become less restrictive and less strictly enforced, the meaning of the word “organic” could be destroyed. Regulations are becoming more lax and the list of acceptable nonorganic ingredients and pesticides, the very inputs the organic movement hoped to avoid, has been growing. Within the organic community, there is some concern that “dilution of current state and private certification agency standards would undermine the integrity of organic production and also pave the way for conventional farmers to enter the organic industry easily.” In addition,

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87 Id.
88 Rick Moonen, chef and co-owner of RM Seafood at Mandalay Bay Resort & Casino in Las Vegas, Nevada noted that “[t]he word ‘organic’ evokes an image, to the general consumer, of something that was produced in a controlled environment without the use of pesticides and free from harmful contaminants.” American Consumers Being Misled, supra note 41.
90 Clark, supra note 25, at 331.
91 Id. at 346 (quoting Carol Tucker Foreman, former Assistant Secretary of Agriculture for Food and Consumer Services who wondered “Why not say, ‘In our industry, the standard will be set by the best guy?’”).
92 Scott J. Wilson, What is “Organic”? L.A. TIMES, June 9, 2007, at A1 (noting the USDA’s consideration of the addition of thirty-eight nonorganic substances to the list of approved source materials for organic products). Ronnie Cummins, executive director of the Organic Consumers Association of Finland, Minnesota called the proposed addition to the list “blatant catering to powerful industry players who want the benefits of labeling their products ‘USDA organic’ without doing the work to source organic materials.” Id.
93 Klonsky & Tourte, supra note 74, at 1124.
the USDA does not enforce the regulations itself; it relies on certifying agents. This has led to concern that the regulations that are in place are not properly enforced.

Finally, the NOSB is responsible for recommending standards to the Secretary of Agriculture, but the NOSB could be “vulnerable to unwise or contrary appointments to the board.” The members of the NOSB are appointed by the Secretary of Agriculture. Fifteen individuals comprise the board, and the OFPA requires a certain number of members to come from specific sectors of the agriculture industry. Four members must “own or operate an organic farming operation,” two members must “own or operate an organic handling operation,” one member must own or operate “a retail establishment with significant trade in organic products,” three must have “expertise in areas of environmental protection and resource conservation,” three must be representatives from consumer interest groups, one must have “expertise in the fields of toxicology, ecology, or biochemistry,” and one must be “a certifying agent.”

Although the statute appears to emphasize experience in organic food production, the NOSB is susceptible to infiltration by big business. In fact, one of the current members is the Senior Manager for Commercialization and Improvement for the Campbell Soup Company. Having representatives of big business on the NOSB is potentially dangerous because it could lead to further relaxation of organic standards. Five years after the OFPA was passed, “[c]ompanies that were looking to new organic rules as their ‘jumping in’ opportunity doggedly attended every board meeting.”

95 Wilson, supra note 93, at A1.
96 Organic Consumers Association, SOS: Safeguard Organic Standards, supra note 81. The Organic Consumers Association argues “we need to stop unscrupulous certifiers and USDA bureaucrats from saturating the organic market with fraud.” Id.
97 Clark, supra note 25, at 329.
98 7 U.S.C. § 6518(c) (2009). When there are vacancies on the NOSB, the Agricultural Marketing Service publishes a notice in the Federal Register to request nominations. See, e.g., Nominations for Members of the National Organic Standards Board, 74 Fed. Reg. 10,878 (Mar. 13, 2009). In appointing members, the Secretary considers “demonstrated experience and interest in organic production, handling and retailing; diverse commodity and geographic representation; support of consumer and public interest organizations; demonstrated experience with environmental matters; and such other factors as may be appropriate.” Id. at 10,879.
100 Id.
meeting, hoping the standards and allowed materials would give them the chance to use synthetic substances in processed foods and still label them ‘organic.’”

