Thank you for your comment, Bob Wakeman.

The comment tracking number that has been assigned to your comment is GLMRIS2AP50075.

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December 27, 2012

GLMRIS Focus Area 2
Summary Report Comments
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The Wisconsin Department of Natural Resources (Department) appreciates the opportunity to provide comments on the Focus Area 2 Aquatic Pathways Assessment Reports as part of the Great Lake Mississippi River Interbasin Study (GLMRIS). Wisconsin has eight locations along the basin divide all of which are identified in the individual reports as viable pathways for AIS transfer between the Great Lakes and the Mississippi River. These locations were jointly identified by Federal, State, local and nongovernmental staff during the early stages of the GLMRIS.

The GLMRIS was authorized in Section 3061(d) of the Water Resources Development Act of 2007, and therein, it prescribes the following authority to the Secretary of the ACOE;

> "(d) Feasibility Study – The Secretary, in consultation with appropriate Federal, State, local and nongovernmental entities, shall conduct, at Federal expense, a feasibility study of the range of options and technologies available to prevent the spread of aquatic nuisance species between the Great Lakes and Mississippi River Basins through the Chicago Sanitary and Ship Canal and other aquatic pathways."

The GLMRIS, Other Pathways Preliminary Risk Characterization was designed as the first step of a tiered approach to rapidly conduct a study intended to accomplish two objectives;

1) The first and primary objective was to determine if there were any locations within the GLMRIS, aside from the CAWS, where a near term risk for the interbasin spread of ANS exists. Near term, in this case, indicates that implementation of some measure(s) might be warranted to reduce the potential for ANS transfer at that particular location in the short term versus setting that site aside for further analysis.
2) The second objective was to refine the scope of the other aquatic pathways portion of the GLMRIS by developing a list of potential aquatic pathways that could form anywhere along the divide separating the Great Lakes and Mississippi River Basins, and help provide a basis for prioritizing future feasibility study efforts based upon relative risk.

Eight locations in Wisconsin were identified as viable pathways based upon the following assessment method;

The assessment of the identified pathways followed an evaluation of 1) Probability of the pathway existing, 2) Probability of ANS (Aquatic Nuisance Species) present in either basin, 3) Probability of ANS surveying the trip to the pathway, 4) Probability of the ANS becoming established at the pathway and 5) Probability of ANS spreading across the pathway to the new basin. The probability of establishment for certain aquatic pathways may be assessed in future studies by USACE or others, but likely only for those pathways with an unacceptable rating for the "probability of a viable pathway" existing.

General Comments

There are frequent formatting, typographic, or consistency errors in the reports, such as in the;

> **S. Aniwa Report** - Section 3.3 first paragraph. The first sentence is repeated. County Road ZZ is represented as County Road "Zz".
>
> **Portage Upstream Report** – Section 3.3 first paragraph third sentence identifies "three specific locations where inter-basin flows may potentially occur are shown in Figure 6." Figure 6 shows only two potential locations for inter-basin flow. Figures 5 and 6 show three potential sites for inter-basin flows. Paragraph 5 (Section 3.3), first sentence, last word "show" should be deleted. Section 3.5, first paragraph, last sentence, the correct figure should be figure 11 not figure 1. Section 3.6, the quality of figures 12 and 13 are poor and very difficult to read, the Department requests that all figures be clearly readable.
>
> **Brule Headwaters Report** – There is no reference to figure 6 in the text of the report and the caption for figure 6 states "Aerial photo of three potential connection points between…" however the figure only shows two circled points. It is difficult to see and read the labeling of the waterways in figures 9 and 10. Section 3.6, first paragraph, last sentence states "A surface water connection between the Great Lakes and Mississippi River Basins is unlikely based on these three key points:" however there are five points listed.

These and other similar errors were found in several reports. It is recommended that the reports be rescreened for these errors and corrected prior to final release.

The reports frequently identify data gaps, inconsistencies or areas where there is insufficient information. For example;

> **Portage Downstream Report** – Section 3.5 discusses the inconsistency between the peak stage and the peak discharge relationship on the Wisconsin River and suggests that this inconsistency may have to be investigated further. Section 3.7.2 identifies that more investigation of "basins" at the divide location would be required for a more accurate assessment of the ability of ANS to be sustained. Section 4 suggests that further investigation of the perforated pipes under the bed of the Wisconsin River would add to the certainty of potential ANS transfer between the basins.
>
> **S. Aniwa Report** – Section 3.3 states that the age of the FEMA data and the lack of flood information at all sites increases the uncertainty of the inter-basin connections.

The Department requests that a table summarizing these data short falls be added to the reports to assist the Department and other entities in developing initiatives to eliminate these gaps.

Some of the graphs and figures in the reports are difficult to read. Improvements to these would improve the quality of the reports.

