

America's Watershed Initiative Report Card for the Mississippi River watershed

Response to Comments Received at AWI Summit

Revised - January 29, 2015

Contents

Finalizing the Mississippi Watershed Report Card	5
Comments require deliberate responses	5
Origin and Purpose of the Report Card	6
Comments:	6
Response:	6
Revision Plan	7
Respondents wanted more information on data, calculation of the scores, and meaning of the grades.	8
Comments:	8
Response	8
Revision plan:	9
Indicators	10
Water supply	10
Summary of Comments	10
Response	10
Revision plan	10
Flood control	12
Summary of comments	12
Response	12
Revision plan	12
Transportation	14
Summary of comments	14
Response	14
Revision plan	14
Economy	16
Summary of comments	16
Response	16
Revision plan	16

Recreation.....	17
Summary of comments.....	17
Response.....	17
Revision plan.....	17
Ecosystem.....	18
Summary of comments.....	18
Response.....	19
Revision plan.....	19
Watershed indicators.....	20
Summary of comments.....	20
Response.....	20
Revision plan.....	21
Next steps.....	22
Summary.....	22
Response.....	22
Revision plan.....	22
What does the report card tell us?.....	24
How will the report card be used?.....	25
What remains to be done to complete the report card?.....	26
Corrections.....	28
Appendix A: Overall Comments.....	29
A.1 Scoring details.....	30
A.2 What do the scoring results mean?.....	31
A.3 How were indicators scored?.....	31
A.4 What do the grades mean?.....	31
A.5 What does it take to improve a grade?.....	32
A.6 Rolling up grades to basin and overall.....	32
A.7 Data quantity and quality.....	32
Appendix B: Comments on Indicator Details.....	34
B.1 Water supply.....	34
B.2 Flood control.....	35

B.3 Transportation35

B.4 Economy36

B.5 Recreation37

B.6 Ecosystem38

B.7 Whole Watershed Indicators.....39

Appendix C: Comments on Next steps42

 C.1 What does the report card tell us?.....44

 C.2 How will the report card be used?44

 C.3 What remains to be done to complete the report card?.....45

Appendix D: Comments Requiring Corrections47

Finalizing the Mississippi Watershed Report Card

This document compiles and summarizes comments received on the draft America's Watershed report card for the Mississippi river watershed and details revisions that we feel should be made to the report card or associated products. The comments came primarily from participants in the AWI Summit, held in October 2014, and refer to the preliminary draft report card presented at that meeting. Written comments were solicited from participants during the meeting using comment cards, notes posted to displays and in breakout discussion groups. Some participants provided additional comments by email after the meeting.

All the comments were compiled into an Excel database and sorted into groups based on common themes in preparation for response and are attached as appendices to this document. The identifier associated with each comment allows us to trace its source, e.g. participant name and email if this information was provided. Therefore, a full record of the input received on the draft report card is preserved here and in a supporting database, sorted into common themes. Several questions and comments (and issues that were unresolved in the preparation of the draft report card) require additional thought, research and data acquisition.

Informal work groups will be convened to review each goal area and set of indicators, consider the comments received, and assist with producing the final version of the report card. This document serves as a resource for the working groups. In each section, we present the tasks that each of these groups will be charged with. These groups will begin virtual meetings and conference calls starting in January 2014, with the goal of reaching workable solutions to remaining issues quickly.

Comments require deliberate responses

The America's Watershed Initiative Summit in October 2014 provided an opportunity for participants to react to and provide useful feedback on the America's Watershed Initiative Report Card for the Mississippi River watershed. The draft report card had some known deficiencies and areas that we knew needed additional input and revision.. Presenting the report card for review at this stage was especially useful, in that it allowed participants to provide suggestions on the direction, and on the information and communication of individual elements.

We feel that this review also presents the opportunity for participants to play a meaningful part of this report card project and process. To realize this beneficial outcome, we feel it is imperative that all comments that were received are addressed in some way. Some suggestions may be incorporated while others are not, but each suggestion deserves a response and an accounting of if (and how) some suggestions were incorporated. If suggestions are not incorporated, it is important that we acknowledge why they were not used.

Most comments were received through comment cards that were distributed at the summit; comments were actively solicited during plenary meetings. Other comments were received

during the breakout sessions on Day 2 of the summit, or through email conversations from meetings after the summit. We have collated and categorized each comment that was received.

Many of the comments and suggestions reflected similar thoughts and ideas; we categorized all comments into themes, including those related to specific goal areas, issues that transcended basin boundaries (Gulf of Mexico hypoxia for example), overall report card concepts and uses of the report card, details on calculations and definitions, and suggestions for communicating the results.

This document summarizes the comments received and describes how we will use this information to improve the report card. This document is organized into sections based on themes that emerged during review of the comments. We begin with comments related to the origin and purpose of the report card. This is a helpful place to begin, as the objectives for the report card project help guide the responses to each individual comment. General comments regarding how scoring systems are also discussed in the preliminary sections. Further sections discuss comments that relate to specific goal areas and indicators. The specific comments are included as appendices.

Origin and Purpose of the Report Card

Comments:

Many comments related to how the report card will be used, how the scale of the report card affects the interpretation of results, and the many stories that need to be told about the cultural, economic, and environmental importance of different aspects or areas of the river system. Participants wanted more information about the purpose of the report card, and had many suggestions for things that should be included as indicators or important features that should be highlighted.

Response:

The report card is intended to provide clear, understandable, and defensible information on the status of achieving our goals for managing the Mississippi River watershed in the six goals areas: Economy, Ecosystems, Recreation, Water Supply, Flood Control, and Transportation. We recognize that there are innumerable aspects to the river system that could be highlighted, all of which are important. All of us have our thoughts about the most important of these, the indicators that should be included, and stories that need to be told. Unfortunately, not every story or indicator can be addressed in the report card. The indicators that were chosen so far include those that were common suggestions among the various meetings held in the basins. The process to identify these indicators was rigorous, deliberate, and time consuming for all participants, and we do want to respect that effort and engagement.

The report card itself – the printed product – has a limited amount of space that can be used to tell the story of the Mississippi River, and space exists only for a few over arching stories. However, the report card web-site may allow additional space for important stories and perspectives of the Mississippi River, it's culture, and the ways in which it is important to it's people.

Revision Plan

Additional text will be included to describe the purpose and limitations of the report card. We will also provide clear direction to the web site so that users can access additional information stories and perspectives about the Mississippi River.

Respondents wanted more information on data, calculation of the scores, and meaning of the grades.

Comments:

Comments in this section were related to the communication of information, including information related to how the grades were derived and what they mean. Many participants wanted to have more information about data sources and what the indicators represent. Others wanted to understand how the calculations were made, including the weighting of goals and how results were combined to reach an overall score. Some users questioned the utility and relevance of presenting letter grades at all especially given that results for each basin were so similar.

There were some comments that related to specific goals, but which also relate to the use of data sets that are limited to particular states or regions. Several respondents asked why particular data sets that provided detailed information on one particular region were not included in the analyses. We discuss these comments here, because they relate to a larger discussion about use of data that may apply in one region but not others.

