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APPENDIX H

Review Comments and Responses with Wisconsin Dept. of Natural Resources & Other Agencies

DATE: October 14, 2015

TO: Dan Cibulka

FROM: Kevin Gauthier and reviewers (Jim Kreitlow, Steve Gilbert, and Zach Lawson)

SUBJECT: Manitowish Chain Management Plan Review (Rest, Island and Spider Lakes)

We have reviewed the Manitowish Chain Management Plan and offer these comments:

General note: One change we have made is that, in order to stay consistent with the terminology the TAISP is using, all references to the “Manitowish Chain of Lakes” now reads, “Manitowish Waters Chain of Lakes”

1. Overall, the plan was done well and we appreciate the high quality work. Thank you very much! We appreciate not only your comments here as well as your guidance and input along the way.
2. Page 3. Intro. Should state which lakes will be the focus during this plan/effort. What are the Phase 1 waterbodies that are officially part of this document? Page 51 says Island Lake, Spider Lake, Rest Lake and Rice Creek. Page 51 also mentions Papoose Lake (should say bay). Page 54 brings in Papoose Creek. Page 76. Table 3.5-5 says Papoose Bay. Page 106. Says Papoose Creek. Map 1 illustrates the phased approach. Additionally, a table has been added to Page 5 to display the approximate timeline for the phased project. Papoose Creek enters at the north end of Papoose Bay, which is a smaller section of Rest Lake. Studies associated with this project took place on Papoose Bay and not Papoose Creek. All references to the waterbody in which studies were completed within have been changed to “Papoose Bay” while Papoose Creek is still mentioned periodically as the stream that enters Papoose Bay.
3. Page 7. Stakeholder Participation. Will watch for updates to this section (survey and adoption process). Normally stakeholder survey results are used in developing a management plan and setting goals and objectives – This plan has been drafted before this effort has been undertaken. Why this progression? And what will be done with any pertinent survey results that may need to be incorporated into this plan? Originally, in 2011, Onterra began discussions with the Rest Lake Association on a plan for Rest Lake. Papoose Bay Association was brought in due to their concerns on Papoose Bay, which included aquatic plant growth and mechanical harvesting. A survey and associated budget was included within this project for all of Rest Lake (later called Phase Ia). Later in the development of this project, NLDC got involved as well as Town of Manitowish Waters board members. Discussions about a chain-wide management plan began after the Phase Ia grant submission. All project partners were on board with the chain-wide plan, with NLDC being the sponsor. It was determined we could do a chain-wide survey, utilizing costs from the Phase Ia submission for Rest Lake and picking up the additional costs in a future grant submission. The group was not organized enough to complete this during Phase II, so it was added to the Phase III scope of work.

We realize this is not an ideal way to gather stakeholder input. With the process we have outlined, we revisit the chain-wide management plan annually during the duration of this project with each set of phase lakes. So, the chain-wide plan is continuously updated accordingly. Stakeholder survey results will be integrated into the plan once results are obtained, and discussed

in each section of the document (water quality, aquatic plants, etc.). Note: we have been pushing hard to get the survey distributed, but it nevertheless has fallen behind schedule. This fall however, we were able to finalize the survey design with the group and with Jordan and will be distributing the survey in January 2016.

Please note that language has been added to this section specifying the formal adoption process that will occur once a final Phase I management plan is completed.

4. Page 12 bottom of page. These lakes should be classified as class 5 (deep lowland drainage lakes). **This has been fixed.**
5. Page 51. 3rd Par. Papoose Lake should say Papoose Bay of Rest Lake. **This has been fixed.**
6. Page 88 bottom of page. The algae identified in Papoose Bay is *Vaucheria* a filamentous golden brown algae (Chrysophyta). **Was this a 2013 identification that was made? My understanding is that residents did not get a sample to WDNR in 2013, but in 2014 samples were collected and identified by Gina L. as *Vaucheria*. I have an email record of the 2014 sample, but nothing from 2013. Was the *Chrysophyta* identified in 2013 or 2014?**
7. Rest Lake Plan Comments:
 - a. Was a shoreline and woody habitat survey done for Papoose Bay? If so, include this info. If not, why not? This is critical info to be collected, analyzed and used to continue active management in the bay, including ecological improvements to be made in conjunction with active management. We can discuss this further. **A shoreland assessment and coarse woody habitat survey was not completed on Rest Lake. Tim Hoyman confirmed that during discussions with the NLDC and Rest Lake Association, Papoose Bay was added to the project with an emphasis placed on their harvesting plan, so some elements that we would normally include in a planning process were not included here. That decision was made in 2011. Given what we have learned since then, we agree it is important to have shoreline assessment and CWH survey data on Papoose Bay as well as Rest Lake. We will be completing these surveys out-of-pocket in 2016 and updating the maps and report with this new data.**
8. General Comment. Improving shoreland conditions should be a priority and encourage a more active component in the overall plan and individual plans. I would be glad to discuss this. **We discuss the importance of shoreland condition at every meeting, and share all the cost-share and technical assistance resources we know of. The NLDC and MWLA are anxious to get more property owners involved in restoration projects as well, and has continued to support and educate on this topic. The difficulty is finding willing private property owners. We would also be happy to discuss how to further encourage shoreland restorations on the chain.**
9. Fisheries Specific Comments (provided by Steve Gilbert and Zach Lawson):
 - a. Zach Lawson is the newly hired Fisheries Biologist for Iron County (was Lawrence Eslinger) **This change has been made**
 - b. Remove Steve Gilbert from the acknowledgements. **Steve has been removed**
 - c. Page 67. 1st par. Last sent. It would be more accurate to state: Although current fish data are available none was collected by Onterra... based upon some of the data... **This change has been made**