Report Specific Comments

> **S. Aniwa Report**;

The Department questions the confidence of the rating. There are three factors given which are used to support the "moderately certain" rating of "low" (Probability of a pathway existing) and these are;

1) The vertical accuracy of USGS 10m DEM for ground surface water profiles at the basin divide.
2) The lack of updated base flood mapping provided by FEMA to determine extreme storm events and any site-specific data that would correlate precipitation amounts to surface water flows.
3) Potentially conflicting information between the FEMA one percent floodplain mapping and the NWI mapping, where only the latter shows that aquatic conditions (i.e., wetlands) may extend south and across County Road ZZ.

The lack of, or conflicting information (factors 2 and 3) would seem to increase the uncertainty of the ranking. While the Department appreciates the importance of the field visit conducted by ACOE staff and the findings of "no evidence of any surface water connections (e.g., channels, drift patterns, water marks) to stream, ditches, or wetlands on either side of the basin divide." local knowledge of these areas can be extremely valuable. Section 5 of the report states that "A review of all available data, as well as collaboration with USGS, NRCS, and WDNR, led the interagency pathway team to conclude that there is little likelihood of a surface water connection existing on a perennial or intermittent basis from a one percent annual recurrence interval storm." It is unclear if the interagency pathway team also discussed the level of confidence in this ranking. The Department suggests that the report also discuss the level of agreement on the "certainty" ranking.

Brule Headwaters Report;

There appears to be an inconsistency in the ranking for "Pathway existing" in Section 3.6 and what is shown in tables 5 and 6. T able 7 and 8 are identified in the text but are labeled as table 9 and 10. In these tables the rating for "Pathway exists" is "medium" which contradicts the text in Section 3.6 paragraph 1.

Hatley – Plover Report;

The Department agrees with the ranking of this potential pathway and the relative certainty of the ranking. The Department would like to point out a small editing error in section 3.2, last paragraph, first sentence, there is a strike out that should be deleted from the document.

Jerome Creek Report;

Section 3.3 paragraph one states that the probability of a pathway existing is low because of five key points however there are six listed. The Department agrees with the overall ranking of this potential pathway and the relative certainty.

Menomonee Falls Report;

In section 3.3.1, the Menomonee River is stated as flowing into the Kinnickinnic River before reaching Lake Michigan. This is an error; the Menomonee River does not join the Kinnickinnic River before reaching Lake Michigan. The report states that the Lepper dam is a complete barrier to ANS migration from the Great Lakes to the Mississippi River basin however in table 8 the difference between the tail water elevation and the dam sill elevation is zero suggesting that during a 100 year event or larger ANS could swim over the dam. In addition in the column titled "Fish Passage?" it states that a "fish ladder to be installed in the next few years" suggesting that this barrier could be circumvented by ANS. This suggests that the potential for ANS to reach the basin divide is greater than indicated in the text of the report.

> "Any ANS spreading from the Great Lakes Basin may also not have an opportunity to reach this pipe because of the Lepper Dam on the Menomonee River. This dam is impassible for species moving upstream from Lake Michigan." (Section 3.7.1)
>
> "The West Menomonee intermittent aquatic pathway is upstream of the Lepper Dam located on the Menomonee River. The Lepper Dam, which has a 22-foot (6.7 m) dam height, is considered a total blockage to upstream fish passage by the WDNR. Therefore, it is considered highly unlikely that a common carp hosting VHSv could transfer through this pathway by natural means. However, if an infected common carp were to arrive at the emergent wetland divide, or the approximately 1.3-acre (0.5 ha) pond, during the spring a subsequent storm event sufficient to complete the intermittent aquatic pathway could facilitate that infected common carp to disperse across the basin divide. The impediment that the Lepper Dam provides is the primary basis for the assignment of the low rating to the probability a common carp infected with VHSv could survive transit solely through the aquatic pathway to the basin divide at this location. That structure is also the primary basis for the level of certainty rating for this specific ANS, as represented by the common carp as the potential host fish. It is unlikely that any of the Great Lakes Basin invasive fish species (including the common carp) could cross the South Menomonee divide from Lake Michigan to the Mississippi River Basin, up the 2,000 lineal foot (610 m) intermittent drain with a three foot (0.9 m) bottom width and high gradient, then access the 1,500 linear feet (457 m) of three foot (0.9 m) diameter culvert to reach the wetland divide." (Section 4.2.1)

The Department recommends a re-evaluation of this information to resolve any discrepancies and to ensure a proper ranking of the pathway.

Rosendale – Brandon Report;

Table 8 of the report states that "ANS passage planned" in the column labeled "Fish Passage?". It is uncertain how this is to be interpreted. The Rapide Croche Lock and Dam structure is scheduled to remain in place with modifications to allow for boat traffic to pass following decontamination of the vessels. Retention of this facility is meant to prevent ANS from moving up and down stream but to allow for recreational boat traffic to continue to navigate between the Winnebago pool system and Green Bay. Table 8 should be corrected to reflect this information.

