Response Summary for Aquatic Nuisance Control Individual Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
LAKES & PONDS PROGRAM

Permittee: United States Fish & Wildlife Service	**Permit Number: 2016-C14**
Control Activity: Pesticide (Lampricide)	**Waterbody: LaPlatte River, Hinesburg & Shelburne**

The above referenced Aquatic Nuisance Control Individual Permit #2016-C14 authorizes the use of lampricide (TFM-HP and TFM-BAR) to control sea lamprey, *Petromyzon marinus*, in the LaPlatte River.

The application was placed on public notice between September 16, 2016 and October 18, 2016. Public comments were received during the notice period. A public meeting was held in Shelburne on September 26, 2016 for this project.

The following is a summary of the comments and the Department's responses to those comments. Some of the comments were paraphrased and edited for clarity and combined where appropriate.

The following comments were received in writing during the public notice period:

1. Comment: The authorities need to rethink their actions because they are killing and hurting other species and humans. When TFM is used, amphibians have regularly been found dead in creeks after treatment in Lake Erie watersheds and elsewhere in the Great Lakes.

1. Response: The Secretary has determined that there is acceptable risk to the nontarget environment and that there is negligible risk to public health.

The Finding pertaining to the nontarget environment is as follows:

The USFWS relies upon the most recent scientific information to ensure effective lamprey control while limiting adverse effects to the nontarget environment. Determined by on-site toxicity testing, all lampricide treatments permitted in Vermont tributaries to Lake Champlain from the period 1990-2015 were administered at levels between 0.8 and 1.5 x Maximum Lethal Concentration (MLC). While providing a margin of safety for sensitive nontarget species, except other lamprey species, the recommended treatment concentration maximum of 1.2 x MLC allows for a sufficient margin of error to ensure 1.0 times MLC through sea lamprey inhabited reaches of the LaPlatte River for at least 9 hours. Optimum control of TFM toxicity to sea lamprey is achieved when the river water temperature is above 2° C and the surface elevation of Lake Champlain is at or below 98.0 feet as identified at the United States Geological Survey (USGS) Gauge No. 04294500 Burlington. Monitoring fluctuations in pH and alkalinity is necessary to determine corresponding changes in lampricide toxicity. As required by the EPA pesticide label, the pH and alkalinity will be monitored, along with the results of the pre-treatment toxicity test, to determine and maintain the target in stream MLC during treatment. Diurnal pH fluctuations will be monitored for at least 24 hours prior to treatment. Total alkalinity will also be measured periodically over the same time frame. TFM photodegrades to one-half strength in a period of three to four days. Additionally, a low-concentration NaCl pulse for a time travel analysis will be conducted by USFWS to minimize TFM concentrations, thereby maximizing protection of threatened and endangered species. Based on the information USFWS provided regarding sodium chloride concentrations needed and the Watershed Management Division's historical discharge data for the LaPlatte, the Department find no reason to anticipate that resulting Cl- concentrations will exceed water quality criteria.

Mortality of nontarget organisms have been observed during prior treatments. Based on post treatment mortality surveys, the majority of mussel and fish species suffer little or no acute mortality during a TFM treatment.

There are two populations of State-listed endangered fish species in the LaPlatte River, Channel Darters (Percina copelandi) and Stonecats (Noturus flavus). A workgroup comprised of representatives from the Vermont Department of Environmental Conservation and the Vermont Fish & Wildlife Department will be established during fall 2016 to plan long-term monitoring and reporting of threatened and endangered species population levels in the rivers for which USFWS has been issued permits to use lampricide. It is expected that representatives from the USFWS will be invited to participate in this workgroup for which the goal is to provide assessments of how non-target impacts affect T & E species population levels. An Endangered and Threatened Species Takings Permit (Takings Permit) will be obtained by the USFWS from the VT Agency of Natural Resources prior to any use of lampricide.

The mudpuppy (Necturus maculosus) is a species of special concern in Vermont. This species has a state natural heritage rank of S2 (rare) and has been designated a Species of Greatest Conservation Need (high priority) in Vermont's Wildlife Action Plan. While there are scattered records throughout Vermont, what is known of the distribution of the mudpuppy within the Lake Champlain Basin is largely due to observed mortalities from lampricide treatments. Mortalities have been reported from lampricide treatments conducted in the Poultney, Winooski, Lamoille, and Missisquoi rivers and in Lewis Creek. Since only one pre and post-treatment population study has been conducted to date, little is known about the size of existing mudpuppy populations and the effects of repeated lampricide treatments on those populations.

With a treatment concentration of 1.2 times MLC, losses of Silver Lamprey (Ichthyomyzon unicuspis) larvae are expected. Nonetheless, despite repeated treatments of rivers in Vermont containing populations of silver lamprey, post-treatment assessment surveys show that they continue to persist at acceptable population levels.

