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APPENDIX A

Lake Puckaway Issues Assessment,
L Stoll Consulting

Lake Puckaway Issues Assessment

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Conducted and Prepared by

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Lake Puckaway Protection and Rehabilitation District

Acknowledgements:

This issues assessment was done as part of a project funded by the Department of Natural Resources Lake Planning Grant Program and the Lake Puckaway Protection and Restoration District to gather scientific data and background information for the development of a management plan for Lake Puckaway in anticipation of the replacement of the dam on the Fox River above the city of Princeton.

Special thanks go to the Lake Puckaway Protection and Restoration District, the Wisconsin Department of Natural Resources and Onterra, LLC for their help and guidance during the assessment process and to the people who were willing to be interviewed for the issue assessment.

Executive Summary

The Wisconsin Department of Natural Resources (WDNR) and the Lake Puckaway Protection and Rehabilitation District (LPLPRD) have been jointly managing the water levels on Lake Puckaway. Current methods include placing boards on the existing dam on the Fox River above the city of Princeton to raise the water levels on Lake Puckaway during the summer months. A Memorandum of Understanding (MOU) between these two entities describes the protocol for this process. Increasing safety concerns has prompted the WDNR to consider replacing the dam. Prior to that being done, they have asked the LPRD to update the Lake Management Plan for Lake Puckaway. This Issues assessment is the first step in the plan update. The assessment was conducted using one-on-one in person interviews with 16 people who are actively involved in the management of Lake Puckaway or directly impacted by the management decisions. The results will be added to information received from a citizen's survey, existing scientific data and new scientific information collected by Onterra, LLC and used to guide the development of the lake management plan.

For many users, the lake is currently in fairly good condition. Fishing is good and there is only a small algae problem. The walleye restocking program is a success. After some challenges in finding a company to continue to remove carp, the current program with the goal of removing 400,000lbs of carp per year seems to be working. While the carp are less of an issue, the previous damage and several high water years have led to erosion on the dredge banks and island. Added stress from cormorants defoliating trees and subsequent loss of the tree root structure has increased the loss of the island. Several interviewees remarked that the pelicans are also having a negative impact though there was no consensus as to what the impact was. Water fowl may be experiencing some stress. At one time, this lake was a premier duck/waterfowl hatchery and stopover site. There was lots of food (wild rice) and vegetation for safety and breeding. Higher water levels have reduced all types of vegetation and increased erosion. The current practice for managing water levels includes adding 16.5 inches of boards to the existing dam when water levels stop topping the dam. There are safety concerns with this practice and the LPRD has asked for another method to raise water levels.

There is however a minority opinion that the lake is in terrible shape and no one is satisfied. The bottom is mucky, the water dirty, the carp have and are currently destroying the lake. There is a loss of fishing and the ability to recreate. "No one would swim in this water." Some did not understand how the lake could be successfully managed for more than one use. It was either a fishing lake, a boating lake or was managed for water quality. The management strategies for each of these goals were not compactible. A new dam was needed only if the lake was going to be solely managed for recreation. Over \$150,000 in grant money has been spent on this lake and these people believed little has been accomplished.

Water quantity is the key issue for everyone that was interviewed. It was believed that in general, recreational boat users and property owners want higher water levels. Others are concerned with flood management and the impact high water has on their property. Downstream communities and property owners want to be assured of a minimum base flow and a more natural decline in water flow.

Erosion control was the second most-mentioned issue of those directly associated with the lake. Interviewees felt that the dredge banks and the east-basin island need to be restored. Supporting and improving the fishery was generally accepted as an important goal. There is a conflicting desire for increased vegetation (erosion control and improved fishery) in the lake while having higher water levels.

Water quality was almost a non-issue with the exception of the professional lake managers and up river property owners. The lack of massive algae blooms - especially blue green algae – and aquatic invasive plants led many to believe that water quality was good. Education on phosphorus issues has occurred but more will need to be done so more people will understand how the lake system works.

A substantial communications program will be essential to the success of this project.

Recommendations

After reviewing all of the comments made in the personal interviews, the following recommendations should be considered as this project moves forward.

