

February 16, 2024

Mr. Brian Primeau, Bureau of Pesticide Management
New York State Department of Environmental Conservation – Region 5
232 Golf Course Road
Warrensburg, NY 12885-0220

RE: Lake George Park Commission Application for ProcellaCOR in Sheep Meadow Bay, Hague (T) & Blairs Bay, Hague (T)

Dear Mr. Primeau:

The Lake George Association (“LGA”) and the Lake George Waterkeeper (“Waterkeeper”) continue to have significant environmental and ecological concerns regarding the proposal by the Lake George Park Commission (“LGPC” or “the Applicant”) to apply the aquatic herbicide ProcellaCOR™ EC to control the invasive plant Eurasian watermilfoil in the two bays identified above. Our concerns were not adequately reviewed during the original permit application process and, in our opinion, violated the Adirondack Park Agency Act. This prompted our organizations along with the Town of Hague and a riparian landowner in the treatment area to file legal challenges against the Adirondack Park Agency (APA) and the LGPC, as well as seek an injunction to the permitted application. As you are aware, Supreme Court Justice Muller ruled in our favor and the original Adirondack Park Agency permits were vacated.

Although the Department of Environmental Conservation (“DEC” or “the Department”) previously issued aquatic herbicide permits to treat the two bays with ProcellaCOR, those permits have expired.¹ In early 2023, the LGPC applied for new permits to use ProcellaCOR. However, those permit applications were suspended once Justice Muller vacated the original APA permits. An appeal is currently pending before the Appellate Division, Third Department. Although the the APA and the LGPC took six months (the maximum time allowed under the regulations) to perfect its appeal, that appeal is now fully submitted, and it is expected that oral argument will be scheduled for the week of March 25, 2024.

Now, the LGPC appears to be rushing to move the application process forward. On or about January 30, 2024, the LGPC issued notices to approximately 45 riparian owners. Based upon our inquiry of Department personnel, we understand that the LGPC has not filed any new permit applications before the Department but intends to rely on the same applications that were submitted in early 2023. Notwithstanding this fact, the Department has not provided the LGA or the Waterkeeper with copies of documents or correspondence pertaining to this 2024 permit application process even though we made a timely Freedom of Information Law request for that information. In early 2023, in response to the permit applications and the defective notification to

¹ Due to the rushed nature of the previous permit application process before the Department and the defective notice to riparian owners, there were minimal comments and objections filed in response to those applications.

some of the riparian owners, several riparian owners, the LGA and the municipalities of Hague, Dresden and Ticonderoga, filed objections to the then pending permit applications. We understand that the Department has determined that it will not consider those objections as part of this 2024 permit application process. It is perplexing, at best, that the Department will allow the LGPC to rely upon its previously filed permit applications, but not consider objections filed by riparian owners or opposition to the very same permit applications that are now being considered in 2024.

We understand the importance of invasive species management as we have been partners with the LGPC for over 35 years working to control Eurasian watermilfoil and have spent over \$1.3 million since 2013 on this effort. However, these permit applications seek to introduce a radical and high-risk change in the current management approach, thereby setting a dangerous precedent for the future ecology of Lake George and possibly many other high quality and uniquely regulated waterbodies in the Adirondacks.

Consequently, the LGA and the Waterkeeper object to the proposed use of ProcellaCOR, be it for testing purposes or otherwise, or any other aquatic herbicides in Lake George. This objection is shared by the Towns of Hague, Dresden, and Ticonderoga, supported by over 300 public comments in opposition sent to the Adirondack Park Agency (“APA”) in April 2022 and over 4,600 concerned citizens who have signed a petition in opposition.

We have attached our public comment letter of technical concerns submitted to the APA in March and April 2022, which documented the many potential negative short- and long-term impacts and uncertainties surrounding these applications for herbicide use; uncertainties that can cause harm to this exceptional natural resource. We are also attaching the March and April 2022 submissions from Dr. Carol Collins further substantiating these uncertainties. We would like these to be included in the record along with our following regulatory and technical comments regarding the LGPC’s permit application(s). Together, these comments and the previous comments demonstrate that there are many substantive and significant issues regarding the procedures being employed, the documented impacts to nontarget species and organisms that will occur if these permits are granted, and the fact that there are reasonable, cost-effective, and non-chemical alternatives to the proposed herbicide treatments in Lake George. For these reasons, the LGA and the Waterkeeper respectfully request that these permits be denied or that they be referred to the Department’s Bureau of Hearings and Mediation Services for an issues conference and adjudication of the substantive and significant issues that have been raised.

