

Date: December 15, 2010

To: Stephen Cotton, President, Foster's Pond Corporation

From: Marc Bellaud

Re: Summary of 2010 Treatment and Surveys and Preliminary Recommendations for 2011

Spiny Naiad Management Summary

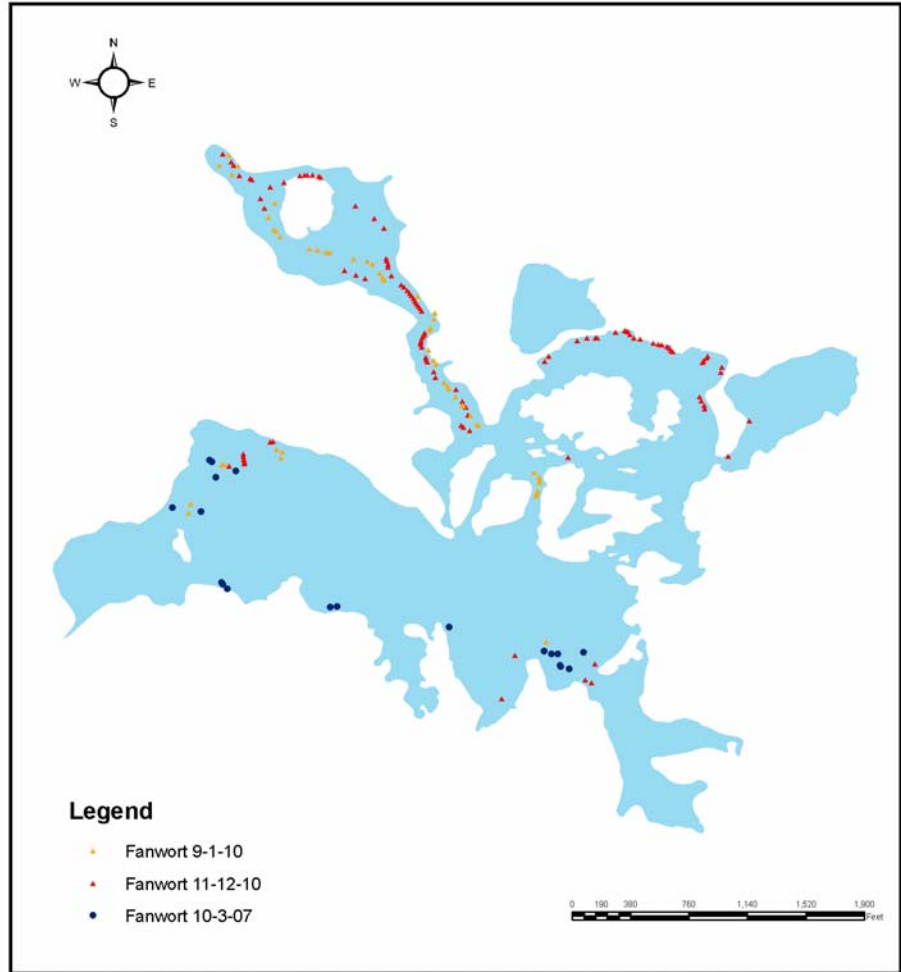
- Due to the discovery of invasive spiny naiad (*Najas minor*) during Geosyntec's 2009 survey, a spot-treatment program with Reward (diquat) herbicide was planned for the 2010 season. Since spiny naiad is a true annual plant that grows from seed, the treatment had to be delayed until mid-summer when it could be positively identified.
- A pre-treatment survey was performed on July 6th and spiny naiad was confirmed in two locations.
- Approximately 3.25 acres were treated with diquat on July 19th. The water level of Foster's Pond was quite low at the time of treatment, so the a diluted solution of the liquid herbicide was sprayed on the surface in the two treatment areas to limit the amount of boat travel and disturbance of the bottom, since diquat is deactivated by sediment.
- The treatment appears to have provided complete control of spiny naiad, as none was found in the treatment areas or in any other portion of the lake during the September 1st survey.
- The treatment also appeared to provide some thinning of native ribbonleaf pondweed (*Potamogeton epihydrus*) which was growing abundantly in the Channel/Outlet Cove treatment area, but it did not appear to have any impact on fanwort or floating leaf waterlilies that were also moderate to abundant in both locations.