1. As soon as possible, a Public Participation/Communications Plan should be developed and implemented so that various components are working effectively prior to the start of dam reconstruction.
2. Decisions need to be based on one set of data whose interpretations have been generally agreed upon. All of this information should be readily available to the public.
3. There needs to be a clear understanding of how decisions will be made and the lake management plan put together. This process should be explained to the public before the start of the planning process. It should include what decisions are already made and not subject to change and what is still open for discussion. People need to know how things will be decided and by whom. Are their opinions just thoughts for consideration by others or will participants actually get to decide? Will a vote be taken or will this be done by consensus? What happens if people can't agree?
4. Citizen education will be critical to the project's success. These following areas were noted in the report. Others may be identified as the project moves forward. Whenever possible, maps, photos, charts and graphs should be created to help people better understand the issues.
 - a. What is the current water quality of this lake and why is it like this? Do we know if septic systems are impacting the lake?
 - b. What is the stability of the pan fishery?
 - c. How does the Upper Fox River system function and what is Lake Puckaway's role in this system? What are reasonable expectations for this lake?
 - d. What is the impact of the current dam and the proposed replacement dam - upstream, downstream and on the lake? (See detailed questions raised in this report)
 - e. Will there be more than one draw-down of the lake? Will these have a long-term impact considering the new dam height?
 - f. How effective will the lock be in managing water levels on the lake?
5. There needs to be a clear understanding of how water levels will be managed and by whom. People need to know that whoever is responsible has the capacity to do this job according to the management objectives of the plan.
6. A complete timeline for this project needs to be readily available to the public.

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Interview Assessment

Introduction

The Wisconsin Department of Natural Resources (WDNR) and the Lake Puckaway Protection and Restoration District (LPPRD) have been jointly managing the water levels on Lake Puckaway. Current methods include placing boards on the existing dam on the Fox River above the city of Princeton to raise the water levels on Lake Puckaway during the summer months. A Memorandum of Understanding (MOU) between these two entities describes the protocol for this process. Increasing safety concerns has prompted the WDNR to consider replacing the dam. Prior to that being done, they have asked the LPPRD to update the Lake Management Plan for Lake Puckaway. This Issues assessment is the first step in the plan update. The results will be added to information received from a citizen's survey, existing scientific data and new scientific information collected by Onterra, LLC and used to guide the development of the lake management plan.

The assessment was conducted using one-on-one in person interviews with 16 people who are actively involved in the management of Lake Puckaway or directly impacted by the management decisions. A list of people interviewed is found in Appendix B of this report. Interviews were conducted over a period of 4 days –July 9-10 and 13-14, 2015 at locations convenient to the person being interviewed. Everyone was asked the same set of questions found in Appendix A. Results were recorded and compiled into this report. The report will be sent to the LPPRD, WDNR and Onterra, LLC and shared with the public.

NOTE: This report was written as a narrative to improve readability. Technically, every sentence should be in quotes as the statement was made by at least one person if not more. This was not done however, because the sentences are summaries and not “word-for-word” statements. When quotes are used, it denotes an actual “word-for-word” quote. No other research information has been included, only what was heard during the interviews. The narrative may suggest that given information is fact. No attempt has been made to check all statements against current research. The purpose of this report is to reflect what people believe to be true, not to be an actual research document.

Findings

Background

According to people interviewed, the lake was in great condition prior to the mid 1960's with lots of vegetation, good fishing and a successful program to remove carp. The rough fish removal program was halted and in 10yrs the only fish remaining were carp and croppies. Vegetation was uprooted and the fish stirred the bottom sediment. Upstream muck farming added to the sediment load. The Lake District was formed to address the declining lake and in the late 1980's the lake was drained and the carp poisoned. Six million pounds of fish were removed. The DNR restocked the lake with fish. It took several years for the lake to recover.

Current Conditions Summary

For many users, the lake is currently in fairly good condition. Fishing is good and there is only a small algae problem. The walleye restocking program is a success. After some challenges in finding a company to continue to remove carp, the current program with the goal of removing 400,000lbs of carp per year seems to be working. While the carp are less of an issue, the previous damage and several high water years have led to erosion on the dredge banks and island. Added stress from cormorants defoliating trees and subsequent loss of the tree root structure has increased the loss of the island.

Several interviewees remarked that the pelicans are also having a negative impact though there was no consensus as to what the impact was. Water fowl may be experiencing some stress. At one time, this lake was a premier duck/waterfowl hatchery and stopover site. There was lots of food (wild rice) and vegetation for safety and breeding. Higher water levels have reduced all types of vegetation and increased erosion. The current practice for managing water levels includes adding 16.5 inches of boards to the existing dam when water levels stop topping the dam. There are safety concerns with this practice and the LPPRD has asked for another method to raise water levels.

