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National Organic Standards Board
USDA-AMS-NOP
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Docket ID # AMS-NOP-20-0041

Re. CS: Wild, native fish for liquid fish products

These comments to the National Organic Standards Board (NOSB) on its Fall 2020 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

Everywhere we turn, we see signs of ecological collapse—wildfires, the insect apocalypse, crashing populations of marine organisms, more and more species at risk, rising global temperatures, unusual weather patterns, horrific storms, and pandemics. As a group focused on one of the most blatant examples of environmental abuse—the dispersal of toxic chemicals across the landscape—we have, since our formation, looked to organic production as a solution.

From its very beginnings, the organic sector has been driven by an alliance of farmers and consumers who defined the organic standards as a holistic approach to protecting health and the environment, with a deep conviction that food production could operate in sync with nature and be mindful of its interrelationship with the natural world—protecting and enhancing the quality of air, water, land, and food. But organic is not just an alternative for people seeking better food—though it is that—or a more profitable way of farming—though we hope it is that, too. It is a way to prevent total ecological collapse. We constantly return to the foundations of organic for inspiration and guidance. When we comment on NOSB proposals, we are not interested in what is <u>less harmful</u>. We feel an urgency to prevent ecological disaster.

In contrast to the reductionism of "conventional" chemical-intensive agriculture, the origins of organic agriculture are in holistic and ecological thinking. Historically, perhaps the most important principle of organic production is the "Law of Return," which, together with the foundational philosophy "Feed the soil, not the plant" and the promotion of biodiversity, provide the ecological basis for organic production.[1] Together these three principles describe a production system that mimics natural systems.

The Law of Return. In a soil-based system, residues are returned to the soil by tillage, composting, or mulching. While most organic growers depend on some off-site inputs, most of the fertility in an organic system comes from practices that recycle organic matter produced on-site. The cycling of organic matter and on-site production of nutrients—as from nitrogen-fixing bacteria and microorganisms that make nutrients in native mineral soil fractions available to plants—is essential to organic production. The Law of Return is not about feeding plants, but about conserving the biodiversity of the soil-plant-animal ecological community.
The Law of Return says that we must return to the soil what we take from the soil. Non-crop organic matter is returned directly or through composting plant materials or manures. To the extent that the cash crop removes nutrients, they must be replaced by cover crops, crop rotation, or additions of off-site materials, when necessary.

Feed the soil, not the plant. The dictum to "Feed the soil, not the plant" reminds us that the soil is a living superorganism that supports plant life as part of an ecological community. We do not feed soil organisms in isolation, to have them process nutrients for crop plants; we feed the soil to support a healthy soil ecology, which is the basis of terrestrial life.

Biodiversity. Finally, biological diversity is important to the health of natural ecosystems and agroecosystems. Biodiversity promotes balance, which protects farms from outbreaks of damaging insects and disease. It supports the health of the soil through the progression of the seasons and stresses associated with weather and farming. It supports our health by offering a diversity of foods. Ultimately, holistically healthy, truly organic, farms produce healthy plants that require far fewer interventions to protect crops from insects and disease.

The definition of "organic production" in the organic regulations requires the conservation of biodiversity. As stated in the NOP Guidance on Natural Resources and Biodiversity Conservation (NOP 5020),

> The preamble to the final rule establishing the NOP explained, "[t]he use of 'conserve' [in the definition of organic production] establishes that the producer must *initiate practices to support biodiversity* ***and*** *avoid, to the extent practicable, any activities that would diminish it.* Compliance with the 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." (76 FR 80563) [Emphasis added.]

[1] See Sir Albert Howard. The Soil and Health: The Study of Organic Agriculture (1940), and An Agricultural Testament (1947).

We share the concerns that led the Crops Subcommittee (CS) to this proposal. We believe that prohibiting the use of wild, native fish in liquid fish products used for fertility in organic crop production is not just a good idea, but is required to be consistent with organic principles. However, we are concerned that the proposal would not only be unenforceable, but could cause problems for organic farms, as well as environmental problems.

The use of liquid fish products in organic production must protect the marine ecosystem.

In order for a material to be on the National List, the NOSB must determine that it "would not be harmful to human health or the environment."[2] The allowance of fertilizer made from wild, native fish—and, we contend, other fish—is harmful to the environment.