- d. Page 69. A list of generic species is provided, doesn't seem to be specific to the Chain. White crappies have not been documented within the Chain. **The list has been modified to include only gamefish species found within the chain.**
- e. Page 71. The document mentions the Manitowish Chain throughout but does not define it. On this page in the first paragraph Benson, Sturgeon and Vance Lakes are included as part of the Chain. They are not part of the legal definition of the Chain. They are individual downstream lakes connected by the Manitowish River whose fisheries, management, regulation, and biology are very different from those waters above the Rest Lake Dam. **The definition of the chain (from this planning project's perspective) is provided within the first sentence of page 3 and outlined on Map 1 – Project Location and Lake Boundaries. The complexities and differences in the lakes downstream of the dam are mentioned within Page 74, first paragraph.**
- f. Page 72. Tribal harvest of musky in the chain may be as high as 18% of the declared quota in some years but based on the graph they do not “typically” achieve this level of harvest and the long term average based on figure 3.5-4 is probably around 10% just eyeballing it. Also, the caption for this figure and figure 3.5-3 lists the chain as having 13 lakes, it does not. **The caption text has been fixed. Double checking the numbers, we confirmed that between 1989 and 2013, annual harvests were on average 18% of the declared quota. The range was between 7% (1994) and 45% (1993). The text has been modified here to provide clarity – the word “typically” was removed and the sentence now reads, “Between 1989 and 2013, Native American spear fishermen have harvested an annual average of 18.0% of the declared quota on the Manitowish Chain of Lakes with respect to muskellunge.”**
- g. Page 73. The last paragraph cites a 2012 department document in stating that five fish were captured in a survey previous to 2011. There is no previous survey. The mention of these fish is from an anecdotal account from a person seining cisco years ago. **This information was taken from WDNR 2012 (department EA report, Part II). The five fish that were captured were reported anecdotally but were mentioned within WDNR 2012. Text has been added to this paragraph to clarify that the five fish were indeed sampled / reported anecdotally, with the citation of WDNR 2012 remaining.**
- h. Page 75. Table 3.5-3. The individual bag limit for walleye is 5, unless.... There are no catfish in the chain so that can be dropped. Walleye Regulations for the lakes and rivers downstream from the dam and downstream to the Iron County line are a five bag and 15 inch minimum length limit. Also, parts of the Manitowish River are a refuge in the spring and closed to all fishing. **Due to the complexities with the chain fishing regulations and potential for confusing the readers during an ongoing project where regulations have changed each year, this section has been modified. The tables have been removed, and the paragraph now includes a reference for all anglers to consult WDNR fishing regulations manual for the most up-to-date information.**
- i. Since there is an emphasis on the Lake Sturgeon in the Manitowish River below the Rest Lake Dam, add something about the Lake Sturgeon fishery being closed on the Manitowish River below the Rest Lake Dam since 2004 to minimize impacts on the population until from the study on densities, recruitment, and movement (started in 1990's; as mentioned in the draft) suggest that a sustainable fishery exists. **This information has been added to the report here.**
- j. There is a lot of fisheries data not included in the document – over 100 fall surveys, two creels, two walleye population estimates and one muskellunge population estimate. **This section aims to be a very brief overview of the fisheries, to expose the reader to some of the dynamics of this complex part of the ecosystem and tie-in matters that relate to other**

aspects of the chain lakes and their management. If there are additional data that should be included within this report we would be happy to add it at your discretion. An official, more in-depth report that you have drafted could be referenced or attached as well.

To: Kevin Gauthier, Water Resources Specialist
From: Lisa David, Manoomin Biologist
Date: November 12, 2014
Subject: Manitowish Chain LMP comments

The following comments relate to the wild rice sections of the Manitowish Chain of Lakes Comprehensive Management Plan, Vilas County, August 2014 document compiled by Onterra, LLC.

Thanks much for taking the time to look this over! Responses to your comments follow in red font.

Section: *Implementing AIS control strategies in wild rice waters*

- Page 63: The correct spelling is Ojibwe. This error has been corrected.
- Page 64: the ending “ ” notation is missing. This error has been corrected.
- Page 64: Timing section issues: The oft referenced Nelson, Owen, Getsinger (2003) study has limitations that should be fully acknowledged. Namely, 1) the outdoor tank study was performed in Texas with different growing season temperatures/conditions than northern Wisconsin; 2) data for the study is extracted from a relatively small sample size; 3) test samples may not directly mirror natural systems with the addition of fertilized briquettes and/or the addition of ammonium sulfate into the tanks; A sentence has been added to the end of the “Timing” section discussing the limitations on experimental vs in situ studies.4) “This suggests that the reproductive capacity of the seedling wild rice is also unaffected by the treatment.” This sentence has been removed. This conclusion cannot be reached since measurements of the number of seeds produced, their weight and viability, were not measured in the Nelson study; it was noted biomass was reduced and biomass is often associated with reproductive capability.
- Page 65: Other “Stakeholders” also hold “great concern” for healthy wild rice stands in the Manitowish Chain. “Other stakeholders” has been added to this list of concerned groups.
- Page 65: Avoid assigning “increased” or “decreased” status to rice beds, instead reference acres measured (increase/decrease terms suggest real change but likely is just crop variability). The terms increased or decreased are presented to describe population observations from one year to next. Variations in annual areal coverage due to crop variability are acknowledged.
- Page 65: Photo 3.4-6. Do you know how extensive the overlap of the CLP and wild rice was in those areas where the 2 species were observed together? By the July 1st photo date rice is generally more robust and nearly emergent. However, rice found at the deeper limits of its depth tolerance frequently may not advance to the seedhead development stage; that seems likely to be the case in this photo. In 2013, there were approximately 9.1 acres of overlap between CLP and Wild Rice (26.9 total CLP acres in Rice Creek, 202.2 acres total wild rice in Rice Creek). Unfortunately, it is impossible to say what the overlap conditions were like at this specific area as the direct location of the photo was not documented.