Response

We recommend keeping grades, but improving them by adding “plus” and “minus” gradations (C+ or C- vs. C for example), and providing the 0-100 score. These additions provide more information and the understanding that the grades were derived from actual data. Grades are important to achieve quick and clear understanding of results. The goal of the report card is to generate reactions. Even if some disagree with the result, the grades generate an instant and instinctive response, which is paramount for a communication product. The grade begs the question of how they were derived, which will hopefully drive people to the project web site – a desired outcome.

We agree that more information is needed to define the indicators, provide information on data sources, and describe calculation methods. Opportunities to report this information in detail in the printed report card will be limited, but we aim to include basic information about general calculation methods and data sources in the report card. More detailed information will be presented in supporting documentation, including the web site and the technical document that describes the indicators and calculations.

Several people wanted to include data sources that were detailed analyses of particular elements for a particular region. For example, the Lower Mississippi River has a detailed economic impact analysis that provides direct information on the health of the economy as it relates to the benefits provided by the Mississippi River. These types of data sources would be exactly the types of information needed for the report card, but are limited because they are not available in any of the other basins, and sometimes not relevant across the whole of one basin. It was decided during the workshops that the scores provided in Version 1 of the report card would present results from

data that was common across all of the basins. Many of the indicators suggested at the workshops were similar in each location and it was decided that it would be best to start with indicators that would apply across the entire watershed at this early stage of the report card development.

Revision plan:

- Dedicate a page of the report card to defining the indicators and the basic way they were scored.
- Include text that defines the overall goal of assessing condition relative to the goals appropriate for the particular basin.
- Describe the process of converting all metrics to a 0-100 score where 0 is poor condition and 100 is excellent. Using a standard scale allows aggregation of results to an overall goal score.
- Refer directly to the web site for more detail on the way the indicators were developed and scored. A suggestion was made to include this in a table:

Indicator	Description	Rationale	Score method	Source
Tonnage	Tons moved compared to 20-year range	Reflects overall performance of transportation relevant to the history of each basin	% of historical range in the basin	USACE
Infrastructure condition	Condition rating of locks and dams	Reflects the condition of critical elements that support transportation	Graded by USACE	USACE
...

This table will probably be too large and complex to include in the report card, but should be included on the web site/technical document.

Indicators

Comments are organized and discussed by indicator.

Water supply

Summary of Comments

- **Designated use** – Participants wanted clarification on what uses are included in the scoring; is this only drinking water supply? How are differences accounted in how designated uses are defined between states?
- **Health-based violations** – Participants wanted to know whether two specific instances of water supply closures would have been captured by this indicator: the toxic algal bloom that closed down the Toledo water supply system and the chemical spill that closed water supplies in West Virginia this year.
- **Water supply stress index** – Information exists on the decline in aquifer water storage (due to overuse), and this should be included in the calculation of the water supply stress index.
- **Other** – Water used for hydropower is not included in the report card. Indicators for water supply do not take account of reservoir operations. (Regional reservoir systems are a factor in water management in the Arkansas/Red, Missouri, and Ohio/Tennessee basins.)

Response

In general, more information is needed describing the intent of each indicator, the data used, and the scoring methods. This information is needed both in the report card itself, and in the accompanying white paper. We feel that many of the comments in this section will be addressed by adding this additional information. Additionally, revisions to data and analysis are needed for the water supply, which we will pursue. An indicator that incorporates hydropower and reservoir management also will be looked at, although this may be an indicator that may not be able to be included in the current report card version.

Revision plan

- **Designated use** – We will revise documentation to include explanation that only water supply designated uses were included in this indicator score.
- **Health-based violations** – We will investigate and report on whether the recent incidents of water system closures due to toxic algal bloom and chemical spill are included in the

data used for this indicator. We will include more complete description of the indicator scoring in the white paper.

- **Water supply stress index** – We will review available options to include aquifer extraction rates based on existing stress indices. We will select an approach, score, and report results for review prior to inclusion in the report card.
- **Other** – We will explore options for including hydropower and reservoir operations in the water supply indicators.

Flood control

Summary of comments

- **People at risk** – Some participants seemed to feel that this indicator was not analyzed appropriately and did not reflect flood risk accurately.
- **Levee inspection** – No comments directly reflected on this indicator, although there were questions during the sessions at the summit about what this indicator represented. Specifically, people wanted to know if the indicator measured the miles of levee that were inspected, or if it was based on the results of these inspections.
- **Community preparedness** – There were no comments about this indicator.
- **Other** – Several comments questioned the overall results of flood risk reduction particularly for the Lower Mississippi Basin given the low losses observed after the record 2011 flood compared to the 1927 flood. Comments noted that the indices used currently do not capture this.

Response

We understand the issues raised by these comments and agree that the entire story may not be reflected in the report card, given the indicators used. However, we also expect that the data may not be available to evaluate flood damage averted as a quantitative indicator. We will attempt to include this as an indicator, but if data are not available to support it, we will include additional context either in the report card or on the supporting web site. We believe levee inspection comments can be addressed with inclusion of additional information on indicator description in the report card.

Revision plan

- **People at risk** – We will investigate the application of this indicator and the scoring methods. In particular, we will investigate the circumstances that designate an area as at risk. Currently the assumption is that populations in areas protected by levees are not in the floodplain and therefore not at risk. The accuracy of this assumption is in question – there may be circumstances where private or uninspected levees may provide protection that is not accounted for in the data provided by the FEMA flood plain maps. Additionally, the current indicator is based on percent change of population moving into or out of the floodplain. It does not account for the absolute number of people in the floodplain. We will investigate both of these issues, and if possible and needed, we will include a weighting based on the overall number of people in the hazard area.

- **Levee Inspections** – We will better describe the intent, data used, and scoring methods for this indicator. Some of this will be included in the report card itself, and the detailed scoring methods will be included in the accompanying white paper.
- **Other** – We will investigate the ability to represent damages averted by flooding in each basin. We understand that data may be available to support this as an indicator – we will attempt to locate and analyze data that could support this.

Transportation

Summary of comments

- **Stoppages** – At least one participant suggested that data for stoppages are available and should be included as a measure of transportation status.
- **Tonnage** – Several participants expressed confusion over the low grade assigned to the Ohio River basin compared with the Missouri Basin, given that the magnitude of tonnage carried on the Ohio is much greater. Two people suggested alternative approaches: 1) score indicator against tonnage targets solicited from the shipping industry, or 2) consider using the results of cost/benefits analysis as the basis for an indicator.
- **Condition** – Several participants stated that the scores reported seemed out of line with the assessments by the shipping industry. Does the scoring take into account the interconnectedness of the system, so that the condition of certain key structures is critical to maintaining the reliability of transportation.
- **Maintenance** (adequacy) – One participant suggested that it is necessary to evaluate funding levels (for maintenance) in terms of the needs for long-term sustainability of the system.
- **Other** – (none)

Response

We hear and understand the concerns of participants about the indicators and results for this goal assessment. While we feel it is important that the analysis be objective, it is also important that the results do not fly in the face of the understanding of conditions by regional experts in the industry. The current indicators were in fact chosen by a group of industry experts, but it is clear that the analysis or data used do not reflect these understandings. We will attempt to improve the analysis of this goal assessment to reflect on more of the concerns that participants have in this area.