The following comments are submitted regarding the 2024 Applications for a Permit to Use a Pesticide for the Control of an Aquatic Pest filed by the LGPC for the use of ProcellaCOR in Sheep Meadow Bay and Blairs Bay in Lake George. While the LGPC has mailed Letters of Notice to riparian owners dated January 30, 2024, regarding the 2024 applications, the State has yet to make these available for review and comment. The following comments are regarding compliance with the requirements of Policy DSHM-PES-05-05 Aquatic Pesticide Permit Program and applicable statutes and regulations:

- 1. Under Part 1 Permit Applicant Information, the applicant is not a riparian owner in the treatment area and therefore must obtain authorization from the current property owner. Also, DSHM-PES-05-05, Section 13.c Review of Application Packages by Regional Bureau of Pest Management Staff requires “verification that the applicant is a riparian owner or represents one of more riparian owners.”** The LGPC has filed as the applicant for the project but is not the property owner or riparian owner in the treatment area. The New York State Office of General Services is the actual property owner of the bed of Lake George. It would seem that this application is incomplete without a delegation from the NYS Office of General Services authorizing the Lake George Park Commission to apply chemicals to Lake George.
- 2. Under Part 4 Water Body Information, the location, county, and town of the project is incorrectly provided.** The application states that the location of the water body and town is “... in the Town of Dresden.” In fact, the location of the project is in the Town of Hague, which includes Lake George up to the east shore of the lake and is in Warren County. This is critical information since the Hague Town Board passed resolutions in 2022 and 2023 opposing the use of the aquatic herbicide ProcettaCOR within their Town. In reviewing the list of riparian owners notified by the applicant, it does not appear that the Hague Town Board was considered a riparian owner. This makes the current application process defective.
- 3. Policy DSHM-PES-05-05, Section 9.b Riparian Owner/User Notification requires the riparian owner/user notification letter to include “ii. The name of pesticide to be used and a copy of the product label.” (emphasis included).** The riparian owner notification letter dated January 30, 2024 did contain the name of the pesticide to be used but did not include a copy of the product label as required. This is an incomplete notification and should be notified in accordance with the regulations. This is particularly egregious under the circumstances since the notification that was sent is misleading concerning potential adverse impacts, does not mention restrictions on the use of Lake water for irrigation (gardens and landscaping), and does not identify the restriction on feeding animals with Lake water for an undefined period of time until testing reveals that the product has dissipated. (See #4 below). Although there is a link to the label on the LGPC website, this requires riparian owners to use a computer to access the information and presumes that everyone has access to a computer. This defect should be cured before this process moves forward.
- 4. Policy DSHM-PES-05-05, Section 9.b Riparian Owner/User Notification, the riparian owner notification letter fails to inform the riparian owner of the significant restrictions on irrigation, agricultural and non-agricultural, as well as the use for watering animals.** The herbicide label state restrictions apply to “... shoreline property use including irrigation of residential landscape plants and homeowner gardens” The

phrasing again minimizes the potential impact, fails to inform the riparian owner of potential harms, and fails to highlight the importance of the use restrictions.

5. **Policy DSHM-PES-05-05, Section 9.b Riparian Owner/User Notification requires a period of time not less than 21 days in which an objection may be filed with the Department.** This clock is ticking even though the LGPC and the Department have not made any documents available concerning the applications. A majority of the riparian owners within the notification zone of the treatment area are seasonal residents; consequently, there is a concern as to the timeliness of the receipt of the notice and the actual time period for objection and consent refusal response. This raises the potential that the majority of seasonal riparian owners have not been “adequately and timely informed” as required. At a minimum, the Department should extend the public comment period until the applications and correspondence concerning them are made public.
6. **Policy DSHM-PES-05-05, Section 9.b Riparian Owner/User Notification defines affected riparian owners/users as “... shall be those riparian owners/users located within one-half mile of the treatment area”.** This requirement has not been met. When a one-half mile radius is placed on the perimeter of the two proposed treatment areas, the number of riparian owners in the Sheep Meadow Bay treatment area is approximately 38, while the LGPC notification letter was sent to 9. In the Blairs Bay treatment area, the one-half mile radius includes a total of approximately 50 riparian owners, while the LGPC notification letter was sent to 37. This is very important given the potential drift of the chemical as verified through the validated Jefferson Project circulation model and in-lake velocity data.
7. **Policy DSHM-PES-05-05, Section 13.b requires Regional staff to determine “that the water body will be controlled during and after the proposed pesticide application, as may be required by the specific pesticide label or Department regulation, or determination that if the water body outflow cannot be held, all downstream riparian users consent to the water use restrictions or that they will not significantly adversely impacted.”** The validated Jefferson Project circulation model described further below demonstrates that water circulates well beyond the treatment area in a matter of hours, resulting in the drift of the chemical herbicide beyond the treatment area and well beyond the estimates from the NYSDEC generic dilution model.
8. **The Department should require full compliance with the State Environmental Quality Review Act (SEQRA) before it renders any decisions concerning the pending applications.** Policy DSHM-PES-05-05, Section V (B) Section 11 confirms that the issuance of aquatic herbicide permits by the Department is an action requiring compliance with SEQRA. The only exceptions that are noted are contained in Section 11 (1 & 2) “In the case where a pesticide not listed in Parts 327, 328 or 329, or where a pesticide not evaluated in the 1981 EIS, 1995 SEIS or PEIS, is proposed for use, the

applicant must take further steps to comply with SEQRA. An Environmental Assessment Form (EAF) must be prepared by the applicant and attached to the application.” ProcellaCOR is not listed in 6NYCRR Part 327 and was not evaluated in any of the EIS documents referenced in the guidance document.² Accordingly, before the pending permit applications may be processed further, the applicant and the Department must comply with the full requirements of SEQRA.