Fanwort Survey Findings

- Fanwort (*Cabomba caroliniana*) was surveyed on September 1st and again on November 12th. The water level was still low during the September 1st survey, estimated to be down 18-24 inches from the top of the spillway. This prevented boat access into Mill Reservoir and Dug Pond. Water clarity was also limited with an estimated clarity of less than 3 feet in the Main Pond. On November 12th the water level had risen by several inches and all areas of the pond could be accessed. Water clarity was also slightly improved in the Main Pond with Secchi Disk clarity of 3.75 feet.
- Fanwort was found in moderate to abundant densities throughout the Outlet Cove, the Channel and the northwestern portions of Mill Reservoir. Some isolated fanwort plants were found along the edges and at the

opening of the dredged eastern basin of Mill Reservoir. Fanwort growth in the Main Pond was confined to the edges of dense waterlily beds found along the western and southern shorelines. No fanwort was found in deeper water areas towards the middle of Main Pond or in the shallow southwest and southeast coves that support nearly 100% waterlily cover. Fanwort plants in the northern half of the pond were robust and were not showing any signs of senescence even during the November 12th survey.



- No fanwort was found in Dug Pond, but there was healthy growth of Brazilian elodea (*Egeria densa*) found in varying densities along the shoreline. This is another invasive species that was present when Dug Pond was treated with Sonar in 2006. Regrowth of Brazilian elodea was found by ACT in 2008 and by Geosyntec in 2009.
- Also noteworthy was the expansion of purple loosestrife (*Lythrum salicaria*) along the eastern edge of the Mill Reservoir wetlands. There was approximately 0.5-0.75 acres of new growth clogging the channel that extends from the mouth of the dredged cove to the northern basin. This appears to have capitalized on low water conditions and spread quickly through this shallow area. This appears to be a good beetle/weevil stocking site. If that is not an option, it could be easily and selectively treated with a foliar herbicide application.

2011 Management Recommendations

- Fanwort has not yet recovered to the distribution and densities that were seen prior to the initial Sonar herbicide treatment in 2005, but it has already reached nuisance densities in portions of the Outlet Cove and the Channel may reach nuisance densities in 2011. We would also expect to see expanded growth in the Main Pond in 2011. Due to the extent of the fanwort cover, a whole-lake Sonar (fluridone) herbicide treatment program is recommended for 2011. Sonar remains the only herbicide currently registered for aquatic use in MA that controls fanwort. Partial lake treatments carry higher unit (per acre) costs and risk reduced efficacy.
- For Dug Pond, we recommend initially treated with Reward (diquat) herbicide which has shown superior efficacy on Brazilian elodea at a lower cost than Sonar. Permit approval for a follow-up treatment with Sonar should be requested, in the event that fanwort is found in Dug Pond next spring or summer.

- The Sonar herbicide treatment program should incorporate the use of the newest pellet formulation of Sonar called Sonar One along with the liquid formulation. We have been integrating pellets into similar Sonar treatment programs in recent years and they allow for treatment programs to be initiated earlier in the growing season, for placement of the herbicide directly on targeted plant growth and usually result in less herbicide being used and possibly fewer applications. The treatment protocol we are recommending would include an initial application of pellets and a low dose of liquid in mid-late May and one booster treatment approximately 4 weeks later. A second booster application should be budgeted for, but if fluridone concentrations are holding and fanwort plants are responding favorably, then the second booster treatment may not be needed. A breakdown of the treatment program cost is provided below:

- DEP License / EPA NPDES General Permit.....	\$750 ¹
- Sonar herbicide treatment program – initial application and one booster treatment to whole-lake	\$29,250
- FasTEST herbicide residue monitoring – collection of 4 rounds and analysis of 20 samples total	\$4000
- Dug Pond Reward (diquat) herbicide treatment.....	\$3850
- Surveys and reporting	\$2000
- SUBTOTAL.....	\$39,850
- Option 1 – Contingency second whole-lake booster treatment	\$6500
- Option 2 – Contingency Dug Pond Sonar herbicide treatment.....	\$3000
- TOTAL with Options 1 & 2 (recommended amount for budgeting purposes)	\$49,350

¹ The costs associated with the new NPDES permitting may not be known until the permit process is finalized in January 2011. If the lake is subject to the EPA general permit, the permit will likely be issued for a 5-year period and the filing fee is reported to be \$385 or more.