

2019 Additional Information (FY20)

ENRTF ID	Title	Organization	Project Manager
001-A 004-A	Minnesota Biological Survey – Continuation Minnesotas Ecological Monitoring Network - Continuation	MN DNR	Bruce Carlson Hannah Texler
030-AH	City Bats and Country Bats - Whats the difference?	U of MN - Duluth	Ron Moen
031-AH	Walleye Habitat Status to Guide and Prioritize Management	MN DNR	Gretchen Hansen
119-C	Water Lab: Engaging Minnesotans in Water Quality Challenges	Science Museum of Minnesota	Patrick Hamilton
120-C	GreenStep Schools: Statewide Program, 20 School District Pilot	U of MN	Beth Mercer-Taylor
225-F	Sauk River Dam Removal and Rock Rapids Replacement	City of Melrose	Michael Brethorst
258-G	Turning Back to Rivers: Creating Recreation Opportunities	The Trust for Public Land	DJ Forbes

June 26, 2018

TO: LCCMR members and staff
FROM: Bruce Carlson, Supervisor, DNR MN Biological Survey
RE: ML19 Proposals 001-A and 004-A; MN Biological Survey response to questions asked by LCCMR Member, Della Young.

*What is the difference between Minnesota Biological Survey (001-A) and Minnesota's Ecological Monitoring Network (004-A)?

001-A:

The focus is on *survey* as opposed to *monitoring* (see also page 2). It is designed to determine the presence (or absence), distribution, and abundance of native and rare species and native plant communities.

The project proposes to achieve a significant milestone: finish the last remaining field surveys for the statewide, county-by-county biological survey begun in 1987. This will complete the data gathering component of the project, MN (County) Biological Survey 1987-2021.

The project also proposes continued baseline surveys of aquatic lake plants, native moths (pollinators), native prairie, and select sites of high biodiversity significance.

004-A:

The focus is on *monitoring* as opposed to *survey* (see also page 2). It is designed to detect and measure change through time of forests, wetlands, and grasslands. This project relies on data and information produced by 001-A (previous ENRTF appropriations).

The focus is on *long-term, statewide monitoring* of the *status and trends* of native vegetation as opposed to short-term, cause-and-effect monitoring.

The data will allow us to provide reliable *statewide* estimates and information on how forest, wetland, and grassland *vegetation* changes through time. Minnesota currently does not have a data-driven system that can track statewide changes in native vegetation through time.

*What is foundational data gathering vs. research?

MBS collects data and organizes projects under one of three approaches described below. Each of these can be designed as needed to focus on broad, foundational needs or more narrowly defined, specific needs.

Survey

- Designed to determine the presence (or absence), distribution, and abundance of a species or native plant community.
- Survey is the method used by MBS in the statewide county biological surveys (i.e. ML19 001-A).
- Survey is often necessary or requisite before certain types of monitoring or research are possible.

Monitor

- Designed to detect and measure natural or human-influenced change through time of species, native plant communities, or landscapes.
- The distinction among monitoring and research may not always be sharp.

Research

- Designed to address specific questions, detect patterns or relationships, or test alternatives.
- Unlike monitoring, research is not by definition about change through time, although it can be.
- The distinction among monitoring and research may not always be sharp.

*What is traditional work by MBS vs. something “extra?”

Traditional work is the work we are mandated to do and the highest priority work we accomplish given limits on funding, staffing, and Dept. priorities.

Examples include:

- i. Subject matter expertise and technical guidance on Department priorities, policies, and projects that affect Minnesota’s biological diversity.
- ii. Management of the state’s Natural Heritage Information System.
- iii. Data collection and analysis directed at
 - a. specific Dept needs (e.g., monitoring the outcomes of land management; environmental review; state list of ETS species).
 - b. foundational or broad needs (e.g. plant, animal, and plant community locations and condition)
- iv. Project management and subject matter expertise for ENRTF and other special projects.
- v. Products and outreach related to the above.

