

1<sup>st</sup> Meeting of Aquatic Habitat Subcommittee of the Natural Areas Technical Advisory Committee Minutes

SEWRPC Office

1:00 PM, Wednesday, January 29<sup>th</sup>, 2020

The following members of the subcommittee were in attendance:

Dr. Thomas Slawski (Chair)...Chief Biologist, SEWRPC

Dr. Justin Poinatte (Secretary)...Senior Specialist-Biologist, SEWRPC

Dr. Bob Anderson...Emeritus Professor of Biology & Marine Biology, Wisconsin Lutheran College

Jill Bedford...Land Conservation Consultant, Tall Pines Conservancy

Tom Burzynski...Advanced Fisheries Technician, Lake Michigan Southern Field Unit, Wisconsin Department of Natural Resources

Dale Buser...PE, PH, Principal Specialist-Biologist, SEWRPC

Dr. Dan Carter...Principal Specialist-Biologist, SEWRPC

Craig Helker...Water Resources Management Specialist, Wisconsin Department of Natural Resources

Benjamin Heussner...Fisheries Biologist, Wisconsin Department of Natural Resources

Lisie Kitchel...Conservation Biologist, Bureau of Endangered Resources, Wisconsin Department of Natural Resources

Cheryl Nenn...Riverkeeper, Milwaukee Riverkeeper

Dr. Mike Pauers...Adjunct Curator of Fishes, Milwaukee Public Museum, Assistant Professor of Zoology, University of Wisconsin -Waukesha

Dr. David Rogers...Associate Professor in Biological Science, University of Wisconsin-Parkside

Dr. Christopher Tyrrell...Research Curator, Milwaukee Public Museum

Will Wawrzyn...retired, Fisheries Biologist, Wisconsin Department of Natural Resources

The following subcommittee members were not in attendance:

Jason Dare...Principal Ecologist, Conservation Management Services, LLC

Dr. Josh Kapfer...Associate Professor and Certified Wildlife Biologist®, University of Wisconsin-Whitewater

Dr. Todd Levine...Senior Lecturer in Biology, Carroll University

Andrew Struck...Director, Planning and Parks Department, Ozaukee County

The intention of the meeting was to review the previous scheme for ranking aquatic habitat within Southeastern Wisconsin and to discuss new elements, metrics, and data sources that could be utilized in the revised classification scheme.

Prior to meeting, Tom Slawski and Justin Poinatte provided supplemental materials in preparation for the meeting. These materials included a link to the Wisconsin Wildlife Action Plan website (<https://dnr.wi.gov/topic/wildlifehabitat/actionplan.html>); tables 3.3, 3.4, 3.5, and 4.4.1 from the Wildlife Action Plan; excerpts from SEWRPC Planning Report 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin; and a meeting agenda. At the meeting, Tom Slawski and Justin Poinatte shared a handout summarizing the goal, proposed approach, and proposed elements and data/indices for the revised scheme with the subcommittee. These materials are posted at <https://www.sewrpc.org/SEWRPC/NaturalResources/RegionalNaturalAreasPlan.htm>.

Tom Slawski and Justin Poinatte presented on the background, scope, and schedule for the revised aquatic habitat classification scheme, the classification scheme developed for the 1997 plan, and proposed elements for inclusion in the revised scheme. The following notes summarize discussion for each of the discussion topics:

## **Schedule, Scope, and Background**

- Revised lake and stream classification scheme to be completed by June 2020, full data acquisition and scheme application to be completed by June 2021, and completed Natural Areas Plan Update by December 2022.
- Discussed the point allocation (0 to 5) and explicit element weighting used in the 1997 terrestrial natural areas scheme compared to the stream and lake natural areas schemes. The terrestrial scheme contains a point allocation that is easy to understand and percent weighting to control the relative influence of each sub-element of the overall score. In contrast, the stream and lake natural areas schemes contain negatives and differing point totals that are not easy to understand, and did not use weighting techniques to better control the influence of scored parameters. Therefore, it was proposed to emulate the terrestrial natural areas scheme approach for the revised aquatic stream and lake natural area classification schemes. There was general consensus from the subcommittee on this proposal.