There is however a minority opinion that the lake is in terrible shape and no one is satisfied. The bottom is mucky, the water dirty, the carp have and are currently destroying the lake. There is a loss of fishing and the ability to recreate. No one would swim in this water. They did not understand how the lake could be successfully managed for more than one use. It was either a fishing lake, a boating lake or was managed for water quality. A new dam was needed only if the lake was going to be solely managed for recreation. Over \$150,000 in grant money has been spent on this lake and these people believed little has been accomplished.

Fishing

Interviewees who fished felt that the fishing on the lake was excellent and several mentioned that ice fishing last winter was the best it's ever been. The current walleye stocking program is seen as very successful and people agree that it should continue. Northern Pike are naturally reproducing in an acceptable number. The carp removal program has had a very positive impact not only on the fishery but also on plant populations and erosion reduction. Some believe that the carp are responsible for poor water quality yet all of the current reduction in population has not made an impact. People were less sure about the sustainability of the pan fishery. Some thought that they were still benefitting from the drawdown of Buffalo Lake and that this fishery would begin to decline due to loss of habitat in Lake Puckaway and the resulting inability for these fish to reproduce. Other people who fished felt that the pan fish were already declining and blamed this on the loss of vegetation both for spawning and for protection. The lake has lots of predators that impact the sustainability of these fish. More information on the stability of the pan fishery would be helpful for decision-making.

Erosion

Erosion was a concern for everyone interviewed. People reported seeing big chunks of bog float down the lake. The loss of vegetation reduced shoreline protection which in turn resulted in more erosion and declining water quality. Rebuilding the dredge banks and possibly creating a breakwater to protect the island was seen as key to improving the lake. This would reduce erosion and provide habitat on the calm side of these structures. It would also improve habitat for wildlife, in particular for terns. Certain areas may need to be protected with riprap. The floods in 2004 and 2008 caused a lot of erosion upriver from the lake. No-wake zones have been increased to try to prevent new washouts but this is still a problem. Powerful boats and jet skis have a big impact on erosion and loss of vegetation. There is a recommendation for additional "no wake" areas in the current management plan but this was never carried out.

Water quality

Water quality was almost a non-issue with the exception of the professional lake managers and up river property owners. The lack of massive algae blooms - especially blue green algae – and aquatic invasive plants led many to believe that water quality was good. Water skiers and boaters found the water acceptable for their use. The water is colored due to the silt it contains but people felt that this had no impact on fish, waterfowl or people. Many campgrounds and rental units offer a swimming pool on

their property and customers use that instead of swimming in the lake. Several people that had been on the lake for many years commented that it looked good compared to times in the past.

Those that had concerns noted that the spring of 2015 produced one of the worst algae blooms up river and some reported the presence of blue-green algae. Others mentioned high phosphorus readings and the increase in sediment in the water as you traveled through the lake. A demonstration that collected water samples starting with water coming into the lake, included several in the lake along an east-west line and ended with water leaving the lake was very convincing that there actually was a water quality issue. This demonstration however, was not seen by everyone. Others mentioned a change in Secchi disk readings from three feet just before the river widens into the lake to six inches or less when the lake empties into the river. Phosphorous readings show that water coming into the lake meets current standards but water leaving the lake has phosphorous reading three times higher than accepted levels.

Lake Puckaway is part of the water system that empties into Green Bay which has been designated as an "Area of Concern" on the Great Lakes for phosphorus. A Total Maximum Daily Load (TMDL) has been established for the Fox-Wolf River Basin and phosphorous targets have been set. If improvements can be made in the system, DNR is required to make them. In order for the Upper Fox River to meet its required reductions, Lake Puckaway will also have to reduce its loading to the system. There has been a loss of wetlands around the lake and plant diversity is decreasing. Some suggest that up to 80% of the original plant beds are gone. Emergent and submergent plants will need to be restored in order to reduce the phosphorus loading. In drought years when water levels are lower, lake vegetation increases but this gain is only temporary as plants die back when water level rises.

It was noted that while there has been education on water quality in the past, this was not enough and though many may have heard it, they still don't understand. There were mixed thoughts on the source for the phosphorus. Everyone mentioned internal loading from the existing sediments but others thought that old and failing septic systems and farm runoff were a factor. Information that would confirm or rule out these sources would be helpful in decision-making.