Revision plan

- **Stoppages** – Review the discrepancy between data assembled for the report card and the data used by others (ASCE, industry) in evaluating the delays in the system. Revise the approach, implement, and report.
- **Tonnage** – Review and revise the approach. Consider the argument that a measure of economic value (shipping costs avoided has been suggested) or the ratio of benefit to cost

of operation is a better indicator than tonnage (amount moved). Revise the approach, implement, and report.

- **Condition** – Review issue of how to evaluate overall system condition, in terms of reliability of operations, based on the condition rating information provided by the Corps. Revise approach, implement, and report. There are questions about the actual infrastructure that was assessed in the data reporting on infrastructure condition.
- **Maintenance** – Identify options for developing an indicator that measures the adequacy of existing level of maintenance with respect to what is required to sustain reliability of system operation over the long term. Implement and report.

Economy

Summary of comments

- **Employment** – One participant observed that the low score for employment in the Lower Mississippi Basin seemed out of line with the fact that river-related employment accounts for one out of every five jobs in the region.
- **Income** – (none)
- **Production** – (none)
- **Other** – Several participants raised the question of why the scores, in general, are so low given what they know about the importance of the river to the overall economy (Lower Mississippi Basin) and the booming economy in North Dakota from oil and gas, which requires water from the Missouri River. One participant questions whether it makes sense to score these indicators relative to US national averages given that conditions in each basin present unique economic opportunities and challenges.

Response

The report card team recognizes that this goal assessment is particularly difficult to adequately address, and that more work needs to be done in this area. We believe that a larger effort is needed to adequately evaluate the status of economies in each region as they relate to the river, and water management. Unfortunately, we think that this level of assessment is unrealistic for the current report card. Discussions with economists on this subject suggest that it will take considerable time and effort to reach the level of analysis that we want. Options for the current report card include keeping an imperfect but transparent view of economic condition in each basin, and perhaps not reporting scores for economy in this version of the report card.

Revision plan

- **Overall** – Review and revise the set of economic indicators to be reported in the current version of the report card. Set goals and recommend a course of action for refining the economic indicators in the future.

Recreation

Summary of comments

- **Participation** – One participant suggested that the activities included in the data (hunting and fishing) do not provide a complete picture of outdoor recreation.
- **Licenses** – (Same comment as for Participation)
- **Access** – Although no comments were made that directly reflect on access, there were several comments in prior workshops and meetings that led us to include this as an important indicator.
- **Other** – Participants wanted to know more about what activities are included in each of the indicators. There is concern that the focus on hunting and fishing is too narrow; is camping included? Participants are aware that the Corps collects and reports extensive data on the recreational use of its facilities – was this information used? Do the indicators take account of the negative impact of poor water quality on recreational use; Iowa was mentioned specifically. Can/should designated use attainment (for recreational water use) be included as an indicator?

Response

As with other goal areas, we feel that there is room to revise the indicators and scoring to better reflect progress toward achieving recreation goals. Several participants at previous workshops have suggested that access should be included, but this may be difficult as a result of the ways that recreation access and use data are reported and stored within each state. Using the Corps of Engineers recreational use data may provide a way to assess access at a broad scale.

Revision plan

- **Overall** – Review and revise the set of recreation indicators to be reported in the current version of the report card. Set goals and recommend a course of action for refining the economic indicators in the future.
- **Access** – Identify options for developing an indicator that measures the access/ accessibility for recreational activities. Implement and report.

Ecosystem

Summary of comments

- **Nutrient yield** – (see Other)
- **Nitrogen** – (see Other)
- **Phosphorous** – (see Other)
- **Benthic index** – (see Other)
- **Fish index** – (see Other)
- **Riparian index** – (see Other)
- **Woody wetlands** – Participants questioned whether/how coastal wetlands are included in the scoring, given the large extent of coastal wetlands in the deltaic region and their rapid degradation due to lack of sediment inputs. Additionally, participants in other, previous workshops have advocated for a more comprehensive indicator simply based on “wetlands”.
- **Other** – Participants in the discussion of the Lower Mississippi Basin results questioned the results obtained there. Environmental experts question whether the data collected for the EPA Rivers and Streams Assessment provide a good measure of conditions in this region.

One participant suggested that singling out nutrients as separate indicators means that nutrient concentration may be weighted too heavily in the overall indicator score. Nutrients are part of an underlying problem that affects ecosystem attributes that people really care about, like fish, and the indicators should address these more directly.

Participants also suggested these additional indicators for the Ecosystem goal area:

Biodiversity

Resilience

Threatened and endangered species

Carrying capacity

Hypoxia in water bodies within basins

Invasive species

Violations of the Clean Water Act cited by EPA (Sections 401, 402, and 404)

Response

We recognize that results are not expected in some areas, particularly in the Lower Mississippi River Basin. In general, we feel that the EPA Rivers and Streams Assessment provides a comprehensive and thorough treatment of ecosystem condition, but that the sampling locations and desired conditions that observations were measured against are either unclear or are inappropriately applied. We feel that the unexpected results for the Lower Mississippi River Basin may be a result of a lack of clarity on where sampling results were obtained and the desired conditions that were established for each ecoregion. As described below, we will add clarity to the indicators chosen below and investigate additional indicators or data sources that may be necessary to tell a more complete story in the Lower Mississippi River Basin.

Revision plan

- **Overall** – We will review and revise the existing indicators. In particular, this review should address issues raised with respect to the lack of confidence in results of the EPA Rivers and Streams Assessment for the Lower Mississippi Basin. We will review the sampling locations and desired conditions that were applied – if additional data or studies are required, we will research these sources and implement and report results as appropriate.
- **Woody wetlands** – We will do two things related to the wetlands indicator: 1.) For the basin indicators, we will reassess based on “wetlands” instead of “woody wetlands” and will review the results. We will also review options for expanding the data used to also include coastal wetlands. We feel that this may be best accomplished by including coastal wetlands as a part of the set of system-wide indicators that would not be reflected in the Lower Mississippi River Basin results.

Watershed indicators

New indicators will be added to the report card to address conditions at the scale of the entire Mississippi watershed relative to the six overarching goals.

Summary of comments

Participants suggested the following topics/issues be considered in formulating indicators integrative of conditions in the entire watershed:

- Invasive species
- Threatened and endangered species
- Carrying capacity
- Wetland loss and other changes in land use at the watershed scale
- Coastal wetland loss
- Sediment flux needed to sustain coastal wetlands in the deltaic region
- Species abundance and diversity (compared with historical levels at time of Lewis and Clark expedition)
- Hydropower
- Migratory birds that depend on the North American flyway (not restricted to waterfowl resident in the watershed)
- Climate resiliency and/or vulnerability to climate change
- Issues related to connectivity up and down the river network, such as:
 - Transportation
 - Water quality
 - Water quantity
- Culture and cultural resources (specifically mentioned: immigration, music, cultures, Native Americans, cities and towns, farmers)

In addition to the comments received at the summit (above), we received additional suggestions at the September 2014 workshop in Arlington, Virginia when we discussed watershed-wide issues. These suggestions included:

- Hypoxia
- Migratory wildfowl
- Existence and resources allocated to various regional-scale programs and initiatives by state and federal governments

Response

In general, we recognize the need to include indicators that directly measure conditions in the entire Mississippi River watershed in an expanded set of indicators. The health of the watershed as a whole can be reflected by measures of health at the smaller basin scale as well as at the scale of the entire watershed.

