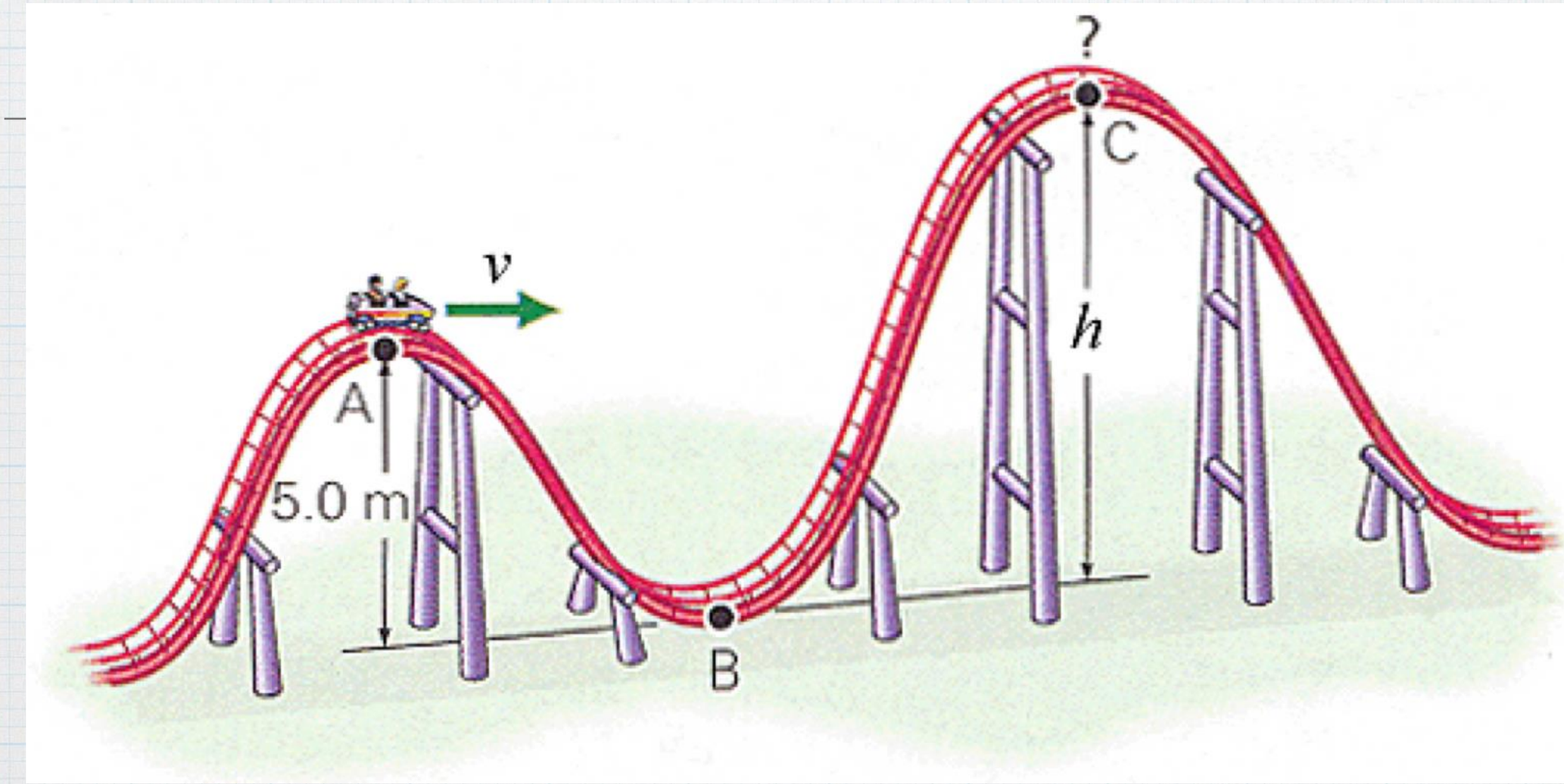
Minnesota Lake Levels

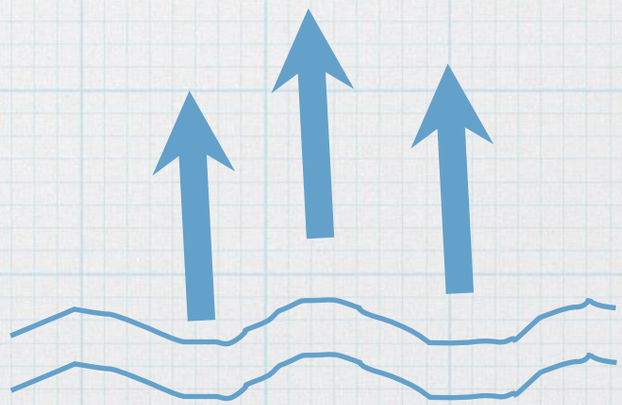
A Real Rollercoaster Ride