Something Extra is the high-priority work that cannot be accomplished or the good ideas that cannot be acted upon within current base funding, staffing, or other limitations.

Examples include:

- i. Acceleration, enhancement, or expansion of traditional work;
- ii. Addressing critical gaps in data and information;
- iii. Updating existing data and information;
- iv. Statewide baseline surveys for species and plant communities;
- v. Addressing new or emerging data and information needs;
- vi. Intensive or very specialized data collection and analysis;
- vii. Developing specialized products and outreach.
- viii. New or novel ways to increase utility of existing data and products.
- ix. New or novel ways to collect, manage, and deliver ecological data.

ENRTF ID: 030-AH City Bats and Country Bats - What's the Difference

From: [Ron Moen](#)
To: [Diana Griffith](#)
Cc: [Morgan Swingen](#)
Subject: Clarification on 030-AH if allowed
Date: Wednesday, June 20, 2018 11:08:00 AM

Hi Diana,

If allowed, we would like to follow up with some additional thoughts on our response to the question by Representative Hoppe regarding the differences between our proposal 030-AH (City Bats and Country Bats - What's the difference?) and the proposal 015-A (Minnesota's Imperiled Bats - Protecting the Survivors) presented by Gerda Nordquist at the 6/19/2018 LCCMR hearings.

Results of our proposal (030-AH) will fill the knowledge gap on bat communities and space use in areas of higher human population densities, and in addition, we will identify higher level impacts bats have from biological and economic perspectives. This is particularly important with current bat population declines caused by WNS.

Proposal 015-A focuses on important surveys of winter hibernacula in Minnesota and on monitoring summer bat roosts, with an additional public outreach component. Winter surveys are very important, because some of the hibernacula have not been visited for over 30 years. Summer roosts are important for survival and reproduction of bats that make it through the WNS problem.

We do believe that public outreach and engagement is important, and we expect that our proposed project would generate media interest (as our past projects have), and we would add our city bat / country bat project to our current website.

The projects can complement each other, and do not duplicate effort. For example, we will be identifying summer roosts as part of our telemetry work that could be included in the summer roosts for Gerda's project. Gerda's project could provide bat scat for us to analyze to identify insect prey that are eaten. We have a 3+ year history of working together on the ENRTF ML 2015 *Endangered Bats, White-Nose Syndrome, and Forest Habitat* project, and would certainly work out ways to increase efficiencies of both projects if they were funded.

Please feel free to contact us if additional clarification is desired. We appreciate the consideration of our project by the LCCMR.

Thanks,
Ron Moen and Morgan Swingen

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Ron Moen 218-788-2610 or 218-726-7774
Natural Resources Research Institute
Biology Department, Swenson College of Science and Engineering
University of Minnesota Duluth

www.d.umn.edu/~rmoen, www.nrri.umn.edu/lynx, www.nrri.umn.edu/moose



Fisheries and Wildlife
500 Lafayette Road
St Paul, Minnesota 55155

July 6, 2018

LCCMR Commissioners
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 65
St. Paul, MN 55155

Dear Chairman Heintzeman and Commissioners,

Thank you for the opportunity to present on our proposal for LCCMR funding to research *Walleye habitat status to guide and prioritize management* (Proposal 031-H). I would like to provide some follow-up information in response to your questions.