Other comments:

- Page 40-41: Water level drawdown: The definition and cost of a drawdown are presented in 2 paragraphs. Further discussion is needed on the potential use of this management tool at the Chain - besides outlining the general advantages and disadvantages of generic drawdowns. As

mentioned within the gray box titled “Important Note”, this section intends to present a very brief overview management tools, including water level drawdown. In the event that water level drawdown is discussed as a potential tool for the Manitowish Waters Chain, a more thorough examination and discussion would follow.

- Page 41: The Mechanical Harvesting section, as it specifically relates to the Chain, should also be fleshed out. As with the discussion on water level drawdown, mechanical harvesting is presented here very briefly. Where it is applicable (on Rest Lake – Papoose Bay), it is discussed more thoroughly.
- Although these management tools (water level drawdown and mechanical harvesting) are referenced again at the end of the document it still seems like more is needed here if this document is going to be used to make resource decisions for the individual lakes and the chain as a whole for years to come. The intent of this section is not to educate the reader to the point where they could make management decisions pertaining to these matters. The intent is to provide a brief introduction to the various tools that are used in lake management.
- Page 77: Summary and Conclusions: change management to manage (paragraph 1). This change has been made.
- Page 78: “...but too small to ignore.” Possibly you mean too large to ignore? Sentence has been modified for clarity.
- Page 93: Communication with Tribes and Tribal Natural Resources Departments should be added to the list of groups contacted in the *Herbicide treatments for aquatic invasive species* section. This change has been made.
- Page 95: “It is anticipated that through targeted hand control efforts against curly-leaf pondweed colonies ...” is this the preferred management effort for CLP control? The word “hand” was placed in the sentence mistakenly. It now reads, “It is anticipated that through targeted control efforts...”
- Page 96: *Success criteria*: “It is not currently believed that reproductive capacity would be impacted by herbicide treatments.” It is unclear at best whether this statement is correct. See notes above relating to the Nelson study and the lack of data gathered on seeds produced and seed viability. Possibly word “It is unknown if ...” Agreed. Sentence has been modified to read, “It is unknown if reproductive capacity...”
- Wild rice should not be presented as a resource that is valued only by the tribes – many non-tribal rice harvesters, waterfowl hunters, birdwatchers ... enjoy and take advantage of healthy rice stands in northern Wisconsin. An attempt was made to document this within the last paragraph of page 63, with discussion of it being a diet component to wild animals, having ecosystem benefits, etc. Overlooked however was the value to non-tribal rice harvesters, waterfowl hunters and birdwatchers. This has been added to page 63, last paragraph.
- Page numbers in the table of contents don’t all align with the body of the document. The table of contents has been updated.

Kevin Gauthier

Organizational Structure

- It would be helpful to have a stand-alone section of the document on CLP that includes all of the data and recommendations for each system.
 - The Plan should be updated to include plant data through 2016. These graphs already exist in the 2016 Report.
 - Include CLP maps for as many years as possible for each lake. This will help readers visualize changes.

Monitoring and Evaluating CLP Management

- The visuals in the plan can be used to show CLP changes from spring to spring. The spring to spring comparison of CLP cover should be reflected in the Plan narrative.
- Was native plant info collected annually in the CLP/wild rice mapping in Rice Creek? Looks like the abundance of CLP has declined – good to see what the CLP and wild rice populations look like annually.
- How will the decision be made to switch CLP management strategy? What is the “trigger point” for switching between herbicide treatment, DASH/hand pulling, or do nothing?
- Pg. 102 - When will the 50% be measured? From year 1 to 5? From year to year?

Native Plant Impacts

- Many native species have declined (coontail, NWM, elodea, Pot rob) or likely declined (Pot amp, Pot zos) following the CLP treatment. However, there is an assertion that the impacts of CLP to native plants will be worse than the impacts of herbicide.
 - Is there evidence of CLP impacts in the Chain?
 - Does the loss of native plants in the large-scale CLP treatment areas matter or is there enough of these lost species Chainwide that it doesn't?
- Given the native plant reductions with previous treatments in the Chain, if another large-scale treatment is proposed to happen, there should be a reference area proposed for just monitoring in the Chain for comparison to the treated area.

Hadley Boehm:

When herbicide applications occur in May, several fish species (including walleye) have laid eggs/or eggs have hatched and the verdict is out on the effect of herbicide on eggs and larval fish. Maybe the potential chemical impacts on larval fish and hatch rates might be mentioned. The way its worded now makes it sound like doing May applications is fine for fish. We don't know that yet – it is an area that needs more study. Maybe mention that there is also some natural differences in productivity and weed growth among the lakes. The spearing and bag limit reduction/adjustment info is out-of-date (pg. 75) – however this change is referenced at the bottom of pg. 79.

