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Weymouth Conservation Commission
Town Hall
75 Middle Street
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Dear Commissioners:

The Massachusetts Division of Marine Fisheries (*Marine Fisheries*) has reviewed the 2010 Whitman's Pond Pre-treatment Survey Results and Management Plan along with accompanying information including the Nutrient and Aquatic Plant Management in Massachusetts Final GEIR (2004), the Town of Weymouth Request for Proposals, and the Technical Proposal prepared by Aquatic Control Technology, Inc. We provide the following review of the project's potential impacts to marine fisheries resources and habitats with recommendations to avoid and minimize those impacts.

Whitman's Pond is part of the Back River system. The Back River supports migratory and/ or spawning habitat for river herring (*Alosa Spp.*), rainbow smelt (*Osmerus mordax*), American eel (*Anguilla rostrata*) and white perch (*Morone americana*). The Back River alewife run is considered one of the largest in Massachusetts Bay (Chase 2006) and this season it is reported to be a good run with the third pulse of migrating herring arriving last week (George Loring, pers.com). Improvements to Whitman's Pond spawning habitat is important to maintaining the success of the Back River herring run and clearly a pond management strategy to address invasive vegetation is necessary. Nuisance vegetation may inhibit fish passage and spawning habitat and contribute to low dissolved oxygen levels.

The objective of the proposed management program as stated in the submitted 2010 Whitman's Pond Pre-treatment Survey Results and Management Plan is to selectively control fanwort (*Cabomba caroliniana*) and variable milfoil (*Myriophyllum heterophyllum*), both invasive aquatic plants in Whitman's Pond, through the use of Sonar Fluridone herbicide. The treatment zone is focused on six regions in the shallow perimeter of the pond. Slow release pellets are proposed during the first three weeks and will result in a water column concentration of 20 ppb fluridone. The eventual concentration after additional applications using liquid Sonar will be about 80 ppb over the zones and at least 40 ppb throughout the pond.

Comments on the application of fluridone:

- The fluridone dosage from pellet treatments is low relative to levels where impacts to fish were observed in the referenced studies, approximately 0.08mg/l compared to a 48-hr LC50 of 6.3 mg/l for daphnia. There are likely no acute impacts to adult fish from the proposed application of fluridone. However, the application's effect on river herring eggs and larvae, including chronic effects, has not been investigated and therefore we recommend that fluridone use be avoided during the spawning period.

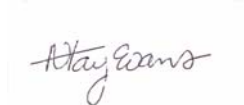
- The effect of fluridone application on habitat characteristics including water quality is also of concern during the spawning period. The resulting plant die-off may contribute to low dissolved oxygen levels. Reduced dissolved oxygen levels (less than 5.0 mgL⁻¹) and elevated total suspended solids (TSS) concentrations (500 mgL⁻¹) may impact developing river herring larvae (Funderburk et al. 1991).
- Herring eggs may be spawned anywhere in the littoral zone of the pond. The eggs typically float for a short time and then become demersal and adhesive, attaching to substrate including plant material, for a period of 3-4 days. In addition to possible direct impacts from fluridone, native plant loss, where plants may have attached eggs or provide shelter for developing juveniles, is of concern.
- Given the above assessment, *Marine Fisheries* recommends that fluridone use be avoided during the time period from **April 1st to June 30th** of any year to protect river herring spawning and early life history.

Comments on Monitoring:

- *Marine Fisheries* recommends monitoring for a longer duration rather than the higher frequency sampling (every other day) that is proposed. Monitoring bi-weekly would be sufficient. Monitoring should include “before” as well as “after” sampling in order to detect changes after fluridone use. Ideally we would recommend sampling from May to mid-September for three or more years in order to understand the existing pond characteristics and to better assess how fluridone may be responsible for any changes. If such a monitoring program is not possible we recommend at least one season of data before application is approved during the time of year restriction. We recommend monitoring dissolved oxygen, secchi depth, recording the USGS stream flow gage data and noting presence of schooling river herring at several stations used in the plant survey with at least one station in each zone of the pond.
- We recommend deploying continuous data loggers at 2 to 3 stations to record day and especially evening measurements. This may help eliminate the need for evening manual sampling.
- As indicated in the GEIR, herbicide treatment may become solely cosmetic in the absence of alternative methods of management. We recommend that a full management plan for Whitman’s Pond be developed where herbicide use is one step followed by strategies to reduce inputs of nutrients to the pond, methods to manually remove aquatic plants, and techniques to prevent further spread and development of aquatic invasive plants.

Finally, *Marine Fisheries* understands the importance of managing Whitman’s Pond invasive aquatic species effectively and we will continue to work with the Town of Weymouth to achieve that goal while also protecting marine fisheries resources and habitats. Thank you for considering our comments. Please contact me at 978-282-0308 x. 168 or Brad Chase at 508-990-2860 if you have any questions about this review.

Sincerely,



N. Tay Evans
Marine Fisheries Biologist and Technical Review Coordinator

TE/bc

cc.

George Loring, *Conservation Commission Chairman and Herring Warden*

Brad Chase, *Marine Fisheries*

Matt Ayer, *Marine Fisheries*

Kathryn Ford, *Marine Fisheries*

References

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