

**Appendix 8-1**

---

**Summary of Pond Treatment Options**

**APPENDIX 8-1**

**SUMMARY OF POND TREATMENT OPTIONS**

	METHOD		
	1 - ALUM APPLICATION	2 - CIRCULATION	3 - DREDGING
How does it work?	Alum hydrolyzes in water, forming a floc. As the floc settles, it removes particulate material as well as any dissolved P. If applied properly, a barrier forms on the sediment surface that will continue to trap P.	Prevents stratification from developing. Keeps more oxygen in the water column and thus available to break down organic material.	Sediment is physically removed, also removes accumulated nutrients and organic material.
Potential benefits	Long history of use. Does not seem to affect other aquatic organisms. May create layer over sediments, retarding future sediment P release. Long-term results. Readily available.	Reduces surface algal blooms, improved habitat for aquatic biota; may retard sediment P release.	Reduced internal nutrient supply, increases water depth, can reduce sediment oxygen demand.
Potential drawbacks	Low pH ponds need buffering (sodium aluminate). Potential for aluminum toxicity if pH declines. Loss of benthic organisms.	Results likely to be subtle; requires energy source (electric, solar, wind). May increase algal production throughout water column.	Expensive if disposal site is not nearby. Temporary turbidity, removes macroinvertebrates, temporarily interferes with recreation. Might reduce ponds' natural capacity for denitrification and thus allow more soluble nitrogen to make its way to coastal embayments or drinking water supplies.
Data gaps to make decision	Sediment testing to estimate optimal dose.	DO profiles over season, history.	Quality of sediments (affects disposal options and costs), detailed bathymetry to estimate volumes and costs.
Permitting issues	Requires permit, testing for optimal dose. MassDEP cautious following Hamblin Pond fish kill. Conservation Commission approval needed.	Conservation Commission approval needed.	Requires permit for dredging and disposal. Conservation Commission approval needed.
Longevity	Moderate (at least several years).	Only effective when mixers working.	Moderate to long.