Vermont Citizens Advisory Committee (VTCAC) on Lake Champlain's Future

Monday January 11th, 2021
5:00 pm – 7:00 pm

APPROVED MEETING SUMMARY

Committee Members Present: Mark Naud (Chair), Bill Howland (Vice-Chair), Lori Fisher, Eric Clifford, Bob Fischer, David Mears, Wayne Elliott, Hilary Solomon, Jeff Wennberg, Sen. Randy Brock, Sen. Ginny Lyons, Rep. Carole Ode

Committee Members Absent: Rep. Leland Morgan

LCBP Staff in Attendance: Eric Howe, Lauren Jenness, Meg Modley, Colleen Hickey, Steph Larkin, Cynthia Norman, Laura Hollowell

Speakers: Cary Giguere, Patti Casey, Kanika Gandhi, Nat Shambaugh

Public Guests: Crea Lintilhac, Tom Berry (Sen. Leahy's Office), Thea Wurzburg (Cong. Welch's Office), Laura DiPietro, John Roberts, Brenda Gail Bergman, John Dillon (VPR), Craig Roskam, Steven Cash, Erica Cummings, Jackie Folsom, Rick Grant, Laura Hardie, Kirsten Workman, Jeff Carter, Sylvia Knight, David Huber, Ross Conrad, Marie Audet

Meeting summary by Lauren Jenness, Lake Champlain Basin Program (LCBP)

5:00 – 5:15 pm

Welcome and Introductions – Mark Naud

Mark welcomed everyone in attendance, introduced the CAC members in attendance, and provided an overview of the teams meeting platform.

Public Comments

Ross Conrad of Middlebury applauded the CAC Members for the work they are doing to make Lake Champlain clean, especially with their pesticide focus. He stated that one issue that is often overlooked and ignored is the effect of fluoride in the lake. Fluoride is a component of many pesticides and is stringently controlled because of its toxicity. Over 95% of all fluoride put into water does not get consumed by citizens but flushed down drains and ends up in the lake.

> Mark thanked Ross for his comments. The CAC has had many comments on next generation contaminants, and we will bring this topic up at an upcoming meeting.

Review and vote on Draft December 14th VTCAC Meeting Summary – Mark Naud

Mark discussed the possibility of recording the VTCAC meetings in the future which would perhaps shorten the length of the meeting summaries.

Rep. Carol Ode moved to approve the meeting summary. Rep. Ginny Lyons seconded. Hillary Solomon noted her appreciation of the very thorough summary and Mark thanked Lauren for the quality of the summary. The motion was approved unanimously.

5:15 – 5:45 pm

Vermont's pesticide, herbicide, and fertilizer utilization, tracking, and reporting efforts - Cary Giguere, Patti Casey, and Kanika Gandhi (VTAAFM)

Cary Giguere is the Division Director of the VTAAFM Public Health and Agrichemical Resource Management Division. Patti Casey is the Environmental Surveillance Program Manager and runs the environmental monitoring and surveillance program which include a focus on mosquitos and ticks and pesticides in surface and groundwater. Erica Cummings is the Agrichemical Research and Policy Specialist and put the data and graphs together for this presentation. Kanika Gandhi is the Pesticide Policy Section Chief. Steve Cash is a Water Quality Specialist for medium and large farms in the area of interest for the CAC.

Cary provided an overview of the pesticide data found within the VTAAFM database. As discussed during a previous year's CAC meeting, the old VTAAFM database contained many errors in the information stored and in its calculations. The last few years were spent creating a new database. VTAAFM hired the job out to a third-party software developer but they failed twice to create a new database, so the job became an in-house operation once again. Erica Cummings would be able to share the trials and tribulations of that process. In 2018 staff reviewed every product and label and recalculated the data within the database. The 2018 data is considered most accurate and the 2020 Report will be issued shortly. The database and reports rely on companies and applicators to self-report their data, though VTAAFM does do some record checking.

The largest reported user of pesticides in the State is Omya. The second highest use of pesticides in the State is for corn crops. In 2019, the data did show a drop in pesticide usage which may be correlated to the price of milk or less corn being planted.

