



February 19, 2019

Michael Plisky - Chairman
Spooner Lake District

Subject: DNR response to Spooner Lake District drawdown request

Dear Mr. Plisky,

Below are the DNR criteria we would want Spooner Lake District to investigate/consider with a winter drawdown of Spooner Lake. This response is broken down by different environmental areas that we will have concerns with followed by a bulleted list of specific criteria for a drawdown:

FISHERIES

After looking through our old files and consulting with Stan Johannes and Larry Damman (the previous two fisheries biologists in Spooner), it appears that a drawdown would likely not result in a large fish kill based on previous survey information. Both former biologists felt that it was effective tool for aquatic plant management and did not negatively affect the fish populations long term in 1984/1985. Stan and Larry both felt it did result in positive impacts for the fishery. They also stated that it is something that cannot be done frequently. I could not find any data related to other Spooner Lake drawdowns. No restocking occurred in prior drawdowns. With this knowledge, Fisheries would like to accurately survey the fish population before and after a potential drawdown. We (DNR Fisheries) could commit to surveying the lake post-drawdown to check for potential impacts. If possible, we might do a pre-drawdown survey also, dependent on our workload. These surveys will likely take place during the fall and be electrofishing.

Some thoughts to consider:

- This management idea is proposed for control of aquatic vegetation and is not an activity DNR fisheries would recommend as a fisheries management tool for Spooner Lake due to its inclination to have winterkills.
- There is still a chance of a severe winterkill if the conditions are right. Obviously, these scenarios rely on weather. There is no way to predict that.
- To minimize a chance of winterkill, a winter drawdown should stay in place until ice out the following spring. Fisheries would also like to see Spooner Lake refilled by May at the latest.
- Refill during a dry spring could be an issue and potentially harm fish spawning in the lake due to fluctuation of water levels.
- Angler access at Mann Rd will likely be impacted by a drawdown. Ice fishing and open water fishing may be impacted.

WILDLIFE/ ENDANGERED RESOURCES

These are concerns shared by our DNR wildlife and endangered resources staff. Minimally mobile invertebrates such as mollusks are susceptible to drawdowns initiated while they are in shallow water. However, many invertebrates (particularly snails) move offshore for the winter, limiting impacts of a winter drawdown. For turtles and frogs, a drawdown that reaches its lowest level by October 1 will minimize mortality of these species during a winter drawdown. Some turtles, like snappers, can move during winter, while others, like painted and Blanding's turtles, cannot, making them susceptible to late season drawdowns. Overwintering green frogs and mink frogs (if present) are also likely to be negatively impacted by a drawdown if the lowest level is not reached until after October 1. However, frog species can have frequent years of high reproduction and will be able to repopulate much more rapidly than turtles.

Beaver, muskrats, otter, and mink that den in the banks may be forced to move. Any negative impacts will be minimal because beaver and muskrat populations are healthy. There are potential human/wildlife negative impacts as the beaver and muskrat are forced to move elsewhere and potentially cause problems for neighboring landowners. Beaver lodges are protected, because furbearers and other wildlife use it for shelter and for nesting. Otter and mink handle change better and may benefit from more successful fishing if fish are artificially concentrated. Local trappers may be negatively affected if the animals move from trapping locations that were previously scouted or set with traps. Waterfowl hunting access may be limited and negatively impacted during the drawdown year. Vegetation growth in associated wetlands may negatively impact waterfowl use of those areas. A slower than expected refill could impact nesting/habitat of waterfowl and loons within Spooner Lake.

- If a winter drawdown occurs the recommendation is that the lowest water level be reached by no later than Oct 1 to minimize or eliminate impacts to overwintering herptiles and other wildlife.

LAKE VEGETATION/ WATER QUALITY

Aquatic plants form the foundation of healthy and flourishing lake ecosystems - both within lakes and rivers and on the shores around them. They not only protect water quality, but they also produce life-giving oxygen. Aquatic plants are a lake's own filtering system, helping to clarify the water by absorbing nutrients like phosphorus and nitrogen that could stimulate algal blooms. Plant beds stabilize soft lake and river bottoms and reduce shoreline erosion by reducing the effect of waves and current. Healthy native aquatic plant communities help prevent the establishment of invasive non-native plants like Eurasian water-milfoil. In most instances, control of native aquatic plants is discouraged or should be limited to high use recreational areas that are next to piers and docks or within navigational channels.

Flowage drawdowns are a tool for managing aquatic plants. By drawing down water levels and exposing aquatic plants to freezing temperatures over the winter aquatic plants and their seeds may be negatively impacted. Heavy snowfall before extended freezing temperatures can insulate the exposed areas preventing adequate conditions to insure successful outcomes. If successful, plant population levels in this exposed area will recolonize within a few years.

In most cases the targeted aquatic plants to be managed by this technique are aquatic invasive species (AIS). Spooner Lake has one AIS, curly-leaf pondweed, which the district has been managing using herbicides since 2008. CLP is growing at depths in Spooner Lake deeper than the expected drawdown depth and will likely be unaffected by a drawdown.