Change

Interviewees had mixed thoughts on what would happen if the current management plan were to continue. (A "make no changes" approach.) Some felt that what was being done was working just fine and would continue on this course. They wondered why the dam needed to be replaced. They were upset that the DNR would spend \$2 million dollars on a dam that wasn't failing. Others suggested that they should stop putting the boards on and let the river run naturally which would save everyone a lot of money and eliminate the current safety issues associated with using the boards. Someone suggested that the dam should be removed altogether so the system could operate with nature instead of against it.

Many believed that if no changes were made, the lake would begin to decline (fishing, wildlife and water quality) and maybe reach a tipping point where it would crash like in the early 1970's. "The system and conditions are always changing so you have to change management strategies too in order to just keep conditions the same." There was concern that the remaining rice beds would disappear resulting in further decline in waterfowl and wildlife. The White River Marsh and the Puckyan Marsh would continue to decline due to the fast drain of the river. "Water level in the marshes never seems to catch up after the boards are put on." There is increasing evidence of bank erosion and fish trapped in the marshes after the water level drops can't adapt, especially in drought conditions.

With the exception of those that didn't want to spend any money on this project, most believed that the lake needed to be managed and could not be left to run itself. There has been so much development and changes that the system could not be returned to its true natural state. It needs to be managed

within the parameters of the current conditions. For some, it was important that the lake be kept at a steady level that people could count on. Downstream users didn't care what was done or not done as long as they were guaranteed some type of flow. Whatever is done, there needs to be a reasonable chance that it will succeed.

No one felt that the lake was so good that improvement wasn't needed or wouldn't be appreciated. The response was mixed as to the urgency. Anything that improved the fishery or reduced erosion placed higher than activities that were described as solely addressing water quality. Given the failure of several past efforts (attempts to add aquatic plants), people were unsure what would work and what wouldn't. It was noted that people's definition of improvement was based on their personal needs and not necessarily on the natural system in general.

Safety issues with installing and removing the boards on the dam and the irregular schedule with which that was done were mentioned by almost everyone, including people living downstream, as something that needed to be addressed. Past accidents have resulted in the need for increased safety procedures that have raised the cost as well as made scheduling difficult.

When the river is drawn down to build the dam, it will be important to have good baseline information in place and a plan to collect data while water levels are low and document changes when water levels return. The lake was drawn down in the past and no documents exist that systematically track the impact of this action. Someone asked how will we know if this new proposed draw down will actually work – especially if the new dam will keep water levels higher?

A number of people remarked that no matter what types of changes are proposed, people can't choose one over the other unless they understand how the river system works. Lake Puckaway cannot be managed in a vacuum.

New Dam and Water Quantity

Water quantity is the key issue for everyone in this system. Comments varied from "I pay higher property taxes as well as district taxes and should be able to have water at boatable levels throughout the summer" to "placing boards on the dam violates state code by actively eliminating navigable water". Others are concerned with flood management and the impact high water has on their property. Someone commented that people may not be happy with the current management of water levels (either too high or too low) but they also may be disappointed in what is achieved after the new dam is built. It is not the "silver bullet" for all of the problems in the system – even for those who only want higher water levels because the dam is not the key, inflow of water from upstream is.

Downstream

The biggest complaint of downstream participants is the total loss of flow. They indicated that they too pay higher taxes for waterfront property and they aren't asking for higher water like people on the lake, they just want to have flowing water at any level. The downstream impact of placing the boards on the dam varies with the amount of rainfall received after the boards are on. In an average year, it takes about a week for the water to top the new dam height. During that time, flow completely stops and water level can drop up to 9 feet in some locations. (recorded at the Berlin gaging station) Others noted a regular 2-3 foot drop. Water that was navigable the day before the boards are put up is nothing but intermittent puddles two days later. Boats that were floating are now sitting on bottom. People wondered if riparian lake owners would be content if the upstream dam at Montello were managed like this and caused Lake Puckaway to "dry up for a week". Why do downstream land owners have to accept this? On paper, water levels are supposed to return once the lake level tops the dam. However, the boards are put up when river flow is slowing. Depending on how soon there is a rain event and how

much water is received, it could be several weeks before there is consistent flow again. In many summers, the river is never again truly navigable until well below Berlin. This has had a negative economic impact on both Princeton and Berlin as well as on people who earn their living from the river. Because the date the boards go in changes every year and downstream cities get at most three to four days' notice, it is impossible to plan civic events that depend on the water. It is felt that requests to consider downstream events have often been met with a deaf ear. Some commented that once the boards come off in the fall, water levels come back up and stay up for the rest of the year.