Michelle Nault:

As I mentioned before, it seems that the CLP pre/post data analysis text discussion as well as associated figures (i.e. Figure 3.4-12 on pg. 67 in the PDF) are primarily looking at early spring to late spring comparisons within the same year, vs. looking at early spring year #1 and early spring year #2. Our DNR guidance would recommend that they compare CLP populations from spring year #1 to spring year #2. When this issue was brought up previously (w/ Lost Lake), the reply was that “*We do not believe there is consensus on how to properly monitor CLP treatments. If we compare spring 2017 to spring*”

2018 surveys, we are not necessarily measuring the efficacy of the 2017 treatment, but the amount of CLP that sprouted in 2018. We believe this is a good way to assess a multi-year treatment strategy, but not an individual treatment."

However, when I get to their Implementation section, under Management Goal 4 (pg. 99 in the PDF) it states this: [removed]

This seems to indicate that they are aware of the problematic nature of comparing spring pre-treatment to a post-treatment survey conducted a few weeks later (i.e. it would not differentiate if a reduction in occurrence can be attributed to the herbicide application or the natural die-off of the species). However, this comparison of spring vs. a few weeks after treatment is exactly what the present in the report, and they never actually report the analysis of spring year #1 vs. spring year #2 (vs. year #3, etc.). This yearly comparison would indicate no long-term CLP reduction over the past three years (i.e. 50.0% --> 36.1% --> 58.3%), which is in contrast to the significant seasonal reductions that are highlighted in the report. I think that this year to year trend needs to be included in the discussion (in addition to any discussion on seasonal changes observed).

In addition, their goal indicates a successful treatment would be a 50% reduction in CLP frequency, however it is not clear if that reduction would be measured spring vs. a few weeks after treatment or spring year #1 vs. spring year #2. Clarity here would be good to be sure we're all on the same page.

Susan Knight:

I understand this is a huge project and they want to be comprehensive, but this is just too massive to be useful. The most critical factor is the CLP, and it is dealt with in the general Manitowish Chain part, and in several lakes where it occurs, and it is difficult to wade through this to me. It would be helpful if they created a section on CLP, and their recommendations.

Some history (included in my CLP review earlier): CLP is found in several lakes within the Manitowish Chain, with the oldest population in northwestern part of Island Lake. Because of the presence of wild rice, CLP in Rice Creek where it enters Island Lake was not chemically treated, though the CLP is extensive and dense. Chemical applicators treated this population in 2013, 2014, 2015 and 2016. Professional hand harvesters also removed CLP from another populations in Island Lake in 2016. Chemical applications resulted in significant reductions in CLP in 2014 and 2015. There were negative impacts on four common native plants, coontail (FOO 72% to 7%), common waterweed (75% to 40%, though this increased in a third year of treatment), northern water milfoil (33% to 2%), fern-leaf pondweed (33% to 0%). Other species saw lesser increases or decreases. I believe this is very worrisome collateral damage, given that these are some of the most common plants in Spider Lake Channel.

I appreciate Onterra's assertion that the risk to native plants by herbicide must be considered in the context that there is a risk to the lake when invasive plants are left unchecked. However, the herbicide has had a negative effect on native plants and it is not clear that CLP is going to expand and/or have a worse effect on the native plants. Note that in Island Lake, the CLP and wild rice acreages have not changed much from 2012 to 2014. Onterra notes that their data "show aquatic plant community dynamics within the Spider - Island Lake channel treatment area and cannot be extrapolated to the plant community lake-wide". True, but CLP is not necessarily increasing either.

I am not sure I agree CLP has "high potential to spread throughout the chain". It has not spread much, even though it is very dense, especially in Island. I do not agree with their language concerning aquatic invasive species management (p. 97, Implementation Plan). It seems they expect to treat for 5 years,

and then expect to see at least 50% loss of CLP. They have treated 2012-2105. Is there an expectation that it will diminish substantially if they treat one more year? Do they maintain that they must treat or it will expand? This would mean they recommend treatment into the foreseeable future, unless it declines precipitously. Have they seen any decrease? It is hard to tell from the maps. I wish they had discussed other possible strategies, such as not treating for a few years. I can't take time to find the various "typical CLP treatments" but as I read, I thought they were inconsistent.

Individual Lakes

Island Lake: PI reveals that CLP is quite rare, and restricted to where Rice Creek comes in, and otherwise good diversity. I am attaching the figure Eddie Heath made for me of CLP and Wild Rice in Rice Creek where it enters Island, which I feel shows that CLP density is variable, but the population acreage is relatively stable.

Spider Lake- Shoreland over-developed. CLP not rare, but more than a dozen species more common. Only one year data, so hard to tell if CLP spread is changing native plant diversity. Looks like they are not recommending more CLP treatment, which is good.

Rest Lake: Only 18% of littoral zone PI points have plants –poorly vegetated. Where is Rest Lake Map 3? (see Rest Lake Section p.12). Shoreland over-developed (my opinion)

Clear, Fawn, Wild Rice, Alder Lakes: good shoreland habitat, excellent plant diversity

From: Tim Hoyman
Sent: Friday, January 5, 2018 5:05 PM
To: Gauthier Sr, Kevin J - DNR
Cc:
Subject: RE: Manitowish Chain Phase II & III Draft Report
Attachments: ManChainVilas_PhII&III_Chainwide_March17_Draftv2.pdf; RestLakeMap3.pdf

Happy New Year Kevin,

Please find an updated Manitowish Waters Chain of Lakes Phase II & III Management Plan (Draft 2). We very much appreciate your comments, and those of Hadley, Susan, and Michelle. Most of your comments, as well as Susan's and Michelle's, were in regards to the curly-leaf pondweed program and our analysis of the data collected from 2012-2016. Admittedly, the curly-leaf pondweed section was poorly put together and as the lead person here at Onterra, I am embarrassed that it left our office in the shape it was in. Several of us worked on that section, plus the annual reports that are created as a part of the AIS-EPC project, so there was a lot of cutting and pasting of information. Also, much of the report section and the implementation plan were written during the winter of 2015 (or before) in preparation for the planning meeting that was held that summer for the Phase II & III lakes. As you know, our methodologies of analyzing data such as these and our thought process on AIS control have evolved greatly in the past few years; regrettably, we did not do a good job of updating this particular document to reflect those changes.

