



For a thriving New England

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Chuck Ross
Secretary
VT Agency of Agriculture, Food, and Markets
116 State Street
Montpelier, Vermont 05620

Sent via electronic mail

Re: Comments on the Third Draft Required Agricultural Practices

Dear Secretary Ross:

Conservation Law Foundation submits the following comments to the Vermont Agency of Agriculture, Food, and Markets (AAFM) on the third draft Required Agricultural Practices (3rd draft RAPs).

Recognizing the critical role the RAPs play in restoring Vermont's water quality, we appreciate the time and effort AAFM staff has committed to their development. Managing our land to protect water is as much a legal mandate as it is about economic vitality, public health, and buttressing our natural defenses to the extreme weather events associated with a changing climate.

While we continue to hold all of the concerns raised in our prior comment letters from December 2015 (Appendix A) and March 2016 (Appendix B), we want to specifically highlight the disconnect between the 3rd draft RAPs and the legal mandates set forth by the Phosphorus TMDLs for Vermont Segments of Lake Champlain.¹

The 2016 TMDL requires the agriculture sector reduce its nonpoint contribution of phosphorus to the Lake Champlain basin by 53.6 percent.² In Missisquoi Bay this requirement surges to 82.8 percent and in South Lake A and B to 62.9 percent.³ It is our

¹ Phosphorus TMDLs for Vermont Segments of Lake Champlain (June 17, 2016). (hereinafter 2016 TMDL).

² 2016 TMDL pg. 45 tbl. 8.

³ *Id.*

understanding that such tremendous reduction requirements are unprecedented nationwide, and will demand a drastic plan of implementation.

The Environmental Protection Agency (EPA) has provided one scenario to reach the TMDL requirements. While AAFM is not limited to following this one scenario, it provides an important frame of reference. The scenario tool published alongside the Draft 2015 TMDL⁴ indicates the need for widespread application of 11 best management practices (BMP) – ranging from 41 percent crop rotation to 57 percent conversion from crop to hay and 100 percent application of reduced phosphorus manure (Table 1).

Table 1. EPA’s Scenario Tool Application of Best Management Practices⁵

BMP	Definition⁶	Total Area (ha)	Applied Area (ha)	Percent Cover (%)
Barnyard Management	Exclusion of clean water runoff from the barnyard and heavy-use area, and management of the remaining runoff in a way that minimizes its pollution.	3,876.54	3,488.89	90
Change in Crop Rotation	Introducing feasible changes in crop rotation. Currently, standard rotations consist of corn (2 years)/hay (4 years) and corn (1 year)/soybean (1 year). Example changes in crop rotation could be to change the corn-hay rotation to corn (2 years) followed by hay (6 years).	17,029.19	6,973.54	41
Conservation Tillage	Any tillage and planting system that leaves a minimum of 30 percent of the soil surface covered with plant residue after the tillage or planting operation (e.g., reduced till, no-till). For silage corn, this could involve required application of a cover crop or use of zip-till, zone-till, or minimum tillage equipment.	62,491.41	47,154.74	75
Cover Crop	Establishing a seasonal cover crop on annual cropland for soil erosion reduction and conservation purposes. Seasonal cover consists of a crop of winter rye or other	62,491.41	47,154.74	75

⁴ See Phosphorus TMDLs for Vermont Segments of Lake Champlain (August 14, 2015) (hereinafter Draft 2015 TMDL) (While the Environmental Protection Agency released a revised scenario with the 2016 TMDL, this letter relies on the scenario released alongside the Draft 2015 TMDL because this is the scenario relied on by AAFM while drafting the RAPs)

⁵ CLF created this chart using the scenario tool released alongside the Draft 2015 TMDL. It uses data from the columns “area,” “BMP type,” and “applied area” within the tool. Note that the “applied area” within the tool is different from the “applied area column within Table 1. Table 1 represents the accumulated applied area values across basin and land use types.