Pursuant to Policy DSHM-PES-05-05 Permit Approval or Denial Procedures, (3), Permit applications must be referred to the Office of Hearings when substantive and significant issues are raised. In pertinent part, the program policy provides as follows “Objections must be reviewed by the Regional Pesticide Control Specialist 2 (RPCS 2) and the Regional Materials Management Engineer (RMME) to determine whether issues are raised which would provide a basis for referral of the Permit application to the Office of Hearings by the appropriate Regional staff person. Expressions of general opposition to a proposed herbicide application are not sufficient grounds for making such a referral. In order for objections to be considered substantive and significant, thus requiring a hearing referral, objections must be in writing, must explain the basis of the objection and must identify the specific impacts which the objector asserts would significantly adversely affect the nonconsenting owner/user or the environment. A hearing referral is required on the basis of an objection only if the Department staff determine that the objection constitutes grounds to propose to deny or impose significant conditions on the Permit.”

The following are issues regarding the proposed use of ProcellaCOR by the LGPC, which should be considered as substantive and significant and require an adjudicatory hearing. It should be noted these comments are developed without access to the actual permit application being filed by the LGPC and are based on previously submitted documentation that was deficient. The comments are also being provided without any access to any documents that are required under SEQRA.

- 1. There has not been any demonstrated ecological and/or economic impact and/or water use/recreational impairment to Lake George that creates the need for drastic management change for the use of herbicides.** It is recognized that Eurasian watermilfoil is present in the two bays, but the condition is not categorized as dense. The Lake George Association performed site surveys in September 2023. In Blairs Bay, it is clear that conditions are not “dominated by *Myriophyllum spicatum*” as reported by the

² 6 NYCRR Section 327.7 includes the following language: “In addition to the authorized chemicals and specifications, permits may be issued for other chemicals and specifications, without the necessity of adding them to the list, when it is evident that their use will conform with the intent and purpose of the law and these regulations.” ProcellaCOR has never been identified as such a chemical and to do so on an ad hoc basis in response to these permit applications would violate SEQRA. Unlike the chemicals that are actually listed and those that were reviewed under prior SEQRA analyses, ProcellaCOR has never been evaluated under SEQRA.

applicant. Their biased survey methodology coupled with the assumption that the majority of the bay was unsuitable for macrophyte growth, led to a misleading understanding and reporting of the vegetation in Blairs Bay. The bay was 90% to 100% covered with macrophyte growth. Eurasian watermilfoil, although present, is not likely to reach the surface or even near the surface of the water. In Sheep Meadow Bay, it is clear that the conditions are not “dominated by *Myriophyllum spicatum* with pockets of native macrophytes” as reported by the LGPC, and instead consist primarily of native species with a sizable dense bed of vegetation dominated by Eurasian watermilfoil located offshore. However, the milfoil bed does not reach the surface of the water. According to the LGPC, “the areas within the 0.3 mile radius of the proposed treatment area were lacking macrophytes due to benthic bedrock or steep drop-offs,” whereas the LGA survey shows otherwise. While the dropoff and depths did occur, vegetation is abundant, including a large Quilwort bed (361 plants/quadrat). Getting the facts before the decision-makers concerning this important issue is a prime example of a substantive and significant issue that needs to be adjudicated.

2. **Based on new information from the Jefferson Project from research performed and data collected over the past two years, including a peer reviewed paper, the LGA/Waterkeeper conclude that there is significant water flow and transport in the bays, both horizontally and vertically, and that the dilution of the herbicide will not be uniform in the water column.** This has not been recognized by the applicant. This issue should be adjudicated before any permits are issued for the application of chemicals to Lake George.
3. **Evidence has been presented regarding wide-spread circulation from the treatment area(s) that will reduce the contact and exposure time and subsequently the efficacy of the proposed treatment.** More research studies and data have become available since the initial application that demonstrate a greater influence of lake hydrodynamics on water movement based on the bulk water exchange processes. Detailed and peer reviewed computer circulation models by the Jefferson Project, verified by physical measurements, demonstrate that there are significant horizontal and vertical water currents in Lake George and show that in the two bays targeted for the ProcellaCOR experiment, the herbicide will quickly be swept out of the bays. Moreover, published studies have pointed to the importance of understanding hydrodynamic processes in the use of herbicides. “Hydrodynamic processes driven by gravity flow (rivers, streams, canals) tides (lunar), wind (lake seiches), and thermal circulation (lakes and reservoirs) impact bulk water exchange in submersed plant stands, alter herbicide concentration-exposure time (CET) relationships, and thus can play a major role in determining success or failure of a treatment”³ (Emphasis added) “When a canal or other high-flow aquatic

³ Getsinger, K.D. and Netherland, M.D. 2018. Use of herbicides in areas of high water exchange: Practical considerations. J. Aquat. Plant Manage. 56s: 2018.

system is targeted for weed control, exposure time will probably be greatly reduced and beyond the control of the resource manager.”⁴

For example, a study of auxin aquatic herbicides in Fort Peck Lake, MT demonstrated the challenges of high-water exchange rates and the impacts on herbicide efficacy. “Relatively small treatment plots of <4 ha (10 acres) can be impacted by water-exchange processes in open fetch areas of the lake (primarily wind-induced), thus decreasing herbicide contact time around target plants, and greatly reducing efficacy of EWM.”⁵ “The lake contains extended fetches of open water that, while in association with strong prevailing winds, can compromise aquatic herbicide CET relationships.”⁶