- Sen. Ginny Lyons asked if the pesticide use on corn graph can be shown to correlate with the increase or decrease of corn crops being planted each year. Cary replied that they don't currently have the measurements of pesticide use compare to measurements of crop outputs and reminded everyone that staff rely on applicators to self-report their usage and the category may include some additional crops rather than corn. Cary also doesn't know how accurate or reliable data of state-wide 'acres of corn planted' would be.
- Rep. Carole Ode asked if Cary could talk about the use of glyphosate on fields using no-till practices. Cary explained that the increased use of glyphosate has a direct correlation to the adoption of conservation tillage/cover-cropping practices in the State, though glyphosate is also used in the forestry sector for the control of invasive species.
- David Mears asked for confirmation on this trend. He understands that terminating planted cover-crops using glyphosate was made possible with the introduction of roundup ready corn. The increase of cover-cropping in the State is awesome, but it may be offset if there is also an increasing use of glyphosate. Cary explained that in 1999, when he started at the Agency and began working with this data, there was no reported glyphosate use on corn as farmers didn't have GMO corn. There was also very little cover-cropping. As cover-cropping was adopted there was an increased reported use of glyphosate, however, the increased glyphosate use trend doesn't exactly correlate to the use of GMO corn. This is because farmers who weren't cover-cropping but were using GMO corn continued using corn herbicides. Glyphosate is used with cover-cropping practices as there are only one or two other products, besides glyphosate, which are labeled to be used for terminating cover-crops. Cary noted that farmers in Vermont are not using over-the-top glyphosate application amounts like is being seen in other States. Cary also noted that he knows of an organic farmer who is experimenting with crimping technology to terminate cover-crops.
- Bill Howland stated that it would have been nice to see the presentation graphs start prior to 2009 so the CAC could see that increasing trend. He noted an enormous increase in use between 2008 and 2009 with the reported use jumping roughly from 250lbs to 18,000lbs. Cary explained that the years prior to 2009 were transition years as VTAAFM moved away from an inhouse database to a commercial database. While VTAAFM has the data on paper their faith in the database data isn't strong. Though at that time VTAAFM began suggesting that the Federal government start paying farmers to cover-crop and in those years we start seeing an increasing glyphosate trend.

Glyphosate applied to corn fields contains approximately 18.3% phosphorus. The standard rate of application for glyphosate use is 0.75-1.5lbs/acre. This means that 2.9oz of phosphorus is applied per acre at a 1lb of glyphosate/acre application rate. In State Fiscal Year 2020 there was 26,750 acres of cover-cropping implemented through State and Federal programs, according to VTDEC. In 2019, 81,000 acres of corn were planted in Vermont and 1/3 of those acres were cover-cropped. Cover-cropping shows a 25-30% reduction in phosphorus loss, dependent on the slope of the land.

Cary explained that the EPA was set to cancel the use of chlorpyrifos in 2016 but a political decision left it in the market. However, the State moved ahead to cancel and deny its registration. There may still be existing stocks of chlorpyrifos in the State, but its use has now been largely reduced in VT.

The lawncare and ornamentals pesticide category represents the world of TruGreen products, but the data only represents professional use. The use of glyphosate in these 'urban' settings accounts for a higher chemistry than the products applied to corn.

To report out the fertilizer tonnage data, VTAAFM staff collect data from fertilizer dealers by county. Addison and Franklin Counties have the highest reported use. The unknown category depicts the fertilizers sold at hardware/grocery/garden supplies stores. VTAAFM is hoping to tighten up that data in the upcoming years.

- Lori Fisher asked about the timeframe for this and why staff couldn't summarize the data by each store's county location. Cary replied that the fertilizer dealers can report State-wide data, but that they don't know how much fertilizer is going to each store. It would require a legislative change to get more accurate data.
- Mark Naud requested a breakdown of the fertilizer blends for the reporting. Cary was able to pull up a table of that information.

Patti Casey provided an overview of the VTAAFM Environmental Surveillance Program which samples groundwater, private wells in agricultural areas, and surface waters State-wide. The ambient surface water study began in 2017 and its objective is to establish baseline data on neonicotinoids, glyphosate, and nitrates in Lake Champlain and its tributaries. There are currently 27 sites monitored. 15 of those are monitored by VTAAFM Pesticide Field Agents who conduct monitoring visits throughout the growing season, including pre- and post-planting, and sample for a suite of neonicotinoids and corn pesticide breakdown components. 12 of those sites are located on several major rivers flowing into Lake Champlain and are monitored by VTDEC/LCBP staff member Pete Stangel after rain events. Since 2017, 800 samples were analyzed for glyphosate from 127 ambient and ground water sites located near agricultural areas. 0 samples detected glyphosate above the 10ppb detection level (VT's standard was lowered in 2011) and the EPA drinking water standard is 700ppb. Samples have contained trace detections of other corn herbicides, including metolachlor. No samples taken that contain traces of corn herbicides rise to the EPA's drinking water samples except for Jewett Brook, which has shown higher detection levels after rain events. The USGS Synoptic Study Proposal (provided in the meeting materials) looks very similar to what VTAAFM is doing, except with lower detection limits and they plan to sample at wastewater treatment facilities.