Moreover, if production requires an input that is not commercially available in organic form, the producer is permitted to use the nonorganic input while still bearing the organic label if the input is included on the National List. This loophole means that “large companies have a better chance of winning approval to use nonorganic ingredients because the amount they demand can exceed the small supply of organic equivalents.” The regulation was amended in 2007 to include an additional 38 inputs.

The organic label is an imperfect method of reaching the goals of the organic movement. The regulations are based only on inputs and do not indicate food safety and thus represent a departure from the movement’s philosophy. In addition, the regulations are made with little consumer input, are becoming more lax, and are written by a board that is susceptible to corporate influence.

IV. PROPOSED REGULATIONS FOR AQUACULTURE

At the November 17, 2008 meeting of the NOSB, the Livestock Committee presented recommendations “on the use of fish feed and open net pens in regards to the development of organic aquaculture standards for finfish.” The proposed feed regulations require producers to feed aquatic animals food that is consistent with their developmental needs, including feed that contains lipids from fish oil or other omega-3 fatty acids. More importantly, the regulation requires aquaculture feeds to be composed of ingredients that are certified organic, except that non-organic feeds are permitted in decreasing amounts during the first twelve years after the regulation is passed. The regulations also

102 Clark, supra note 25, at 333.
104 Wilson, supra note 93, at A1.
107 NOSB FORMAL RECOMMENDATION, AQUACULTURE: FISH FEED—FISH OIL AND FISH MEAL, supra note 42, at § 205.252(c)–(d).
108 Id. at proposed § 205.252(e).
109 Id. at proposed § 205.612(a). Non-organic feed is permitted in the following amounts: 25% during the first five years, 15% during years six through eight, 10% during years nine
include provisions designed to protect populations of smaller fish that are used for feed.110

The net pen regulations include a section requiring an organic production and handling plan111 and sections describing healthcare,112 living conditions,113 and facilities114 for aquatic livestock. The net pens must be located in areas that minimize their impact to the surrounding environment and animal and plant life.115 Though vague, the regulations also address environmental concerns by requiring aquaculturalists to have a waste management plan to minimize adverse impacts.116 Without going into specific detail, the regulations have a few provisions that relate more directly to the care of the animals; organic certification requires aquaculturalists to establish measures to reduce the transmission of diseases117 and to limit the population of fish in the pen to one that “allows the animals to exercise swimming behavior” and “promotes natural behaviors.”118

In November 2008, the NOSB accepted the proposed regulations and recommended them to the NOP for rulemaking action.119 At the time of this writing, USDA has not published an Advanced Notice of Proposed Rule Making in the Federal Register.120 As late as December 2008, a USDA

110 Fish meal and oil may not be acquired from any fishery that is in danger of depletion. Id.

111 NOSB FORMAL RECOMMENDATION, AQUACULTURE—NET PENS, supra note 42, § 205.201.

112 Id. at § 205.253.

113 Id. at § 205.254.

114 Id. at § 205.255.

115 Id. at § 205.201(a)(7)(v) (requiring that the organic production and handling system plan describe steps to be taken to minimize the impact on aquatic ecosystems and wildlife); id. § 205.201(a)(7)(xi) (requiring similar requirements for net pens); id. at § 205.255(k)(1) (requiring that net pens not interfere with migratory routes, reproductive patterns, or habits of wildlife).

116 NOSB FORMAL RECOMMENDATION, AQUACULTURE—NET PENS, supra note 42, at § 205.201(a)(7)(viii) (requiring waste management plan); id. at § 205.255(g)(1) (regulating nutrient recycling and discharge levels).

117 Id. at § 205.253(a)(3).

118 Id. at § 205.254(a)(2).

119 NOSB FORMAL RECOMMENDATION, AQUACULTURE: FISH FEED—FISH OIL AND FISH MEAL, supra note 42; NOSB FORMAL RECOMMENDATION, AQUACULTURE—NET PENS, supra note 42.

official was unable to say when a final rule would be issued.\textsuperscript{121} Thus, it is not clear when, or even if, the proposed regulations will ever go into effect.

