Drawdowns

October 15, 2024 Lake Mallalieu Association Meeting

What is a Drawdown?

- A reduction in surface water elevation of a reservoir as determined by operation of a water control structure (DAM)

2. Lake Mallalieu is maintained by the Lower Power Dam, located on the Willow River in the SW quarter of the NW quarter of section 24, township 29 north, range 20 west, St. Croix County. The dam is owned by the City of Hudson, Village of North Hudson, Town of Hudson, and St. Croix County, Wisconsin.

3. The Lower Power Dam is structurally capable of maintaining a maximum water level of approximately 689.50 feet, MSL datum. There is sufficient storage capacity above this elevation to prevent excessive flooding of the shoreline or failure of the dam during the 100-year recurrence interval flood.

4. To allow recreational use adjacent to the shoreline, an elevation of 688.95 feet, MSL datum, must be maintained during the recreational season.

5. It is desirable to keep the range of levels maintained as small as possible. Historically, levels recorded by the Department have averaged 688.48 feet and have ranged from 688.96 feet to 687.94 feet, MSL datum.

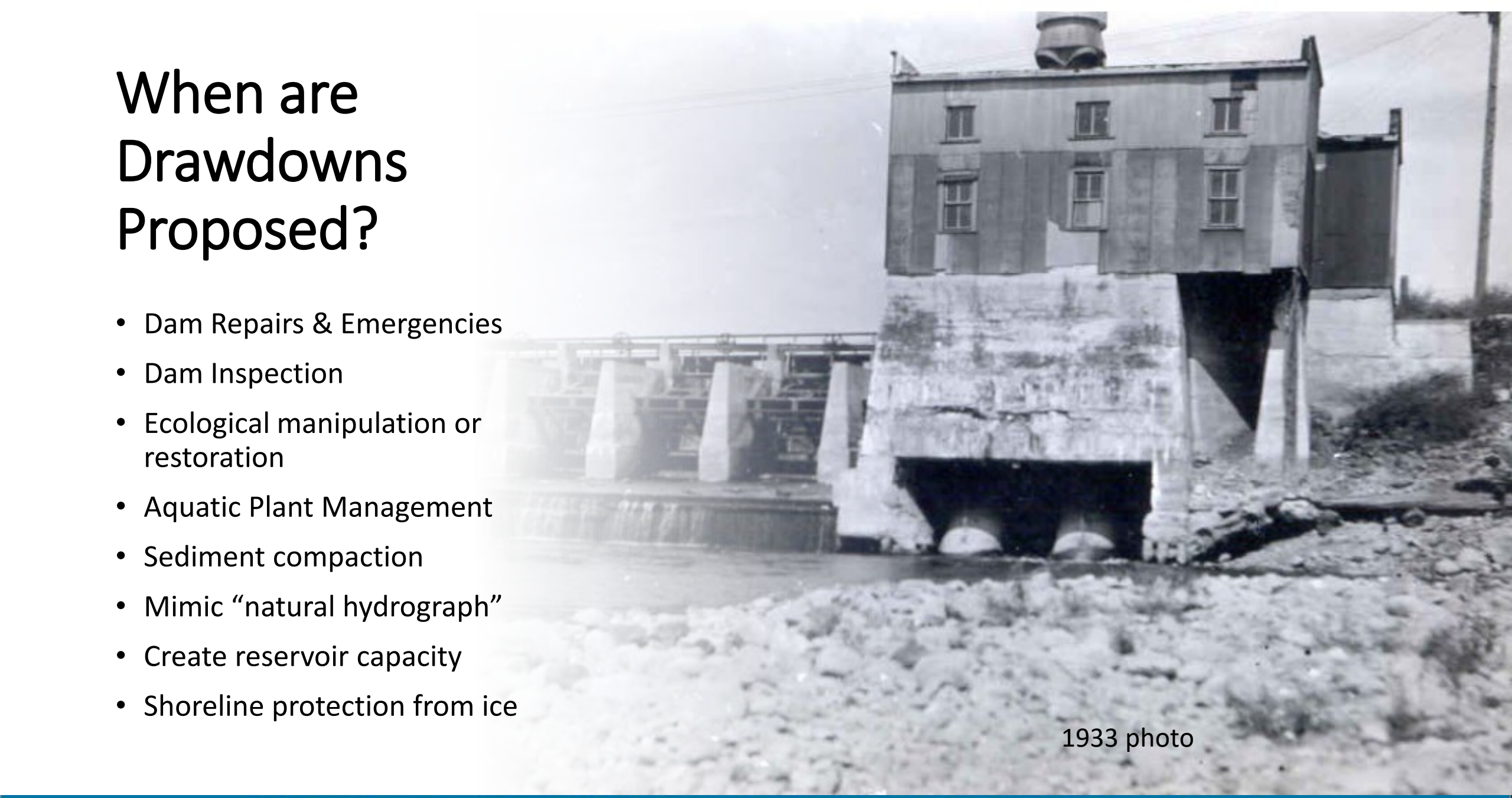
6. Water levels above 688.95 feet, MSL datum, will cause inundation of the shoreline.

