Beaver Management

Upper Thames River Conservation Authority

Urban Beaver Management

- Background info on Beavers
- Why we manage beaver activity?
- Types of infrastructure
- Beaver solutions
  - Types of water flow management
  - Vegetation protection
  - Why is timing important

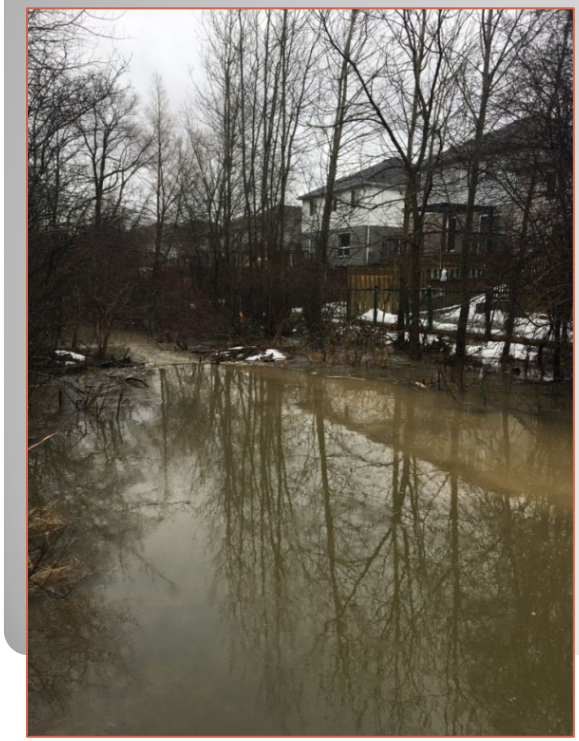
Beavers

- North American beaver (*Castor canadensis)*
- *Inhabited North America for millions of years*
- *Hunted/trapped for generations for pelts and food*
- *Important ecosystem engineers creating mosaic of habitats or mixed habitats*
- *Considered a keystone species because the habitat they create provides habitat for many other wildlife species*
  - *Keystone species is one that is critical to an ecosystem*
- *Dams produce a ponding effect which creates diverse wildlife habitat; insects (invertebrates), waterfowl, fish, amphibians and reptiles, mammals, birds, etc.*
- *Removing trees can change vegetation resulting in increased biodiversity of plants and wildlife*

Why Manage Beaver Activity?

- **Risk management or protection of ecological restoration sites**

- **Flooding** – private property, residential homes, commercial/industrial businesses, roads, sewers/stormwater, agricultural, recreational, etc.
- **Hazard trees** – targets such as property, people and infrastructure
- **Ecological restoration sites** – new tree and shrub planting
- **Can be both rural and urban context**



Flooding/Infrastructure

- Principles and techniques can be applied in most urban and rural settings
- Stormwater facilities – ponds, culverts, **drains**
- Natural waterbodies – creeks, rivers, wetlands

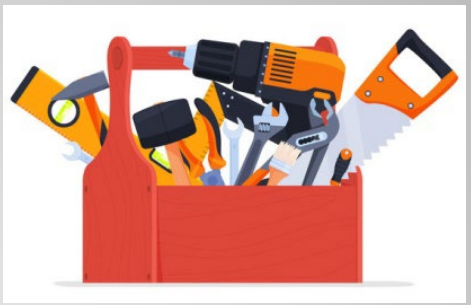
Confirm Beaver Activity

- Ensure blockages are actually beaver activity:
  - fresh cuttings, tracks, food cache, dams, lodges, slides, etc.
- Breach the blockage and return 24-48 hours later to determine if lodge/dam(s) active and maintained:
  - breach has been repaired
  - lots of fresh cuttings, fresh mud/rocks at the lodge/food cache

Solutions

Non-lethal

1. Install flow device/pond leveller/beaver deceiver/beaver baffle???
2. Mechanical/manual dam removal
   - Essentially "force" the beaver to relocate
   - Likely repeated attempts = $$$
   - Potential to create "problems" up/down stream
   - Must be done prior to Oct./Nov.
3. Trap and transfer within 1km of trap site (MNR)