V. LIMITATIONS TO REGULATIONS PERTAINING SPECIFICALLY TO FISH

Because the regulations are lists of acceptable and unacceptable inputs, the organic label is not appropriate for wild-caught fish, including salmon. Salmon are migratory and carnivorous.\textsuperscript{122} There is no way to determine what fish a wild-caught fish has eaten during its lifetime and “[f]ish labeled as ‘organic’ that are not fed 100 percent organic feed . . . fall significantly short of consumer expectations and undermine the integrity of the organic label.”\textsuperscript{123} As George Kimbrell, an attorney for the Center for Food Safety quipped, “It would be really hard to certify the Pacific Ocean.”\textsuperscript{124} Thus, the NOSB determined in 2001 that “organic certification is not appropriate for wild aquatic animals.”\textsuperscript{125}

The proposed regulations are also inappropriate for farmed fish. Interested parties from a variety of sectors have spoken out against the proposed regulations.\textsuperscript{126} Even the Pure Salmon Campaign, an organization

\begin{thebibliography}{99}
\bibitem{125} Sung, \textit{supra} note 36, at 19.
\bibitem{126} Many concerned citizens responded to the NOSB’s request for comments. See, e.g., Letter from Jennifer Barricklow to Valerie Frances, Executive Director, National Organic Standards Board (Nov. 6, 2008), available at http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5074537&acct=nsob (last visited Feb. 6, 2010) (“As a consumer who puts value and faith in the organic label, I expect fish labeled as organic to meet the same high standards as all other organic products and livestock. Anything less is a disservice to the organic label and American consumers.”); Letter from George A. Kimbrell, Staff Attorney, The Center for Food Safety to Valerie Frances, Executive Director, National Organic Standards Board (Nov. 6, 2008), available at http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5074543&acct=nsob (last visited Feb. 6, 2010) (“Unfortunately, the latest round of the development of Organic Aquaculture standards . . . 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.”); Letter from George H. Leonard, Ph.D., Director, Aquaculture Program, Ocean Conservancy to Valerie Frances, Executive Director, National Organic Standards Board (Nov. 6, 2008), at 2, available at http://www.ams.usda.gov/AMSv1.0/
dedicated to improving standards for farm raised fish, has vocally opposed the proposed regulations. Both the regulations regarding feed and the regulations regarding net pens have important weaknesses.

The feed regulations pose several problems. First, the regulations do not adequately address the impact that fishing for feed for aquaculture has on wild populations of fish. About 40% of wild-caught fish are processed into fish meal and fish oil. Because “about two to five times more wild-caught fish are used in feeds than are harvested from aquaculture,” using small fish to feed large fish through aquaculture causes a net loss in protein. Global wild fish populations are already diminishing, and “species that use more wild fish for feed than are produced by aquaculture increase the pressure” on those populations.

The proposed regulations initially made an attempt to address this concern. One section of considered language, which did not make it into the final NOP proposal, required that to be certified “organic,” fish must be fed such that “[t]he amount of wild fish that goes into feeding the aquatic animals cannot exceed one pound of wild fish product fed for every pound of live weight of cultured aquatic animals at harvest.” It is not clear that the regulation would have truly eliminated the problem of net protein loss.

The Pure Salmon Campaign believes that “salmon can be farmed safely and with minimal ecological damage, if the industry adopts standards that protect the environment, consumers and local communities. The campaign seeks to transform the salmon farming industry, not merely for it to adopt marginally better ‘best practices.’” Pure Salmon Campaign, About Us, http://www.puresalmon.org/about.html (last visited Feb. 6, 2010).

Though the regulations do not mention alternatives to fish-based feed, it would be possible to replace some fish-based feed products with plant-based feed. Goldburg & Naylor, supra note 7, at 23.
The regulation requires each pound of “wild fish product,” not “wild fish,” for each pound of animal harvested. The regulation did not appear to consider the possibility of waste, nor did it regulate how many pounds of feeder fish caught could be used to produce a pound of “wild fish product.”

