

WICCI Science Council Meeting

Monday, February 1, 2010
DNR Science Operations Center
12:00 PM

ATTENDANCE

Members

- Dick Lathrop (Co-Chair)
- John Magnuson (Co-Chair)
- Erin Crain
- Lewis Gilbert
- Bud Harris
- Barry Johnson
- Chris Kucharik
- John Kutzbach
- David Liebl
- Pete Nowak
- Ken Potter
- Jack Sullivan
- Dan Vimont
- Bill Walker

Staff and Guests

- Tim Asplund
- Alison Coulson
- Kevin Gibbons
- David Hart
- Jim Hurley
- Elizabeth Katt-Reinders
- John Lyons
- Matt Mitro
- Steve Pomplun
- David Webb

ABSENT MEMBERS

- Sharon Dunwoody
- George Kraft
- Jim LaGro
- Pat Leavenworth
- Kristen Malecki
- Sandra McLellan
- Philip Moy
- Jonathan Patz
- Darrell Zastrow

SUMMARY OF ACTION ITEMS

- Elizabeth Katt-Reinders, Dick Lathrop, John Magnuson, Sharon Dunwoody, Alison Coulson, David Liebl, and Steve Pomplun should meet before February 22 to discuss specifics of how the assessment report will be compiled and written up.

SUMMARY OF MOTIONS PASSED

- John Kutzbach moved that WICCI co-sponsor the Green Bay Seminar Series.
- John Kutzbach moved that each Working Group be required to have at least two people who were not part of the drafting and analysis process of the Working Group report review the report and submit comments to the Working Group and the Science Council.

MINUTES

[12:03] Meeting called to order by Dick Lathrop.

Announcements, Introductions, and Approval of Meeting Minutes

January 11 minutes were approved unanimously.

Jim Hurley announced that the Water Resources Working Group has a staff member and a Project Assistant at UW-Madison who will be working on drafting their report. At Sea Grant people are working on the following projects:

- Development and application of a user-friendly interface for predicting climate change induced changes in evapotranspiration
- Response of Ice Cover, Lake Level and Thermal Structure to Climate Change in Wisconsin Lakes
- Climate Change Increases Sea Lamprey Impact in Lake Superior
- Determining and Mitigating the Effects of Climate Change on Stormwater Hydrology and Management for Great Lakes Coastal Communities

David Webb introduced Elizabeth Katt-Reinders who will be taking the lead on the assessment report. She discussed her academic and professional background, both of which have focused on environmental science and science communication.

Pete Nowak reviewed the Central Sands Hydrology Working Group report. He questioned whether the report was going to be used as an appendix in the assessment report or whether it would be used as their assessment. Chris Kucharik noted that he is looking for funding to continue related research.

John Magnuson said that he and others have been drafting rules for data sharing within WICCI, and they hope to bring the document to the March meeting to discuss.

Coastal Communities WG Presentation

David Hart presented on the status of the Coastal Communities Working Group. The outline of the group will follow the outline laid out in the report guidelines. The group's composition is made up of members from Sea Grant, UW-Madison, and a few other state and research agencies.

The focus will be on coastal development, infrastructure, harbors/marinas, dredging/sediments, water temperature/circulation, tourism, and natural plant communities. David Hart noted that fisheries are not included in that list, but fisheries issues may be addressed in later assessments.

He noted overlap with the Milwaukee, Green Bay, Water Resources, and Stormwater Working Groups, and he appreciated the January 7, 2010 meeting in which the members of these groups met and discussed each other's work.

He then reviewed fluctuating levels of Lake Michigan-Huron, noting how variable and unpredictable these changes are. He said that the big question is, "What is the future of these fluctuations?"

The prevailing thought has been that warmer temperatures, less snowpack, less ice cover, and more evaporation could mean a greater likelihood of lower lake levels. However, he said that the effects are not clear, and they will have to continue to investigate these relationships.

John Magnuson noted that there are two papers in press by that address 1) lower projected levels of the Great Lakes and 2) Great Lakes levels following the Pacific Decadal Oscillation fairly reliably.

He said that coastal flooding and coastal erosion are potential risks in the area. He said that NOAA will conduct an adaptation training workshop in the Midwest that members of their group would like to attend.

He identified residential development, power plants, water treatment facilities, shore protection, harbors and marinas, beaches, and hotel aesthetics as potential vulnerabilities.

He thinks more buoys measuring water levels, as well as nearshore bathymetry, as the group's data needs with the goal of creating an integrated water level map for the area. With these data, managers would be able to more effectively plan for record high and low lake levels. He also said they would use orthophotography to calculate rates of bluff and shore erosion.

He said that Sea Grant's Coastal Hazards Work Group is developing some of these resources. There are also data being processed regarding the lake shore elevation levels.

He sees this data collection process as a "first pulse" data collection.