Revision plan

We will discuss potential indicators with the review teams and select key indicators for inclusion as watershed –wide indicators. Our current plan is to include a small number of additional indicators that reflect conditions at this larger scale. Subsequent versions of the report card could review and evaluate additional indicators.

Next steps

Summary

Most comments were concerned with how the report card would be produced in the future, by whom, and with what resources. Other comments related to requests to be kept in the loop and up-to-date on the report card process.

- Who is responsible for producing the report card in the future?
- Keep us informed along the way, road map of next few years
- Supporting documentation (e.g., white paper) availability
- Additional analysis to be done in the future
- Potential for funding for supporting and providing data
- Each sector contribute more funding to break the glass ceiling
- Region-specific data analysis needed
- Format changes suggestions
- More space available online for more, extra information
- Connect to those directly impacted and benefited by report card
- Suggestions for communications campaign
 - Collective voice
 - Public meetings
 - Hiring public relations and communication strategist
- Convince everyone to have a collective, collaborative voice rather than their own agenda

Response

These comments are well founded and well received. Report card projects engender these kinds of discussions and it would be unexpected to not hear these comments. For the continuation of the report card in the future, we are working with AWI and many partners to identify funding, ownership, and methods for future report cards as well as more, extra analysis on data and indicators that could not be addressed in this initial project. It will be the responsibility of the future report card producers to work on a collective, collaborative voice among this disparate regions and groups. In any report card situations, there will be individual goals and values, but the umbrella voice must be louder than individual goals.

Revision plan

Utilize a distributed network of people in agencies and institutions to maintain and improve the report card in successive releases. The distributed network will be formed to leverage resources, provide diverse expertise, and train the next generation of problem solvers. By effectively franchising the report card effort in each of the subwatersheds, improved spatial resolution can be achieved, new indicators can be developed, and an increased diversity of people involved can be achieved. An interactive website will be created for data uploads, assessment tools shared, and report card dissemination. Regular report card updates will maintain the momentum created by the initial report card effort. management responses to complement the socio-economic and

ecological status assessments, climate resilience indicators and will have a nested series of smaller scale assessments to complement the overall basin and watershed assessments.

What does the report card tell us?

Summary

There were a small number of questions related to the end goal of the report card, what we intend to achieve, and what it means for local constituencies.

Response

The end goal of the report card is to develop a world model for assessing social, economic and ecological factors using a sustainable report card process that is used by policy makers and resource managers to catalyze positive social, economic and ecological outcomes. Report card results communicated widely and are used to prioritize investments for current and future populations and climate conditions. Local constituencies will contribute to overall report card project, in a bottom up approach to analysis.

Revision Plan

We will present a clear understanding of our views about the objectives, limitations, and uses of the report card. This information may not be presented in the printed report card document because of space limitations, in which case it will be presented as introductory material on the report card web site.

How will the report card be used?

Summary

Expanding on the last group of comments above, several comments related specifically to the ability of the report card and the development process to make a positive difference. Comments in this area related to the ability of the report card to:

- Result in actionable change
- Focus AWI considerations on future conditions
- Connect and engage scientists, managers, politicians, and the general public, as well as stakeholders in smaller watersheds

Response

All these comments are addressed in our proposed next steps for this project. The current, initial report card phase was to analyze watershed data across the entire Mississippi River watershed under six goal areas.

Revision plan

The ongoing report card updates will be achieved with a distributed network, interactive website and regular workshops. This will connect scientists with managers and with smaller watersheds. Increased diversity will be achieved by targeting organizations representing underrepresented people and developing a student fellowship program. Our vision is that future report cards will have a nested series of smaller scale assessments to complement the overall basin and watershed assessments. This phase will be led by a consortium formed from the distributed network. A communication strategy for distribution of the report card to politicians will also be part of this future phase. Politicians represent an entirely different group that needs a different approach than those incorporated into the report card process itself. Politicians are most interested in the results, not the process.

What remains to be done to complete the report card?

Summary

Several comments related to specific items that respondents felt needed to be accomplished to complete the current version of the report card. Several of these comment reflected surprise in the lack of fundamental data that could be easily accessed and assessed to prepare the report card grades for each of the six goal areas, especially within the transportation goal. An additional consideration to improve the process and effectiveness of the report card includes engaging congress and legislative groups.

Response

Data limitations are one of the most common problems encountered by the team in the many report card projects we have been engaged in worldwide. Despite their expectation, the limitations are frustrating, and are time consuming to reconcile. We will continue to improve access to key data sets, and will strive to improve our ability to interpret them.

Revision plan

Please see pages 14-15 for our in-depth response to transportation comments. In each of the goal areas, we are working with review teams with specific expertise in these areas to develop access to key data necessary to present a more complete assessment. In many ways, it appears that the presentation of the report card draft at the summit spurred interest in presenting access to the necessary data. Additionally, we plan to involve congress and legislative groups once the final report card is released. Politicians will most likely be interested in the overall results of the report card, and will hopefully be encouraged to support actions for improvement, restoration, conservation, or repair that may be suggested by the report card results.

Corrections

Summary

The following comments point to specific changes required to correct errors in the draft report card and supporting material.

- Changes to conceptual maps for each basin
- Changes to Acknowledgements section
- Positive reviews of the paddlewheel, the scales, the colors, etc.
- Clearly explain and depict the scaling/rating system

Response

These changes can be easily incorporated into the report card.

Appendix A: Overall Comments

Identifier Comment:

- 12 What is the main purpose of the report card system?
- 23 Basin 'scale' might be too large for interpretation
- 88 combining arkansas and red into 1 report card can be a challenge due to some major differences!
- 109 How does this compare/enhance the ASCE report card? (Well known by media.)
- 147 we've looked at two rivers because historically they have been separated
40% unemployment in the delta—Mississippi River/Arkansas
Economic measures for the whole river included
67 interpretive centers—cultural story about river towns, river people, immigration that came in through New Orleans
- 148 beyond the political boundary, there is also a geological difference between the portions of the river. The river delta actually starts in Cairo. What we do to restore that river is very different based on the geology—they are two different systems.
- 149 Free flowing river v. lock and dam river. 1,475 feet drop of elevation, and 1,000 of that is in the upper river. In the bottom part, it drops ~400 part
- 150 the key is that if all of things we are talking about, if one part of it fails, it all fails (we learned that 2 years ago)
- 154 Another issue up and down the river is migratory wildlife, monarch butterfly (declines of butterflies—charismatic wildlife)
- 155 Exporting the goods (Iowa soybeans going out the river)
- 156 Flood management—the role of the upstream reservoirs for holding flood stream water. Lower parts of the system benefit from good flood storage upstream.
- 157 Cultural story—immigration, jazz,
- 158 Tribal nations—mound builders
- 159 Explaining to the public about bottom draft, water levels
- 160 The Indicators don't address risk that much—What's the risk of losing a lock, what's the risk of a flood