Downstream users understood that river water levels will change and decline over the summer. It is the sudden total drop that they find unacceptable and is devastating on fish and wildlife. Photos and gage levels at Berlin document this impact. Building structures to increase public access that accommodate this rapid change can be challenging. The rapid water level drop negatively impacts wildlife in the surrounding downstream marshes to the point where populations in some areas are no longer sustainable. Adults cannot move nests and young fast and far enough for them to survive. This especially impacts fur-bearing animals. Turtles and frogs (including some that are endangered) also suffer. The rapid water level drop concentrates the fish and makes them very vulnerable to predators. Occasionally, the water level drop occurs during the walleye run and has a negative impact on this fish population. Vegetation also suffers. Photos show riparian areas that used to be vegetated are now barren or eroded. This is accelerated if a large rain event occurs before plants recover and have grown new roots that stabilize river banks. Someone commented, "What good does it do to increase lake vegetation if you lose an equal amount or more downstream?"

Due to the lack of elevation change in the watershed, water level drop impacts more than just the immediate riparian area. Anecdotal information includes a pond 50 yards from the river drying up as well as a similar loss for sand point wells fifty feet from the river used to water plants. Stagnant water results in algae that further degrades the water and produces bad smells.

Downstream residents had no opinion on the dam height other than being able to be guaranteed some level of water flow. They were concerned that in times of drought and with the new dam height, evaporation and low flow would leave them with no water for even longer periods of time than they currently experience now.

Lake and upstream

Lake Puckaway riparian owners face water level issues as well. The two major lake shorelines respond differently to any action that is taken. The south shore of the lake is steeper which protects the land from floods due to high water levels and continues to allow lake access when water levels are low. The north shore has a very long, low slope. Higher water reaches further inland and leaves long areas of sand with no lake access when it is low. If several large rain events occur after the boards are in place, the north shore as well as both riverbanks above the lake can flood. Dredging water access in low water years is expensive and must be regularly redone due to high wave action and the amount of sediment in the water. Actions that reduce access and the amount of "boatable" lake were not seen as favorable. This included increasing lake vegetation in the deeper western basin of the lake. It was also noted that increasing the height of the dam to the height with the boards in place (an increase of 16.5 inches) resulted in a six inch increase of water height at the west end of the lake. This was again due to the lack of elevation change from west to east. Water flows outward before it rises. The dam may not increase the amount of recreation space. It might improve access for some to the deeper parts of the lake.

Lake Puckaway is a very long east-west running lake and this long fetch produces waves that erode many parts of the shoreline. The erosion puts additional sediment in the water and reduces and/or

eliminates fish and wildlife habitat. Wind and wave action were perceived as a bigger problem than carp. This issue makes some people feel that the lake is balancing on edge and it will not take much for it to degrade to past levels. Someone offered that the lake could be management in two parts – the west basin more for recreation and the east basin for habitat and water cleaning. Many felt that it was imperative that protective structures are put in place in the east basin and around the island so that vegetation is restored. Someone mentioned that increasing the island could have a positive impact on nesting terns and egrets. The current Common Tern project using rafts is a great success and additional nesting areas would certainly improve conditions. Cormorants may try to take over but the LPPRD has a permit to control this. Some would accept a lake drawdown to improve both submergent and emergent vegetation. It was also noted that the county public boat landing on the north shore is unusable in the summer. The landing should be dredged out and protected with a break wall. This could be used for fishing. Additional dredging could be done to improve access for north shore property owners and the material used to restore the island and dredge banks.

Proponents of a fixed height dam at the height of the current dam with the boards in place feel that it would be the easiest to manage. The lock gates could be used to reduce high water levels when necessary and there would be no need for the sudden change in downstream water levels that happens now.

Concern was raised regarding the higher water levels that would result from a higher dam and its impact on lake vegetation. They were told that water level fluctuation was needed to maintain plants, especially lower levels in the summer. What was the point of building a higher dam if you needed to lower the water levels? If you wanted to follow nature, the best thing to do is not put the boards on the existing dam.

