

Extreme weather's impacts and maintenance opportunities for lakes and ponds

By Mick Ribault, Ecological Solutions

Introduction

- Weather's effect on pond components such as drain systems, overall pond capacity and inlet structures
- Inspections during periods of heavy rainfall and periods of drought
- Exploring repair activities such as drain repairs, inlet reconstruction and dredging

How runoff damages ponds:

- Heavy rainfall may cause damage to inlets such as channels or pipes



Extreme Wet Weather Effects on Ponds

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Extreme Wet Weather Effects on Ponds

- Heavy rainfall may cause damage to inlets such as channels or pipes
- Heavy rains increase sediment load into the pond
- Drain components such as emergency spillways and primary discharge pipes can be tested during the largest rain events
- In a worse case scenario, these inadequacies can result in failed dams

On a large scale...



Drought Condition Effects on Ponds

- Dry conditions cause clay to shrink and cracks to form on dams and embankments

Inspection Opportunities

- Heavy rainfall can be a good time to observe how different pond components such as drains and emergency spillways are functioning
- Low water levels from drought conditions exposes excessive sediment deposits, potential leaks to drainage structures and shoreline damage.

Signs of Sedimentation

- Excessive nuisances vegetation growth
- Visual signs of built up sediment in middle of pond!

Signs of a leak in main discharge riser or pipe

- Water is below normal water level AND there is flow at back of dam
- Obviously, just because the water level is low does not necessarily mean there is a leak in the pond..evaporation and infiltration may account for loss of water

Shoreline Inspection

- Low water levels can enable visual observation of animal burrows by muskrats or beaver
- May not be noticeable when the pond is at normal water level



Repairs: Wet or Dry Weather Activities?



Dry Conditions Are Ideal For Pond Repairs

- Opportunity to fix muskrat damage to banks without lowering pond
- A good time to work on drainage systems
- A great time to dredge!

Repairing leaks to outlet structures



- Leaks in riser system contributing to low water levels

Leaks to outlet structures

A photograph showing a rectangular concrete outlet structure partially submerged in a pond. The water is calm, reflecting the sky and the structure. The pond is surrounded by a grassy area with some dry leaves. In the background, there are trees and a fence line under a clear sky.

- **Maintaining low water throughout (and sometimes following) the repair period is critical**

Dredging



Dredging – What is it?



- Dredging is the removal of accumulated lake bottom sediments.

Planning...Knowing what to dig and what not to dig



Planning...what to do with the mud?



OFF SITE OR ON SITE??

Dredging - Finishing



Dredging – Finishing



Dredging

- **Plan ahead – where to dispose of soil**
- **What and where to dig**
- **Time it so you are working in dry conditions when possible!!**
- **Use the opportunity to address bank improvements such as vegetation establishment**

**Before it goes wrong...
use mud mats..**



Inlet Maintenance



Inlet Maintenance



The repair – Prep Area



2. Install non-woven fabric



2. Install non-woven fabric



3. Replace rock and clean up!



In Summary

- Severe weather creates issues for lakes and ponds
- Droughts, although not desirable on a regular basis, are an ideal time to complete repair and maintenance work on your lakes and ponds.

Thanks!

Mick Ribault, Ecological Solutions

Mick@ecostormwater.com

919.851.0033