Two Main Factors Impact Non-Controlled Lakes

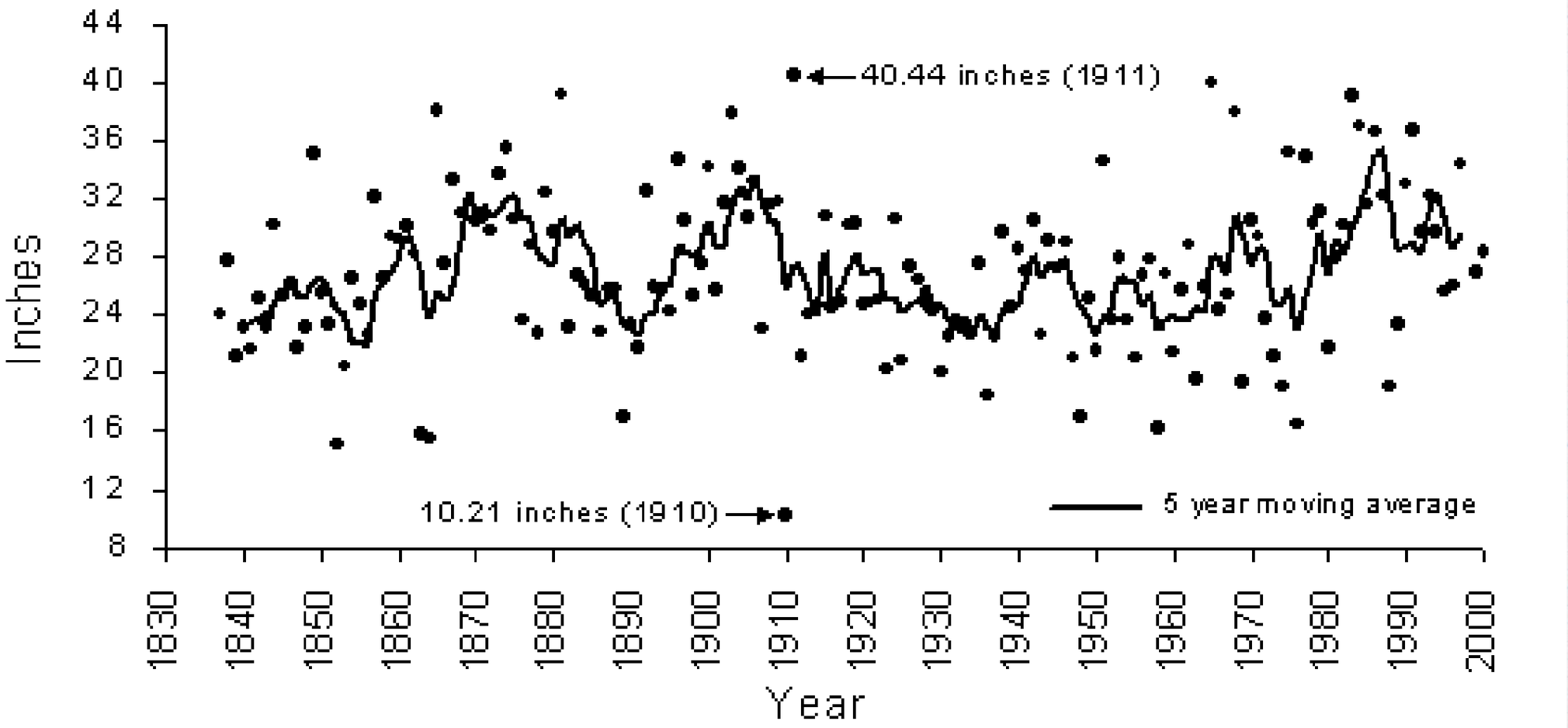
* Precipitation (Rainfall)