The brassy minnow (Hybognathus hankinsoni) is considered to be a rare fish in Vermont. One mortality of the brassy minnow has been documented during post-treatment surveys in waterbodies treated with lampricide. This species has not been tested in cage studies because it is considered to not be at significant risk of mortality during typical lampricide applications. In general, the Cyprinidae family is considered to have a relatively high tolerance to lampricide. Therefore, the proposed lampricide treatment poses an acceptable level of risk to the brassy minnow.

To mitigate the risk of introduction or transport of non-native, aquatic invasive species proper spread prevention measures must be taken. Thus, prior to any control activity occurring, all equipment (such as a boat, trailer, vehicle, and gear) that has been in or on any other waterbody, will be decontaminated in accordance with the Voluntary Guidelines to Prevent the Spread of Aquatic Invasive Species through Recreational Activities, Aquatic Nuisance Species Task Force, November 2013, or its approved replacement.

Having reviewed all of the potential negative impacts of the proposed pesticide treatment on the nontarget environment, the proposed activity poses an acceptable risk if it is conducted in accordance with this permit and the all other applicable regulations.

The Secretary has determined that there is acceptable risk to the nontarget environment.

The Finding pertaining to public health is as follows:

At the request of the Secretary, the Vermont Department of Health (VDH) has reviewed and provided recommendations pertaining to the risk of the proposed activity to public health. The VDH provided recommendations via memorandum dated July 18, 2016. The VDH review included, but was not limited to: Data relative to impurities contained in specific batches of TFM HP; Results of environmental fate studies of potential TFM HP impurities; Consideration of the 2008 Confidential Statement of Formulation for TFM HP (the most recent statement available to the VDH); Consideration of the June 4, 2012 Confidential Statement of Formulation for TFM BAR (the most recent statement available to the VDH); and Consideration of information in the United States Environmental Protection Agency (EPA) docket established for registration review of TFM and niclosamide. Specifically, the 2013 EPA Scoping Document states that "there is no expectation that people would be exposed through consuming drinking the water." The document further describes the types of toxicity studies that the EPA waived for TFM, noting that the decision to waive the studies were based on "an extensive level of

risk mitigation for each application event, which is intended to protect… the public from exposure through drinking water sources." Based on the recommendations from the VDH, specific conditions pertaining to concentrations of TFM and water uses were identified as a means to minimize unnecessary exposure to the chemical.

The LaPlatte River flows into the southern portion Shelburne Bay on Lake Champlain. Within this bay, the Champlain Water District has a water intake pipe located at the northern end of the bay. In addition, Burlington Water Resources has an intake pipe north of Shelburne Bay. A study was conducted to model the plume of TFM that would enter Shelburne Bay during a treatment of the LaPlatte River (Attachment 3 of the Approved Application). As a means to ensure public water supplies are protected in the event that TFM would reach either intake pipe, Powder Activated Carbon (PAC) systems, which reduce the amount of TFM in raw water, will be on standby to operate at both water treatment facilities. The Permittee is responsible for promptly and accurately communicating lampricide concentration monitoring efforts to the water treatment facilities.

Treatment should occur in the LaPlatte River only when the USGS flow gauging station (or infield flow measurements) indicates a stream flow rate of no more than 25 cubic feet per second (CFS). This protective measure has been implemented as this further reduces the likelihood of TFM reaching any public water treatment facilities.

The TFM HP product used must be produced using the same manufacturing process as those batches previously examined and noted in the Analytic Perspectives report dated August 28, 2009. By law the EPA label mandates that municipalities using streams requiring treatment as potable water sources must be notified of the impending treatment at least 24 hours prior to application. Therefore, the USFWS must coordinate with any potentially impacted public water supply systems, such as Burlington Water Resources and the Champlain Water District. To this end, the USFWS has developed and will adhere to all applicable public notification, spill containment, and other plans. USFWS will post all public access points with notification signs and provide a press release for local broadcast media to notify the public.

By not applying lampricide until after Labor Day, the USFWS also avoids major recreation periods at public access points.

The Secretary has determined that there is negligible risk to public health.

2. Comment: Has anybody every researched what the benefits are of the lamprey?

2. Response: Sea lamprey are fish that parasitize other fish, scarring, or killing them. At nuisance levels, lamprey depress coldwater and some warm water fisheries within Lake Champlain.

3. Comment: Do the lampreys help with the algae?

3. Response: There is no known link between sea lamprey populations and algae populations.

4. Comment: Do you have the ability to clean up all the bacteria that will be caused by polluting the water with these strange wastes/chemicals?

4. Response: The use of lampricide is not known to be related to bacteria.

5. **Comment:** Are the authorities/experts in touch with what is really happening to the waste and sewage entering the Lake?

5. Response: The above comment is outside of the scope of review under Aquatic Nuisance Control.

6. Comment: The USFWS requested the treatment dates timeframe be extended to December 31st (a.5.).

6. Response: The Department has accepted this request and updated specific condition a.5. of the permit. No other conditions were changed. Given that the treatment window has been extended, it was reiterated to the permittee that they shall ensure the water temperature at the primary application point (prior to application) during the day of scheduled treatment is at or above 2° C (a.7. Water Temperature).