Moreover, the proposed regulation does not necessarily reduce the downward pressure on diminishing wild fish populations. Farm raised salmon “are fed large volumes of fish meal before reaching maturity, and those feeder fish have to come from somewhere.” The proposed regulations do stipulate that fish meal and oil may not be sourced from fisheries that have been classified as “over-exploited” or “overfished,” but it does not reduce pressure on fish populations overall. It does not prohibit fish meal producers from moving from one fishery to another. If the purpose of aquaculture is to provide a sustainable supply of fish without depleting wild stocks, then a regulation that encourages consumption of farm-raised fish is counterproductive.

Additionally, whether an organic label should ever be used for animals raised in net pens is controversial. Net pens are moored to the ocean floor and are made of a square or circular frame with an inner containment net and outer predator net. On its face, the regulation is self-contradictory. The proposed regulation requires aquaculture systems to “establish and maintain living conditions as documented in the Organic System Plan that accommodates the health and natural behavior of the aquatic animals.” This is consistent with the regulations for care of livestock which require producers to “establish and maintain livestock living conditions which accommodate the health and natural behavior of animals.” The use of net pens directly contradicts this requirement. Net pen

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134 *Id.*
135 *Id.*
137 NOSB Formal Recommendation, Aquaculture: Fish Feed—Fish Oil and Fish Meal, *supra* note 42, at § 205.252(l).
138 The Ocean Conservancy recommended listing wild fish ingredients in the regulations as “a last, not first, resort.” Ocean Conservancy Letter, *supra* note 126, at 4. Dr. Leonard recommended a three-tiered approach: “byproducts from other organic fish production,” “byproducts from environmentally responsible food grade fisheries,” and then “environmentally-responsible forage fish fisheries.” *Id.*
141 7 C.F.R. § 205.239(a) (2009).
aquaculture “takes a free-ranging creature genetically programmed to
swim the oceans and stick[s] it in a cage.”

Perhaps more importantly, environmentalists “believe that the
negative environmental impacts of open net pen aquaculture are inher-
ently incompatible with the goal of organic production to minimize envi-
ronmental impact.” Net pens are environmentally problematic for two
reasons. First, millions of fish escape the net pens into the ocean. Some
escapes have occurred near marine protected areas “where wild salmon
and other species are theoretically protected by national and international
laws.” Releasing a large number of farmed fish into the open ocean in-
creases competition for food and mates, forcing natural fish to find new
habitats. Escaped fish also interfere with the genetics of wild fish popu-
lations and “damage the wild fish’s prospects of surviving to reproduce.”

Fish kept in overcrowded pens are more likely to be infected with
diseases, including sea lice. Thus, escaping fish also “present risks of
increasing disease outbreaks, proliferating possible disease transmission
routes in the environment and decreasing the immunity of wild fish to
disease.” Some disease can spread away from the pen even if the farmed
fish do not escape. Worse, some of the diseases from net pens are not
treatable. Diseases emanating from fish farms “could be the final blow
to endangered fish.”