- Crea Lintilhac, who is involved with the USGS Study, provided clarification on the different detection limits used between the USGS Study and the VTAAFM Ambient Surface Water Study after the meeting:

  > Scientists with Ohio EPA found that spring applications of glyphosate used on Ohio cornfields (GMO corn) adjacent to Lake Erie were associated with algal blooms in the lake. In this study, the phosphorus component averaged about 15% of glyphosate and can be available as a nutrient source for algae in the lake. (Ohio Lake Erie Phosphorus Task Force Report 2010). Most recently, scientists at McGill University (Hebert MP et al, 2018) have reviewed data and reports of increasing phosphorus (P) in soils and in waters resulting from increasing use of glyphosate on Roundup-ready engineered crops. They warn that glyphosate's contributions of P to the environment can no longer be ignored in the management of phosphorus in watershed planning and management.
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  > Of the tens of thousands of kilograms of glyphosate applied to agricultural and urban land in Vermont, an unknown amount enters Lake Champlain through direct runoff and from WWTP discharge. The USGS is here to fill a data gap for the state of Vermont.

Kanika Ghandi described the Vermont Pesticide Advisory Council (VPAC) which looks at permitting for pesticide usage in the State. Traditionally, the legislature has passed bills for single chemical bans. The legislation that is currently being worked on takes a more wholistic approach to decreasing the amount of pesticides used in the State. Members of the VPAC are working on new legislation for the new session.

- Mark Naud asked about any shelved pieces of legislation. Cary responded that there was a bill that would have modified the VPAC that made it through the Senate but wasn't taken up by the House due to Covid. There was also legislation that would put the ban of chlorpyrifos into statute.
- Rep. Carol Ode asked about the end goal of the VPAC. Kanika responded that the VPAC makes recommendations for legislation based on testimony from the committee. An Agriculture Innovation Board could make recommendations for practices that reduce alliance on pesticide use and focus on soil management and integrated pest management. Creating new programs to help farmers transition to different systems has also been talked about. Cary added that VTAAFM's goal is to incentivize change rather than vilify farmers, a lesson learned from phosphorus reduction work. Rep. Ode stated that she hopes no one is feeling vilified for making progress on water quality.

5:45 - 6:15 pm

Recent herbicide/pesticide trends in Vermont including herbicide/pesticide management and regulation recommendations – Nat Shambaugh (retired VTAAFM pesticide chemist)

Nat's presentation can be found in the meeting materials. When working for VTAAFM he helped develop the monitoring programs and regulations. He advised VPAC which advises the VTAAFM and State government on pesticide issues related to its use and risks. VTAAFM has been monitoring surface and groundwater for almost forty years with their main focus on field corn. Atrazine and Metolachlor can be found in Lake Champlain year-round which leads to the conclusion that pesticide runoff is inevitable if placed on the landscape. The main question then, is what detection levels we should be worried about. Nat walked the CAC though his process to determine the answer to that question. Using a Risk Quotient (RQ = value of concentration/toxicity value) he determined that of 163 pesticide components found within his literature review work nine had RQs higher than 1 (meaningful result) and four of the compounds were found at levels 10x their toxicity values. The RQ value for an Atrazine sample taken in Jewett Brook, a tributary that flows to St Albans Bay, was 114000.

EPA's Chronic Aquatic Life Benchmarks are not regulated but were designed to be used by State and other entities to prioritize sites for further investigation. The current benchmark for the neonicotinoid insecticide clothianidin, for example, is 0.05ppb. The Neonicotinoid Insecticides are used as a coating on seed corn to make the plant tissue toxic to insects, however it has been shown that the toxicity also extends to the plant's nectar and pollen which makes it toxic for pollinators. The neonicotinoids are also highly soluble and are extremely toxic for aquatic insects. In June 2015 clothianidin was found in every sample taken from Jewett Brook at levels up to 5x the aquatic life benchmark. In June 2016 samples taken from the brook and at the outfalls of tile drains exceeded acute EPA benchmarks for atrazine and metolachlor as well as the chronic aquatic life benchmarks for neonicotinoides clothianidin and thiomethoxam.

The take-home message is that millions of pounds of pesticides are used in Vermont every year. About ¼ is used on corn to feed dairy cows and the data presented has varied reliability and doesn't include homeowner use. We have seen a gradual decline in pesticide use but an increased application rate on corn despite less corn being planted. The combined use of atrazine and glyphosate has doubled since 2007, despite the promise that the introduction of roundup ready corn and use of glyphosate would decrease the use of more toxic pesticides like atrazine, a suspected human carcinogen.