## **Stream and Rivers Classification Scheme**

- Water Quality
  - 1997 scheme used documentation of “water quality problems” and streambed sedimentation to rank sites.
  - Proposal to explore use of stream impairment status, as denoted by a Section 303(d) listing, and/or listing on Outstanding and Exceptional Resource Waters in lieu of previous metrics for revised classification scheme. There was general consensus on this proposal.
- Physical Characteristics
  - 1997 scheme gave higher rankings to streams with fewer channel modifications and greater total reach length.
  - Discussion on how a specific total reach length was not an especially informative metric and how reach identification could be adopted from the WDNR Hydro 24K database, which is used as the framework for the streams natural community classification.
  - Proposal to explore use of land use data, including percent agricultural land, percent imperviousness, and/or percent urban land within a set distance from the stream reach. There was general consensus on this proposal.
- Connectivity
  - 1997 scheme gave higher ranking to sites with connection to other upstream or downstream critical aquatic areas.
  - Proposal to expand this connectivity ranking to include critical terrestrial areas as well as aquatic areas and to consider lateral connections as well as upstream/downstream connections. There was general consensus on this proposal.
  - Suggestion to incorporate groundwater recharge, aquifer levels, and sewered vs. unsewered areas into connectivity rankings.
- Fish
  - 1997 scheme gave higher rankings to sites with higher fish diversity as well as for having special concern, threatened, and endangered fish species. In addition, sites were ranked higher if they were designated a Class I or II trout stream.
  - Discussion regarding trout stream status and whether only trout streams with naturally-reproducing populations of native brook trout should be considered for the revised classification scheme. Further discussion on the potential of incorporating aquifer and/or groundwater elevations into the classification scheme.

- Proposal to explore use the stream natural community classification to guide application of fish indices of biotic integrity (IBIs) developed for each natural community by Lyons et al. Other metrics, including fish species diversity, rare or threatened species, and number of intolerant species, will also be considered for inclusion.
- Discussed the availability of fish survey summary metrics (e.g., IBI, species richness, number of intolerant species) from the WDNR fish database. Confirmation that summary metrics could be retrieved from the database and shared with the subcommittee. Craig Helker, Ben Heussner, and Tom Burzynski agreed to coordinate with SEWRPC staff to retrieve fisheries data and IBI metrics.
- Macroinvertebrates
  - 1997 scheme ranked gave higher rankings to sites with Good to Excellent ratings from Hilsenhoff's Biotic Index (HBI).
  - Proposal to explore use of several summary metrics from macroinvertebrate metrics, such as the macroinvertebrate IBI used by WDNR, HBI, and species richness. Discussion regarding acquisition of summary metrics from the Surface Water Integrated Monitoring System (SWIMS) and whether this data differs from the data available on SWDV.
  - General consensus on exploring the use of these metrics for the classification scheme.
- Mussels
  - 1997 scheme gave points to sites with mussel species and more points to sites with special concern, threatened, and endangered mussel species.
  - Proposal to explore use of mussel observations in Wisconsin Mussel Monitoring Program for classification scheme. Discussion regarding whether distinctions given to living vs. dead vs. fossilized dead mussels and/or juvenile vs. adult mussels in iNaturalist observations. Clarification that the Mussel Program made no such distinctions. Lisie Kitchel agreed to coordinate with SEWRPC staff to share historic and current mussel records.
  - Discussion regarding current lack of Wisconsin IBI for mussel species and potential application of Illinois mussel IBI for the classification scheme. SEWRPC staff will explore application of Illinois mussel IBI further.
- Riparian Buffers
  - 1997 scheme gave higher rankings to sites encompassed by primary environmental corridor.
  - Discussion regarding effectiveness of different buffer widths for riparian function, water quality improvements, and wildlife habitat protection.
  - Proposal to disregard use of primary environmental corridor and instead explore using the percent of undeveloped land within a set distance of stream reaches from SEWRPC land use data. There was general consensus on this proposal.
- Rare Species
  - As previously mentioned, 1997 scheme gave higher rankings to sites with special concern, threatened, and endangered fish, mussel, and herptiles species.
  - Discussion regarding inclusion of rare species as separate element in classification scheme, the weighting of these species in the overall scheme, and availability of species observations in the Natural Heritage Inventory (NHI) database.
  - Josh Kapfer Provided an email to SEWRPC staff prior to this meeting that indicted the list of herptile species of greatest conservation need in the Wisconsin Wildlife Action Plan was reasonable for the Southeastern Regional area, with some minor exceptions potentially concerning queen snake designations. He proposed to meet and further discuss problematic species with SEWRPC staff.