Identifier Comment:

- 161 challenges with weather extremes. Challenges that don't have an answer—if we can work collaboratively. Climate readiness.
- 162 how do we go from what the current situation, to a wheel that what the situation will be in no action is taken. How do we prompt action?
- 212 River flooding
- 213 hypoxia size
- 214 migratory bird habitat
- 215 coastal wetlands
- 216 water quality/quantity
- 217 fisheries
- 218 transp
- 219 people at risk
- 220 nutrient/sediment loads
- 221 recreation
- 222 geological differences
- 223 different approaches
- 224 lock/dam vs free flowing
- 225 transportation activity levels
- 226 river related employment- associated impacts
- 227 broaden discussion with other basins
- 228 drought impacts- channels & loading levels- rock removal and raw

A.1 Scoring details**Identifier Comment:**

- 3 Are the goals co-equal? If so, how do we convey that message? I am afraid that goals for the ecosystem and recreation are like grades for band and PE--not as essential as grades for math and english.
- 7 Missouri, Red & Arkansas Rivers get A for tonnage but Ohio gets F?
- 16 When was the "lower" Missouri River Basin conf in Kansas City scheduled?
- 26 In regional meetings, criteria were prioritized- how was this info applied to results? And was there much variation between basins?
- 45 Info across categories not just within
- 83 That ecosystems are data rich but still have low grade, someone is not listening.

Identifier Comment:

- 90 I would like to know more about what many of these terms mean and how they were calculated.
- 107 I would like to see brief definitions of the "features, issues, threats". For example, what does 'nutrient yield' mean?
- 126 It's very interesting that every single basin and overall there is a C.
- 127 I would really like to have the white sheet to know what went into this.
- 129 I want to better understand the metrics- what created/resulted in an A, B, C, etc??
- 174 Should we assign Grades?: Whatever and however we make it happen the impact of the Report Card should be easily understood (3rd grade level); broadly distributed; cause a reaction; inform widely (increase understanding outside of basins) and be repeatable (every 3 or 4 yrs to keep attention).

A.2 What do the scoring results mean?**Identifier Comment:**

- 1 All C's, no clear advantage or disadvantage among goals?
- 33 Consistent C for the different watersheds...yet different reasons
- 96 Measurements around each grade.

A.3 How were indicators scored?**Identifier Comment:**

- 50 Will it be feasible to revisit some of the mech's used to assign grades?
- 52 Details on how each category is graded/defined.
- 65 Recreation- did we include camping? Attendance re: USACE, USACE recreat. Study?
- 66 USACE rec study of Upper Miss? - 1993?
- 74 The lack of clarity on how the grades are determined.
- 75 Must have the information on how each category [of the 23] 1)is representative of the sector, 2)how that category was scored, 3) the thresholds for grades.
- 87 Would be interested in more of the details that led to these grades.

A.4 What do the grades mean?**Identifier Comment:**

- 4 Ohio River- F in tonnage and D in designated use

Identifier Comment:

- 5 Lower Miss- F in benthic
- 9 What does an F or A mean?
- 10 Can the scores mean anything to general public- how do they know what a grade really represents?
- 18 The grade C overall
- 29 it might be good to give some indication of what A, B, C, D, F mean- ie what is a "passing" grade or a goal/objective?
- 44 Higher grade than anticipated but looks more like C-
- 95 That each of the grades are not individually defined. Excellent preliminary work!!
- 120 Explanation of the grading process.

A.5 What does it take to improve a grade?**Identifier Comment:**

- 11 The lack of back up for the grade levels, what are the final outcomes & information based decisions. What can hurt or improve these grades?
- 19 What grade C means and how it compares to where we want the 'grade to move' (?)
- 93 Continue to build out data sets so we can see the potential for improvement. What would it take to move from red to green?
- 119 As presented in the materials "how" the grade was developed (metrics, process, relevance (to other basins?)) and what can the grade be interpreted to mean eg recreation "licenses" has an F- how was it determined and what does it mean? Should there be a push to sell more licenses? Does it mean folks aren't interested in fishing/boating/hunting in the basin?

A.6 Rolling up grades to basin and overall**Identifier Comment:**

- 13 We should have left the ave C grade off for this phase- it's not necessary at this stage
- 21 Every basin got a C! process seems to neutralize results

A.7 Data quantity and quality**Identifier Comment:**

- 22 level of uncertainty* seems to negate results. *I appreciate the need for good data and understand uncertainty!
- 24 data sources- generally and variations across basin

Identifier Comment:

34 Areas of not enough info and incomplete analysis

Appendix B: Comments on Indicator Details

Identifier Comment:

- 6 It was nice to see all of the indicators, but it raised lots of questions about how they were determined and how comparable each of the sub-basins are.
- 36 Need to take time to review associated white paper and understand data used to generate report cards.
- 60 Failing infrastructure and invasive species major threats to main stem and they are not listed.
- 69 Costs and benefits of certain measures, such as transportation or flood control.
- 72 Transportation metric based on right order of magnitude

B.1 Water supply

Identifier Comment:

- 70 The water supply metric doesn't reflect the importance of the releases from the reservoir system.
- 128 For the entire basin, not much. One surprise is the health-based violations with the rise in algae issues, there is an increasing concern for human health impacts.
- 133 was there any consideration to the safety of our drinking water with the disaster that happened in Charleston, WV that has great consequences throughout the watershed-identified hazards with identifiable emergency reaction to protect the public.
- 166 Water supply category: in the small group discussion for the Ohio River Basin, it was suggested that the designated use attainment metric was specifically for attainment of drinking water/public water supply use. If so, then it should follow that several other categories--recreation and ecosystem, namely--should likewise include designated use attainment for recreational water use and for aquatic habitat use. Fish consumption should likewise be included in one of the categories. Alternatively, if the designated use attainment includes all designated uses, this should be clarified. Additionally, it is curious how different designated uses between states were normalized.
- 192 Water Supply: The Report Card team was unable to locate sufficient information to develop a water supply stress index, and yet we know that there are rapidly declining aquifers in the lower Mississippi basin which are stressing the ability to irrigate crops and to maintain ecological base flow in tributary streams. I have already provided some USGS data to the team in hopes of addressing this.

B.2 Flood control

Identifier Comment:

- 41 D/F for Flood Control in the Lower Miss. MG Peabody showed a slide that demonstrates the severity/extent of flooding AND loss of life 1927 vs 2011 floods. This being factual, I must assume that the grading metric for "people at risk" is flawed or mis-applied
- 58 Flood control scores lower than I thought it would. Corps of Engineers management of the 2011 flood suggests that flood control is better than D-F.
- 82 That flood control is so poor
- 104 Surprised that the flood control grades in LMR is so low w/ the MRET system in place.
- 170 Flood Control/Risk Reduction: This general category concerns me at present. While I appreciate that the Corps of Engineers has historically and is currently charged with certain responsibilities for maintenance of levees and locks and dams, the concept of integrated river system management does not appear to be sufficiently addressed in this category. The community rating system begins to move in that direction, but only from the perspective of acknowledging that there are certain communities that have begun to take steps towards comprehensive floodplain management, and others that have not.
- 191 Flood Control and Risk Reduction: Despite successfully passing the largest flood in history in 2011, the report ranks the lower River very low in Flood Control. The indices used include: number of people residing in the 100-year flood plain, levee miles inspected and certified, and the 5 of the top 50 communities in the State participating in the FEMA Community Rating System. Are these the right indices? Who should take the lead in trying to think this through?