Revising the State's current pesticide regulations that have been in place for 30 years is a good thing. He read the preamble to the current regulations which state that VTAAFM will use an environmentally responsible approach to pesticide management including the use of integrated pest management (IPM). It is unfortunate that IPM was not the focus of actions and that the use of roundup ready corn and soy were approved and have now taken over the Vermont and nationwide market. Planting virtually all conventional corn and soy seeds treated with neonicotinoids and fungicides is not

consistent with IPM. In addition, VPAC's function is to suggest policy for the wise use of pesticides and benchmarks for reduction, but over the last 20 years both VTAAFM and VPAC have allowed railroads to increase their use of herbicides by 50% even though the mileage of tracks is the same and the need for a 50% wider spray path was never documented. VTAAFM also eliminated public and VPAC input for the pesticide use regulation of golf courses. VTAAFM's pesticide use data has not been reliable, and no one can make responsible management decisions when they don't have accurate or reliable data. For example, the same data on chlorothalonil use on golf courses accessed in 2020 versus 2018 shows values at 5-10,000 pounds higher. None of VTAAFM's data besides 2018 has been thoroughly vetted and validated.

VTAAFM's proposal to replace the VPAC with an "Agricultural Innovation Board" alludes to a changed emphasis from minimizing the use of pesticides to an emphasis on sustainable agriculture, biodiversity, soil health, and ecosystem services and would be similar to what UVM Extension's Center for Sustainable Agriculture is already doing. The VPAC should not be replaced and more, not less, emphasis should be put on pesticide minimization in Vermont.

In conclusion, pesticides are everywhere. VTAAFM and the State spend a lot of time and money looking into nutrient runoff from urban and agricultural environments but should expand their tunnel vision by paying more attention to what else is washing off into our rivers and into Lake Champlain. VTAAFM and VPAC are not following their own mandates to minimize environmental harm and advocates should stress that VTAAFM should incorporate IPM, soil health, pesticide minimization into the new regulations and build an increased transparency into everything they do.

The VTCAC can advocate for including pesticide analysis when LCBP, State Agencies, and other organizations conduct edge-of-field runoff studies which are currently focused on nutrient runoff. The VTCAC can advocate for the incorporation of pesticides into the TMDL, tile drain, and other nutrient legislation and rules. The VTCAC can advocate to formalize the incorporation of pesticide testing into the LCBP Long Term Monitoring Program. Currently, none of the VTAAFM groundwater and surface water monitoring is available publicly online. The VTCAC can advocate for resources to ensure that VTAAFM receives the resources to maintain their database adequately and continuously and collect homeowner pesticide data.

- In answering clarification questions from the CAC members, Nat explained that VTAAFM's monitoring protocol has been geared toward human health and because of this, focuses on the EPA's drinking water standard (700ppb) for their detection limits. It is time consuming and more complicated to detect and analyze glyphosate levels below 1ppb. Acute toxicity levels mean that the toxin is immediately poisonous to fish and aquatic plants. In Jewett Brook the toxicity levels have been found to be acute.

6:30 – 7:00 pm

Committee Member Discussion

Lori Fisher noted that most CAC members' terms are expired or due to expire in February. We should use this time to prioritize and support diversity, inclusion, and equity in the CAC membership. Additionally, we will soon have a new Lake Champlain Basin Program staff person whose primary responsibility will be to support all the Lake Champlain Citizen Advisory Committees. This presents an opportunity to work more extensively with the New York and Quebec CACs. Once the staff person comes onboard, we might consider establishing a VT/NY/Quebec Working Group to explore some approaches.

Mark Naud led the CAC discussion on how to create this year's annual Legislative Action Plan. He suggested that the VTCAC take a longer-view approach to this year's plan due to the Covid pandemic and Legislative leadership changes. The VTCAC's enabling legislation states that the Action Plan should include an update on the quality of the waters of the lake, findings of pertinent research, water quality and fishery improvement measures, and ways to enhance public use of and access to the lake.

- The Committee agreed with taking a longer-term approach to this Action Plan and to focus on the distillation of material from the last few meetings to present a clear picture of what the CAC recommends for State leadership, especially for agriculture.

Bob Fischer made a motion to create a subgroup to discuss the Action Plan before the next VTCAC meeting on February 8th. Lori Fisher seconded. The motion was approved unanimously.

Meeting Conclusion

Mark thanked the speakers for taking the time to put together presentations and information for the CAC to consider. The next meeting will be on February 8th and feature presentations on Lake Champlain water quality and tributary loading trends. Lori Fisher made a motion to adjourn the meeting. Bob Fischer seconded. The motion was approved unanimously.