⁶ Lake Champlain BMP Scenario Tool Requirements and Design (November 2013 draft) pg. 22 tbl. 10.

	herbaceous plants seeded at a minimum rate of 100 lb/ac or at the highest recommended rate to provide effective soil coverage. Planting dates are addressed in the modeling assumptions.			
Crop to Hay	Permanent conversion of cropland use to hay.	22,672.44	12,831.84	57
Ditch Buffer	Grassed strips along the drainage ditches that filter out pollutants from the adjacent land runoff.	59,452.32	39,119.88	66
Fencing/Livestock Exclusion	Exclusion of livestock from waterways and stream banks by installing fence.	14,472.48	12,221.89	84
Grassed Waterways	Stabilizing areas prone to field gully erosion by establishing grass-lined swales.	79,489.87	54,122.12	68
Manure Injection	Applying liquid manure below the soil surface.	35,208.03	30,172.73	86
Reduced P Manure	A 20 percent reduction of the total P content applied to fields, through either manure or fertilizer. This can be accomplished by reducing the amount of manure/fertilizer applied or by altering livestock feed formulation or treating manure prior to application, although specifying the "how" is not necessary at this time.	10,431.69	10,431.69	100
Riparian Buffer	Areas of grasses or shrubs (which may include trees) located adjacent to ponds, lakes and streams that filter out pollutants from runoff.	171,442.15	124,474.99	73

Given the necessary extent of BMP application across the landscape, we have serious concerns with the sufficiency of the 3rd draft RAPs. While the 3rd draft RAPs include standards for barnyard management, cover crop, buffers, and livestock exclusion many of the BMPs outlined in Table 1 are *anticipated* through the requirement of a nutrient management plan for certified small farm operations with a weaker nutrient planning requirement for even smaller farms.

Nutrient management plans (NMP) offer field-specific land treatment and nutrient application guidelines. While certain BMPs may be included in a NMP, both the extent to which these BMPs will be implemented and the degree to which phosphorus reductions will actually occur is largely unknown.

NMPs are heavily relied upon by AAFM to meet our phosphorus reduction obligations, however the effectiveness of these plans to reduce phosphorus is uncertain. A University of Vermont Extension study found that "... by implementing NMPs, farmers reduced fertilizer use, especially phosphorus applications. However, a shift away from purchased fertilizer may represent a stronger reliance on manure, and, therefore, it is unclear whether NMPs

actually encourage lower nutrient application rates or eliminate excess nutrients in the soil.”⁷

CLF has additional concerns with the shortage of technical staff able to create or sign off on NMPs, as well as follow up with farmers. This is particularly troubling given the importance of education to ensure farmers follow their NMPs. Currently; most farms do not fully implement their NMP recommendations.⁸

It is equally unclear how the BMP standards outlined in the 3rd draft RAPs will meet the TMDL targets. We request AAFM provide its analysis of the phosphorus load reductions anticipated from the 3rd draft RAPs and the expected applied area and percent coverage of each BMP.

- Under section 6.04(c), grassed waterways and filter strips should be the required management strategy to prevent gully erosion. The scenario tool demonstrates application of grassed waterways on 54,122 ha of land, which represents nearly 70 percent coverage of this BMP. This degree of application assumes the implementation of grassed waterways wherever gully erosion is present.⁹ To reflect this, AAFM should modify section 6.04(c) so that the word “minimize” is changed to “prevent” and the wording “reduce or eliminate” is changed to “eliminate.” Gully erosion is a severe form of soil erosion caused by water moving in rills, which concentrate to form larger and more persistent erosion channels.¹⁰ Gully erosion is, by definition, problematic for healthy soils and waterways – regardless of whether discharges to waters are apparent.
- Under section 6.07, the standards for riparian and ditch buffers should reflect the language of the scenario tool. The 3rd draft RAPs’ list of authorized activities in buffers, including grazing, fertilizer application, and harvesting undermines the effectiveness of buffers as a BMP and deviates from the definition used in the scenario tool, which does not specify these uses. While the scenario tool analyzes phosphorus load reductions based on 10 and 25-foot buffers, requiring a wider buffer could compensate for the overall relatively weak BMP standards as compared to the TMDL reduction requirements. Studies show that the “basic bare-bones buffer

⁷ Darby, H, Halteman, P., and D. Heleba. “Effectiveness of Nutrient Management Plans on Vermont Dairy Farms.” *Journal of Extension* 53.2 (2015).

⁸ *See Id.* (“The results suggested that most farms (60.6%) implemented the NMP recommendations on at least 75% of their acreage. Less than one quarter (22.8%) of farms implemented the recommendations on all of their acreage...”).

⁹ Personal interview with Eric Perkins, EPA Region 1, April 19, 2016.