Another example was a United States Army Corps of Engineer study of ProcellaCOR in Roanoke Rapids Lake, N.C where the herbicide was applied with rhodamine dye to evaluate hydraulic control and non-target species response. Dye and herbicide residue data indicated rapid water exchange was occurring at each treatment site and herbicide concentrations were not sufficient to achieve adequate control. “Although small-scale research trials have provided beneficial data concerning general efficacy and selectivity, few trials have documented how to effectively utilize this technology in the field.”⁷ “Aqueous herbicide levels in Plot 1 indicated rapid dissipation of herbicide out of the treatment site.”⁸ “Measured aqueous herbicide levels indicated a rapid movement of the applied herbicide out of treatment Plot 2.”⁹ As stated, rhodamine dye was used to track the herbicide movement – “Rhodamine WT dye data indicated high water exchange was occurring in small treatment plots (<1.2 ha)”¹⁰ The following figures from the study demonstrates the high water exchange that was occurring in the treatment plots.

⁴ Gettys, Lyn A., Thayer, K.L., Heilman, M.A. and Van Goethem, E.M. 2021. Effect of floryprauxifen-benzyl concentration – exposure time on hygrophila and rotala. J. Aquat. Plant Manage. 59: 2021.

⁵ Podkowka, Rebecca L., Getsinger, K.D., Skogerboe, J.G., Gilbert, P.L. and Pennington, T.G. 2019. Demstration and Evaluation of Eurasian Watermilfoil Control Using Aquatic Herbicides in Fort Peck Lake, MT. ERDC/EL TR-19-16.

⁶ Ibid.

⁷ Sartain, Bradley T., Haug, E., Getsinger, K., Sperry, B.P., Heilman, M., and Greer, M. 2023. Small Plot Applications of floryprauxifen-benzyl (ProcellaCOR CS) for Control of Hydrilla in Roanoke Rapids Lake, NC. U.S. Army Corp of Engineer, ERDC Port, ERDC/EL TR-23-3.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

Figure 22. RWT dye and herbicide immediately after application (0 HAT) at Plot 2 Roanoke Rapids Lake, NC August 2020.



Figure 23. RWT dye and herbicide 1 hr after treatment at Plot 2 Roanoke Rapids Lake, NC August 2020.



Therefore, there is significant concern that is supported by research emerging from other lakes as well as the data collected on Lake George that lake hydraulics and water exchange rates are a large concern and will greatly impact any herbicide treatment in bays in Lake George. The applicant has failed to acknowledge this or take these natural processes into consideration in the proposed treatment. It should be noted that dye studies were required for the applications to apply SONAR in Lake George even though treatment areas were proposed to be contained by benthic barriers. The issue of drift from the treatment zone was determined to be a substantive and significant issue that was adjudicated in that case. For the same reasons, this issue should be adjudicated before any permits are issued for the application of chemicals to Lake George.

4. **Based on new information from the Jefferson Project from research performed and data collected over the past year, including a peer-reviewed paper, the LGA/Waterkeeper conclude that the hydrodynamics and water transport in the lake is both dependent on and independent of weather conditions. The independent movement of the water is based on internal seiche waves, thermal influences and stream input and these dynamic forces even occur on calm days. These forces create circulation patterns that directly discharge water from the bays into deep**

waters in the lake. It has now been proven that water moves in different directions and at different speeds at different depths. In fact, large subsurface water velocities (where herbicide would be applied) have been measured even when the water surface is still. This data supports the fact Lake George is not quiet and quiescent and that this issue should be adjudicated before any permits are issued for the application of chemicals to Lake George.

5. **The previously detailed hydrodynamic processes associated with lake will create bulk water exchange and dispersal of the auxin growth hormone in ProcellaCOR and will result in enhanced growth of milfoil in areas outside the treatment area.** Hormesis, or augmented growth following sublethal herbicide concentrations, is a characteristic of low-dose auxin, which will occur with the drift and dilution of the herbicide from the treatment area. This has been documented from in-lake studies referenced in the previous figures¹¹ as well as other studies. “Hormesis was noted in a previous study that documented a stimulated increase in yield for *E. densa* treated with the auxin herbicide, 2,4-D, applied at 1 to 11 mg ai L⁻¹ (Peres et al 2016). Similarly, Mudge et al. (2021) suggested potential hormesis occurred for *E. canadensis* in a 6-wk CET study when exposed to florpyrauxifen-benzyl at 3, 6, and 9 µg ai L⁻¹. While macrophyte hormesis literature is limited for florpyrauxifen-benzyl, findings from these previous auxin herbicide screenings closely align with the observations of *E. canadensis* and *E. densa* response to treatment in the present study. Further, these data denote the perceptible effective dose thresholding, which can occur among auxin herbicides, and the varying sensitivity found even with the same plant family. Further research is required to specifically evaluate the lower florpyrauxifen-benzyl threshold concentrations and exposures that deter possible hormesis in common field applications scenarios; notably in high water-exchange situations.”¹² (Emphasis added). The applicant has failed to acknowledge or mitigate the potential for impacts of bulk water exchange and the subsequent hormesis that could result in increased milfoil growth from the growth auxin in adjacent areas. This is yet another substantive and significant issue that should be adjudicated.
6. **The use of florpyrauxifen-benzyl (ProcellaCOR) is not consistent with its Pesticide Label, which is a violation of Federal Law.** The following is a portion of the initial wording on the introductory description of Florpyrauxifen-benzyl (ProcellaCOR) from the specimen label: “A selective systemic herbicide for management of freshwater aquatic vegetation in slow moving/quiescent waters with little or no continuous outflow ...”¹³ (Emphasis added). As documented in a recently published study by the Jefferson Project, Lake George bays have rapid bulk water exchange rates resulting in significant water currents and movement. This is the type of scientific data that decisions for the