* Evaporation (Heat and Wind)



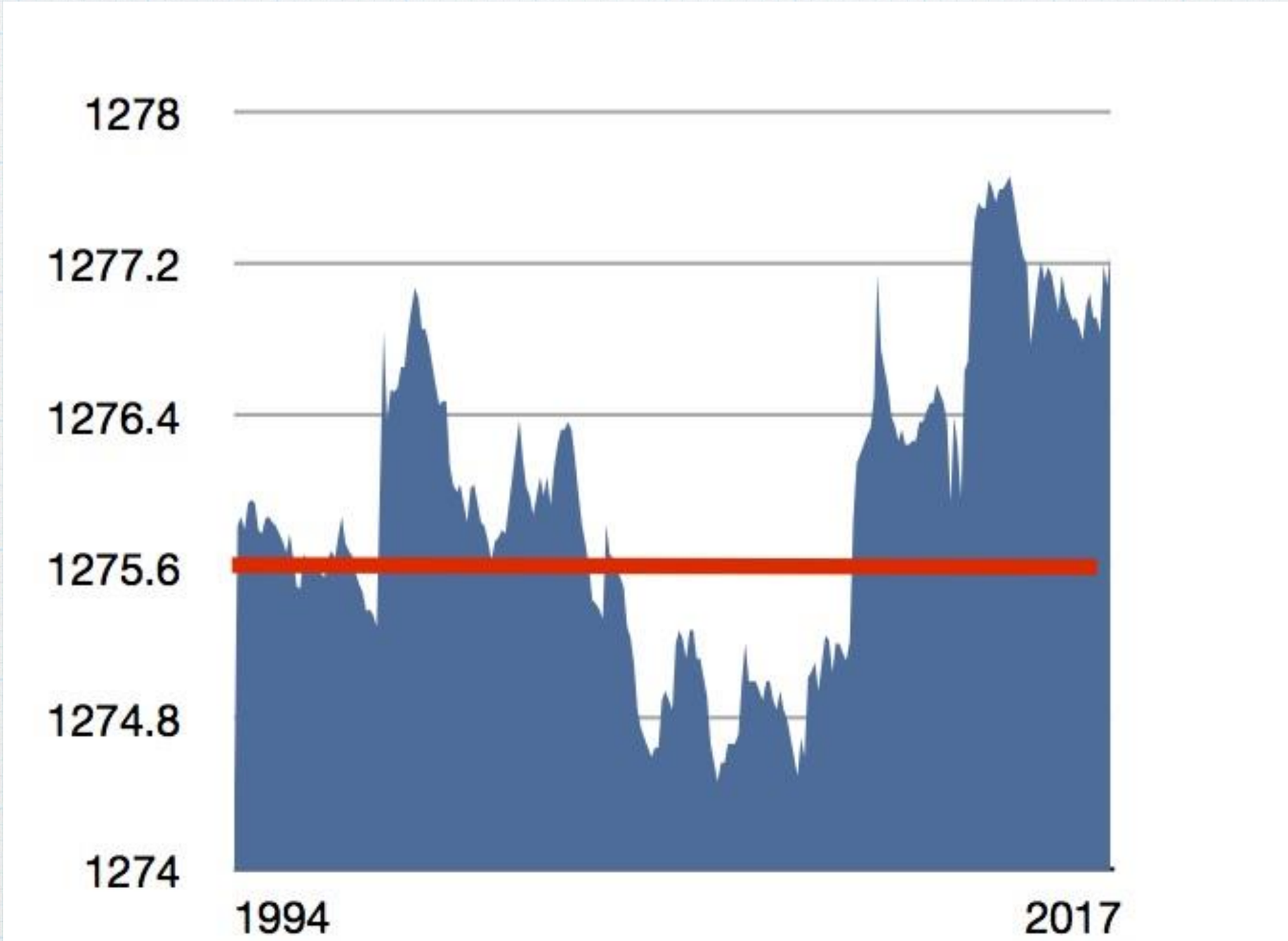
Mid-Minnesota Rainfall

East Central Minnesota Annual Precipitation



https://www.dnr.state.mn.us/climate/water_availability.html

Crookneck Lake



DNR Climate Impact

It is important to note that climate extremes should not be considered as aberrations, but rather treated as an inherent component of a continental climate.

https://www.dnr.state.mn.us/climate/water_availability.html

Low Water Impacts

- More Shoreline
- More Weed Growth - more sun to lake bottom, more weeds
- Less Usable Lake Area
- Bay Usage Severely Limited
- Decreased Property Values in Bay

High Water Impact

- Less Weed Growth
- Bay usage significantly increased
- Loss of shoreline
- Potential loss of low cabins

High Water Impact

High Water Impact

High Water Impact

Action we can take

* Voluntary No-Wake
* Shoreline Modification to reduce erosion
* Divert runoff away from the lake
* Modify structures to reduce impact
  Subject to approval
* Level Control
  Subject to approval

Voluntary No Wake

300' No Wake Posting

Just an FYI, there is a notice posted by the County Sheriff recommending a 300' no wake zone around the lake. I wasn't sure what 300' looked like so I mapped it out. We also put an orange marker in the lake in front of the low cabin on the north side of the lake as a reference.

Shoreline Modifications

Divert Runoff from Lake

Runoff flows into a new rain garden (shown before plants are fully grown).

Modify Structure

Process to raise a structure

* Determine if lot is in a wetland
* Get a County fill permit
* If lot is in a wetland, soil and water permit required