Not everyone has kept up with information regarding the proposed dam. They wanted to know who proposed this project, what was the problem they were trying to fix and what guarantees are there that the dam would actually do what they said? It won't raise the lake level any more than we do now. They didn't understand why people felt so strongly about the proposal and wondered if this was just a DNR problem and why should they be the ones to have to fix it.

Some people interviewed wanted information on how big a storm would have to be before the locks were no longer effective and could the locks be counted on to manage spring thaw and the resulting runoff. It was noted that in the last eight years, the boards have not been put on until June or even later. Even at the lower height, parts of the lake and upriver shoreline were underwater in the spring. People wanted to know how many properties would be underwater every spring with the higher dam height. Someone mentioned that it currently takes almost a month for flood waters to fully drain from the system and that there needs to be a buffer zone for spring runoff and flood events. It was noted that given the size of the lake and the size of the locks, the locks could not be used to micro-manage lake levels.

Information needs and other considerations

Several people around the lake and downstream mentioned the success of the tern project. Efforts to advance this project would also help protect the east basin of the lake. People were in favor of continuing these efforts.

It would be good to have other success stories of restoration of water similar to Lake Puckaway to help guide decision-making. However others commented that Lake Puckaway was so unique that comparisons to other systems were not valid. Buffalo Lake was mentioned as an example of what might happen if the proposed changes were made to Lake Puckaway. Interestingly, both people for and against the new dam project cited that lake. Some believe that what was done to Buffalo Lake ruined it

while others saw the increase in vegetation – especially the rice beds – as an example of positive change. The latter noted an increase in waterfowl and clearer water. Yet others believe the higher water levels are resulting in declining emergent vegetation.

Downstream cities and residents would like a downstream impact statement to be included in the decision-making process for the proposed dam and management plan. Downstream businesses that depend on having at least some water in the river are greatly impacted by the current management strategy and are struggling to stay in business. The impact to all businesses needs to be considered in the new plan not just those on Lake Puckaway. Downstream communities need to be part of the plan development.

It was recommended that all the plans and permits to make shoreline and in-lake structure changes need to be approved and in place before the water level is lowered to build the dam. All construction needs to be timed to happen during the time the dam is being built so the lake doesn't need to be lowered again to complete these projects.

There was concern that the land market around the lake is poor especially on the north shore. A number of properties are for sale and they are not moving. Whatever is done should not have a negative impact on property values.

It takes a lot of effort to manage this lake. If you do something once, there is an expectation that this action will continue. Examples: the fish hatchery, buoy placement, managing the carp removal, producing the newsletter. People are critical of everything but disappear when you ask them for help.

Lake Puckaway should not be managed as a stand-alone entity. It should be part of a river system management plan. The plan should be designed as a partnership with nature. The more it has to fight the natural systems, the more expensive management will be and the greater likelihood that it will fail. The plan should include buffering for times of high flow and flood and continuous flow (at lower levels) throughout the system in times of drought.

There were requests for clearer information on the impact for various management decisions. Questions asked included:

- What would the system look like if we kept the original dam and stopped putting the boards on (upstream, downstream and within the lake - spring, summer and fall)? How much control of spring and other flood events can be gained from the locks at the current dam height? How much vegetation regrowth would be gotten? What would be the impact on fish and wildlife? What would be the impact on recreation? What types of mitigation could take place for negative impacts? How much would it cost? How much management would be required for this scenario and what is the estimated cost?
- What would the system look like if we built a dam at the higher level - level of the dam with the boards in place (upstream, downstream and within the lake - spring, summer and fall)? How much control of spring and other flood events can be gained from the locks? What would be the impact on vegetation? What would be the impact on fish and wildlife? What would be the impact on recreation? What types of mitigation could take place for negative impacts? How much would it cost? How much management would be required for this scenario and what is the estimated cost?
- The need for drawdowns is repeatedly mentioned. Does this mean more than just what is needed to build the dam? If so, how many, how often and to what level for how long? How do we know that this will actually gain us anything in the long term? Past efforts to restore

vegetation didn't work. Why can't we just leave the level high? That's why we are building a new dam and it's what people who actually live on the lake want.

- People want a timeline for this project. When will the project begin, how long will it take to lower the lake, how long will the water be down in order to build the dam. After the dam is completed, when will they let the water rise and how long will it take?