¹¹ Ibid.

¹² Howell, Andrew W. 2022. Evaluations of Florpyrauxifen-benzyl and Unoccupied Aerial Systems to Manage Invasive Aquatic Plants in North Carolina and New Zealand.

¹³ Specimen Label for ProcellaCOR™ EC (EPA Reg No. 67690-80). Produced by SePro Corporation, 11550 North Meridian Street, Suite 600, Carmel, IN 46032. 2028.

controversial first-time application of an aquatic herbicide to pristine water body must be based upon. Decisions should not be based upon unsubstantiated, data-lacking statements such as: “Despite the misrepresentations (that Lake George is not a quiet/quiescent water body), Lake George is in fact a lentic (still water) ecosystem. LGPC staff, as well as APA staff, have swam the demonstration sites many times and can attest that there is no appreciable current.”¹⁴ And “Based on the spot-treatment language, the ProcellaCOR EC label directions stating that this pesticide was suitable for use in lakes, the information provided in the permit applications, my knowledge of this pesticide application in other lakes with similar characteristics in the State and my familiarity with Lake George, I determined that Blairs Bay and Sheep Meadow Bay of Lake George were both sites where ProcellaCOR EC could be applied.”¹⁵

The LGA is offering detailed quantitative data demonstrating the significant currents, both horizontal and vertical, as well as timing on the water exchange from small bays. This evidence is much stronger and can be validated much more easily than the unsupported claims of the applicant and administrator. Based on this data, Lake George cannot be considered a quiet/quiescent water body and the use of ProcellaCOR is in violation of the USEPA registration. Here again, this substantive and significant issue should be adjudicated with proof and cross examination.

- 7. There are numerous unanswered questions surrounding the degradation of florpyrauxifen-benzyl; questions regarding half-life to metabolites to persistence in the environment.** It is widely reported that florpyrauxifen-benzyl will primarily degrade via aqueous photolysis with a reported half-life of 0.07-2 days. (USEPA 2017). However, with the high-water exchange present in Lake George, the herbicide will be transported quickly from the treatment area into deeper waters adjacent to the treatment site where degradation by photolysis will not occur. In these deeper waters, degradation will occur via hydrolysis, which is reported by SePRO to be 111 days. There is also concern that deeper, oligotrophic lakes such as Lake George will increase degradation time for auxin-mimic herbicides due to water exchange and transport, which is supported in studies – “The rate of herbicide degradation in this study was generally observed to be slower in oligotrophic seepage lakes.”¹⁶

¹⁴ Personal correspondence from Dave Wick, Lake George Park Commission Executive Director, to Adirondack Park Agency Re: Response to Public Comments – ProcellaCOR. April 6, 2022.

¹⁵ Affidavit of Brian Primeau, Pesticides Control Specialist 2, New York State Department of Environmental Conservation Region 5 Bureau of Pesticides Management. May 25, 2022.

¹⁶ Nault, Michelle E. et al. 2018. Evaluation of large scale low concentration 2,4-D treatments for Eurasian and hybrid watermilfoil control across multiple Wisconsin lakes. Lake and Reservoir Management, Vol 34, No. 2 2018.

It was stated by the applicant “Despite misrepresentation or misunderstanding of the product by the commenter, it is understood that the active ingredient will be absorbed by vegetation or break down in a matter of hours to days by photolysis.”¹⁷ However, that so-called understanding is not supported by recent studies where transport from the site occurs via advective actions and hydrodynamics that need to be considered. “Florpyrauxifen-benzyl transport beyond the treatment area showed that florpyrauxifen-benzyl did not remain localized to the treatment area, suggesting appropriate dosing measures and considerations of non-target impacts should be made for the whole lake.”¹⁸

There is concern regarding the florpyrauxifen-benzyl transformation by-products and their persistence in the environment. The major degradation product of florpyrauxifen-benzyl is florpyrauxifen, which is commonly referred to as the acid form of florpyrauxifen. “Florpyrauxifen is herbicidal to a lesser extent than florpyrauxifen-benzyl, however its persistence may have unintended consequences for non-target species in lakes.”¹⁹ (Emphasis added) “Florpyrauxifen-benzyl formed four transformation products over the same timescale, with the bioactive product florpyrauxifen persisting up to 30 days post-treatment. Nevertheless, the dominance of florpyrauxifen as the primary environmental transformation product is critical due to its known herbicidal properties, indicating its formation and persistence in lake could exert additional, unintended herbicidal activity on the plant population.”²⁰

