

## DREDGING & SEDIMENT REMOVAL FACT SHEET

### Reasons for Dredging & Sediment Removal

The loss of pond volume is a problem for many ponds in our area. Problems result from the loss of volume due to increased sediment loads originating externally as soil erosion from the watershed and/or internally from decaying algae and weeds in the pond itself. Increased sediment generally leads to murky water, a reduction in depth and increased nuisance aquatic plant growth. Dredging is an intensive pond management technique that can substantially change the condition of your pond and can be used in construction, maintenance and restoration. Some pond ailments that may be helped by dredging include excess aquatic vegetation, reduced fish habitat, irrigation intake blockage, and reduced flood storage volume.

**Excess aquatic vegetation:** Dredging helps to control aquatic plants by removing the soft, nutrient rich sediment that has built up on the bottom of the pond. Dredging in areas of rooted aquatic plants also controls their growth through direct removal and also can limit future regrowth if the new water depths are deeper than sunlight can reach. The correct depth is based largely on water clarity.

Dredging may or may not reduce an algae problem by limiting the amount of nutrients available from the sediments. If your pond has a firm bottom of sand, gravel, clay or bedrock, dredging the soft muck on top may provide you with greater depth and reduce nutrients required by algae for growth. However, if the pond is without a firm bottom, dredging will only deepen the pond and may even increase algae or aquatic plant problems by exposing bottom sediments that contain an excess of available nutrients.

**Fish habitat improvement:** Deeper ponds are more suitable for fish. If dredging to 15 feet or more to improve fish habitat is what you desire, than dredging should help. For lakes that freeze over in the winter, fish survival can be enhanced by removing oxygen-demanding sediments and creating deeper water areas. In the summer deeper pond areas can provide fish with a cooler zone to help reduce heat stress.

**Increase storage volume:** If the pond was originally created as mitigation for a loss of flood storage volume or for upland irrigation, and sedimentation to the pond has decreased this available area, then dredging can restore the lost water space. As with all the reasons for dredging, the problem of sediment laden runoff reaching the pond needs to be addressed in order for long-term improvement to be realized.

### Considerations

Conventional dredging operations utilize a multitude of techniques such as draglines, backhoes, front-end loaders, bulldozers and dump trucks to dig out the bottom sediments. Hydraulic dredges use pumps and hoses (that may have an attached cutter head) to pump the bottom material to containment areas. The material may have to "de-water" within the containment area for weeks or months before the site can be restored by grading and planting vegetation.



**AQUATIC ECOSYSTEMS**  
M A N A G E M E N T

P.O. Box 82 Golf, IL 60029-0082 Phone: 847-579-3090 Fax: 847-724-8212

---

Overall the decision to dredge should be based on the overall function of the pond, whether for wildlife, swimming, irrigation, etc., and if the disturbance of routine dredging is going to effect the function and/or value of the pond. It may also be desirable (and more cost-effective) to build a shallow settling pond that intercepts heavy sediment loads in runoff. Also, spot dredging is less expensive and less ecologically damaging since only a portion of the pond is disturbed and a smaller sediment disposal area is needed. Spot dredging can be beneficial in improving shoreline access, clearing clogged channels, creating cool hollows for fish in the summer and deeper areas for fish under the ice in the winter.

Keep in mind that dredging may require local, state and federal permits. Dredging projects, both mechanical and hydraulic, are subject to permitting by the U.S. Army Corps of Engineers, Illinois Department of Natural Resources Office of Water Resources and Illinois Environmental Protection Agency including disposal of the removed materials or spoils. It is best to begin the permitting process as early as possible during your project's planning phase. You can contact Illinois EPA's Division of Water Pollution Control, Permits Section, at 217-782-0610 for more information and to request a permit application.

As part of the permitting process you may need to have the sediments tested to identify any contamination problems and avoid environmental and liability problems during dredging or disposal of the material. Dredged material from your pond must be disposed of in an upland site. Proper erosion control measures are needed to protect nearby wetlands, lakes, streams or your pond itself.

Drawing down or de-watering your pond is usually used in combination with sediment removal depending on the water depth and water source of your pond, partial drawdowns can be used to manage shallow water vegetation while still maintaining some fish habitat. Drawdowns in private ponds that result in a discharge of water to other waters of the state, which includes wetlands, may require prior approval by a permitting agency.

## **Conclusion**

Some ponds receive large quantities of sediment laden runoff, others fall prey to large amounts of organic materials such as decaying plants and leaves that fill them in rapidly. Dredging is not typically routine maintenance. Dredging can be extremely expensive, and the pond environment will be disturbed for a couple years at a minimum each time the pond is dredged. Long-term effects of dredging can include a reduction in aquatic vegetation if the depth is beyond the photic zone. Dredging can also remove muck and sediment during the process, as well as provide a better habitat for fish. Dredging, however, only treats symptoms of excessive plant and algae growth rather than the cause, which is excessive nutrient loading, usually through runoff. Whatever the reason(s) for dredging may be, ultimately you will need a long-term management plan once the removal is completed to ensure long-term success to be realized.