To accommodate all of the comments regarding the curly-leaf pondweed management program and the analysis of related data, we have completely rewritten the curly-leaf pondweed section, from start to finish. And it now includes all data collected through 2017. With some additions, this section will also be used as the primary final report for the AIS-EPC Grant (AEPP-471-16). I use "primary" because there are funds left in the grant, so monitoring will likely continue as well as professional hand-harvesting.

We have also updated the verbiage in Goal 4, Action 1 as brought forth by Michelle.

Regarding the massiveness of the document called out by Susan; I believe saying it is not useful may be a little bit harsh. We have received similar criticism in the past regarding many of our management plan documents, mostly from agency staff. We are always looking for ways to make our documents more understandable, shorter, and useful, but the fact is we do not create them for the agency staff, we create them for our clients, of which the bulk are laypersons when it comes to aquatic ecology and lake management. Further, we do not expect anyone to really read it cover-to-cover; it is not a novel after all, but a reference document, much like an encyclopedia. Finally, for all of our projects, whether it is for a chain of lakes like the one being discussed here, or for an single lake, we are paid to collect and consider a substantial amount of information and our clients expect us to discuss every bit of it for their system.

Susan also made some light comments about the individual lake sections, none of which appeared to request changes, so we have not included those sections in this draft. However, Susan did ask about the Rest Lake Map 3 (Total Rake Fullness), so that is attached here for her reference.

To address Hadley's comments regarding herbicide use and fish, we have added some words to the fishery section regarding the most current understanding of how herbicide use may impact fish.

Please take a look at these sections and let us know what you think at your earliest convenience,

Tim

Wisconsin Department of Natural Resources Comments Received February 27, 2018.

Compiled into this document by Onterra

Comments/answers in green by Todd Hanke

Comments/answers in orange by Tim Hoyman

From Michelle Nault

- I did not re-read the entire updated plan, but just jumped to reviewing the revised CLP section (starting on pg. 61 in the PDF). I do appreciate the email from Tim and the conscious effort that was taken to review and re-write the CLP section. **Thank you Michelle.**
- I think overall that the updated plan addresses many of the specific comments which I raised during the first review. I did notice that there's still a little bit of 'conflicting' language in paragraph 3 on pg. 63 in the PDF which starts with: *"Typically, two surveys are completed in conjunction with curly-leaf pondweed control actions..."*. The second sentence in that paragraph states: *"The post treatment survey that is assessing a hand-harvesting action can be completed immediately following the action, while a three to four-week gap is standard between an herbicide treatment and the post treatment survey."* This sentence seems to indicate that it is 'standard' guidance to compare the pre-treatment data to the data collected just a few weeks after an herbicide treatment, which I believe we have all acknowledged is not ecologically sound due to the natural seasonal senescence of CLP, and thus why DNR recommends a year 1 to year 2 monitoring approach. However, this paragraph concludes with the statement that: *"As described below, ...assessing the success and failure of a control action, especially an herbicide treatment, can be difficult within the same year"*, and so it seems that this previous language regarding the 3-4 week gap being 'standard' is maybe a remnant from the previous draft plan and CLP analysis approach? There's nothing inherently 'wrong' with wanting to examine potential within season control, and it's fine if they still want to present that data somewhere, as long as there is a clear understanding that seasonal CLP senescence is likely a confounding factor with this approach. But the 'standard' way that DNR recommends assessing a CLP herbicide treatment is to compare spring year 1 (pre) to spring year 2 (post), and then compare native plants in summer year 1 (pre) vs. summer year 2 (post). **We completed two surveys each year during this project in the herbicide treatment areas, so I feel it is important to mention that; however, I have cleaned up the language to make it clear that it is not "standard" methodology, but Onterra methods, that call for the 3-4 week gap between the treatment and the post treatment survey. Why the difficulty, as mentioned, is described a few paragraphs down.**
- I think some caution should be taken in the report to be sure they are adhering to the scientific principle of discussing 'correlation, not causation', especially in light of the associated data presented in Table 3.4-1, which indicates the CLP in untreated Rice Creek has also declined and remained relatively low during this same 2015-2017 timeframe, without any active management occurring. There are statements in the

report that indicate during 2015-2017 monitoring that: *'control efforts had reduced CLP occurrences in the treated areas'* or *'surveys once again indicated a successful herbicide treatment'*. It's OK to say that a decline or reduction in CLP was observed post-treatment, and they can also hypothesize that the management activities recently implemented is the suspected driver of this observed CLP decline, but in light of the decline simultaneously observed in the untreated reference plot, the overarching claim that CLP management is *'definitely working'* is perhaps not as strong and convincing as the text discussion and chosen language seems to indicate. I added a sentence that references the decline in the unmanaged rice creek population and how it cannot be determined whether the declines observed in the actively managed sites were solely a result of the management. There is a very suitable degree of bias in the way a few of these statements are phrased that I think could easily be fixed with some careful objective review. For example, instead of saying *"control efforts had reduced CLP occurrences in the treated areas"* which implies underlying causation, this could be more objectively stated as *"a decline in CLP was observed in the treated areas"*. And instead of *"Post treatment surveys once again indicated a successful herbicide treatment..."* I would rephrase as *"Post treatment surveys once again indicated a decline in observed CLP"*. I rewrote these sentences to read more objectively. Note that the *'correlation, not causation'* concept also applies for native plant analysis and subsequent discussions as well (its not just important to consider for CLP).