142 Blythman, supra note 18 (quoting Iain Tolhurst, an important figure in the British
organic movement).
143 Sung, supra note 36 (quoting Patty Lovera, assistant director of Food and Water Watch).
144 The Pure Salmon Campaign obtained data from FOIA requests in Scotland, Norway,
Chile, the United States, and Australia that indicated that over 10 million farmed
salmon and trout escaped from net pens between 2000 and 2006. Pure Salmon Campaign,
New Data on Escapes from Salmon Farms Reveals Magnitude of Global Problem; Research
Shows Current Salmon Farming Practices Run Contrary to Organic Label (Nov. 27,
Feb. 6, 2010).
145 Id.
146 Anderman-Hahn, supra note 9, at 1017.
147 CLOVER, supra note 13, at 312. Domesticated salmon “are fat, listless things that are
good at putting on weight, not swimming up fast-moving rivers.” Id. Unfortunately, salmon
are “particularly prone to reduced fitness as a result of interbreeding with escaped, geneti-
cally distinct farmed and hatchery fish.” Goldburg & Naylor, supra note 7, at 24.
148 Anderman-Hahn, supra note 9, at 1018.
149 New Data, supra note 144.
150 Anderman-Hahn, supra note 9, at 1018 (noting that a recent study found a cloud of
sea lice that had infected wild salmon almost nineteen miles away from the farm).
151 Id.
152 Id.
Second, net pen aquaculture degrades the environment by releasing waste, feed, and chemicals into the ocean. For example, “a two-acre salmon farm produces as much organic waste as a town of 10,000 people.” A $5 billion aquaculture facility would discharge as much nitrogen as the ten million hogs in the total North Carolina hog industry. Unlike waste produced at land based farms, waste from aquaculture facilities is not usually captured. Up to 20% of the feed released into net pens accumulates and can alter the chemical and biological composition of the floor beneath the net pen. This nitrogen-rich waste can cause algal blooms, which can actually kill the salmon and other marine life. Moreover, fish food and its waste is also “laced with sulfa drugs or oxytetracycline,” which can linger in ocean sediments and promote the growth of drug-resistant pathogens.

In theory, the proposed regulations would serve as a check on aquaculture facilities and reduce pollution and the risks of disease outbreaks. Unfortunately, the regulations have several weaknesses. First, the language is unclear about whether certain chemicals, especially emamectin benzoate, would be permitted as parasiticides. The language regarding contaminants in fish feed is also ambiguous; it requires contaminant levels in fish meal and fish oil to be below regulatory levels, but the FDA has not set levels, so no regulatory requirements exist yet. Second, as a general matter, open net pen farming systems “[pose] inherent environmental risks that are generally inconsistent with organic production.” The “most prudent approach” would be to exclude net pen systems altogether.

153 Id. at 1012.
155 Goldburg & Naylor, supra note 7, at 25.
156 Id.
157 Anderman-Hahn, supra note 9, at 1013.
158 Barinaga, supra note 154.
159 Id.
160 See NOSB FORMAL RECOMMENDATION, AQUACULTURE—NET PENS, supra note 42, at §§ 205.201(a)(7)(v), 205.255(g), (k).
161 Id. at §§ 205.253(a)(3), 255(a).
162 Ocean Conservancy Letter, supra note 126, at 5.
163 Id. at 5–6.
164 Id. at 8.
165 Id. at 2. The Ocean Conservancy argues that this approach “would allow a U.S. organic fish industry to develop around low trophic level species such as catfish, tilapia and shellfish, while a reliable source of organic feed is developed and sustainability solutions for net pen aquaculture are explored.” Id.
Additionally, organic certification will mislead consumers. Some consumers are willing to pay a price premium for organically produced food because they are concerned about the environmental impacts of production. A recent poll indicated that nine out of ten consumers believe that a farm producing fish labeled “organic” should be required to recover waste and limit pollution. Most consumers do not know how fish are produced and “expect that these animals would come under much stricter environmental controls than those the National Organic Standards Board approved.” Unfortunately, the current regulations are weak enough that they could cause consumers to lose faith in the organic label altogether.

Consumer advocacy groups are also concerned that an organic label is misleading in terms of food safety. The regulations accepted by the NOSB in November 2008 explicitly removed the requirement that fish oil used in feed come from organic microorganisms, while the standard for an organic label for other food is that its inputs are 100% organic. Thus, consumers may incorrectly believe that “organic” fish have been fed 100% organic feed. Consumers may purchase organic fish without realizing that farmed fish is actually far more likely to contain polychlorinated biphenyls ("PCBs") and dioxins the very chemical compounds they hoped to avoid eating. Much of this difference in contaminant levels is attributable to the fish’s diet. Unlike farmed fish, wild fish do not only eat

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168 Eilperin & Black, supra note 167.
169 Eilperin & Black, supra note 166.
170 “Surveys show that most consumers have little sense of what it would mean to produce organic fish and expect that these animals would come under much stricter environmental controls than those the National Organic Standards Board approved.” Eilperin & Black, supra note 167.
171 Hites et al., supra note 122, at 227.
172 Foran et al., supra note 35, at 552.
173 Hites et al., supra note 122, at 228. Farmed fish are sometimes fed fish that come from
other fish; instead, “their natural diets include a large diversity of organisms.”175 Under the proposed regulations, consumers will be making food choices based on a label that makes a more dangerous product appear to be safer.