“Laboratory studies used to investigate transformation of pesticides and other polar organic compounds for regulatory risk assessment often fall short of accurately replicating environmental conditions. For example, photodegradation studies do not require modeling for all compounds under *in situ* conditions or quantification of indirect photodegradation rates, which can be an important transformation pathway. Similarly, biodegradation experiments oversimplify sediment-water dynamics and do not replicate ambient nutrients, oxygen, and light that microbial populations experience in aquatic environments. In addition, regulatory studies typically do not consider transformation products, which may retain bioactivity. Thus, the emphasis of regulatory studies on active ingredients under highly idealized conditions may inadequately describe the complete fate of applied pesticide solutions at an ecosystem scale.”²¹

¹⁷ Personal correspondence from Dave Wick, Lake George Park Commission Executive Director, to Adirondack Park Agency Re: Response to Public Comments – ProcellaCOR. April 6, 2022.

¹⁸ Van Frost, Sydney R. 2023. Characterizing the Environmental Fate of Aquatic Herbicides by Connecting Quantification in Lakes to Laboratory Studies. Thesis to University of Wisconsin – Madison.

¹⁹ Arena, M, et al. 2018. Peer Review of the pesticide risk assessment of the active substance florpyrauxifen. EFSA J 2018, 16 (8), 5378.

²⁰ Van Frost, Sydney R. 2023. Characterizing the Environmental Fate of Aquatic Herbicides by Connecting Quantification in Lakes to Laboratory Studies. Thesis to University of Wisconsin – Madison.

²¹ Ibid.

Based on this evidence, there is concern regarding the use of florpyrauxifen-benzyl in deeper oligotrophic lakes such as Lake George where there will be transport of the herbicide to deeper waters, significantly increasing degradation time as well as concern about the persistence of and unknown impacts from the degradation products. The applicant has failed to acknowledge or mitigate these concerns that would have significant impacts to Lake George and its ecosystem. This issue is substantive and significant and warrants adjudication.

- 8. There are acknowledged risks and impacts to native aquatic vegetation and benthic invertebrates.** Claims of “high selectivity” of florpyrauxifen-benzyl to Eurasian watermilfoil are overstated. In response to SePRO’s claim of “superior tolerance to native plant species”, USEPA’s response was – “Due to a lack of comparative information about superior selectivity to native plant species, the agency cannot conclude that this is a benefit of registration.”²² Florpyrauxifen-benzyl is a synthetic auxin, i.e. growth hormone, that causes excessive plant growth. While it is thought that florpyrauxifen-benzyl may generally not typically adversely affect monocotyledons compared to dicotyledons (broadleaf) plant species, previous research demonstrates florpyrauxifen-benzyl is effective at impacting several monocotyledon aquatic plants. It should be noted the mode of action of florpyrauxifen-benzyl, which mimics plant auxins, means that all plants will be impacted because all plants are regulated by auxins. Even the Specimen Label from SePRO cautions users about this. High toxicity to all plants is expected but it may take longer for the effects to be seen in some more broad-leaf species, while thin leafed species such as watermilfoil seem to show effects within hours or days. Additionally, the sensitivity of common native aquatic plants is documented by the manufacturer of florpyrauxifen-benzyl, including various milfoils, stargrass, water marigold, coontail, eloda, and pondweeds.²³ These species are concerning as they have been identified within the proposed treatment area during LGA site surveys conducted in September 2023.

Three native milfoils were identified as present within the proposed treatment sites, one of which is a New York State protected species. Another New York State protected species, *Subularia aquatica*, was also identified in the shallow areas of Blairs Bay and could be impacted by the proposed treatment. *Myriophyllum alterniflorum*, while a state protected species, has been overlooked in Lake George due to its apparent stable status in the lake, which is a poor risk assessment when taking into impacts to the local ecological habitat and resident’s enjoyment of the lake. It is puzzling and concerning that the LGPC survey did not document any *Myriophyllum sibiricum*, since this native was photographed growing throughout both bays by the LGA. While widespread in Lake George, only one *M. alterniflorum* plant was identified during the survey. Nine native pondweeds (*Potamogeton sp.*) were observed. Of which, at least two thin-leaf pondweeds were

²² Final Registration Decision on the New Active Ingredient Florpyrauxifen-benzyl. United States Environmental Protection Agency. September 8, 2017.

²³ Heilman, Mark. 2019. Selective Control of Invasive Watermilfoils with ProcellaCOR Aquatic Herbicide and Response of Native Aquatic Plants. SePro

observed and could not be positively identified due to the lack of reproductive structures. There is potential that these species could be protected in New York State. To this end, *Zannichellia palustris* was not previously confirmed in Lake George until Summer 2023. While not a protected species, it gives reason that some species are still being confirmed in Lake George and that there are many common and protected thin-leaf pondweed species in the lake. Additionally, during our surveys of the bays, samples of five different watermilfoil specimens were collected and sent to Thum Laboratory at Montana State University for genetic analysis. One of the specimens came back as a strain that was not identified in their Milfoil Mapper database as detailed in the following - “The other strain identified in this lake (Lake George), E_MYR_15377, was unique to the lake and we have not yet seen it elsewhere. Since this strain is unique, we do not have any herbicide assay data on it. Even though there is no herbicide assay data present for this strain, it is recommended to continue to monitor herbicide treatment efficacy in this waterbody. These strains will be added to our Milfoil Mapper database, so thank you for contributing samples for us to include.”²⁴ Based on this genetic testing and correspondence, this is evidence of a unique species that should be considered as rare and should be protected. Therefore, with the abundant species susceptible to floryprauxifen-benzyl treatment, presence of protected species in the proposed treatment areas, and the strong potential for unidentified protected species, there is substantial concern regarding the use of an herbicide that is not selective and will result in loss of species.