A number of people mentioned the loss of the relationship they once had with the DNR. Staff used to attend local meetings and be personally available for conversation and questions. Now their focus seems to be elsewhere. This lack of personal contact has decreased communications and resulted in a loss of trust. This translates into a feeling that things are happening behind peoples' backs. Yes, you can call the DNR office but you usually get a machine and you do not always get a return call. Having to drive to Oshkosh or Wautoma is not convenient so people don't do it. The DNR used to reach out to us not the other way around. There is a concern from some that waterfowl people get preferred treatment and others think that most management is for the fishery. Someone commented that you get these conflicting views because of the loss of regular communication and people having to rely on assumptions and not the facts. Sometimes we receive conflicting information from different people in DNR. Who do we believe?

Actions by Green Lake County are not always communicated to people around the lake. There is concern by some that the Lake District is not doing its job because people pay high taxes and they don't feel they get what they pay for which for many is the right to have high water throughout the summer season.

Communications

An informed public is a happy public. Too much information comes from angry people. There needs to be lots more detail available for people that want it. Not everyone may want all of the scientific data but some do and this should be made available. There needs to be better information on how people will be affected by whatever changes are made. Anything that can be done to stop and/or refute the "rumor mill" will be beneficial. Too many people get information from places like "Lake Link" (a website with public comment about various lakes and fishing conditions in the Midwest) and have no easy place to go to find out if what they are reading is true or false. As a result, if it is found in Lake Link, it must be true.

For some, it was difficult to know what information was really true and what was colored to support someone's personal opinion. There must be a real effort to continually put out information as people need to hear information many times before they understand it. Pictures, maps, charts and graphs often tell the story much better than just words or even oral presentations. Downstream communities want to be kept in the loop and not find out things second hand.

District residents agreed that the best communication was the annual newsletter sent in May prior to the annual meeting in June. All felt that more than that was needed for this project. People acknowledged that mailing was expensive and the letters time-consuming to produce and mail. However, if everyone really needed to have some information, it would be best to mail out a notice.

The annual meeting also provided an opportunity to receive information but that occurs early in the summer and not everyone attends. Additional face-to-face meetings might help but attendance would vary and it was thought that many would not be willing to take more time out of their summer for these meetings. Depending on how they were run, some felt that they would not be worth it.

Several local papers were recommended as good places to place information. The “Green Laker” is a good summertime paper. The Berlin Journal is widely read as well as the Marquette County Tribune. Princeton and Markesan also have weekly newspapers. While not everyone receives a paper and there is no one paper that covers the entire watershed, it is still important to put some information in the press. This information should be facts not colored by opinion.

Several people mentioned the idea of posting information in the kiosks that were put up at boat landings and at community bulletin boards such as the one at the Marquette post office. Bars around the lake would also be good places to post information.

The LPPRD has a good website but there was a sense that few people accessed it on a regular basis. It has been designed so that it is easy to manage. Currently no one pushes out information that brings people back to the website. It would be a good location to make a lot of data continually available to the public.

Social media and email provide another avenue for communication and could be used on a weekly if not even a daily basis. Currently the LPPRD does not use social media for communication. It does occasionally send information through email and has been collecting addresses for a listserv. It was noted that people were OK with a few more email letters but may get overwhelmed if notes started to come daily. People may be more willing to accept daily posts on Facebook. It was noted that not everyone is on Facebook or monitors their email or social media on a regular basis. An effort would need to take place before the project begins to get people in the habit of looking for information in electronic media. Suggestions made included a weekly electronic newsletter that contained photos of family events or good fishing stories as well as regional and lake issues. Short daily posts containing local information to a Lake Facebook page might work. It was noted that the LPPRD does not have the capacity to support these communication suggestions. Several suggested that the LPPRD hire someone who lives on the lake to serve as a summer communications coordinator.

Analysis

Opportunities to work together

There is general agreement that the dredge banks, East Basin Island, and other shoreline and marsh protections are important to rebuild. These benefit the fishery, wildlife and help to improve water quality. The drawdown for dam construction would provide an ideal opportunity to build or rebuild these structures. It would also be a good time to add any shoreline rip rap where needed and build a breakwall at the northshore boat landing to deflect sediment and help keep the landing usable. Adding fishing opportunities on this wall would increase the benefit of the structure. All of these projects would be seen as very positive for the lake.