Despite regulators’ best efforts, the current proposed regulations leave much to be desired. They do not apply at all to wild-caught fish. They do not do enough to discourage overfishing or address disease outbreaks and the release of pollutants. The regulations also allow a migratory species to be contained, in direct contradiction to the purposes of the original organic movement. Finally, an organic label for salmon would lead consumers to believe that certified organic fish are better for the environment and safer to eat.

VI. ALTERNATIVES TO ORGANIC CERTIFICATION

Proponents of organic production and consumer organizations should pursue alternative avenues to encourage environmentally friendly fish production. The USDA regulations could be rewritten to address environmentalists’ concerns about fish feed used in aquaculture. For example, the regulations could require a portion of the oil and protein fed to carnivorous fish to come from vegetable sources.176 A regulation like this could actually help fish farmers; the availability of fish oil is a constraint on the growth of the farmed fish industry.177 Alternatively, the feed regulations could require salmon to be fed waste from fish that was caught for human consumption.178

A future alternative may be to certify only robotic cages. Robotic cages are remote control-operated, and unlike current aquaculture facil-

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175 Ocean Conservancy Letter, supra note 126, at 3.
176 One Scottish company “believes that it can substitute 75 percent of the fish oils in fish feed with vegetable oils without any ill effects for the salmon.” CLOVER, supra note 13, at 311.
177 Dr. Stuart Barlow, director general of the International Fishmeal and Oil Organization “cautioned that if they didn’t find ways of substituting vegetable oil for fish oil, and to a lesser extent vegetable protein for fish protein, the world would be unable to answer any new demands for fish food.” CLOVER, supra note 13, at 302.
ities, operate in deeper parts of the open ocean. Robotic cages move through the ocean and provide more circulating water, which would address concerns that current aquaculture facilities do not allow fish to move freely. In addition, the robotic cages address many of the environmental concerns regarding aquaculture: the robotic cages allow fish to eat natural food, may generate their own electricity, and could enable farmers to bring the cages closer to major markets, avoiding the carbon footprint of heavy transportation.

A more drastic alternative would be to allow organic certification only for those fish that are farmed in closed containers on land. Land-based fish farmers use enormous tanks and pumped seawater that is “recirculated and purified using bacteria.” Closed containers “eliminate many of the environmental problems associated with open net-cage fish farms.” Obviously, there is little chance that the fish will escape and infect wild fish populations with disease or interfere with wild fish genetics. Closed containers also provide aquaculturalists with the ability to treat waste from the facility, “virtually eliminating pollution of the marine environment.”

One of the most significant barriers to closed container aquaculture is the startup cost. However, high initial costs could be mitigated by lower long-run production costs. One Norwegian company found that closed container farming was actually 21% cheaper than open net pen farming. The closed containers reduced the amount of feed required by 30–40% and did not require antibiotics or delousing treatments. Moreover, the closed containers could be built near markets, which would lower transportation costs. Finally, because consumers are willing to pay more for certified organic food, closed container fish farmers could recoup

180 Id.
181 Id.
182 Id.
183 Groups Praise Committee Recommendation, supra note 44.
184 CLOVER, supra note 13, at 307.
186 CLOVER, supra note 13, at 307.
187 Pure Salmon Campaign, Solutions, supra note 185.
188 Id.
189 CLOVER, supra note 13, at 307.
190 See Park & Lohr, supra note 58, at 647; Thompson, supra note 57, at 1115.
some of their initial costs if an organic label is provided only to closed
container facilities.