Application materials state *Nitella* has a “Low susceptibility to 4PDUs/acft ProcellaCOR”. In fact, the applicant has often referenced the ProcellaCOR treatment at Minerva Lake in the Adirondacks as demonstrating the selectivity of the herbicide, which the APA used as evidence in their biased presentation supporting the use of ProcellaCOR. But the post-application surveys in Minerva Lake indicated an approximate 50% decrease in *Nitella*. This is concerning since *Nitella* is vital for the nutrient balance of Lake George and absorbs inorganic nutrients directly from the water column.

There is little research provided regarding the impacts to benthic macroinvertebrates and the applicant’s application materials fail to document any of the local communities that would be impacted by the treatment. Studies state there is low potential for acute mortality risk to aquatic invertebrates but only 2 species of invertebrates were tested. USEPA Risk Characterization states – “Due to the lack of a definitive NOAEC for freshwater midge, chronic risk to freshwater benthic invertebrates associated with rice and aquatic uses cannot be determined with precision nor can it be reasonably precluded.”²⁵ Also it was stated – “[f]or freshwater benthic-dwelling invertebrates, chronic effects were observed in

²⁴ Personal correspondence from Ashley Wolfe, Thum Laboratory, Montana State University, Bozeman, MT. Dated January 8, 2024.

²⁵ Memorandum Re: Floryprauxifen-benzyl: Environmental Fate and Ecological Risk Assessment for the Section 3 New Chemical Registration. Prepared by Jose Melendez, Van Vogel and Keither Sappington from USEPA Environmental Fate and Effects Division. Dated April 11, 2017.

sediment toxicity studies as low as 4.3 $\mu\text{g ai/L}$ ²⁶. A concerning fact documented in studies is that florpyrauxifen-benzyl and its major degradation product florpyrauxifen persist in soils for a much longer period of time. “Florpyrauxifen-benzyl was detected in the sediments up to 50 days after treatment, compared to only 7 days in the water column. Thus, florpyrauxifen-benzyl may undergo enhanced persistence in lake sediments compared to water.”²⁷ In another study: “As observed under field conditions, both florpyrauxifen-benzyl and florpyrauxifen were detected over 80 days after treatment in microcosm sediments, compared to up to 34 days water.”²⁸ Clearly, there is a need to survey the benthic invertebrate community and assess the impacts from florpyrauxifen-benzyl, which studies are noted as being lacking.

Another very important part of the Lake George ecology is the fishery that can be impacted by the florpyrauxifen-benzyl herbicide treatment. The USEPA’s Ecological Risk Conclusion found that although it is stated the studies for the active ingredient for rainbow trout and sheepshead minnow were not useful, studies for common carp found that less than 50% of the carp died within the EECs (Estimated Environmental Concentration) but there were numerous sublethal effects in the carp, such as lethargy, lack of eating, surfacing, etc. This is troubling since carp are one of the most resistant fish and can survive the most difficult environmental conditions. Long term use of herbicides, including florpyrauxifen-benzyl, have resulted in significantly reduced large mouthed bass populations in Lake St. Catherine, VT (personal conversation with local outfitter).

As documented, there are numerous ecological concerns from the proposed use of florpyrauxifen-benzyl in Lake George -- from impacts to native aquatic plant communities, to plants on the New York State protected species list, to benthic invertebrates and to the fisheries. These potential adverse impacts to native species and organisms are a substantive and significant issue that should be adjudicated.

9. New Jefferson Project data, collected by state-of-the-art technology in one of the proposed target bays, indicates that the timing of the herbicide application in late spring (May-June) is concerning as it occurs during very critical annual limnological events with a wide range of conditions including thermal stratification, algal growth and zooplankton, each of which will impact the efficacy of treatment.

- **Thermal stratification starts setting up in May, with varying conditions especially in the shallow bays that can become uniform early in the season;**

²⁶ Ibid.

²⁷ Van Frost, Sydney R. 2023. Characterizing the Environmental Fate of Aquatic Herbicides by Connecting Quantification in Lakes to Laboratory Studies. Thesis to University of Wisconsin – Madison.

²⁸ Ibid.

- **Data indicates increased algae growth in the lake starting in May, which is in direct competition with the aquatic weed population. This means if the weeds are not present due to an herbicide treatment, additional algae growth will likely result from a lack of competition as well as from an increase in released nutrient from decaying plant matter.**
- **Data indicates there is a robust zooplankton community that is in the water column at the same time as the proposed herbicide treatment. This community resides in lake sediments during the day where studies indicate the herbicide can reside up to 50 days, Impacts to the zooplankton population will result in increased algae growth from lack of grazers.**

Each of these issues is substantive and significant and cumulatively can have a tremendous impact on Lake George as well as treatment efficacy.