- I am a little confused by the statement presented in the report in several locations that *"post treatment surveys can really only verify poor treatment results"*, and then a relatively detailed discussion on how the post treatment results from the past few years indicate good CLP control success. I wonder if perhaps the term *'post treatment survey'* is being used interchangeably in this report to discuss the initial survey done 3-4 weeks after treatment (to assess within season control), as well as the survey done a full spring after treatment (to assess long-term control)? We discuss post treatment data, in terms of surveys being completed after treatment the same year as defined near the beginning of the CLP section. Near the bottom of page 64 we discuss the 2013 treatment results being good and qualify them with the fact that healthy, growing CLP was found at the same time in non-treated areas. On the next page, we discuss the 2014 results and mention only what was found in the control areas, but not the control was the cause. We have removed reference of successful herbicide treatments from the discussion of the 2015 post treatment survey. In the second paragraph of the 2016 discussion on the same page, I replace the phrase *"was reduced"* to *"was lower"*, so the reader did not infer that an action was implemented that reduced the population.
- And finally, I think it could be beneficial to include some of the relevant findings of the Half Moon Lake, Eau Claire Co. large-scale CLP treatments and long-term plant data analysis. Half Moon Lake conducted 5 years (2009-2013) of early season endothall treatments for CLP control, and after seeing reductions in CLP % FOO, biomass, and turions, decided to not treat in 2014. CLP % FOO, biomass, and turions were observed to immediately rebound during the year of no treatment, and thus another cycle of 5-

years of endothall treatments was initiated in 2015 (anticipated to be conducted until 2019). From the Half Moon Lake interim report: *“Early spring endothall applications for selective control of curly-leaf pondweed (CLP) ended in 2013 after 5 consecutive years of treatment. Surprisingly, CLP growth rebounded in spring 2014 after herbicide treatment cessation and was present at over 40% of the point-intercept locations by June, 2014. June, 2014, biomass also rebounded substantially from other treatment years to a lakewide average of 20 g/m². By early April, 2015, germinated CLP turion frequency of occurrence increased substantially to greater than 60%, clearly indicating that the turion bank in the sediment was still viable after 5 consecutive years of control.”* I think that this finding is applicable to other CLP projects that implement a multi-year herbicide control strategy, as there’s a very real possibility that after the treatments cease, that CLP will be able to recover relatively quickly. Since CLP ‘eradication’ is incredibly unlikely, it would be good to start thinking about what the ‘long-term’ strategy will be after the planned years of herbicide treatments are completed. **Starting on the second page of the CLP sections, we added verbiage from Johnson et al. 2012, Skogerboe et al. 2008, and from the report referenced above (James 2017). With the exception of the summary of James 2017, the other verbiage has been included in other reports of lakes with CLP management activities on them.**

From Hadley Boehm

- Would not encourage more fish sticks in Manitowish chain, since it’s being managed for walleye and tree drops can ruin walleye spawning habitat if incorrectly placed, and generally tend to favor centrarchids. **The plan does not specifically recommend placement of fish sticks but rather to work with fisheries managers to determine the applicability of enhancing coarse woody habitat to help meet fisheries management goals on the Chain. We strongly believe that fish stick projects require more oversight and input than is currently built into the WDNR program.**
- Should incorporate Nick Rydell’s project into disadvantages or risk associated with 2,4-D treatment – it’s both local and relevant. **Although this herbicide had not been used on the Manitowish Chain (2,4-D), a paragraph outlining this study was added.**
- Move the section about chemical treatments from page 72, to somewhere appropriate. The introduction talks about the section summarizing fish survey data done by DNR and GLIFWC, then starts in about risks of chemical treatments which haven’t yet occurred on the system. No fish survey data is mentioned again until pg 81. Could do fishery specific risk section. Or broaden introduction if that’s what you choose to do. **Added text after the introduction paragraph to lead into the Herbicide Use and Impacts to the Fishery sub-section which was moved to the end of the Fishery Section. Also re-organized other parts of the fisheries section. Credit DNR and GLIFWC for fish survey data and creel/spearing harvest. Added citations in spearing data figures and after first sentence in Overview ofFishery paragraph. Include summary of Nick’s project in risk section wherever it ends up being placed. Done, please see earlier comment. Do a Manitowish specific species table or don’t include at all. Replaced Table 3.5-1 with list of species**

specific to the Manitowish Chain. Get correct sturgeon data – MI/WI are NOT the only places that host major populations. This was written in a misleading way, so it has been cleaned up. I added a new sentence about the species distribution in North America. Caution about saying coarse woody habitat will improve the fishery – what kind of fishery will it improve? Is that what the chain is being managed for? Coarse woody habitat has proven benefits for certain species and although the Chain is managed to favor walleye, the fish species such as perch that support the underlying food chain that supports walleye would likely benefit from coarse woody habitat. Ultimately, the management goal #5 in the plan suggests that habitat improvement projects seek recommendations and approval from WDNR fisheries managers.

Susan Knight Comments on ManChain Draft2 Feb 2018

- As always, the Onterra maps are beautiful **Thank you Susan!**
- P.64. Discussion of CLP, wild rice in Rice Creek. Map 4, showing a diminution of CLP (somewhat increased in 2017) despite no management activity, is extremely valuable information. The report does not emphasize enough that this is the only CLP site in the chain that was both untreated and followed for six years and it shows a large reduction in density (though not much reduction in its footprint). This is essentially an untreated control area where CLP was not treated and can be compared to other areas that were treated. While there is never a perfect control for lakes – possibly there is something unique about this part of the lake that is responsible for the CLP dynamics – it is illuminating. It is rare (unique as far as I know) to have six years of mapped CLP in an untreated area and I believe these results justifiably offer the lake group confidence that CLP is unlikely to take over large parts of the lake.