It is important to address not only the sustainability of harvest from the fisheries, but also the health of marine ecosystems in examining the impact of using fish products. The oceans are not farms that exist for human use. Oceans contain complex ecosystems, which organic production systems are required to protect. Luypaert et al. conclude from their study of the state of oceans, "Marine population declines are ubiquitous, yet the consequences for the functioning of marine ecosystems are understudied." They cite a reduction in marine fish abundance of 38% compared to levels in 1970. With the decline of marine biodiversity and degradation of marine ecosystems, ecosystem services provided by these ecosystems are being lost. The article says, "There is increasing evidence that the destruction and modification of structurally complex habitats is leading to the rapid disappearance of the diverse communities they harbor at local, regional, and global scales." Examples are kelp forests and oyster reefs.[3]

Restricting the species and location of the harvest is not sufficient. The method is also important. For example, trawling activity has been reported on 75% of the global continental shelf area[4] and is one of the "most significant forms of physical disturbance on the seabed."[5] "[T]he proportion of seabed area exposed to bottom trawling ranges from <1% to >80% in different regions of the world. Trawling may modify sediment texture (grain size), the presence and nature of bedforms and chemical exchange processes. Trawling can also have direct and indirect impacts on populations and communities of benthic invertebrates."[6]

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[2] OFPA §6517(c)(1)(A)(i).

[3] Luypaert T., Hagan J.G., McCarthy M.L., Poti M. (2020) Status of Marine Biodiversity in the Anthropocene. In: Jungblut S., Liebich V., Bode-Dalby M. (eds) YOUMARES 9 - The Oceans: Our Research, Our Future. Springer, Cham

[4] Luypaert T., Hagan J.G., McCarthy M.L., Poti M. (2020) Status of Marine Biodiversity in the Anthropocene. In: Jungblut S., Liebich V., Bode-Dalby M. (eds) YOUMARES 9 - The Oceans: Our Research, Our Future. Springer, Cham

[5] Colloca, F., Scarcella, G. and Libralato, S., 2017. Recent trends and impacts of fisheries exploitation on Mediterranean stocks and ecosystems. *Frontiers in Marine Science*, *4*, p.244.

[6] Colloca, F., Scarcella, G. and Libralato, S., 2017. Recent trends and impacts of fisheries exploitation on Mediterranean stocks and ecosystems. *Frontiers in Marine Science*, *4*, p.244.

It is estimated that more than 50% of the material from the total fish capture is not used as food[7] and might be used for fertilizer. "Production of fishmeal and fish oil requires significant amounts of energy for cooking, drying and evaporation."[8] The 50% of the capture not used as food includes "bycatch"—not only fish, but also dolphins, marine turtles, and sea birds. There are fishing methods that minimize bycatch that are not always used.[9]

Any proposal that allows the commercialization of bycatch disincentivizes the use of fishing methods that minimize it.

In the *International Journal of Epidemiology*, Brunner et al. conclude, "Marine ecologists predict on current trends that fish stocks are set to collapse in 40 years, and propose increased restrictions on fishing, including no-take zones, in order to restore marine ecosystem health. Production of fishmeal for aquaculture and other non-food uses (22 MT in 2003) appears to be unsustainable."[10]

A targeted prohibition against wild, native fish in liquid fish products does not protect the marine environment.

We have a fundamental disagreement with the statement, "Although fish harvested for human consumption has ecological impacts as well, the parts used in fertilizer are considered waste products that would not otherwise have a use." The fact that this "waste" does not have a human use does not mean that it does not serve an ecological purpose and begs the question of ecological impact associated with the demand.

The TR seems to say contradictory things. On one hand, it seems to suggest that because fish are not harvested solely for fertilizer, the use as fertilizer really doesn't matter, while on the other hand, it says:

> While none of the fish species known to be harvested for fish reduction purposes and which are incorporated into fish-based fertilizer products are threatened or endangered species (see Table 2), their population dynamics are not understood in many cases. It is also difficult to ascertain the effect of removing biomass, even from a sustainable fishery, considering that these species may be a food source for other species. Meal and oil fish can be critical to the function of entire ecosystems; for example, Pacific thread herring (*Opisthonema libertate*) and Pacific anchoveta (*Cetengraulis mysticetus*) are

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[7] Arvanitoyannis, I.S. and Kassaveti, A., 2008. Fish industry waste: treatments, environmental impacts, current and potential uses. *International journal of food science & technology*, *43*(4), pp.726-745.
[8] Arvanitoyannis, I.S. and Kassaveti, A., 2008. Fish industry waste: treatments, environmental impacts, current and potential uses. *International journal of food science & technology*, *43*(4), pp.726-745.
[9] https://www.worldwildlife.org/threats/bycatch.
[10] Eric J Brunner, Peter J S Jones, Sharon Friel, Mel Bartley, Fish, human health and marine ecosystem health: policies in collision, *International Journal of Epidemiology*, Volume 38, Issue 1, February 2009, Pages 93–100, https://doi.org/10.1093/ije/dyn157.