B.3 Transportation

Identifier Comment:

- 8 Condition ratings go against engineering reports
- 14 Value of tonnage. \$ type-food is critical
- 46 ORB (Ohio River Basin?) grade of F for tonnage
- 47 ORB (Ohio River Basin?) grade of B for condition
- 49 Like to know more about how transportation grades were assigned
- 51 Ohio Basin- tonnage grade of F. Would expect that to be much better but realize that tonnage is declining.
- 57 On transportation, I'm surprised that there aren't good metrics to assess this category. Surely there must be good data on shipping/barge traffic to be able derive a reliable score.
- 59 Why is tonnage on Ohio River an F?
- 63 Infrastructure condition grade

Identifier Comment:

- 68 If one lock fails- entire system is down- is that measured adequately on RC?
- 71 Missouri R transportation getting a B for tonnage is a problem & not comparable to Ohio & Mississippi.
- 116 all 4 categories, in transportation, seem inconsistent with what carriers and shippers are experiencing.
- 117 What metrics were used to grade each category in transportation?
- 118 Missouri/Arkansas/ have a grade of B in tonnage/Ohio has grade F. Ohio moves more tonnage than all other basins combined.
- 131 The grade of C on transportation when Huntington, WV is identified as the largest inland port in the US.
- 151 a lot of the lower river storage is beefed up, so you can deal with temporary shutdowns—if it lasts a week, there is enough grain downriver to keep up with dam. This year there is a record grain—the demands are on the barges and locks and dams—important to look at the number of vessels moving, and yes we have to look at the whole system, but I’m not sure how we look at the challenges.
- 153 Public website—can watch AIS (automatic system)—barge companies—watch the barge traffic up and down the river
- 175 Navigation Metrics / Indices (as an example of indices challenges): We need Navigation folks to determine TARGET tonnage in each basin. That delivers a real number that industry and the economic growth indicators can assess vs a simple graph of High / Low tonnages that mean very little for an indicator.
- 190 Transportation: The Report Card team found insufficient information for half of the Transportation Indices. I will work with Bob Sinkler and see if we can assemble a group that might be able to identify data sources to improve this metric.

B.4 Economy**Identifier Comment:**

- 15 Economic indicators given poor grades. North Dakota has lowest unemployment in nation due to oil production and agriculture, both need MR (Miss River?) water for success.
- 67 Delta has 40% unemployment- how does grade reflect?
- 78 Surprised at D grade in employment & production (Econ)
- 152 River related jobs—manufacturing facilities that are built directly on the river. in Louisiana, 1 in 5 jobs is related to the river

Identifier Comment:

169 Economy: It occurs to me that measuring employment by sector for each sub-basin and for the whole basin and scoring it relative to a national average standard deviation doesn't provide a relevant view of the economy in each basin. Each basin, and each state even, in this country has different challenges and opportunities, different resource, environmental, and social constraints, as compared to other states. It's unclear to me how it is relevant to grade each basin for their employment in different sectors compared to that of the national average then. [I'm not an economist, so I do not have a relevant suggestion for an alternative that differs from what is mentioned in the comments.] I generally agree that it would be worthwhile to develop a metric that focuses on the effect of waterways on jobs, but also see that as a nearly impossible task. For example, many tourism bureaus have statistics on the impact of "water tourism/recreation" on the state economy, but that does not give any insight into the transport industry, or into the energy sector, etc.

Economy: Under the current scoring system, the economy of the Lower Mississippi River Basin is better than the Missouri River system - which is certainly questionable. There were questions about why unemployment rate was not used. There were also thoughts that average education level and percent of students that were eligible for free lunches may be appropriate economic indicators.

189

B.5 Recreation**Identifier Comment:**

- 42 Recreation: not sure how you parse hunting/fishing licenses info to the Basin in the Lower Miss and Red??
- 53 What metrics were used for participation, designated use, etc
- 81 Missouri recreation should be good with Katy Trail (?)
- 106 In much of Iowa and heart of the corn belt, stream and river quality is so poor that recreation is greatly impaired. Much of the fishing takes place in lakes and impoundments. So I'm surprised that recreation gets a B.
- 123 Hunting & fishing license sales are not sufficient to measure recreation. Not at all!
- 125 That recreation in the Ohio is so low.
- 187 HOWEVER, as was acknowledged by the team, there are still some real problems with the indicators and scoring methodologies. Specifically: Recreation: The team decided that there was insufficient information to address recreational access, but hopefully, some metric which can lead to an understanding of Access needs can be found. I understand that the LMRAA program has just completed their Recreational Assessment - perhaps there is something there.

B.6 Ecosystem

Identifier Comment:

- 27 invasive species threat is not highlighted conceptually in Upper River Basin (ie Asian carp from down river, other AIS via corridors from Great Lakes)
- 31 The categories in the ecosystem section. The categories are very much river oriented. Measures such as biodiversity or resilience indices might be considered for inclusion, likely others as well.
- 32 Nitrogen is green!
- 35 Absence (incorrect) of rare, T&E species identified in watershed (esp. Ohio & Tennessee)
- 37 Lots! Need to read supporting info. I am very surprised by the lack of rare, T&E species identified in some basins and wonder what else is missing.
- 40 where are you addressing carrying capacity?
- 64 Riparian Zones grade
- 124 On what basis did benthics & fish score low in Ohio/TN and in Lower Miss?
- 142 we hear about the Gulf hypoxic zone, but we don't hear about the hypoxic zones throughout the basin—a lot of this has to do with the local news. Hear local impact issues but not a media relationship.
- 167 Ecosystem: I would concur with the comments that overall wetland loss is much more relevant, and there is research that documents estimated wetland loss, circa the 1990s, as well as newer research documenting additional ongoing losses in the Midwest associated with agriculture (I believe this is available through USDA research). Other relevant ecosystem metrics might include land use land cover data, including land cover change data, to document the trends in land cover change threats to water quality and quantity. My personal opinion is that this should be analyzed across the watershed, not just in the riparian area, because all land changes and subsequent land runoff have impacts on ecosystem and waterway health.
- 168 I would also encourage, under ecosystems, that an additional metric be included to be called something like "Clean Water Act violations." This should focus on a combination of 402, 404, and 401 violations (EPA should have in a database) that have resulted in Notices of Violations and formal Enforcement Actions being administered. This would likewise illustrate a critically important element of water quality--what are business and industry, as well as municipal WWTPs, doing to enhance (or even maintain) the water quality of our waterways. Business and industry won't like this being on the report card, but it's perhaps one of the most relevant factors when considering a watershed's collective health. It also presents a nuanced picture of the variation from state to state on enforcement of water quality standards and programs.