First, Commissioner Faber asked whether the current system used for setting walleye harvest quotas for lakes in the 1854 Ceded Territory has been successful. We responded that we don't know yet whether the system is successful, and would like to explain further. Walleye quotas in the 1854 Ceded Territory are based on thermal-optical habitat area estimated using a model created for Ontario lakes over a decade ago. This Ontario model does not allow for changing water clarity or temperature, and has not been evaluated in terms of its success for setting harvest in Minnesota lakes over time as these conditions change. This quota system has only been in place for four years, corresponding with the initiation of tribal harvest in this area. Thus, is too soon to evaluate success of this approach in terms of maintaining a sustainable harvest of walleye over time. However, by using an objective, science-based approach, we were able to get diverse user groups to agree to an initial harvest management plan, and by this measure the current system is successful. Ongoing monitoring will tell us if these populations can sustain the current level of harvest. Our proposed project would refine the thermal-optical habitat model to better predict sustainable harvest of walleye in Minnesota lakes, to identify which lakes can sustain more or less harvest based on habitat area, and how that harvest might change over time to adapt to changing conditions.

Second, Senator Ingebrigtsen asked a number of questions related to walleye management and how regulations on individual lakes are determined. Our proposed project would examine walleye populations in lakes across the state relative to their habitat availability, and relative to other lakes with similar habitat. Together with fisheries managers, we will develop a toolbox of management actions appropriate for lakes based on their habitat and walleye population status. We believe using habitat to guide management will allow for further refinement of regulations to match the capacity of lakes to support robust walleye populations and harvest opportunities.

Finally, Commissioner Moody asked whether we can evaluate regulations by applying different regulations to environmentally similar lakes. We believe such an approach is the most effective way to evaluate regulations.

ENRTF ID: 031-AH Walleye Habitat Status to Guide and Prioritize Management

This proposed project would facilitate this kind of analysis by characterizing walleye habitat in lakes throughout Minnesota. From this information, we could identify lakes with similar walleye habitat availability and similar populations, and test the response of the population to different regulations. For example, if we identify several lakes with high habitat availability but underperforming walleye populations, we might try stocking in some, different bag limits or harvest regulations in others, and nearshore habitat restoration in others. We believe this is a critical application of our proposed work.

I hope that these examples will supplement our responses provided at the hearing. Should you have any questions or further concerns please do not hesitate to contact me or any member of our project team.

Best Regards,



Dr. Gretchen Hansen, Project manager

CC: Jason Tidemann, Melissa Trembl

Equal Opportunity Employer



Get fascinated

June 25, 2018

The Honorable Jean Wagenius
251 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, Minnesota 55155

Dear Representative Wagenius:

You raised important questions following the Science Museum of Minnesota's testimony on behalf of its Water Lab proposal last Thursday. The Museum is in complete agreement with you about the seriousness of endocrine disruptors and microplastics in our waters. In our Water Lab proposal, we pointed out that *"scientific research points to new emerging threats, such as pharmaceuticals and chemicals from personal care products passing through wastewater treatment plants and escaping into Minnesota's waterways."*

Minnesota is in the difficult position of having to cope both with chronic challenges and new dangers. We contend that achieving advances on water quality struggles requires a much more engaged and informed citizenry that will support the actions necessary to address these issues. A large body of pedagogical research supports the concept that people are best motivated by doing. Having museum visitors perform authentic water quality tests invariably sparks questions which generate conversations about why certain contaminants are in our water and what should be done about them. Then sharing with them information about how fellow citizens are helping collect water quality data raises awareness that people are not alone in their concerns about water and that we together can insist on change.

Regarding your compelling concern about endocrine disruptors and microplastics, I think that the importance of these issues could readily be conveyed by the museum's Water Lab. As we develop the water lab with our project partners and advisors, we will prototype many tests that visitors could conduct in a museum lab. One of these tests could show visitors the microplastics found in local waters. Seeing microplastics with their own eyes would be a very powerful way to convey to people the gravity of a now ubiquitous pollution problem that largely is invisible to the naked eye.

The Water Lab is committed to calling to the attention of the 700,000 people who visit the museum every year the serious water quality issues facing Minnesota. I hope that you will help us perform this important work.

Sincerely,

A handwritten signature in black ink that reads "Alison Brown". The signature is written in a cursive, flowing style.