Added the following to the CLP/Wild Rice discussion: Regardless of the reason as to why the CLP density has been documented to decline over the years it has been monitored, it is an indication that CLP may not become a problem in all areas of the Manitowish Waters Chain of Lakes and that should be kept in mind as a part of future management decisions.

- P.64. “The 2012 herbicide treatment strategy ... the large area in Rice Creek that is addressed above...” I thought the Rice Creek population was never treated?? Was it part of the strategy but never treated? **Added text to clarify that it was ultimately removed from the treatment strategy.**
- p. 66. CLP is not an annual **CLP exhibits some annual-like properties however, we removed any wording that refers to CLP as either annual or perennial and left text that describes its unusual life cycle.**
- p.66. If the CLP dies back before a treatment’s effectiveness can be accurately assessed, then why does it have to be treated at all?

This is not a nuisance plant control program. This is an invasive species population control program with the goal of minimizing spread to the remaining areas of the chain.

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- It seems like the impairment is short-lived and does not affect much of the prime-time summer activities. (I realize this is a snarky question, but I would like to see it addressed).
This is answered in the previous question.
- P.67, 68. Decreases in native species very concerning. It looks like there are few natives left?? Was the 2016 treatment different? The 2016 treatment was the same acreage (7.1 acres) and dosing (3.5 ppm ai) as in 2014 and 2015. What is going on with Val? As described in the report, it is not known why Val was stable during the years of treatment, but then fell off in 2017 when no herbicide treatment was completed. I feel they should not treat again until they are sure natives are improving. It looks like endothall is highly injurious to native plants. This area will continue to be monitored, but no herbicide treatments are planned for it currently. Hand-harvesting may be used.
- P.70. Does Onterra know whether there are populations of Val (and other plants that were affected by the treatments) elsewhere in the lake that might be able to repopulate the affected areas? I don't believe it is accurate to say that the data show the Val population was affected by the treatments. The population was very stable during the course of the treatment program from 2013 – 2016 and only declined in 2017 when no treatment occurred. Coontail, northern watermilfoil, common waterweed, fern-leaf pondweed and large-leaf pondweed however did show a statistically valid decrease in population from 2013-2016 and is likely in part due to the herbicide treatments. Aside from fern-leaf pondweed and large-leaf pondweed, each of the other species were present in the site in 2017 and may be a source population from which some repopulation could occur.

Table 8.2.4.1, in the Island Lake individual lake report, lists all of the species located in Island Lake during the 2011 PI survey and 2012 community mapping survey. All impacted species were found in other areas of the upstream Island Lake. This is alluded to in the sentence, "Onterra's experience is that recovery of these native populations will take time but having unimpacted large populations of these species in other parts of the chain is valuable.", contained in the final summary paragraph of that section.

- Regarding CLP turion control
 - The reports says (p.60), "Research indicates that turions can remain dormant for at least as long as five years and still sprout (Johnson et. al 2012)." The report also says (p.61), "Normally a control strategy for an established population

includes 5-7 years of treatments of the same area.” Johnson et. al 2012 says “The largest reductions of curlyleaf frequency, biomass, and turion abundance occurred in the initial 2–3 years of treatment, with less substantial reductions in the subsequent years of treatment. Despite these reductions, viable turions remained in the sediments of treated lakes after up to 5 consecutive years of treatment. These results suggest that although lakewide, early season herbicide treatments can effectively control curlyleaf, inhibit turion production, and reduce the abundance of turions in sediments, ongoing management will likely be required to maintain long-term control.” It is unclear if the normal control strategy of 5-7 years suggested by Onterra is based on the Johnson et al. 2012 paper, but Johnson et. al 2012 says that any finite duration of treatment will be insufficient to control CLP. So, I think it is disingenuous for Onterra to suggest that 5-7 years of chemical treatment will result in CLP control. This timeframe correlates with the expected duration that a turion remains viable in the sediment. Starting on the second page of the CLP sections, we added verbiage from Johnson et al. 2012, Skogerboe et al. 2008, and from the report referenced above (James 2017). This was expanded to include discussion regarding the fact this is a relatively new population, so seeing a significant reduction in CLP may require less than 5-7 years of control. Finally, the idea of 5-7 years of treatment being required is not new and only used in this particular management plan – it is one that is used commonly in the state and out of the state when discussing CLP control.

- p. 61 “...Normally a control strategy for an established population includes 5-7 years of treatments of the same area...” P. 62 “...Typically, this occurs after 4-6 years of treatment...” p.97 “...Normally a control strategy such as this includes 5-7 years of treatments of the same area.” Again, they need to justify why they choose this span, and whether they mean 4-6 or 5-7 years. I added text to state that multi-year control programs relate to the duration of viability of CLP turions in the sediment (5 or more years). The use of the term “4-6” was a remnant from an earlier draft and has been corrected.

- With evidence of CLP not expanding in Rice Creek, and the uncertain number of years needed to treat CLP in a row, why not err on the side of fewer years?

This summary was included in the introductory paragraph of the subsection discussing CLP management in the chain, which starts on page 63, “Herbicide treatments have been completed on five sites on the chain, including the Spider-Island channel (2012-2016), Manitowish River (2014), and three areas on the western side of Island Lake (2012-2013). Monitoring is utilized to determine if an herbicide treatment is appropriate.