Identifier Comment:

- 181 Eco-system restoration category heavily weighs individual nutrients without offering a window for all the eco-system services needed that are not yet represented in other spokes of the wheel. Nutrients individually might not be as important as fish so how can we capture the nutrient challenge with fewer sub-categories.
- 188 Ecosystems: The US EPA National Rivers and Streams Assessment 2008-2009 was used as a basis for the ecosystems assessment. When the results for the Lower Mississippi River were presented to a group of aquatic ecologist from ERDC, the USFWS, and various state fish and wildlife agencies about a week before the workshop, the group disagreed strongly with the scoring. I will make a point to provide the data sources and references to that group and try to provide suggestion to the AWI Report Card team. Additionally, the Lower Mississippi Scored poorly on phosphorus concentrations, but, there is little or no anthropogenic phosphorus applied to field in the lower Mississippi. Should the area be scored lowly due to natural background conditions?

B.7 Whole Watershed Indicators**Identifier Comment:**

- 38 ecosystem indicators missed the mark completely- sediments are not moving down river to sustain the Delta; abundance & biodiversity seen by Lewis & Clark no longer exists, T&E species not addressed, hypoxia zone needs to be decreased and then eliminated, otherwise results cannot be a C, ie "average" with F's and D's, can not meld into a C.
- 76 Absence of hydropower as a major category or sub-category (under water supply or ecosystems)
- 102 Wetlands are a fundamental asset of the system and given the little or no recognition in this report card. A comprehensive plan to restore the MS River delta wetlands is a singular opportunity missed here.
- 137 Inclusion of coastal Louisiana in report card:
Is the intent to break off the coastal Louisiana? Add a different report card for coastal Louisiana—more integrative of the entire Mississippi watershed.
The basin is like an hourglass—take out the delta portion and look at that differently. It is not the watershed down there? Why are we including coastal Louisiana—it is not the watershed. There is part of it that is not the river, it will be Texas.
The original thought was to use the USGS boundaries—just so we are consistent throughout the entire watershed.

Identifier Comment:

- 138 Migratory birds coming across Gulf in the spring and dispersing across the basin often need the coast habitat—is this more critical than other parts of the coast?
- 139 when you were having the public meetings, how many times did you hear up and down the river that there was a connection? There were 5 meetings held upriver that had participants—the connection between what happens upstream needs to be made.
- 140 Master plan to restore the delta—why wasn't it referred to?
- 141 Survey of Iowa farmers. Question: do you think that nutrients from Iowa farms impact hypoxia in the Gulf of Mexico. 51% said yes. 85% Farmers agree that nutrient affects hypoxia Gulf.
- 144 Dealing with this as two rivers—not has one river. Shouldn't we be looking at this as one whole river system? At the end of the day it makes little difference if there is a drought upriver—at the end of the day the river has stopped functioning.
- 146 How do we get from the basin mindset to the bigger awareness? In some areas it already is being thought of as one river (there are programs that look at both basins together, Mayors program, Mississippi River network program)—identify what groups aren't working at that level. Transportation, water quality, lifestyle
- 163 Common threads of stress points that people are feeling in their cities whether cities are large or small (storms)—the problem is that those risks are coming in greater frequencies and are larger each time. The drought was unprepared for, but 'we got really lucky'. Climate resiliency—a master of solutions that is around making the systems of the Mississippi River more resilient to climate affects/interruptions—becoming more frequent and very expensive.
- 164 Maybe the next generation needs to include climate resiliency
- 165 USACE, NOAA, USGS: all have an MOU looking at longer term forecasting. The kind of information and science that may be driving that will be available at a new school.
- 194 Mayors & Miss Riv network (Existing groups)
- 195 Issues that link basins (tramps, WQ, water quantity)
- 196 Migratory animals (birds, fish, butterflies)
- 197 Export products
- 198 Flood management (eg. Reservoirs)
- 199 67 river centers (Ken Burns)
- 200 Immigration, music, cultures, Native Americans
- 201 Indicators don't reflect risk (lock loss, drought)
- 202 Climate readiness/resiliency
- 203 Prompting Actions? Trend analysis, vision, action
- 204 Risk (Mayors): Increasing frequency and magnitude
- 205 Long term forecasting (nev amores?)
- 206 Only 51% Iowa farmers agree that nutrients affect Gulf of Mexico hypoxia

Identifier Comment:

- 207 85% Iowa farmers agree that nutrients affect Iowa waterways
- 208 Ag sector and fed agency involvement
- 209 Historically low awareness
- 210 Whole river integrity
- 211 Local mayors, ag community awareness

Appendix C: Comments on Next steps

Identifier Comment:

- 2 Who "owns" the report card and who will be responsible for the next report card?
- 30 none really you've done well keeping us informed along the way
- 39 expand contributions, it's "America's" watershed not just the experts in each basin. Grain produced in a basin, transformed into ethanol due to national policy that goes into the cars we all drive.
- 43 White paper
- 55 Just to stay involved and informed to maintain and increase agency participation for now.
- 56 How can WisDOT help?
- 62 How can the report card tie the different factor together? Eg Ecosystem health impacts rec. How can these issues be taken out of silos?
- 84 I'm a data provider, but need funding to gather and platform to deliver.
- 86 Seem to be on target with actual conditions- 'for most part' some variances.
- 98 The extent of work done over past 2 years is commendable and rewardable! Congratulations!!
- 103 The committee appears to need better research outcomes from lower MS gained over past decade.
- 105 Why are there no people of color in this room
- 113 The depth is great! Graphics are so helpful! Amazing amount of info.
- 121 Biggest surprise is disconnect from 2007 NRC Mississippi River document.
- 135 Format is OK but I think it needs to be modified to show the paddlewheel on its own page apart from the sub basins.
- 172 It's Personal: Assure that Public Local energy, passion, and ingenuity to the table (employ methods to get the feedback from those directly impacted and those that directly benefit).
- 173 Glass Ceiling (\$): There is a funding ceiling that is established by the appearance of budget conditions and all sectors wrestle for funding under that artificial glass ceiling. The amount of money is woefully insufficient to deliver the nation's current demands (operates ~ 30% of investment capability). So, if every sector would bring additions or "pots" of funding to the table above the "ceiling" then the traditional angst would be mute and the collective voice would be strong.
- 176 Communication: Ask Gen DeLuca to do a TED Talks on the issues with a tweak on future ... need professionals to work with him on background graphics and tighten message to fit format.