The 1969 WDNR Spooner Lake Survey Map shows both 3 and 5- foot contours. According to the WDNR Spooner Lake Survey Map, 11% of Spooner Lake is less than 3 feet deep (122.3 acres) and there is approximately 11.2 miles of shoreline. Obviously, distances of exposed lake bed will vary but calculations indicate that a

drawdown of Spooner Lake to the 3-foot contour would result in a lake wide average exposed lakebed of 90 feet extending from shore.

The following information is necessary prior to DNR supporting a drawdown for aquatic plant management purposes:

- Clear management goals and objectives for the drawdown and a monitoring plan to determine if the goals and objectives were met. If the overarching goal is to reduce native aquatic plant nuisance conditions, “nuisance” should be defined in a measurable way and the corresponding objective should include a quantitative reduction and timeline. We suggest incorporating these management goals, objectives, and definitions into your aquatic plant management plan update regardless if a drawdown is pursued in the near future.
- A public participation effort, possibly including a stakeholder survey and information meeting.
- If expected drawdown is other than 3 feet, a map showing the exposed lake bed and calculations showing the expected exposed area should be included.

DAM SAFETY

As far as DNR Dam Safety is concerned, because there is no ordered minimum water level for Spooner Lake and only a normal and maximum water level, a **formal permit and formal hearing are not required** from DNR.

Dam safety does require that 25% of the low flow (considered the 7Q10) is maintained because it is a navigable stream (Ch. 31.34). According to the approved 2015 dam reconstruction plans created by Ayres, this was considered to be 5 cfs. The USGS regression equations used in the Department’s Surface Water Data Viewer (SWDV) also reflect this number. The Department will require a discharge of 5 cfs to be maintained at all times if the drawdown is to occur. Based on the current configuration of the dam with a current normal water level of 1089.5 ft (NAVD88) and the sluice gate invert of 1085.5, the minimum water level to be maintained is 1086.35. This corresponds to a maximum allowable drawdown of 3.2 ft from the normal water level which will maintain the 5 cfs 7Q10. To prevent sedimentation downstream, we also advise a drawdown rate no greater than 6 in/day. Dam Safety would like to be involved and updated during the drawdown and refill process, if the proposed drawdown occurs.

WATER REGULATION

DNR would suggest that if this drawdown is going to happen, that Spooner Lake District petition Washburn County to hold an informal informational hearing once we get all the needed information from the dam owner/Lake District. It also would be good for the County to publish a news release, and post this on social media sites of interest as well.

- If the drawdown occurs, since there are upstream historic wild rice beds (on Spooner Lake), and existing beds downstream (between Hwy 70 and the dam in the City of Spooner, near the hatchery), formal tribal consultation will be required.

When making a final recommendation, the Department will evaluate the costs versus benefits of a drawdown, taking into account a number of the below criteria. Below is a summary of criteria that should be carried out by the Spooner Lake District prior to considering or during a potential drawdown. This list will form the basis for the Department to make a final recommendation on the proposed drawdown of Spooner Lake.

- Work with Washburn County to setup an informational public meeting, advertise in local newspapers/social media.
- As far as Dam Safety is concerned, because there is no ordered minimum water level for Spooner Lake and only a normal and maximum water level, a **formal permit and formal hearing are not required** from DNR. As a result, there are no permit fees associated with DNR.
- Consider doing a stakeholder survey for all lake residents to formalize support of a drawdown.
- A maximum allowable drawdown of 3.2 ft (1086.35 ft NAVD88) is allowed which will maintain the 5 cfs 7Q10. To prevent sedimentation downstream, we also advise a drawdown rate no greater than 6 in/day. Dam Safety would like to be involved and updated during the drawdown and refill process, if the proposed drawdown occurs.
- For fisheries, a refill should not occur until ice-out. Ideally, it would be refilled by May to avoid disrupting fish spawning activity.
- For wildlife/endangered resources, if a winter drawdown occurs the recommendation is that the lowest water level be reached by no later than Oct 1 to minimize or eliminate impacts to overwintering herptiles and other wildlife.
- Update your Aquatic Plant Management plan with clear management goals and objectives for the drawdown and a monitoring plan to determine if the goals and objectives were met. If the overarching goal is to reduce native aquatic plant nuisance conditions, “nuisance” should be defined in a measurable way and the corresponding objective should include a quantitative reduction and timeline. We suggest incorporating these management goals, objectives, and definitions into your aquatic plant management plan update regardless if a drawdown is pursued in the near future.
- If expected drawdown is other than 3 feet, a map showing the exposed lake bed and calculations showing the expected exposed area should be included.
- If the drawdown occurs, since there are upstream historic wild rice beds (on Spooner Lake), and existing beds downstream (between Hwy 70 and the dam in the City of Spooner, near the hatchery), formal tribal consultation will be required.

Please contact me or anyone else listed below if you have questions regarding these criteria. This letter was drafted in consultation with the below DNR staff members in Spooner.

Sincerely,

A handwritten signature in black ink that reads "Craig M. Roberts". The signature is written in a cursive style with a long horizontal line extending from the end of the name.

Craig Roberts
Fisheries Biologist

Ecc: Nancy Christel, Wildlife Biologist
Jacob Druffner, Water Management Engineer
Dan Harrington, Water Management Specialist
Ryan Magana, Conservation Biologist
Mark Sundeen, Water Resources Management Specialist
Pamela Toshner, Water Resources Management Specialist- Advanced