- P. 46, 72, 97. Haven’t we learned that spot treatments are ineffective? Is endothall much different from 2,4-D in dissipation? Or are these spots considered big enough to be effective? UPI, the manufacturer of endothall, after a meeting with WDNR and John

Skogerboe, released a statement in 2013 stating that a minimum treatment area of 5 acres should be used in spot-treatment scenarios to meet CET thresholds. While that is a good guideline, it is pretty general, because the location and the shape of the spot treatment must be taken into consideration as well. In the case of the applications used in the Spider-Island Channel, the fact that there is some flow prompted an increased dose to be utilized even though the area (7.1 acres) was greater than 5 acres.

Comments in blue by Brenton Butterfield

DATE: October 21, 2019

TO: Eddie Heath; Onterra LLC.

FROM: Carol Warden

SUBJECT: Manitowish Chain of Lakes Comprehensive Mgmt Plan: Phase I-V

We have reviewed the Manitowish Chain Comprehensive plan. We offer these comments from our review.

- 1) Page 8: starts with “Question #7: what types of watercraft do you use...” But the graph below does not depict the answer to this question. **Changed to “What are the top activities that are important reasons for owning / renting your property on or near the Manitowish Waters Chain of Lakes?”**
- 2) Page 29, last paragraph under NR115: read counties “..actually adopted more more strict shoreland ordinances.” Let’s change this to “more protective” as that is what these ordinances are truly about. (I see this change was updated in Eagle River chain plan, great!) **Change has been made.**
- 3) Page 29-30: Just confirming that the section on NR115 the most current? **Yes, should be up-to-date.**
- 4) Page 31, Act 55 paragraph: change “more restrictive” to “more protective” throughout paragraph. **Change has been made.**
- 5) Pages 64-72: nice comprehensive picture of CLP management.
- 6) Page 71, last full paragraph: reads “ ...indicating that the plant should be reclassified as a systemic herbicide.” I believe this indicates that the chemical itself should be reclassified. **Change has been made.**
- 7) Page 75: Common forget-me-not is common upstream from Island Lake in Manitowish River as well. **Thanks, I’ve added this information.**
- 8) Page 80, figure 3.5-1: Interesting that so many people think that Eurasian water milfoil is present in the chain. While you provide a nice table indicating what species are present in each lake, it might be worth explicitly mentioning that EWM is not one of them. **I’ve added the following, “While the majority of survey respondents indicated they believe Eurasian watermilfoil is present in the Manitowish Chain, as of this writing, this invasive species has not been documented in any lake in the chain.”**
- 9) Page 103: It may be worth mentioning that Vilas County Lakes and Rivers Association (VCLRA) seeks out natural shorelines for recognition through their Blue Heron Stewardship award. Call me or visit their website for more information. **Thanks, I’ve added this information to this section.**

- 10) Pages 96-104, Implementation Plan: I see a lot of these goals have a timeframe of ‘continuation of current effort’ or ‘initiate 2014’. Can these sections include items that have already been addressed/completed in the action steps as a way to see what may still need emphasis or work? [Some of the previous actions that have already been taken are discussed within the results sections.](#) If they update their management plan in the future, we can include a list of actions they have implemented from this management plan.
- 11) General comment on Implementation Plan: protecting high quality areas and/or areas that could become high quality areas and making any improvements in habitat and storm water management should be the biggest, most important implementation/action item(s) in the plans.
- a. For protection – recommend providing the Northwoods Land Trust info as an option for landowners looking to protect what they have and love forever. [Their website is currently listed on page 105.](#)
 - b. Could also highlight “high” quality areas and how important stewardship of these areas is, so that current landowners in these areas are either recognized for their already good practices in place and/or are encouraged to take steps to keep and protect them. These could include large % of buffer area intact and/or the 3 layers of shoreland (grasses/shrubs/canopy), species diversity from point intercept (PI) surveys (check out the APM APP attached below that Ali created), lots of wood, others....? [These are great ideas, but out of the scope of this project.](#) Tim, Eddie, and I discussed this, and these are methods that could be utilized during the next management plan update.
 - c. For improving – just encourage everyone to keep promoting and finding folks to actually take on improvement projects. A lot of the maps from the shoreland surveys provide clues on where to start looking...Vilas County Land and Water is looking for folks to work with and will plan and potentially sponsor projects. I also would encourage lake leaders from each lake to take a close look at their properties and sponsor projects where appropriate as demonstration projects.
 - d. Could also encourage a pledge of sorts by property owners to keep their shoreland areas healthy also – i.e., no mow, no weed whack, no leaf blowing or picking up sticks, other? And in these areas, keep a record of plants and animals found over time.
 - e. In the future you could use the State shoreland protocol to help identify high quality and improvement areas. [We plan on implementing this methodology once it’s finalized.](#)
- 12) It would be helpful to have a table of contents for your appendices. [One is available within the Table of Contents at the beginning of the document.](#)
- 13) Page 142, Mechanical Harvesting in Papoose Bay: paragraph ends in saying this is addressed in mgmt. goal #7 within the Rest Lake Implementation Plan. What am I missing? I cannot seem to find the individual lake implementation plans anywhere. [Thanks for catching this.](#) [The individual lake implementation plans were removed in an earlier phase, and this lake-specific goal was not moved to chain-wide plan.](#) This goal (Management Goal 7) is now in the Chain-wide Implementation Plan.
- 14) Comment on Individual Lake Plans: Does each lake have its own implementation plan as well? Where are these? [See above comment.](#)