Another possible alternative is state certification. Before OFPA
was passed, several states had their own organic certification laws.191
Federal regulations currently provide requirements for state organic pro-
grams.192 State organic programs must meet the standards in OFPA, but
can be more restrictive.193 Although state regulations can be more flexible
to adapt to a state’s particular environmental characteristics,194 the major
drawback to state regulations is that they may lack uniformity, which
“hinder[s] interstate shipment of organically produced foods.”195

A broader approach would be to abandon USDA organic certification
and rely instead on private certification. The concept of organic production
began as a private movement.196 Jerome I. Rodale, founder of *Organic
Gardening* magazine, led a movement that focused on using natural tech-
niques instead of chemicals in agricultural production.197 Rodale’s follow-
ers began labeling and marketing food as “organic.”198 Thus, a movement
designed to encourage the production of sustainable, environmentally
friendly food would not necessarily have to be based on federal law. In
fact, although organic marketing began in the 1970s, the federal govern-
ment did not create a standard until 1990.199

A number of private organizations now offer certification for envi-
ronmentally friendly production.200 Global Ecolabelling Network is a

191 Endres, supra note 24, at 19.
193 Id.
194 7 C.F.R. § 205.620(c) (2009).
195 Endres, supra note 24, at 19.
196 Id. at 18.
(last visited Feb. 6, 2010).
198 Endres, supra note 24, at 19.
as amended at 7 U.S.C. §§ 6501–6522 (2006)).
200 For one list of certification programs, see California Green Solutions, Green and
Sustainable Certification Programs, http://www.californiagreensolutions.com/cgi-bin/gt/tpl.h,
content=575 (last visited Feb. 6, 2010). Private certification is available for a variety of
products. For example, Audubon International has an Eco-Rating Program for Hotels that
encourages the hospitality industry to improve their eco-efficiency by enabling consumers to
choose hotels that are more environmentally responsible. Audubon International, Audubon
6, 2010). Also, the Forest Stewardship Council has been certifying sustainable forestry as a
response to intergovernment failure at the 1992 Earth Summit. Forest Stewardship Council
United States, The History of FSC—US, http://www.fscus.org/about_us/ (last visited Feb. 6,
professional association dedicated entirely to environmental labeling groups\textsuperscript{201} and there are other organizations that certify and label food in particular. For example, the International Federation of Organic Agriculture Movements (“IFOAM”) is an internationally respected body\textsuperscript{202} that has implemented a system for private, third-party certification of organic agriculture.\textsuperscript{203} Through its accreditation program, IFOAM awards accreditation “to certification bodies that use certification standards that meet the IFOAM Basic Standards.”\textsuperscript{204} The basic standards are not a list of acceptable inputs, but rather are intended to “provide a framework for certification bodies and standard-setting organizations worldwide to develop their own more detailed certification standards which take into account specific local conditions.”\textsuperscript{205}

Private certification of fish production, in particular, could be a viable alternative to government regulation. The Marine Stewardship Council (“MSC”) currently certifies fisheries that are sustainable.\textsuperscript{206} MSC is an international non-profit organization,\textsuperscript{207} whose mission is to “to use [its] ecolabel and fishery certification programme to contribute to the health of the world’s oceans by recognising and rewarding sustainable fishing practices, influencing the choices people make when buying seafood, and working with [its] partners to transform the seafood market to a sustainable basis.”\textsuperscript{208} MSC certification applies only to wild-caught fish; it cannot be

\textsuperscript{206} Blythman, \textit{supra} note 18.
used to market farm-raised fish.\textsuperscript{209} Forty-two percent of wild-caught salmon are produced through an MSC-certified program.\textsuperscript{210} MSC-certified products can be found throughout the food-buying spectrum. Both high-end restaurants\textsuperscript{211} and Wal-Mart\textsuperscript{212} offer MSC-certified fish to their customers.