Alison Brown
President
Science Museum of Minnesota

c.c. Senator Bill Ingebrigtsen, LCCMR Co-Chair

Institute on the Environment

325 LES Bldg
1954 Buford Avenue
St. Paul, MN 55108
612-626-9553

July 11, 2018

Dear Commissioners,

The Minnesota GreenStep Schools team greatly appreciated the opportunity to present to you on June 19. A few questions arose that we would like to further clarify regarding the research methods and scope of the GreenStep Schools pilot project.

1) Social psychology & youth development research shapes MN GreenStep Schools

The step-by-step approach of MN GreenStep Schools is based on human behavior research, and provides an easy on ramp for any school to participate. Research also shows that transforming students into leaders of their own environmental projects increases their concern about and awareness of the environment. Students, as well as teachers and school leaders, develop increasing competence when they work within a framework with increasing levels of challenge. The research done by Minnesota's Clean Energy Resource Teams (CERTs) and by local sustainable psychology expert, Christine Manning, of Macalester College, shows that involving more people, and connecting them together in meaningful peer networks, is critically important to protection of the environment in Minnesota.

The concept of student empowerment through hands-on, team-based, and project-centered learning is a core goal of our key partner, Youth Eco Solutions (YES!). YES! is also backed by education research and 11 years of youth-led projects, offering a wealth of examples. Student empowerment supports student learning and development and it builds a capacity for change in schools. Such an approach has been successfully put into place in 80 Minnesota schools by YES! and will be imbued into the MN GreenStep Schools program, as it scales up.

2) MN GreenStep Schools works for schools across Minnesota

The MN GreenStep Schools framework is designed for schools across Minnesota - small or large, urban, rural or suburban and serving students from all backgrounds. The program offers an accessible pathway to move forward on sustainability, with a common framework to organize best practices, support small efforts over time, and foster a peer network. The 20 pilot schools will be chosen to reflect Minnesota, in geography, school size, student background and more. A first call for interest resulted in 33 schools or organizations from 26 cities responding, in under 3 weeks. Respondents are geographically diverse, as shown on map on back, and 60% are GreenStep Cities, already well positioned for city/ school efforts.

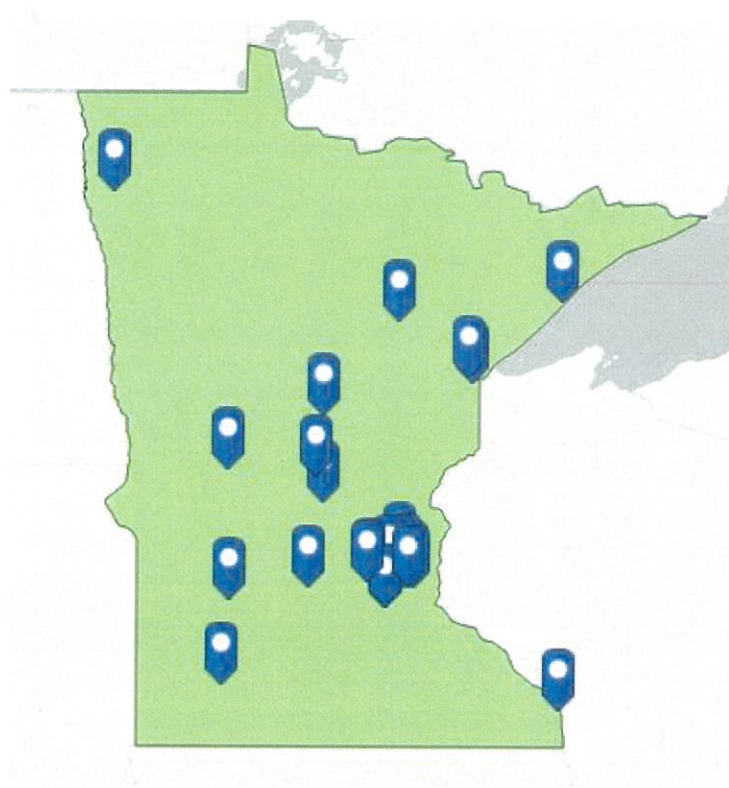
Thank you for considering this vital project that brings together environmental education providers across Minnesota to collectively protect our natural resources and promote sustainable best practices.