Lethal – trapping is a **tool** needed when other options exhausted or non-lethal methods are not applicable

Method implemented depends on type of infrastructure and how it functions:

- SWMF's - type of inlet/outlet, rock aprons, storm sewers, etc.
- Natural creeks/streams - type of culverts
- Drains – Drainage Act requires removal of obstructions to allow free flow of water, including beaver dams.
- Site access/permission
- Risk threshold of landowner/proponent
- Timing of action required
- Etc.

Flexible Pond Leveler

- Natural waterbodies, drains, stormwater facilities – Minimum water depth 2.5-3’ (depends on width & flow)
- 5-6’ diameter, galvenized steel cage
- Approx. 40’ double wall drain pipe: 10, 12, **15”** diam.

- Design courtesy of Beaver Institute, Inc.

Dams

- Flexible pond leveler application

- Not applicable in all situations
- Need to have a min. water depth upstream of dam/blockage for pond leveler to work
- Allows beaver enough water to cover entrance to lodge, including under ice

Pond Leveler in Dam

- Pottersburg Creek - London
- Installed in 2014 – very little maintenance

Pincombe Drain at Warncliffe April 15.MOV

Pond Leveler in SWM Facilities

- SWMF's are engineered facilities, **not** ponds
- Need to maintain the flood prevention function

- Remove debris around outlets
- Level off substrate, remove large rocks and debris

- Maintenance/monitoring is key to long term success of any flow device
- Lessons learned in high sediment loading SWM facilities

Pond Leveler with Fence (1)

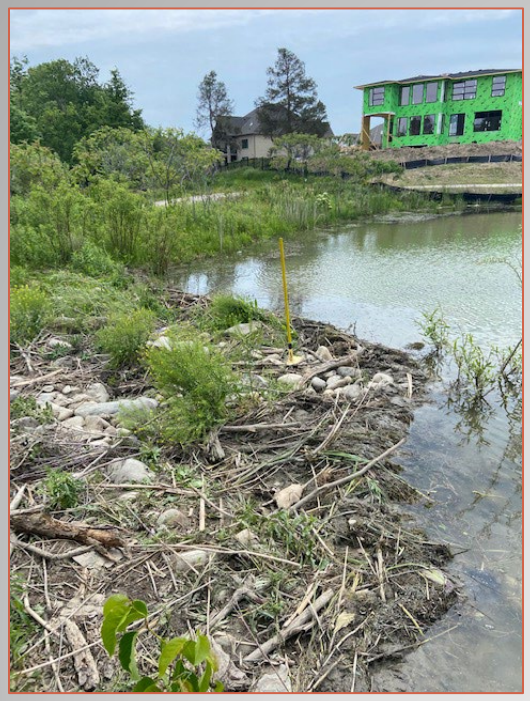
- Surround entire double outlet with a cage to increase area the beaver has to adapt to
- Maintenance/monitoring still required, but manageable

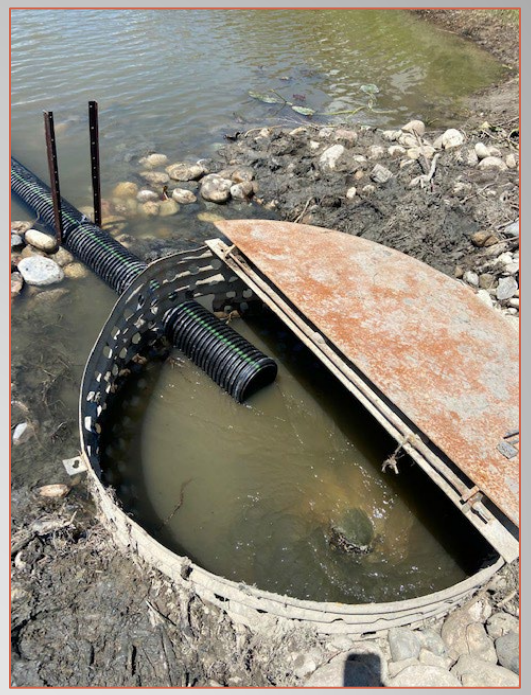
Pond Leveler with Fence in SWMF's

Talbot Lg SWMF April 15.MOV

Pond Leveler in SWM Facilities (1)

