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Renovate water restriction and use plans Eagle Lake  
Prepared by Rolf Tiedemann

Question about renovate- thanks for looking at web site surveys. Yes a lot of effort has been required. Thanks for noticing and your welcome. Offer to help is appreciated, your taking the time to look at information present is very helpful, and the feedback and ability to bounce ideas and directions of some one is much appreciated. If you are interested the ELPOI will be looking for Officers and Board members for the coming year. Time commitment can be what you have to offer but main part is offering feed back and support/ ideas to those that are "carrying the ball" or to pick a "need" cause and carry the ball for it. I find that most of the effort for most "projects" can and needs to take place in the off season, plans for the milfoil project are being worked on now, during the summer (June to end of Sept) is time to carry out. Time for me to "work" as this is part of plan, you, as officer, etc. can choose to be part of "work" or not, depending on availability for this project. Others require of course different commitments.

Renovate as described in surveys was applied late spring, mid to late May, sometimes as late as end of June. Timing is based on need for milfoil to be actively growing, early May application in several Vt. lakes was a condition of concern by VT Fisheries for fish spawning and the desire by VT DEC to have application completed prior to water temp reaching 60°F (temps below this VT considered as a no spawn temp.). Late June application condition was again a VT requirement and was considered the time after spawning was completed. Other considerations for application timing are impacts the restrictions will have on lake users. The NY lakes that were treated were done in late May, consideration was milfoil was growing well, 2-3 week restriction (see below) would not impact summer use for washing, drinking if water was used in this manner.

Typically at time of application there is a 24-hour restriction on water use for all activities, swimming, fishing, drinking, irrigation etc. (notification for this needs to be sent to all affected lake property owners and needs to be posted around the lake at all access points prior to application). The product label directions drive this; they are specific to the Federal label and in NYS the "special" NYS specific label restrictions. NYS is more restrictive than the Federal. The label directions/ restrictions include a setback guideline from the targeted treatment area as well. The restriction for swimming, fishing and use for non-potable water (washing cloths, toilets, dishes, etc.) is usually lifted 24 hours after application; Drinking restrictions are typically in place for 2 - 3 weeks depending on herbicide break down. Specific timing for lifting this restriction is when all herbicide concentration is below 50 parts per billion (ppb) as determined by several different location herbicide specific assay tests. Break down speed is sunlight and wave action driven. Just a reminder Eagle Lake is NOT tested for drinking water purposes by ELPOI or anyone else and those that choose to drink the water do so at their own risk! This said those that have approved the herbicide for uses consider concentrations below 50ppb safe to consume. Irrigation of croplands can be resumed after the concentration is assay tested to be below the 1ppb level at all sample locations. This can take 3-4 weeks or in one reported case several additional weeks to occur. Again this is sunlight driven. The one case where it took longer to break down was where the lake had very limited clarity. Depending on application location on EL (see below) a restriction may or may not affect everyone. For those that have a hardship as a result of the restrictions, alternative water sources will need to be explored for the duration of the hardship. You are correct that most folks on the backside of the lake rely on lake water for various domestic purposes. We however do not rely on it for any purpose (except in very dry summers and then usually only in mid to late August), as we have an artesian well and a 1000-gallon storage tank.

There are currently several different plans for continued milfoil eradication being discussed between the Town, the regulators and the Applicators:

Plan #1 involves the use of the herbicide Renovate with the APA proposed requirement for a curtain-contained application. (As a note: Neither the Federal or NYS specific use labels require or even suggest the need for curtains, the DEC department(s) that was responsible/ involved with the NYS use registration process does not support the concept of or the need for use of curtains and none of the applications profiled on the Renovate plant surveys web page used curtains.) Specific to this plan is to treat the area between Foxes Island and Rt. 74; a curtain would be stretched between Hurd Point and the Island and again from the Island to a point by the Cottages on Rt. 74. The contained area of water here is about 10 acres and has about 2 acres, of milfoil (of the total identified 8 acres) located in it. This plan to satisfy the APA requires:

- The purchase/ rental of curtains. New curtains retail for \$25.00 - \$30.00 per foot, rental may not be available, and moving “used” curtains from another lake into EL is not a sound idea as there is an opportunity to contaminate EL with whatever was in the water where they were last used. Cost estimate above was based on an anticipated depth across the channel of 10 – 15 feet; a recent depth profile study, February 2008 by Rolf and Michael Tiedemann, indicated that the channel reaches depths of 35 feet. This make the curtain cost jump significantly as the requirement is to have the curtains seal to the bottom of the lake. Length of the 2 required curtain sections measured out at 450 foot each. As another point the curtain material weighs in at the 2 – 4lb per foot range.
- The additional costs associated with installation, end of use removal and storage/disposal. This is calculated as a 3 –4 person job over a few days, for both the install and again for the removal. Storage/ disposal/ reuse is costs are not even really considered at this point due to many other issues associated with this plan and some of the alternatives.
- The proposed requirement to complete a 7-10 day dye leakage analysis of the containment site prior to introduction of herbicide. This requirement has very specific costs associated with it. These being at a minimum the cost of the dye, cost to rent a very specific instrument (fluorometer) to measure dye concentrations and need for a specially trained person capable of using this equipment to be on the lake on days 1, 2, 3, 5, and 7 following introduction of the dye.