A Wisconsin Coastal Atlas is under development that is modeled on the Oregon Coastal Atlas. It would offer a coastal geoportal, web cartography, domain SDI, spatial data archive, as well as other resources.

This broad range of data tools would contribute to decision making.

He also identified some potential adaptation strategies that the group has discussed.

He showed Science Council members a spatial decision tool that is used in Australia that maps potential flood events and displays photos of past events.

Ken Potter noted that we do not understand the decadal variability of the water levels of the Great Lakes, and Dan Vimont agreed that they are unable to map those levels well. Dick Lathrop and others noted that since there are no good predictors for the lake levels

that planning for high or low lake levels is a useful model. In the face of uncertainty, it seems useful to determine which fluctuations would have the greatest damage.

Pete Nowak noted that he did not mention impacts on shipping, and Dick Lathrop asked if wetland identification would be a part of their assessment activities.

Green Bay Working Group Presentation

Bud Harris presented for the group. He went over the outline of how their report would be structured.

They will start with an introduction and background on the Green Bay ecosystem.

Then they will review the present state of the bay, including the area of concern and impaired uses. He said that some impaired uses are due to PCB levels, but most are due to nutrient loading, which is of great concern when thinking of climate change. He reviewed many different stressors related to runoff and said that these variables could be altered by climate change and runoff. They will also review temperature extremes and changes over the seasons. He noted that changing water levels drive much of the ecological changes that occur over time, so they will address those fluctuations in this section of the report. Part of the present state of the bay will also be residential use indicators, such as beach advisories, boat registrations, and sport fishing licenses. Coastal wetlands, fish communities, and invasive fish species will be the last three sections of this section of the report. He said that Northern Pike and Sturgeon are of particular concern when it comes to climate change.

Next they will review the present runoff characterization. He reviewed watershed maps and the monitoring results for precipitation, seasonal event loads, watershed TSS, watershed phosphorous, cumulative loads, and relationship of soil phosphorous to dissolved phosphorous.

He said that up to this time their group has conducted two workshops using the framework for developing adaptive strategies. The experts in these workshops identified that runoff is a serious threat to the ecosystem. They have also identified and ranked the conservation targets that are most vulnerable, as well as the threats that are most pressing. After identifying these stressors and conservation targets, they then conducted a sensitivity analysis, and they will present those results in the report.

He said that their next step is to develop adaptive management strategies during a workshop in March. He said that preliminary results from this workshop will likely be added to the assessment report.

Their report will end with an update and review of research projects that would build off of these workshops. Initial activities would utilize SWAT models to model runoff.

Dick Lathrop noted that they used the SWAT model for the Yahara Lakes, and the model did not catch the March snow melt that Bud Harris identified as a big source of nutrient loading.

David Liebl asked if the group has identified who would be responsible for enacting the adaptation management strategies that they have identified in the workshops. Bud Harris said that they have been thinking about it, but that policy makers and managers have not been involved in the process yet.

John Kutzbach asked about temperature data. Bud Harris said that the reliable data set only goes back until 1986, so they would not be able to run the models to include the 1970s with those data.

Tim Asplund praised the Green Bay Working Group for going through this process at the watershed level and then proceeding to involve policy makers in the future. He said that the Water Resources Working Group may encourage this type of assessment activity all over Wisconsin.

Green Bay Seminar Series

Bud Harris said that they have a few sponsors for their seminar series, which is the next step in their plan for the assessment.

Motion: John Kutzbach moved that WICCI co-sponsor the Green Bay Seminar Series. It was seconded by Jack Sullivan and approved unanimously.

Coldwater Fish & Fisheries WG Presentation

Matt Mitro presented for the Working Group. They are addressing impacts of climate change on coldwater fisheries in streams and inland lakes in Wisconsin. He said that John Lyons and other authors have written a report modeling fish distribution throughout the state and projecting how air and water temperature fluctuations would affect those populations – focusing on one-, three-, and five-degree air warming scenarios, which would translate into smaller increases in water temperature. The report is initially under review. He said that they will incorporate a soil and water balance model to give a more dynamic look at recharge into streams.

He reviewed how these fluctuations are modeled to affect Brook trout, Brown trout, and Mottled sculpin. Brook trout will be affected most strongly, and Brown trout are projected to fare better than the other two species.

He then reviewed the accuracy of the models and the factors that they incorporate.

He said that there will also be results presented for coolwater fish and some species of inland lakes. He also noted that land use has significant impacts on these species.

Matt Mitro reviewed different adaptation strategies that their group has discussed and hopes to present in the assessment report.

Dick Lathrop asked about the accuracy of their models for the relationship between air and water temperature. John Lyons said that the models only utilize summer temperatures (since that is the limiting time of year for most of these species) and that they do not take all factors that affect temperature change into account and says that they likely overestimate the change in water temperature, which is why some of the projected population declines are so severe.