7. Water levels below 688.45 feet, MSL datum, will adversely affect recreational use near the shore, lead to drainage of adjacent wetlands, and expose areas of lake bed which are valuable aquatic habitat.

8. The water level should normally be held as close to elevation 688.95 feet, MSL datum, as possible, in order to protect aquatic and terrestrial habitat, permit recreational use, and prevent excessive erosion of the shoreline.

When are Drawdowns Proposed?

- Dam Repairs & Emergencies
- Dam Inspection
- Ecological manipulation or restoration
- Aquatic Plant Management
- Sediment compaction
- Mimic “natural hydrograph”
- Create reservoir capacity
- Shoreline protection from ice



1933 photo

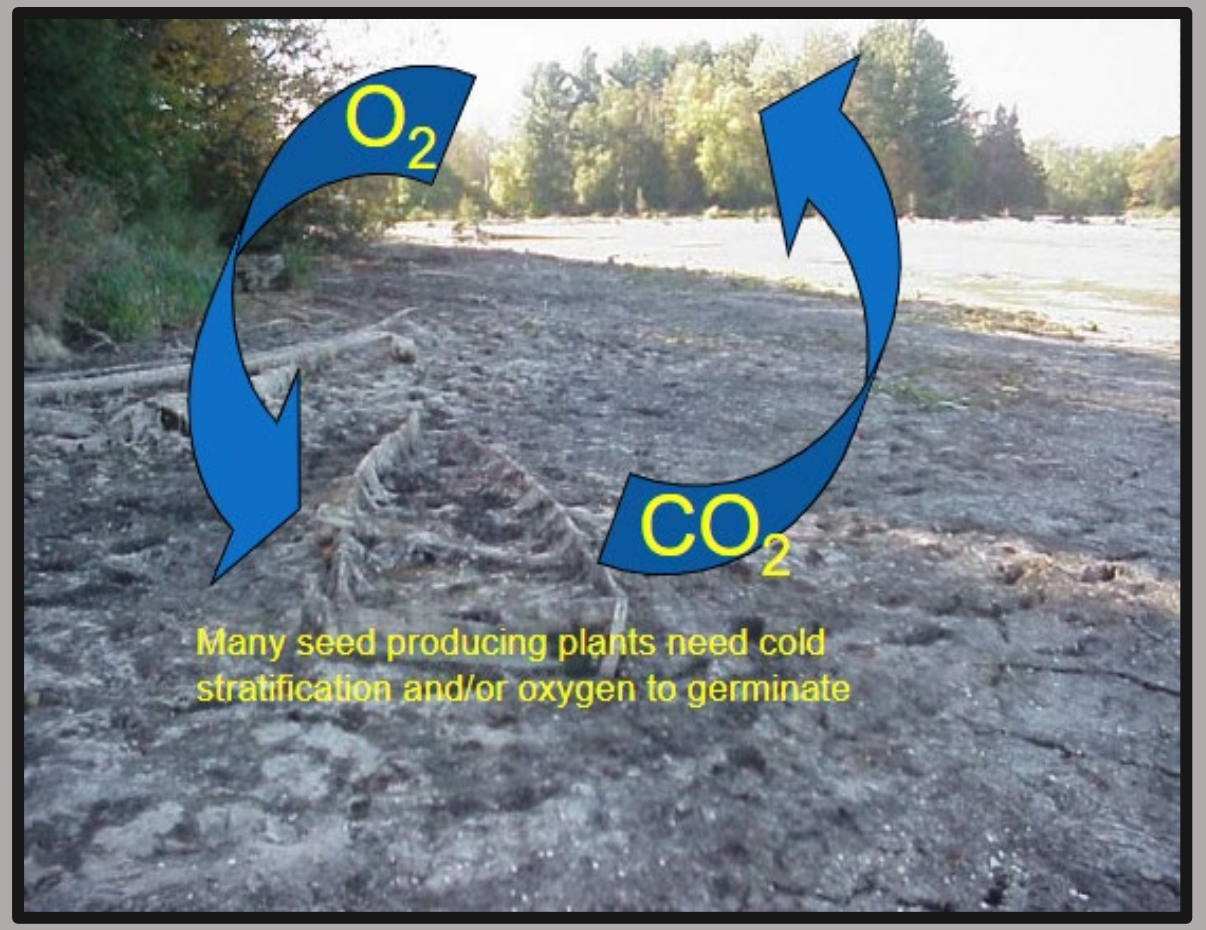
Possible Drawdown Positives

- Reduces non-native and nuisance vegetation
- Removes and compacts sediment
- Removes stored nutrients
- Stimulates emergent vegetation
- Improves fish and wildlife habitat
- Improves recreational use – boating, swimming, fishing, scenic beauty
- Cost effective
- Mimics natural drought/flood conditions

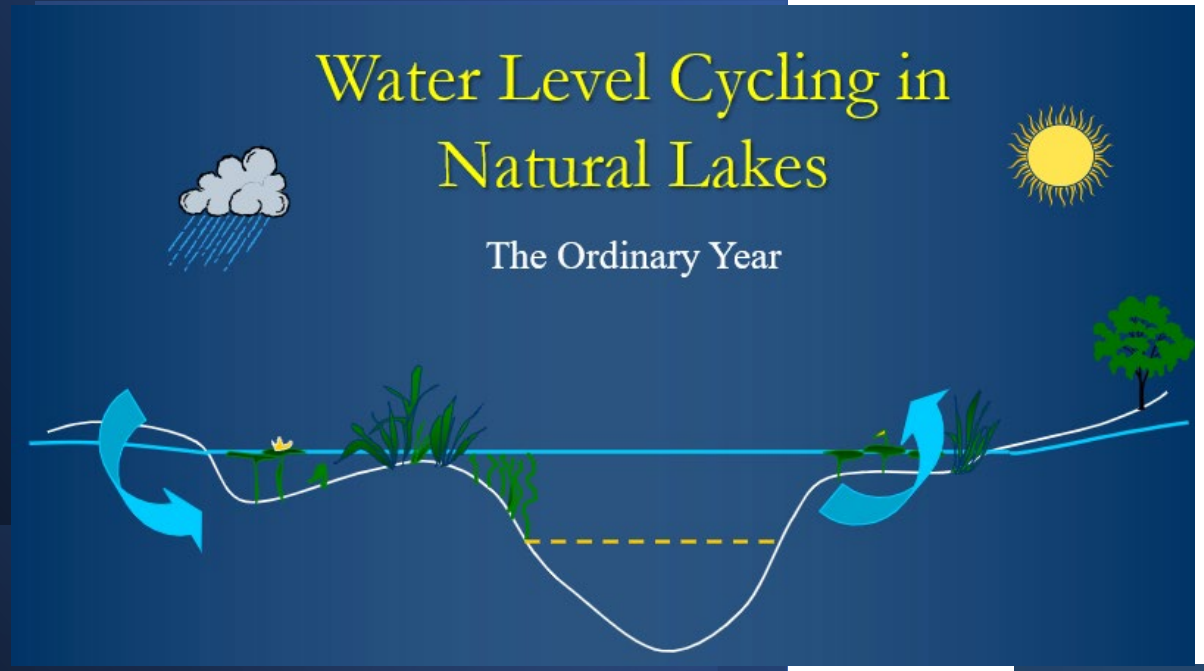
Nuisance Veg before/after (Not Lake Mallalieu)

