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Renovate water restriction and use plans for Eagle Lake  
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What follows below is a short presentation of information related to the use of Renovate that was collected from other Renovate lake applications within the states of New York, Vermont and Washington and from the Federal and special NYS product labels as they relate to and help define three different plans currently being considered for an Eagle Renovate herbicide treatment.

Timing of the Renovate treatments varied from state to state for a variety reasons. Renovate was applied late spring, mid to late May, and sometimes as late as the end of June. Timing is based on the need for milfoil to be actively growing. (See Eagle Lake's web page [2008 other lakes treated plant surveys](#)) The early May application in several Vermont lakes was a condition of the VT DEC to have the application completed prior to water temperatures reaching 60°F, VT DEC considered temps below this as a "no spawn" temperature. The 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 required water use restrictions will have on lake users. The NY lakes that were treated were done in late May, consideration was for milfoil to be growing well, and the 2-3 wto be used in this manner.

Typically at the 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 posting requirements and restrictive use; 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. Herbicide breakdown 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, agencies that have approved the herbicide for usage 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 weeks longer to occur. Again this is sunlight and wave action driven. The one case where it took longer to break down was where the lake had very limited clarity. Depending on application location in EL restrictions may or may not affect everyone. For those that have a hardship as a result of the restrictions, alternative water sources, etc. will need to be explored for the duration of the hardship.

There are currently three different plans for continued milfoil eradication within Eagle Lake being discussed between the ELPOI Project Coordinator, the Town(s), the Regulators and the Applicators:

Plan #1, involves the use of the herbicide Renovate with the APA proposed requirement for a curtain-contained" herbicide application. (As a note- neither the Federal or NYS specific use labels require or even suggest the need for curtains. Additionally, the DEC department(s) that was responsible/ involved with the NYS specific use registration process does not support the concept of or the need for the use of curtains and none of the applications profiled on the Renovate plant surveys web page used curtains.) This plan proposes a treatment site located in the area between Foxes Island and Rt. 74. Curtains 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 at this site is about 10 acres in size and contains about 2 acres of milfoil (out of the total 8 acres of milfoil identified by the '03 GPS lake survey). To satisfy the APA, Plan #1 requires the following:

- The purchase/ rental of curtains- new curtains retail for \$25.00 - \$30.00 per linear foot, rental curtains may not be available, and utilizing "used" curtains from another lake presents the opportunity to contaminate Eagle Lake with whatever was in the water where the curtains were last used. The cost estimate mentioned above was based on an anticipated depth across the channel of 10 - 15 feet; a recent depth profile study (performed February 2009 by Rolf and Michael Tiedemann)

indicated that the channel reaches depths of 35 feet. This makes the curtain cost jump significantly since the curtains will be required to reach and seal to the lake bottom. Length of the two required curtain sections measures out at 450 feet each. The curtain material also weighs in at the 2 – 4lb per foot range, adding additional considerations with regards to curtain deployment, placement, removal, storage and/or disposal, given the limited open shore line access available on Eagle Lake

- Additional labor costs associated with installation, end of use removal and storage/disposal. This is figuring in the need and cost for a 3 –4 person surface team for several days, for curtain deployment and removal, in addition to a dive team. Storage/ disposal/ reuse costs are not even considered at this point due to many other issues associated with this plan and some of the more favorable alternatives still available for consideration.
- The proposed/required completion of a 7-10 day dye leakage analysis of the containment site prior to introduction of an herbicide-This requirement has very specific costs associated with it; at a minimum the cost of the dye, the cost to rent a fluorometer to measure dye concentrations and the 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. Cost figures for these items have not been fully determined. A staff member at the DEC Raybrook office has indicated that they might be able to help with this phase of the project. Discussion on this is on going.
- On top of these “additional” APA requirements are the “normal” costs associated with the application of the herbicide; the assay testing and the pre and post application plant surveys. Factoring in the above APA additional curtain requirements, Plan #1 has an estimated cost of \$65,000 - \$75,000 or roughly \$6,500 - \$7,500 per acre of water treated. More specifically it means a cost of about \$35,000 plus/acre to address the 2 acres of milfoil contained within this curtained 10 acre containment zone. Plan #1 would end up exceeding the \$65,000 worth of funding that remains in the DEC Invasives Species Grant. Plan #1 also lacks 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. The previously referred to Renovate treatment 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 same hand harvesting and matting that was undertaken in 2008. This option has an associated labor cost of approximately \$10,000 - \$15,000 per acre and is dependent on milfoil density in the mat areas and the amount of isolated plants around the mats that need to be removed. Working with this cost figure and the then existing identified 8 acres of dense patches of milfoil in Eagle Lake; cost figures would be in the \$80,000 - \$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 into 20 plus feet of water, depths that are beyond the range of surface visibility. Just as a note- 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/mat perimeter where natives are mixed in with the patch. Also when mats are removed the fertile open ground is very susceptible to supporting growth of any floating fragments from yet to be removed milfoil 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 ranges from limited to 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, as opposed to the once considered “whole lake” approach. This process would see renovate broadcast over those areas of the lake where milfoil patches of sufficient size and density warrant it. The plan would look at the entire lake, not just specific ends or a few specific sites, and

could bring control to all treated patches and many of the isolated plants surrounding them. After such treatment, hand harvesting and matting would be utilized to clean up those areas that might not have been treated and to complete a lake swim over 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 lakes in VT. The broad cost range is listed because even though this is the preferred treatment plan by the Towns and is supported within DEC (based on the data that supports Renovates success in other lakes), little discussion has been devoted to it due to the APA's past and current insistence on 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 in '03, plus an additional 6 acres (or 50% of the identified 12 acres that needs to be allotted for a 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 set to cost \$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 Lake, then some 90 plus percent of the milfoil should/could be eradicated in Eagle Lake.

All three plans are in the discussion phase with the APA and DEC, the Towns, the Applicator, the herbicide manufacture and the ELPOI project coordinator.

Since the initial release of this document to several individuals on March 16, further discussions have taken place between the various involved parties and myself. See "small test patch demonstration proposal" for details on what this discussion has led to.