Identifier Comment:

- 177 Way Forward: Convene - Think - Act (with local public input/knowledge/support and view). A simple equation that is HARD to deliver but critically important to be disciplined and execute it... always asking people with their "hands on the plow" for input.
- 178 Gen Duke DeLuca Thoughts: Everybody understanding the VENUE or VENUES in which they can and will contribute to a holistic vision, when they feel they have something to contribute or defend. What is the operational way to create and have everybody understand these venues - could be a compilation of various venues - MRC public meetings, other collaboration venues regionally like UMIMRA and UMRBA who might bring things to an AWI watershed wide venue annually.
- 179 People won't have a means to collaborate in this holistic way without understanding the medium and venue in which to do so - until they understand this they will likely stay attached to their own micro-goals and programs without a larger view as feared in other comments.
- 180 MRC ought to ask AWI to present at MRC public meetings now that there is a draft report card and generate some more interest, exposure and discussion. AWI leadership could consider side visits with elected officials while moving along the river.
- 182 Next steps - what are they. As the feedback summaries from AWI /Conversant staff come out and a redone draft of the report card, a road map will be key to keep people contributing and involved.
- 183 Thoughts: I thought the conference was especially well run, and enabled great interaction and focus. My personal interaction with several stakeholders made it clear to me that a good many are focused on "their" desired outcomes, and not "our" watershed needs ... And as discussed, not all of the key players with agendas were in the room. The challenge of over-coming micro-agendas and personal biases remains the greatest strategic impediment to achieving progress on watershed-scale solutions.
- 184 Although I do not have any specific ideas on how to attack and overcome this challenge, I am convinced that this is the most important strategic challenge that must be overcome. We need to transition from a collection of opposing and intransigent interests, and work to become a collaborative group of working together with good will to find common solutions and overcome biases and individual perspectives ... It will take determined yet patient leaders who have credibility across interest groups to accomplish this. Which means TNC and similar organizations will be required to continue to lead the way.

Identifier Comment:

- 185 I concur with General Peabody's concerns about "regionalism" or "sectionalism" of the meeting participants. I heard several comments such as "don't these people realize there's a Delta down there that needs help now?" that indicated that there was still a primary focus on personal issues rather than watershed issues. In spite of this lack of shared vision, I also heard some comments that some folks were ready "to do something." They said they were tired of hearing folks talk about their different issues and ready to move to the next step, although I didn't hear anyone suggest just what the next step might be. I think it is possible that it might be difficult to sustain the group without "something" to galvanize their action.

C.1 What does the report card tell us?**Identifier Comment:**

- 25 what is the end goal & what does it mean to my (more local) constituency?
- 171 It occurs to me that this report card at present is primarily an assessment off the current status of these items, and their trends in certain instances, but in the context of what? In the context of fixing what is bad at present but just making it meet current standards? In the context of an alternative vision for the future? It seems that there needs to be a vision of where this is going, in which to frame this report. For example, if the consensus of participants in AWI submit that is in their interests to move the river towards a more sustainable system (economically, environmentally, and socially), then these categories and metrics should reflect this. A sustainable river system and basin is one vastly different from what we have at present, and vastly different from what current practices and policies require. If we want to move towards that, then we collectively have quite a bit of work on our hands. However, in the context of a vision that looks to maintain (or meet) status quo for navigation (which seemed apparent at the summit), that looks to try and be environmentally-conscious, and that is sensitive to our agricultural operations and economic drivers at present, then that results in a report card that illustrates significantly different grades and future focus. If this Report Card, and the Initiative, is expected to be taken seriously by any Clean Water groups (which I might add, were vastly under-represented at the summit), then it must strike a better balance between navigational needs, river management, fish and wildlife values, public water supply needs and use, and agricultural and industry needs and inputs.

C.2 How will the report card be used?**Identifier Comment:**

Identifier Comment:

- 20 How will report card result in actionable change? Where AWI focuses into the future? There role?
- 28 degree of incomplete analysis, especially in Upper Ohio River system- Allegheny, Monogahela.
- 85 How can scientists contribute in a meaningful way? Is there a liason between science and managers?
- 91 I understand the "report card" is a tool- how will it be used?
- 94 Who will take ownership of these grades and responsibility for owning goals that will seek to improve on goals?
- 97 What is hoped to achieve from report card?
- 99 Access to tools & data by constituent watershed stewards who are developing their own (?) indicators and score cards.
- 100 How do "smaller" watersheds participate? Cumberland River basin is 18,000 sq. miles, 2.5 million people, etc etc. What's the relationship?
- 110 How will we engage the political leaders and the public? Have you involved professional communicators- I would help...
- 111 Surprised ecosystems turned out fairly well. Think we probably need to use facts vs stories in the rating.
- 112 Interested in how we can use this interpretation- how to take it home to engage others.
- 114 Boil down for public consumption? How did you compare composite?
- 115 How will you share info? How will you measure annually or biannually? What will engagement be with public officials?
- 130 How will this information be used? What impacts/actions will result?
- 132 There (?) is not good in releasing formations to our congressional representatives when we need their support for funding to our transportation system.
- 143 Now have a state federal response to Mississippi River issues—actions are being taken. Nested local action—state alignment, smaller association alignment. Action needs to happen locally, support needs to happen at a state level, regional level, federal level.
- 145 Local action—membership of mayors in all ten states along the river. The economic wellbeing of their area and the jobs are impacted significantly by performance in the delta. The companies that work in the delta are headquartered in his cities.

C.3 What remains to be done to complete the report card?**Identifier Comment:**

Identifier Comment:

- 54 lack of transportation information/grade
- 61 Transportation needs to evaluate funding in terms of long-term sustainability. Money is poured into the UMR (Upper Miss River?) yet infrastructure continues to degrade. 95% subsidized.
- 73 The incompleteness of the data, particularly in the transportation sector.
- 77 No grade for stoppages and maintenance- two areas closely tracked and dissected by industry and US ACE (lots of data).
- 89 The amount of incomplete information/analyses. Is this throughout the entire basin or just along the river? (for things like recreation). The Corps collects most of this info on a yearly basis and analyses it. Also the map/conceptual model is incorrect in several things
- 92 Breadth of the scope and scales. Thought there would be more and better data- yet to come. Interested in what's next.
- 108 The grades are much higher than I would expect. Not really alarming at all. How can data progress as the years pass? Why no congress & legislative involvement?
- 134 Needs a lot of work on the transportation area.
- 136 Lack of data on transportation

Appendix D: Comments Requiring Corrections

Identifier Comment:

- 17 The basin map needs adjusting re: ND/SD/MT
- 48 30th in transportation
- 79 Agriculture maps needs to show Missouri as a livestock, corn, and soybean state.
- 80 Chris Klinklin works for Missouri Dept. of Agriculture NOT Natural Resources
- 122 On OH/TN page, it's just not true that TVA & COT provide services similar to ORSANCO.
- 101 I am with RTI and have experience with river access studies
- 186 Although we heard one comment to the contrary in the Wednesday evening session, I thought that the "format" for the report card was quite well done. I found the color coding very effective and it made it quite easy to compare the regions of the watershed, as well as "sum them up" into an overall score. I think using letter grades is an effective tool, and I suspect a "C" may well be a reasonable assessment for the entire Mississippi River Watershed, though perhaps not for all of the subbasins.
I believe that the six major Goals, Recreation, Ecosystems, Flood Control, Transportation, Water Supply and Economy are really pretty good. I think the paddlewheel analogy worked and should probably be continued. The videos shown that helped explain the process were effective and professionally done.
- 193 Finally, in the final breakout group session during the second day, when we were supposed to be talking about how the report card ratings were developed, the Upper and Lower Mississippi group got off on a tangent where they were just discussing characteristics of the basin. Several of the attendees left feeling as though they still didn't understand the rating system and still weren't too fond of it.