Level Control-Pumping

Actions required to meet feasibility of drainage project (I.e. Lake Shamineau)

These are what we believe to be steps that would have to be approved and resolved before a lake pumping project could ever happen.

1. **Initial project concept and cost estimate developed.**
2. **Assess property owners for feasibility report costs**
3. **Prepare project feasibility report**
4. **County Board approve the LID budget to proceed**
5. **County Board approve an outlet.**
6. **Township approval for Right of Way piping on township roads**
7. **DNR approval to lower the lake, DNR approval for impacts to Crow Wing County Lake in Todd County, DNR approval to outlet into Fish Trap Creek, DNR approval to outlet into Long Prairie River and ultimately Crow Wing River.**
8. **Morrison County Board and Todd County Board to create a new public ditch authority for joint county.**
9. **Todd County approval of outlet and impacts within their county.**
10. **Benefit Area determined for the new Public Ditch in both counties.**
11. **Public Hearing to create a new public ditch**
12. **MPCA determine if a NPDES permit required to discharge contaminated water**
13. **Wetlands between Hwy 10 and Fish Trap Creek delineated**
14. **Wetland impacts mitigated and approved by both Morrison and Todd Wetland Conservation Act authorities**
15. **Flowage Easements secured from every landowner with impact between pumping point to end point**
16. **MnDot approval of easement in MnDot ROW**
17. **MnDot approval of borings under Highway 10**
18. **Railroad crossing approval**
19. **Army Corps of Engineer approval ?**