7. Comment: The Department received comments of support for the project via email and during the public

meeting held on September 26, 2016 in Shelburne.

7. Response: The Department has acknowledged receipt of the comments.

8. Comment: I believe the Vt. Health Dept. was wrong in changing the standards for TFM from 35 ppb to 3 ppb with no science or studies to make this change. Most of the time we do studies before we make changes and even though none of you will admit it I believe this change was for political reasons. I would strongly suggest in the future that you do your studies before changes because what you did with the TFM standard for drinking water makes you look bad to all of us that Love Lake Champlain.

Also when US FISH AND WILDLIFE spend $55,000 of tax payer money to do a model of Shelburne Bay and CWD water intake and the study shows that absolute worst case would be 1.8 ppb at intake pipe which is well below you're "[sic]" standard of 3ppb that should have been the end of this and permits should have been issued.

8. Response: At the request of the Secretary, the Vermont Department of Health (VDH) has reviewed and provided recommendations pertaining to the risk of the proposed activity to public health. The VDH provided recommendations via memorandum dated July 18, 2016. The VDH review included, but was not limited to: Data relative to impurities contained in specific batches of TFM HP; Results of environmental fate studies of potential TFM HP impurities; Consideration of the 2008 Confidential Statement of Formulation for TFM HP (the most recent statement available to the VDH); Consideration of the June 4, 2012 Confidential Statement of Formulation for TFM BAR (the most recent statement available to the VDH); and Consideration of information in the United States Environmental Protection Agency (EPA) docket established for registration review of TFM and niclosamide. Specifically, the 2013 EPA Scoping Document states that "there is no expectation that people would be exposed through consuming drinking the water." The document further describes the types of toxicity studies that the EPA waived for TFM, noting that the decision to waive the studies were based on "an extensive level of risk mitigation for each application event, which is intended to protect… the public from exposure through drinking water sources." Based on the recommendations from the VDH, specific conditions pertaining to concentrations of TFM and water uses were identified as a means to minimize unnecessary exposure to the chemical.

The LaPlatte River flows into the southern portion Shelburne Bay on Lake Champlain. Within this bay, the Champlain Water District has a water intake pipe located at the northern end of the bay. In addition, Burlington Water Resources has an intake pipe north of Shelburne Bay. A study was conducted to model the plume of TFM that would enter Shelburne Bay during a treatment of the LaPlatte River (Attachment 3 of the Approved Application). As a means to ensure public water supplies are protected in the event that TFM would reach either intake pipe, Powder Activated Carbon (PAC) systems, which reduce the amount of TFM in raw water, will be on standby to operate at both water treatment facilities. The use of PAC is the approach that has been used to address the more restrictive drinking water standard and the lampricide treatment is contingent upon the Champlain Water District having a PAC system operational prior to the lampricide treatment (specific condition a.13.A.).

The following comments were received during the public meeting held on September 26, 2016:

9. Comment: What are the long-term plans that will be used to address drinking water concerns so that these concerns may be alleviated so that treatments may continue?

9. Response: The drinking water treatment technology is currently available to treat water that contains TFM. Under specific condition a.13.A., the Champlain Water District is required to have a PAC system operational prior to the lampricide treatment. Additionally, the Permittee shall collaborate with the Vermont Department of Health to ensure that a peer-reviewed TFM toxicity study is conducted to determine an action level for drinking water sources. The results of the TFM toxicity study shall be provided to the Secretary prior to the scheduled second treatment of the LaPlatte River (Specific Condition a.17.).

10. Comment: I own an old well that is 50 feet from the LaPlatte. Should I be worried about anything? Is there a guarantee that the water will not be impacted?

10. Response: If it is a drilled well, it should be physically separated from the river system so it should be protected by bedrock. No guarantee can be given, but there may be the potential to have the well water sampled and tested. The commenter's contact information was exchanged with the Vermont Drinking Water and Groundwater Protection Division.

11. Comment: Impacts to nontarget species and to human health are not adequately studied we do not fully know the long-term impacts. The treatment should not happen.

11. Response: The Department must review the proposed project under the criteria as identified under 10 V.S.A. § 1455, and are explained under c. Findings of the permit. It was determined that:

- there are no reasonable nonchemical alternatives;

- there is acceptable risk to the nontarget environment;

- there is negligible risk to public health;

- a long-range management plan has been developed; and

- there is a public benefit to be achieved from this application of pesticide.

As all the criteria for issuing an Aquatic Nuisance Control permit have been met, a permit shall be issued.

12. Comment: Aren't some of the chemicals used for treatment used in the pharmaceutical industry?

12. Response: TFM-HP and TFM-BAR are pesticides that are registered with the U.S. Environmental Protection Agency and the Vermont Agency of Agriculture, Food and Markets.

13. Comment: What other strategies are being used to control sea lamprey populations? Is electricity used to control sea lamprey?

13. Response: Physical barriers have also been permitted under Aquatic Nuisance Control to control sea lamprey. Electricity is not used as a method of control.