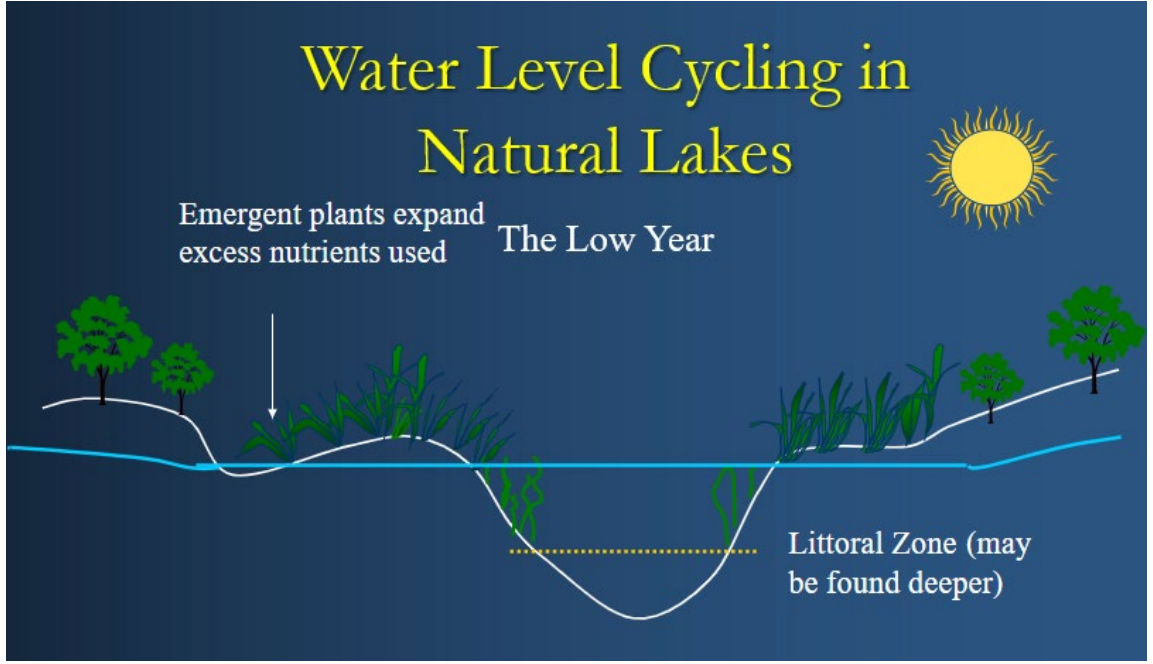
Lake Sediment
(desiccation, decomposition and consolidation)

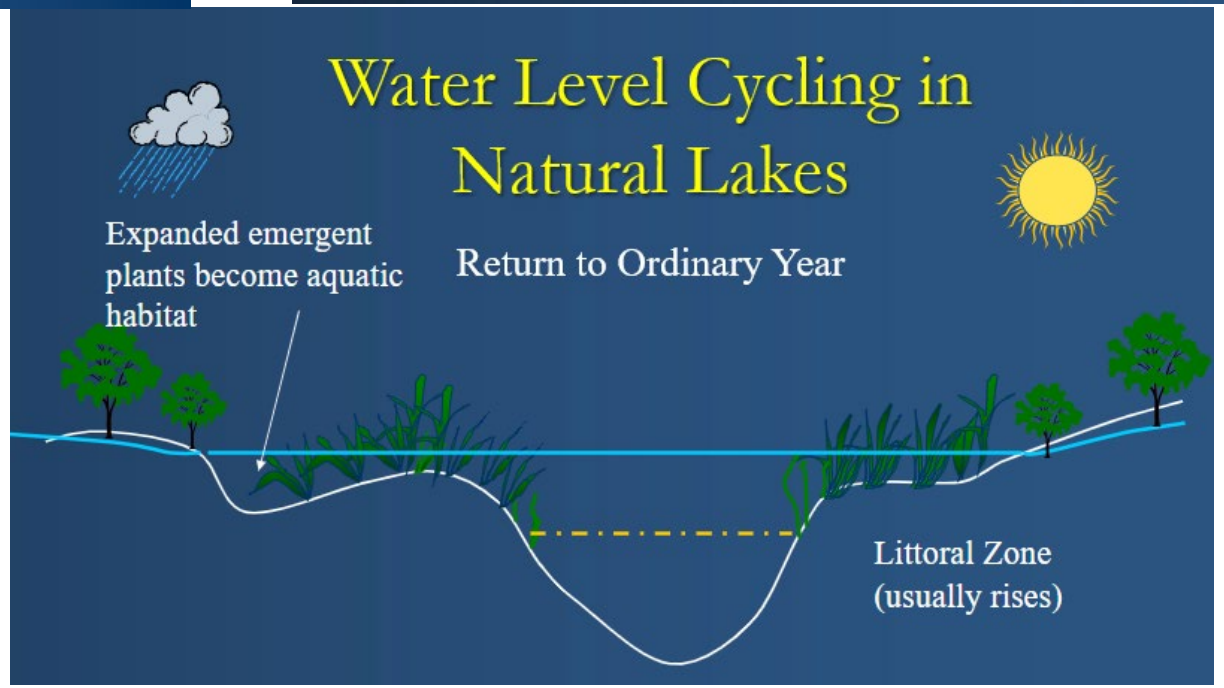
Germination of Native Seeds
(aeration)