¹⁰ Environmental Protection Agency, *National Management Measures to Control Nonpoint Pollution from Agriculture* (July 2003), <http://www.epa.gov/sites/production/files/2015-10/documents/chap4c.pdf>.

is 50-feet from the top of the bank.”¹¹ As a highly effective tool to protect Vermont’s water resources,¹² riparian buffers are critical in addressing the 35.2 percent phosphorus load contributed by cropland.¹³

- Under section 7(c), livestock exclusion should not be qualified. The 3rd draft RAPs allow livestock to access streams outside of production areas that do not contain unstable banks or where erosion is present. This is inconsistent with Act 64¹⁴ and will result in the degradation of stable stream banks by directing livestock toward areas that are not currently eroded. The phosphorus load associated with livestock results not only from trampling and erosion, but from direct manure deposits in waterways as well. Therefore, focusing on unstable banks is insufficient to address phosphorus contributions from livestock. While the Secretary is authorized to designate additional livestock exclusion areas, AAFM’s limited resources calls into question its ability to adequately and effectively invoke this authority.¹⁵ The scenario tool assumes livestock exclusion on 12,222 ha of land, or 84 percent coverage. This widespread application is necessary to address both erosion and direct manure deposits associated with livestock.

We recognize the RAPs are not the only mechanism for achieving phosphorus reductions from the agriculture sector.¹⁶ However, they are the only regulatory tool that applies to the entire Vermont portion of the Lake Champlain basin and will impact on-the-ground

¹¹ Connecticut River Joint Commissions, *Introduction to Riparian Buffers*, <http://www.cric.org/buffers/Introduction.pdf>. Also see Yale School of Forestry and Environmental Studies, *Riparian Buffer Zones: Functions and Recommended Widths*, http://eightmileriver.org/resources/digital_library/appendicies/09c3_Riparian%20Buffer%20Science_YALE.pdf pg. 4. (“... in most cases, a 49-foot natural, undisturbed buffer was effective at removing a majority of the nutrient from surface runoff.”).

¹² *Id.*

¹³ See Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan (draft August 2015) pg. 75. (“Prioritizing these [eroding banks for livestock exclusion] targeted areas will also provide the opportunity to focus remaining resources on addressing the cropland loadings which are estimated to be 35.2% of the total Lake loading.” AAFM is committed to focusing on phosphorus reductions from cropland, which are best achieved with 50-foot, no-touch riparian buffers.)

¹⁴ See 6 V.S.A. § 4810a(a)(9). (Act 64 compels AAFM to establish livestock exclusion standards that “prevent” erosion and adverse water quality impacts. The use of the word “prevent” rather than “reduce” or “minimize” is significant because it sets a zero tolerance standard for additional erosion and adverse water quality impacts from livestock.)

¹⁵ See 3rd draft RAPs at 11 § 4.3(b). (AAFM anticipates inspecting Certified Small Farms at least once every seven years. Should there be an area with livestock access that threatens water quality, what guarantee is there that the Secretary will require livestock exclusion before seven years pass?)

¹⁶ Vermont Agency of Agriculture, Food, and Markets, *Current Water Quality Initiatives*, http://agriculture.vermont.gov/sites/ag/files/pdf/water_quality/RAP/VAAF-M-WQ-Initiative-Factsheet.pdf.

activities in the upcoming year. For these reasons, the RAPs are the most significant strategy for meeting the TMDL mandates for agriculture.

The RAPs are also referenced in the 2016 TMDL as part of the demonstration of “reasonable assurance” that relied-upon nonpoint source reductions will occur.¹⁷ One of the cornerstones of the EPA’s conclusion that there is reasonable assurance rests on the scenario tool.¹⁸ However, the significant deviation in the extent of BMP application between the 3rd draft RAPs and the scenario tool calls into question any assurance that the necessary phosphorus reductions can and will be achieved.

EPA not only relies on the RAPs for reasonable assurance that agricultural source reductions will occur, but also to demonstrate that streambank source reductions will take place. “Both the 25 foot buffer requirement for agricultural lands and the livestock exclusion requirement will lead to more stable (well vegetated) stream banks and *eliminate* erosion caused by livestock trampling” (emphasis added).¹⁹ As noted above, the RAPs reduce erosion from trampling by excluding livestock from areas that already display signs of erosion. However, the RAPs will not eliminate erosion since livestock still have access to trampling along stream banks.

AAFMs should provide its analysis of the expected phosphorus reductions associated with RAP implementation. This will allow Vermonters to keep track of our commitments to EPA, assess gaps and potential areas of concern, and ensure clean water in Lake Champlain.

Sincerely,



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Lake Champlain Lakekeeper
Conservation Law Foundation



Elena Mihaly
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Conservation Law Foundation

¹⁷ 2016 TMDL p. 51.

¹⁸ *Id.* at p. 50

¹⁹ *Id.* at p. 53.

Appendix A

Comments on the Draft Required Agricultural Practices, December 18, 2015.

Please find attached.

Appendix B

Comments on the Second Draft Required Agricultural Practices, March 21, 2016.

Please find attached.