## Lakes Classification Scheme

- Water Quality and Lake Size
  - 1997 scheme gave sites higher rankings for mesotrophic and oligotrophic status using Wisconsin Trophic State Index (TSI) values and gave higher rankings to larger lakes.
  - Proposal explore use Section 303(d) impairment listing and/or listing in Outstanding and Exceptional Resource Waters for classification scheme. There was general consensus from the subcommittee on this proposal.
  - Discussion regarding use of lake natural community classification and data availability for small lakes (less than 10 acres). Summary metrics on number and percent of lakes in each natural community class within Southeastern Wisconsin were shared with the subcommittee.
  - General consensus on proposals to exclude small lakes from the classification scheme and to explore use of TSI condition thresholds for each lake natural community, as delineated in WisCALM 2020.
- Fish
  - 1997 scheme gave higher rankings to sites with special concern, threatened, or endangered fish species.
  - Discussion regarding fishery classification for lakes developed by Rypel et al., 2019. Summary metrics on spatial extent, number, and percent of lakes in each fishery classification within Southeastern Wisconsin were shared with the subcommittee.
  - General consensus on proposal to explore incorporation of the Rypel et al. lake fishery class metric into the classification scheme.
- Aquatic Plants
  - Aquatic plants were not explicitly incorporated into the 1997 classification scheme.
  - Discussion regarding use of data and metrics developed from aquatic plant point-intercept surveys using standardized WDNR grids for classification scheme. General consensus regarding proposal to explore use of aquatic plant summary metrics, including species richness, floristic quality index (FQI), and the frequency of occurrence of invasive species.
  - Additional discussion regarding macrophyte bioassessment model developed by Mikulyuk et al., 2017. Model results are generated for each aquatic plant survey through the WDNR aquatic plant database. SEWRPC staff will explore retrieval of modelled conditions from WDNR and potential use in classification scheme.
  - Suggestion to incorporate presence of wild rice into revised classification scheme.
- WDNR-Designated Sensitive Areas
  - Sensitive Areas were not explicitly incorporated into 1997 classification scheme.
  - Discussion regarding development of Sensitive Areas and applicability for the classification scheme. General consensus that Sensitive Areas would not be considered for the scheme.
- Mussels
  - Mussels were not incorporated into 1997 classification scheme for lakes.
  - Mussel observations in lakes are available through Wisconsin Mussel Monitoring Program, but these observations are more rare than stream observations. Further exploration into lake mussel data should be pursued before inclusion in revised lake classification scheme.
- Macroinvertebrates
  - Macroinvertebrates were not incorporated into 1997 classification scheme for lakes.
  - Far less macroinvertebrate observations and surveys in lakes than in streams. Proposal to exclude macroinvertebrate data from revised lake classification scheme.
- Riparian Buffers
  - 1997 scheme ranked lakes higher for having less shoreline development.

- Unclear exactly how shoreline development was determined or measured in 1997 classification scheme. General consensus on proposal to utilize percent of undeveloped land within set distance of lake shoreline, similar to proposal for streams, in lieu of shoreline development.
- Connectivity
  - 1997 scheme gave higher rankings to lakes with connection to critical habitat areas at lake inlet and/or outlet.
  - Similar to the stream connectivity, there was a proposal to incorporate connectivity anywhere along lake shoreline, not just at inlet and outlet. General consensus on this proposal by the subcommittee.
  - Discussion regarding difference in approach between site-based terrestrial natural areas ranking and the approach used for the aquatic habitat. Further discussion regarding “ballooning” of critical species habitats based on increasing availability of information.
- Rare Species
  - 1997 scheme gave higher rankings to sites with special concern, threatened, and endangered fish and herptiles species.
  - Proposal to incorporate these species from NHI and Wisconsin Wildlife Action Plan as was discussed for the revised stream classification scheme. Discussion regarding reporting of NHI data and how direct mapping of this information is not allowed.

#### **Other Discussion Topics**

- Use and Recommendations from Natural Areas Plan
  - Discussion regarding the use of these natural area rankings and whether they were afforded any special protections. Clarification that 1997 natural area plan did not provide any specific recommendations regarding management of these natural areas except that WDNR should protect them. Recommendations would preferably be developed for these areas in revised natural areas plan.
- Indicator Species
  - Suggestion to consider using indicator species instead of biotic indices for several of the aforementioned metrics, as indicator species may be more sensitive and thus capture high-quality sites better than indices.
- Range of Data Inclusion
  - Brief discussion on the earliest date for data inclusion. Terrestrial natural areas using more “recent” data from 1970s and beyond.
- Watershed test case
  - Proposal to choose a watershed that has several lakes, a range of stream natural communities, varying land uses, and availability of aquatic plant, fish, macroinvertebrate, and mussel data to test out revised classification schemes.
  - Suggestion to consider Oconomowoc River watershed as initial test case.