Natural Water Cycle







Possible Drawdown Negatives

- Stored sediment carried downstream
- Fish populations are temporarily lost
- Temporary loss of recreational opportunity
- Storm sewer outlets
- Results may be temporary
- Aesthetically unpleasing
- Benthic organisms

Drawdown Process

- Authority comes from s. 31.02(1) Wis. Stats.
- "…the Department, in the interest of public rights in navigable waters or to promote safety and protect life, health and property may regulate and control the level and flow of water in all navigable waters…."

- The Authorization Mechanism depends on the circumstance!
- What does the dam operating order say? Does the order allow for the drawdown as proposed (timing, extent, purpose, duration?)
- Will the drawdown be outside of allowable min/max elevations or timing?

- If so, an official "permit" would be required.

Public Involvement

- Early stakeholder involvement Downstream as well as lake residents
- Public Notice
- Public Hearing – comments/concerns used in permit decision-making & to craft permit findings/decision/conditions

NOTICE

Operating motorized vehicles on exposed lake bed is prohibited, unless noted in s. 30.29(3), Wis. Stats.

"Motorized vehicle" includes utility terrain vehicles and all-terrain vehicles

s. 30.29(2), 23.33(1)(ng), 340.01(2g), Wis. Stats.

Pursuant to s. 30.29(3), Wis. Stats., there are certain exceptions wh use of motorized vehicles is allowed on exposed lake bed, such launching a boat, accessing frozen water if the crossing is in the m direct manner practical, or conducting an activity permitted by DNR under Chapter 30.

For more information, contact David Hon, DNR Water Managem Specialist at David.Hon@wisconsin.gov or 715-839-1600.

WISCONSIN DEPT. OF NATURAL RESOURCES

Common public interest issues requiring thoughtful attention (case by case)

- Drawdown timing, extent, and duration
- Fishery winter kill, increased predation, increased angler harvest, reduced spawning
- impacts to hibernating herps/reptiles/amphibians, hibernating furbearers in dewatered wetlands, migratory bird, mussel impacts
- Potential for sediment mobilization/water quality concerns
- Impact on up and downstream wetlands
- Effects on public recreation/navigation
- Refill rate and timing
- Ability to pass minimum flows downstream
- Answering ancillary riparian owner questions & project interests

Riparian Projects

(refer to handout)

Riparian Dredging

- Removing more than 2 cubic yards of bed material and mechanical dredging requires a dredging permit (waterward of the OHWM).
- In some cases, the lakebed of an impoundment may be owned by a private entity other than the shoreland property owner. In these cases, permission from the owner is necessary before removing any material.
- Sediment sampling may be necessary
- Special considerations for dredging in Sensitive Areas (pertinent to Lake Mallalieu)

Thank you

Jenny Murphy: Jennifer.croonborgmurphy@wisconsin.gov

Discussion