In section 4.2.1 in the discussion under Viral Hemorrhagic Septicemia Virus (VHSv) a reference is made to WDNR.

"Then in subsequent years, the fish would have to move all the way upstream and arrive at the divide during a one percent flood event passing through the Puchyan River route as the Fond du Lac passage across Eldorado Marsh is considered not passable by the WDNR."

It would be helpful to know if this was obtained from a report or was a personal communication from a staff member.

The Department agrees with the rankings and relative certainty of the rankings.

Portage Downstream Report;

Table 11 identifies all of the potential barriers to ANS spread and fish passage along the Mississippi River connection and the Great Lakes connection pathway. Under the column labeled "Fish Passage?" in the Mississippi River connection it states "WDNR proposed fish passage project in 2015". The requirement to pass

fish at the Prairie du Sac dam is actually a US Fish and Wildlife Service requirement of the dam owner (Alliant Energy). The Department is involved in the discussions because of the need for state permits or certifications.

In tables 12 and13 the last row of the tables are labeled the same. Table 13 should be GLB to MRB to match the title of the table.

The report identifies significant unknowns in assessing the pathways for ANS transfer;

> Section 3.5 – "This inconsistency of peak stage versus peak discharge relationship reduces the confidence in determining the threshold for the formation of an aquatic pathway, and may have to be investigated in the future. As a result the formation of an aquatic pathway is more likely to occur if the 2010 flood data is shown to indicate an upward shift in the rating curve."
>
> Section 3.7.2 – "It seems unlikely that these basins would be deep or large enough to reliably sustain a population of fish through the winter, and may not even be able to support most species of fish through the summer. However, more investigation of these basins would be required for an accurate assessment. During a flood event, it is expected that the emergent wetlands at the divide location would be inundated to the point where they would be able to temporarily support most aquatic organisms. Based on limited observations during the September 2010 flood event (ten percent annual recurrence interval event), it appears that flow through the marsh area of this divide location would occur mostly as sheet flow. It is estimated that the interbasin flow for such an event is about 60 cfs (1.7 cms) (Table 9). Under sheet flow conditions the vegetation in the marsh may serve to reduce the passage of fish, but it is possible that a defined channel may be present, especially during larger flood events. Higher-resolution topographical information would be needed to better assess the ability of the location to pass fish."
>
> Section 4 – "The greatest unknown regarding the Portage Canal as a potential pathway is the integrity of the buried collection pipes. An investigation of these pipes may be warranted, but it may also be appropriate to consider the possibility of simply removing this connection."

The certainty of other information would suggest a higher ranking;

> Section 3.7.2 – "The duration of flows above 54,000 cfs (1,529 cms) ranged from one to six days, and averaged three days. This is very likely to be sufficient time for Asian carp to swim over the 1.75-mile (2.8 km) divide location, and possibly even enough time for other nuisance fish species that are less mobile. It would be adequate time for organisms carried on or within the water column to be passively carried over the divide."
>
> Section 3.7.2 – "The Wisconsin River at Portage is relatively large with a base flow of about 5,000 cfs (142 cms). The river at this location and upstream includes high-quality habitat types that range from lacustrine (reservoir), to riverine, to backwater, and emergent wetland types. This would provide an opportunity for nearly any ANS to find suitable habitat in relative close proximity to this pathway location."
>
> Section 4.1 – "If common carp were present in the wetland divide, it is likely that they could survive the transfer to the Mississippi River Basin.

As a result of the numerous unknowns or uncertainties and the significance of some of the known information the Department would like to request an opportunity to further discuss the medium ranking for the probability of the existence of an aquatic pathway at this location as well as the presence of ANS in either basin, ability of the ANS to survive independent transit to the pathway and the probability to establish at or near the pathway. In light of

the significant concern over VHSv the Department would appreciate this opportunity to further discuss with ACOE staff.

The US Fish and Wildlife Service required fish passage at the Prairie du Sac dam creates the potential for ANS transfer upstream of the facility. The Department is working to impose safeguards on the operation of this facility to ensure that ANS, including VHSv are not transported upstream of the dam.

Portage Upstream Report;

The Department requests an opportunity to further discuss the "low" ranking for "Overall Pathway Viability for Spread of ANS from Mississippi River to the Great Lakes Basin" due to the frequency of discharge events that enter the Great Lakes Basin from the Mississippi River Basin, the unique position of this pathway on the landscape and the significant risk of impact should a transfer take place. While this may seem outside of the model the Department feels further discussion of the situation is warranted.

The last row of table 13 should be changed to reflect that it is for transfer of ANS from the GLB to the MRB.

The Department again appreciates this opportunity to provide comments on the draft GLMRIS reports and looks forward to working with the ACOE staff to improve these reports.

If you have any questions please feel free to contact me at (262) 574 – 2149.

Sincerely,

Bob Wakeman
Aquatic Invasive Species Coordinator

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