On top of these “additional” APA requirements is the “normal” costs associated with the application of the herbicide; assay testing and pre and post application plant surveys.

With the above APA additional curtain requirements in mind t “plan” #1 has an estimated cost of \$65,000 to \$75,000 or roughly \$6,500 - \$7,500 per acre of water treated. More specifically it means a cost of about \$35,000 plus to address the 2 acres of milfoil contained within this curtained 8-acre containment zone. This plan would exceed the \$65,000 worth of funding that remains in the DEC Invasives Species Grant. This plan also lacks in one of the Grants requirements, which is the plan for prevention of reintroduction. There simply are not enough funds to address this. Again it needs to be stated that the proposed curtain requirement is one that the APA has put forth and is NOT a NYS DEC requirement! The reasoning behind the APA requirement is their concern for in water product drift out of the target area and the potential for collateral damage to native species in this non target area. All plant surveys indicate that there was no damage to native plants outside the target area and that any native plants in the target area that showed stress after treatment showed signs of later season recovery. The only plant reported damaged by the use of Renovate was Milfoil.

Plan #2, is to continue with the hand harvesting and matting as completed in 2008. This option has an associated labor cost of approximately \$10,000 per acre and is dependent on milfoil density in the mat area and amount of isolated plants around the mats that need to be removed. Working with this cost figure and the identified 8 acres of dense patches of milfoil in EL it would be in the \$80,000 to \$120,000 plus range to remove most of EL’s milfoil. By casual estimates it is guessed that the 2003 GPS survey missed identifying about 50% or more of the patch size and isolated plants as it was only intended to measure the size of the largest patches and was completed by surface observation where depth visibility was only to about 15 feet. During the 2008 harvest divers quickly saw that milfoil was growing well in 20 plus feet of water, depths that are beyond the range of surface visibility. Milfoil removal by hand is not 100% effective as small amounts of roots left behind can re-grow and matting is not in anyway selective and kills native vegetation on the patch periphery that is mixed in with the patch. Also when mats are removed the open ground is very fertile to supporting growth of any floating fragments from yet to be removed plants. There are also many patches/isolated plants that, due to their entanglements with trees, rocks etc., would not be removable because access by divers is impossible and/or dangerous.

Plan #3, is to use an integrated approach. This approach would use the herbicide Renovate in a manner similar to the way it was used on the lakes described in the various plant surveys on the web page, and that is to complete a partial lake spot treatment. This process would see renovate broadcast over those areas of the lake where milfoil patches of sufficient size and density warranted. It would look at the entire lake, not just specific ends, and could bring control to all treated patches and many of the isolated plants surrounding them. After a treatment, hand harvesting and matting would be employed to clean up those areas that might not have been treated and to complete a lake swim to remove missed plants. Cost estimates for this non-curtained use of Renovate without follow-up surveys is estimated in the \$800- \$1,500 range. This cost number is based

on actual costs spent to treat Saratoga, and Waneta lakes, as well as several in VT. The broad range is listed because even though this is the preferred treatment plan by the Towns and is supported within DEC (as there is much data to support its success in other lakes), little discussion has been given to it due to the APA's past and current insistence in using curtains. Much uncertainty for specifics of cost needs to be addressed. If one considers that 8 acres of milfoil was identified in 2003 and there is a need to add to this figure another 4 acres (or 50%) not originally accounted for plus an additional 6 acres (or 50%), that needs to be allotted for an additional treatment buffer zone around the treatment site(s), one quickly sees that a total of 18 acres will need to be treated. At \$1,500 per acre, the cost of this portion of this plan would be \$27,000. Add to this a generous \$10,000 for a post plant survey and the required assay tests, etc. and the herbicide treatment is \$37,000. With the herbicide treatment completed it would still leave approximately \$28,000 for follow up hand harvesting of missed plants and addressing concerns for reintroduction.

If a Renovate treatment of Eagle Lake can bring the same level of control as it did on Saratoga then some 90 percent of the milfoil should be eradicated. All 3 plans are in the discussion phase with the APA and DEC, the Towns, the Applicator, the herbicide manufacturer and the ELPOI project coordinator.