Rock apron around a vertical corrugated basin





- Flexible pond leveler directly into corrugated basin
- Remove rip rap and clean out debris
- Determined pipe size and desirable water depth
- Cut hole in corrugate basin and insert pipe

Pond Leveler in SWM Facilities (2)

Flexible pond leveler directly into vertical corrugated basin with rock apron

- Flexible pond leveler directly into vertical corrugated basin
- Remove rip rap and clean out debris
- Determined pipe size and desirable water depth
- Cut hole in corrugate basin and insert pipe
- Hickenbottom to prevent invasive species (i.e goldfish) from entering natural watercourse

Culvert blockage

- Remove debris/blockage to lower water level

Pond leveler with Fence (2)

- Culvert fence and pipe

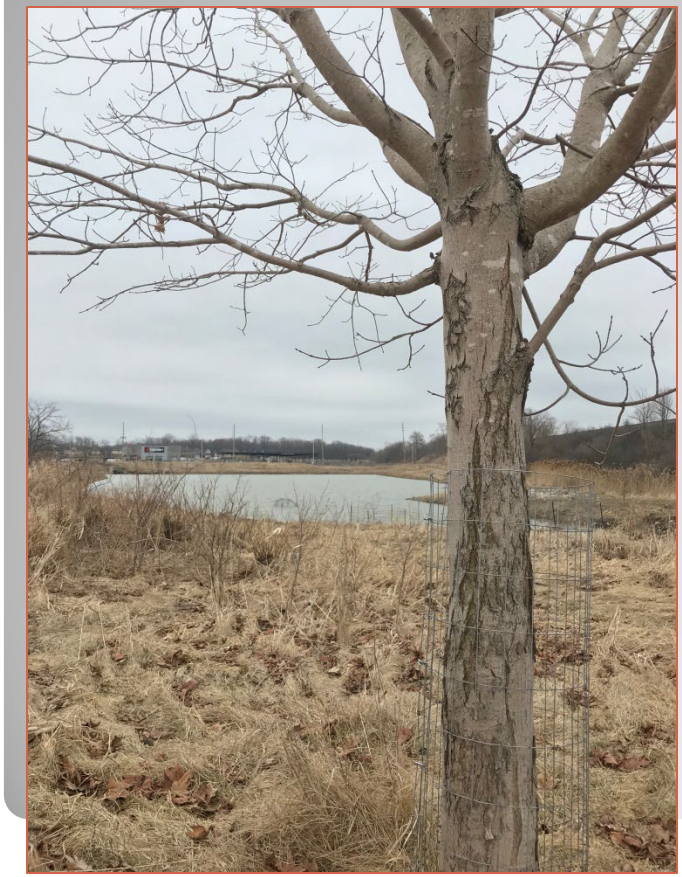
- Inspect water flow on downstream side of culvert

Removing Dams and Debris

- Removing debris/blockage adjacent to rock spillway
- Manually or mechanically
- Time consuming/labour intensive – health and safety concerns
- Potentially short-term solution
- Repeat treatments required

Tree Protection

- Caging newly established plantings and mature trees



Timing of Work

- Any in-water work must be completed in compliance with the Fisheries Act and/or CA regulations, permits may be required.
- Fisheries Act timing restrictions **generally** from mid-March to mid-July for warm water tributaries
- Additional restrictions and specific concerns with cold water streams
- Administered jointly by DFO, MNR and CA's
- Any activities to displace beaver recommended before Mid Oct.-early November to allow for establishment of new lodge and food cache, before winter

Thank you

- Questions?