

# Nontarget Aquatic Plant Species Responses from 2007 Spot Treatments of Triclopyr in Lakes Morey and St. Catherine, Vermont

The study design compared nontarget plant composition, pre- and post-triclopyr spot treatment, at both treated and untreated sites (plots) in Lakes Morey and St. Catherine. The target species in these treatments was *Myriophyllum spicatum* L. (EWM).

**METHODS** Underwater photos were taken 0.5 m below the surface at each plot one week prior to treatment and monthly thereafter for two to three months. Photos were of the lake bottom, and parallel to the lake bottom at each primary compass direction.

Total plant density was subjectively assessed by averaging numeric values assigned to directional photos:

0 = no vegetation 2 = moderate growth  
1 = light growth 3 = heavy growth

Aquatic plant species occurrence at each plot were identified during the monthly visits.

**RESULTS** No significant loss of relative density of nontarget species at any of the treated plots was observed. Bottom cover as assessed by top-down photos showed luxurious, dense and often diverse growth during all assessment periods (Figures 1, 2 and 3).

The appearance of higher-growing plants varied after treatment but was always assessed as *light to moderate-to-heavy* in the treated plots (Figures 4 and 5). Even when observed growth was *light* within the photo frame, lower growing plants still thickly covered the bottom, out of view of the directional photographs but documented in the top-down photos (Figures 1, 2 and 3).

In Lake Morey, species richness declined slightly at untreated plots (two) but *increased* or remained the same at treated plots (four) (Figure 6).

In Lake St. Catherine, species richness increased for one of the two untreated plots and at both treated plots (Figure 7).

Figure 1. Photos of untreated Plot SC3 taken during three visits.

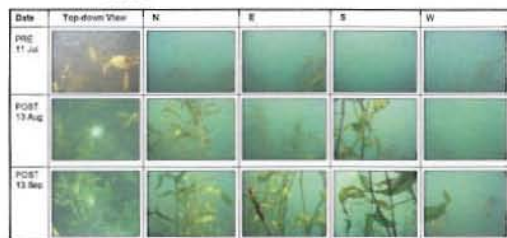


Figure 2. Photos of Renovate 3-treated (1.5 ppm) Plot M4 taken during four visits.

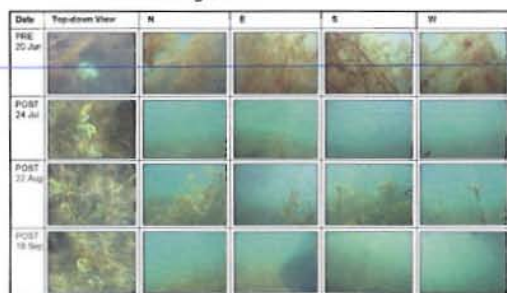


Figure 3. Photos of Renovate OTF-treated (1.75 ppm) Plot SC4 taken during three visits.

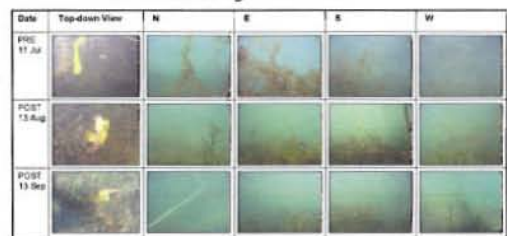
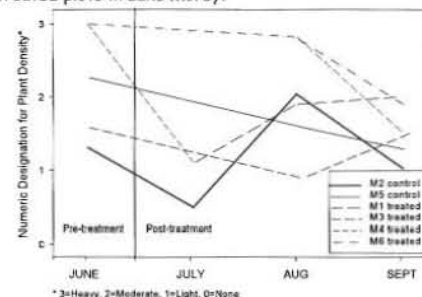
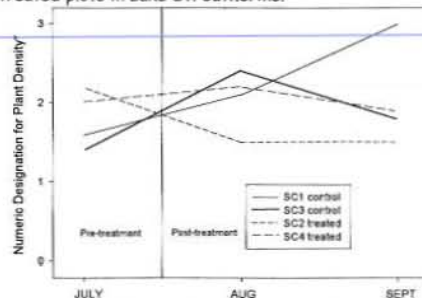


Figure 4. Relative aquatic plant density as assessed by directional photos at two untreated and four triclopyr-treated plots in Lake Morey.



\* 3=Heavy, 2=Moderate, 1=Light, 0=None

Figure 5. Relative aquatic plant density as assessed by directional photos at two untreated and two triclopyr-treated plots in Lake St. Catherine.



\* 3=Heavy, 2=Moderate, 1=Light, 0=None

Figure 6. Total nontarget aquatic plant species richness for two untreated and four treated plots from Lake Morey.

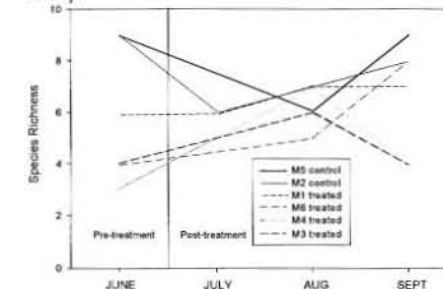
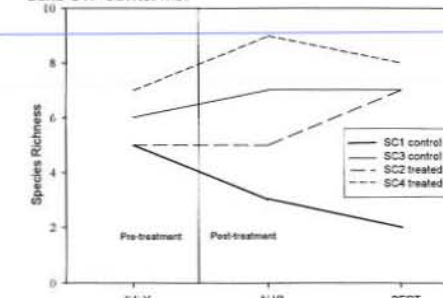


Figure 7. Total nontarget aquatic plant species richness for two untreated and two treated plots from Lake St. Catherine.



## CONCLUSIONS

- Nontarget plant species richness appeared unaffected by both lake triclopyr treatments, with richness remaining constant or increasing after treatment.
- Plant densities estimated from underwater photos varied among plots over time but showed no reductions in nontarget species or structure.
- Nontarget plants appeared unaffected by the treatments and quickly "filled in" for decomposing EWM.
- The seasonal dynamic nature of aquatic plant occurrence and species richness at fixed locations in both lakes was observed. The dynamic nature of these communities must be taken in account when evaluating lake herbicide treatments on nontarget plants.
- While additional test plots would have lent more confidence to our observations, in-the-water impressions of plots and surrounding areas after both lakes' treatments were of healthy, normal aquatic plant growth.



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