Using the locks to manage water levels would better enable a minimum downstream flow and eliminate the sudden drop in water level and its negative impacts for the downriver area.

Interviewees liked the idea of better communications about the lake and its management. They would welcome any of the changes suggested in the report. They are dissatisfied with the negative impact of the “rumor mill”. People commented that it was better to have the facts even if you disagree with them than to only have conflicting rumors and assumptions.

Obstacles to reaching an agreement

There is a disconnect between people wanting higher water levels and see the construction of a new higher dam as a guarantee of getting this and the people who want regular lower water levels to

increase plant growth. Several people commented, “Why build a new dam if we can’t keep water levels up?” It is unclear what the timeline for these lower levels would be and what decrease in water level is needed. Until that is made clear, people will be reluctant to accept any proposal.

Higher dam height could also mean higher water levels in the spring on upstream properties and on the north shore of the lake. These areas have flooded now with the lower dam. People are uncertain that the locks can mitigate this problem.

Recommendations

After reviewing all of the comments made in the personal interviews, the following recommendations should be considered as this project moves forward.

1. As soon as possible, a Public Participation/Communications Plan should be developed and implemented so that various components are working effectively prior to the start of dam reconstruction.
2. Decisions need to be based on one set of data whose interpretations have been generally agreed upon. All of this information should be readily available to the public.
3. There needs to be a clear understanding of how decisions will be made and the lake management plan put together. This process should be explained to the public before the start of the planning process. It should include what decisions are already made and not subject to change and what is still open for discussion. People need to know how things will be decided and by whom. Are their opinions just thoughts for consideration by others or will participants actually get to decide? Will a vote be taken or will this be done by consensus? What happens if people can’t agree?
4. Citizen education will be critical to the project’s success. These following areas were noted in the report. Others may be identified as the project moves forward. Whenever possible, maps, photos, charts and graphs should be created to help people better understand the issues.
 - a. What is the current water quality of this lake and why is it like this? Do we know if septic systems are impacting the lake?
 - b. What is the stability of the pan fishery?
 - c. How does the Upper Fox River system function and what is Lake Puckaway’s role in this system? What are reasonable expectations for this lake?
 - d. What is the impact of the current dam and the proposed replacement dam - upstream, downstream and on the lake? (See detailed questions raised in this report)
 - e. Will there be more than one draw-down of the lake? Will this have a long-term impact considering the new dam height?
 - f. How effective will the lock be in managing water levels on the lake?
5. There needs to be a clear understanding of how water levels will be managed and by whom. People need to know that whoever is responsible has the capacity to do this job according to the management objectives of the plan.
6. A complete timeline for this project needs to be readily available to the public.

Appendix A: Personal Interview Questions

1. How would you describe the current condition of Lake Puckaway?
 - a. What is good?
 - b. What needs work?
2. How would you feel if Lake Puckaway were to remain as it is today (no change)?
 - a. If it were to decline?
 - b. If it were to improve?
 - c. How important is it to you that the lake should improve?
3. What are your thoughts on the proposed new dam and changes to water level management?
 - a. There may be others who feel differently about this than you do. Why do you think that they feel that way?
4. Is there anything else we need to keep in mind if any changes are made?
5. Is there any information you feel you need to better understand what is happening with the lake?
6. Communication is always a challenge during a major project. What is the best way for you to receive information? How do you think others in the area might be contacted?
7. Do you have any other comments you would like to share regarding Lake Puckaway or past projects that have occurred on the lake?
8. Who else do I need to talk to?

Appendix B: Participants

1. Dave Bartz Wisconsin Department of Natural Resources Fish Management
2. Greg Blaskowski Downstream resident
3. Daryl Christianson Active in Lake Puckaway management
4. Jerry Disterhaf Fox of the River Voyageur Canoe, LLC
5. Paul Gettleman Sec., LPPRD
6. Ted Johnson Wisconsin Department of Natural Resources Watershed Management
7. Derek Kavanaugh Green Lake County Land and Water Conservation Department
8. Phil Malasack Pres., LPPRD
9. Mick Masters LPPRD
10. Rob McLennan DNR
11. Mary Lou Neubauer Administrator for the City of Princeton
12. Richard Pergande LPPRD
13. David Richter County Appointee to the Lake Puckaway LPPRD
14. Randy Schmidt Riparian owner
15. Richard Schramer Mayor of the City of Berlin
16. Gene Weber LPPRD