> critical links in the Gulf of California, transferring energy through the food web and controlling the organization of these ecosystems.[11]

This paragraph is important. Given that the importance of removing fish biomass is not well understood, either from the perspective of an energetic balance or from the perspective of food web dynamics, the organic industry should take a precautionary approach to protect marine ecosystems.

We agree with the commenter quoted by the CS, who said:

> I believe the TR actually does a disservice by attempting to separate fish stocks that are harvested for fishmeal from those that are harvested for fish solubles. Either way, we are talking about mining the oceans for agricultural nutrients, whether they are fish solubles or fish meal used as fertilizer or feed, at a time when there are not enough resources left to support healthy marine ecosystems, not to mention the many poor people who depend on these fisheries to survive.

Rather than seizing the opportunity to exploit "fish waste," **we should be asking, "What is the best way to return those nutrients to the oceans?"**

A targeted prohibition against use of wild, native fish is unenforceable.

The most attractive option is the use of "invasive" species to process into fish products. However, a species that is "invasive" in one place is native to another place. Asian carp species—probably what most people think of when they think of an "invasive fish"—are native to Asia and are considered vulnerable to extinction in the wild, but a pest in many other places.[12] How do we track where that carp might have been caught?

Rainbow trout is native to the western U.S., but when introduced elsewhere, outcompetes native species and may carry disease. Like largemouth bass and other species popular among anglers, they cause problems where they have been stocked for sport fishing.[13] Again, the enforcement issue is how to distinguish fish where they are considered "invasive" from the same fish where they are native or purposely introduced.

Bycatch is also a problem with "invasive" fish, as with wild, native fish.

The CS suggests that enforcement by means of "an affidavit from producers attesting that the fish ingredients in their products are sourced from waste, bycatch/mortalities, and/or invasive species would be sufficient." Given the serious problems with fraud in organic production, we do not believe that an affidavit can be sufficient to enforce this proposed regulation.

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[11] 2019 TR, Lines 342-349.
[12] https://www.mnn.com/earth-matters/animals/stories/10-most-invasive-fish-species-world.
[13] https://www.mnn.com/earth-matters/animals/stories/10-most-invasive-fish-species-world.

Farmed fish do not solve the problems.

Aquaculture regulations have not been adopted, so farmed fish are not organic. According to the 2019 TR, "Formulated feeds for herbivorous and omnivorous fish can contain soybean, cottonseed, and peanut meals as well as protein obtained from fish and terrestrial animals. Formulated feeds for carnivorous fish are composed of large proportions of fish meal and fish oil, which include the essential amino acids lysine and methionine."[14] Therefore, use of farmed fish does not remove the pressure on wild fish and additionally adds contaminants, including pesticides and their metabolites, that occur in the nonorganically raised feeds.

In addition, farmed fish are routinely treated with antibiotics, leading to high residues in fish[15] and antibiotic resistance genes in the fish and the water.[16]

Conclusion

We conclude that, although well-intended, the attempt to avoid impacts on marine ecology by distinguishing wild, native fish from others, which might be acceptable for use in liquid fish products, is unenforceable and cannot prevent damage to marine ecosystems.

It is possible that an annotation limiting liquid fish products to those sources from post-consumer waste might be enforceable. We suggest that the CS explore that possibility.

Thank you for your consideration of these comments.

Sincerely,

Teresa Ann Shistar

Terry Shistar, Ph.D.
Board of Directors

[14] 2019 TR, lines 601-604.

[15] Yipel, M., Kürekci, C., Tekeli, İ.O., Metli, M. and Sakin, F., 2017. Determination of selected antibiotics in farmed fish species using LC-MS/MS. *Aquaculture Research*, *48*(7), pp.3829-3836.

[16] Goptaitytė, G., Skerniškytė, J., Krasauskas, R., Ružauskas, M., Armalytė, J. and Sužiedėlienė, E., 2018. Detection of antibiotic resistance determinants in bacteria isolated from fish. In *COINS 2018-13th international conference of life sciences: 28 February-2 March 2018 Vilnius, Lithuania:[abstracts book]/Vilnius University Students Representation. Vilnius: Vilnius University Students Representation, 2018*.