Jack Sullivan asked for John Lyons and Matt Mitro's reactions to the coolwater projections. John Lyons noted that they expected coolwater species to be affected but not to levels comparable to those of coolwater species, which is what the projections show.

David Hart suggested that Coldwater Working Group overlay the maps of the current, best, moderate, and worst projections to highlight which streams should be targeted and which stream suffer in different scenarios.

John Lyons noted that their projections show that instead of southern watersheds suffering steep declines and northern ones faring well, the models show a thinning of populations across the whole state and smaller streams suffering more severe losses than larger streams. Matt Mitro noted that groundwater-fed streams may see a shrinking and localizing of coldwater fish populations as water temperatures fluctuate less upstream but warm more downstream.

John Lyons said that there will be a net loss in stream value and biodiversity because bass and other populations are not likely to fill these different areas unless they are introduced.

John Magnuson noted that their data is useful for DNR to choose which streams to dedicate resources to. He also asked if dams were going to be a part of their assessment since they have significant effects on water temperature.

[2:10] Short Break

Assessment Report: Preparation, Peer Review, Editing, and Authorship

John Magnuson mentioned that the method for coordination among the groups and the editor has not been determined. Dick Lathrop brought up the issue of authorship. He said that WICCI will be the author of the full assessment report, and the working groups will decide who is identified as the authors of those reports.

Dick Lathrop said that he is concerned about the peer review process and vetting individual working group reports. Dan Vimont mentioned a process that started with a friendly review, followed by an open review. Chris Kucharik and Lewis Gilbert liked the idea of an open review process that could improve the products.

Ken Potter and Pete Nowak said that an internal review process should be enough. Articles could then be submitted for peer review, but that is a longer process. Pete Nowak noted that a report will be published regularly, and future iterations will take public comments into account.

Erin Crain asked what the role of the Advisory Committee will be. Alison Coulson noted that there will be an Advisory Committee meeting in May, and that may be a good opportunity to present WG reports. Lewis Gilbert said that the meeting would be a good forum for getting feedback and comments on the reports. He said we should ask, "Will these reports be useful for you in your decision making?"

John Magnuson liked that the review would be done by people whom the report is aimed to target, and many Science Council members agreed. Erin Crain and Bill Walker noted that the Advisory Committee should be told what kind of feedback they should give and how much influence their input could have on the report.

Lewis Gilbert says that we should ask about the structure of the presentation of the report initially, and in the second round of reviews, the Advisory Committee should be able to comment on whether or not WGs have been asking the right questions.

John Kutzbach noted that he worries about the vetting of these products and that it might be useful for each WG to identify at least two people outside of the group who could review their work. He said that Science Council members do not have sufficient expertise to read all of the reports critically because they do not all understand the models and methods used by different working groups.

Jack Sullivan said that if we are interested in doing this additional review process, that we should inform the WGs of these guidelines so that they can make the necessary preparations.

Pete Nowak suggested that some people talk to Judy Ziewacz, Gary Radloff, and other legislators to see how this report would be received in political circles around the state. David Liebl said that the Outreach Committee will address this concern.

John Magnuson noted that it is not entirely clear how the assessment report will be written, and he thinks the editor should meet with the overview writers to discuss this topic.

Action Item: Elizabeth Katt-Reinders, Dick Lathrop, John Magnuson, Sharon Dunwoody, Alison Coulson, David Liebl, and Steve Pomplun should meet before February 22 to discuss specifics of how the assessment report will be compiled and written up.

John Kutzbach reiterated that he would like a process for identifying additional reviewers and that the Science Council should see those reviewers. Bill Walker noted that in some part of the report there should be a section in which the review process is discussed.

Motion: John Kutzbach moved that each Working Group be required to have at least two people who were not part of the drafting and analysis process of the Working Group report review the report and submit comments to the Working Group and the Science Council.

The motion was approved unanimously.

Agenda Items for March 1

- Review of the process for compiling, reviewing, and writing the assessment report
- Dan Vimont will discuss the issue of uncertainty and how it is addressed in the IPCC reports.
- Report from the Outreach Advisory Committee meeting

[3:11] Meeting Adjourned

APPENDIX

Meeting Agenda - February 1, 2010

12:00	1 – Welcome and Introductions
12:05	2 – Announcements and Approval of Minutes from the January 11 Science Council meeting
12:15	3 – Coastal Communities Presentation (David Hart)
12:45	4 – Green Bay Presentation and Seminar Series (Bud Harris)
1:15	5 – Coldwater Fish & Fisheries (Matt Mitro)
1:45	6 – Break
1:55	7 – Assessment Report: Preparation, Peer Review, Editing, and Authorship
2:25	8 – Discussion of Uncertainty in the Assessment Report
2:55	9 – Request for Agenda Items for March 1 Meeting
3:00	10 – Adjourn