Three principles establish the underlying philosophy of MSC certification: sustainable fish stocks, minimizing environmental impact, and effective management.\textsuperscript{213} The goal of sustainable fish stocks is met if fishing is limited such that “fishing can continue indefinitely and is not over-exploiting the resources.”\textsuperscript{214} Certified fisheries minimize environmental impact by maintaining “the structure, productivity, function and diversity of the ecosystem on which the fishery depends.”\textsuperscript{215} To meet the effective management requirement, a fishery must “meet all local, national and international laws and must have a management system in place to respond to changing circumstances and maintain sustainability.”\textsuperscript{216}

The standard for MSC certification is based on thirty-one performance indicators.\textsuperscript{217} In addition, all companies involved in the supply chain must have the MSC Chain of Custody certification.\textsuperscript{218}

The MSC label accomplishes the same goals that an organic label is designed to accomplish. Consumers want to purchase food from eco-friendly suppliers; the response to MSC-certified Chilean bass has been “‘incredible.’”\textsuperscript{219} This gives producers an incentive to use sustainable

\textsuperscript{210} CLOVER, supra note 13, at 286.
\textsuperscript{212} Ylan Q. Mui, At Wal-Mart, ‘Green’ Has Various Shades; Environmental Push Earns Mixed Results, WASH. POST, Nov. 16, 2007, at D01. Wal-Mart hopes that it eventually will source all of its wild-caught and frozen fish from MSC-certified fisheries. CLOVER, supra note 13, at 296.
\textsuperscript{213} Marine Stewardship Council, MSC Environmental Standard for Sustainable Fishing, supra note 209.
\textsuperscript{214} Id.
\textsuperscript{215} Id.
\textsuperscript{216} Id.
\textsuperscript{217} Id.
\textsuperscript{218} Id.
\textsuperscript{219} Florence Fabricant, Some Chilean Sea Bass Is Labeled Sustainable, N.Y. TIMES, Nov. 8, 2006, at F12 (quoting David Pilat, the national seafood coordinator for Whole Foods Markets).
methods.\footnote{220} Unlike competing state standards, the MSC label is a uniform, consistent standard that is applied to fish products around the world\footnote{221} and is well respected among consumer groups.\footnote{222} MSC has offices on five continents\footnote{223} and uses independent certifiers located in Norway, Argentina, Australia, Canada, the Netherlands, the United Kingdom, and the United States.\footnote{224}

CONCLUSION

The original organic movement hoped to encourage humane, safe, and environmentally sustainable production of food. To some degree, the Organic Food Production Act of 1990 and the regulations that created organic certification departed from the spirit and philosophy behind the organic movement. The proposed regulations for organic certification for salmon are an additional step away from the ideal. The proposed regulations for fish do not adequately address environmental impacts such as overfishing and the release of harmful pollutants. As a result, consumers will be misled into believing that organically produced fish are environmentally friendly. Over time, producers may be less able to charge a price premium.\footnote{225} This is not to say that consumers will have no way of knowing how their food has been produced. Instead, independent certifying agencies are a viable alternative to federal government organic certification.

\footnote{220}{Marine Stewardship Council, Healthy Oceans, http://www.msc.org/healthy-oceans (last visited Feb. 6, 2010). By purchasing a product that is MSC-certified, a consumer “rewards fisheries that support healthy marine environments.” Id.}
\footnote{222}{For example, the Organic Consumers Association would recommend that consumers avoid fish that have been certified under lax regulations and to choose MSC-certified fish instead. Organic Consumers Association, OCA Testimony to the NOSB on National Organic Standards (Nov. 17, 2008), http://www.organicconsumers.org/articles/article_15652.cfm.}
\footnote{223}{Marine Stewardship Council, Offices and Staff, http://www.msc.org/about-us/offices-staff (last visited Feb. 6, 2010).}
\footnote{225}{If the organic label loses its value in consumers’ eyes, price premiums could go down. Endres, supra note 24, at 32.}