- 10. With the previously referenced impacts to native aquatic vegetation, there will be adverse and denigrated wetland values that jeopardize the delicate ecology and foodwebs of Lake George.** This is yet another substantive and significant issue.
- 11. There is concern regarding the potential for the development of hybrid watermilfoil that could be resistant to ProcellaCOR, especially based on the previously mentioned unique strain of watermilfoil found in the bays, which the manufacturer recommends combatting using multiple herbicides or a cocktail of chemicals.** The first page of the ProcellaCOR EC label contains Product Information regarding Resistance Management: “ProcellaCOR EC is classified as a WSSA Group 4 Herbicide (HRAC Group O). Weed populations may contain or develop biotypes that are resistant to ProcellaCOR EC and other Group 4 herbicides. If herbicides with the same mode of action are used repeatedly at the same site, resistant biotypes may eventually dominate the weed population and may not be controlled by these products. Unless ProcellaCOR EC is used as part of an eradication program or in a plant management system where weed escapes are aggressively controlled, do not use ProcellaCOR alone in the same treatment area for submerged and emergent plant control unless used in combination or rotated with an herbicide with an alternate mode of action.”²⁹ There is concern regarding the recommendation of use of multiple herbicides resulting in a cocktail of chemicals being used in Lake George. The development of resistant strains must be considered based on the manufacturer’s information as well as the fact that the watermilfoil species in the specified bays already demonstrate the ability to create different genetic strains, which evidence was provided in the previous comment with laboratory results from Montana State University. The cocktail of chemicals, including ProcellaCOR, has led to significant

²⁹ ProcellaCOR EC Specimen Label (EPA Reg No. 67690-80) Produced for SePRO Corporation, 11550 North Meridian Street, Suite 600, Carmel, IN 46032. 2018.

problems in Chautauqua Lake.³⁰ This is also a substantive and significant issue that requires adjudication.

With the previously reported concerns regarding hydrodynamic complexities resulting in reduced CET, potential for hormesis, deviation from USEPA Pesticide Label requirements, questions on product half-life and degradation products, impacts to the native ecosystem and the failure of New York State to conduct an adequate or legal environmental review on floryprauxifen-benzyl, the Lake George Association and the Lake George Waterkeeper strongly oppose the granting of the permits by the Department. As stated in numerous studies, “floryprauxifen-benzyl is understudied in laboratory and field settings with the most existing information in US Environmental Protection Agency registration reports, product labels and safety sheets.”³¹ There is a lack of real field data – “The herbicide floryprauxifen-benzyl (trade name ProcellaCOR) has recently been approved but understanding of effectiveness is mostly limited to microcosm studies. Given its recent approval, detailed information on effectiveness in field applications of EWM is very limited.”³² Especially when the LGPC is currently operating an effective management program according to their own statements and there is not urgent need for chemical treatment, the ecological, reputational, and economic risks of using a synthetic growth hormone herbicide in Lake George are simply too great.

Therefore, the Lake George Association in partnership with the Lake George Waterkeeper and with the support of numerous riparian owners who oppose the use of the proposed herbicide and do not give consent for the treatment, file these comments regarding the applications by the LGPC for the use of Procellacor in Lake George. The applications are deficient and fail to provide proper evidence that the LGPC is a proper applicant. At a minimum, the LGPC should be required to submit the following information:

1. Require proper evidence that the LGPC is a riparian owner or has the authorization from the rightful riparian owner: and,
2. Require the applicant to reinstate the riparian owner notification process within the required notification zone, with proper information on water restrictions, potential impacts, and including a copy of the label with the notification.
3. In the alternative, the Department should refer this matter to the Office of Hearings and Mediation Services to begin the process of adjudicating the substantive and significant issues that have been identified in these comments.

³⁰ Independent Third-Party Monitor for Chautauqua Lake Macrophyte Management – 2020 Herbicide Program. Prepared for Chautauqua Lake & Watershed Alliance. Prepared by: Princeton Hydro, LLC 203 Exton Commons Exton, PA 19341. January 2021.

³¹ Van Frost, Sydney R. 2023. Characterizing the Environmental Fate of Aquatic Herbicides by Connecting Quantification in Lakes to Laboratory Studies. Thesis to University of Wisconsin – Madison.

³² Dahlstrom Davidson, Alisha. 2023. Field application of floryprauxifen-benzyl to treat hybrid Eurasian watermilfoil: Initial effects on native and invasive aquatic vegetation.



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The LGA and the Lake George Waterkeeper look forward to working with the New York State Department of Environmental Conservation to defend the natural resources of Lake George and its watershed. We also continue to make this same overture to the Lake George Park Commission. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads 'Chris Navitsky'.

Christopher Navitsky, PE
Lake George Waterkeeper

A handwritten signature in black ink that reads 'Peter Menzies'.

Peter Menzies, Interim Executive Director
The Lake George Association

cc: all by electronic mailing
Dave Wick, Executive Director LGPC
Joseph Zalewski – Regional Director, NYSDEC Region 5
Thomas West, Esq.