Sincerely,



Beth Mercer-Taylor

Sustainability Education Coordinator and PI, Minnesota GreenStep Schools



MN GreenStep Schools

City Locations of Potential Schools & Support Organizations
Based on 3 Week May-June, 2018 "Call for Interest"

- | | |
|-----------------|--------------|
| Alexandria | Minneapolis |
| Bloomington | Minnetonka |
| Brainerd | Mound |
| Carlton | Prior Lake |
| Edina | Royalton |
| Falcon Heights | Sacred Heart |
| Forest Lake | Silver Bay |
| Fridley | St. Paul |
| Golden Valley | Warba |
| Hutchinson | Warren |
| La Crescent | West St Paul |
| Marshall | Westbrook |
| Mendota Heights | Wrenshall |



Memorandum

To: Michael Brethorst, City Administrator

From: Mike Nielson, PE

Date: June 29, 2018

Re: Rock Arch Rapids and Channel Re-alignment
WSB Project No. 011191-000

Approximately 6 months ago WSB did a very high level review of the feasibility to construct a hydro-electric turbine in conjunction with the Melrose dam removal and rock arch rapids project.

We had estimated that approximately 1.3 million watts of power could be generated annually with the calculated flows from the Sauk River.

We had estimated the project costs as outlined below;

	Task	Range of Costs		Time to Complete
1.	Permitting	\$300,000	\$500,000	3-5 years
2.	Design	\$250,000	\$350,000	1-2 years
3.	Construction	\$750,000	\$1,000,000	0.25-0.5 years
	Total	\$1.3M	\$1.85M	4.25 – 7.5years

We estimated that at \$0.04/KWH and an average annual generation rate of 1.3M Kilowatts the payback period would be approximately 25-years to 35 years and therefore would not be a very good investment.

Also through discussions with your electric cooperative and they indicated that your long-term contract with the does not allow you to generate or purchase power from another source. Based on the cost analysis, your current power contract and more importantly we feel the inclusion of a hydroelectric facility into this project would delay the construction of the project from 4 - 8 years.

City of Melrose - Sauk River Restoration Project			
Opinion of Probable Cost			
Line No.	Description	Total Costs Estimated Breakout All Costs by Line Item	Cost Share Percentage By Line No.
1	Remove Dam	\$ 175,862.07	5.07%
2	Channel Re-Alignment	\$ 808,965.52	23.33%
3	Channel Armoring (Rip Rap)	\$ 267,310.34	7.71%
4	Channel Vegetation	\$ 105,517.24	3.04%
5	Rock Arch Rapids 9 inch fall	\$ 2,110,344.83	60.85%
All Other Costs			
A	Preliminary Engineering Includes; Channel Geometry,		
A	Hydraulic Analysis, EAW, CLOMR,		
B	Final Design & Construction Includes;		
B	Final plans, specifications, bidding, permits		
B	construction administration, LOMR. Permits		
C	Contingency Costs		
	City Commitment 20%	\$ 700,000.00	
	Grant Funding Request Original	\$ 2,768,000.00	

ENRTF ID: 258-G Turning Back to Rivers: Creating Recreation Opportunities

258-G: Turning Back to Rivers: Creating Recreational Opportunities

Parcel Overview - Zoning

Parcel Name	Plans Referenced	Zoning District
Brainerd/Mississippi River	<ol style="list-style-type: none"> 1. Mississippi River Partnership Plan 2. City of Brainerd Comprehensive Plan 3. River to Rails Initiative 	City of Brainerd Zoning B-4 – General Business
St. Cloud/Mississippi River	<ol style="list-style-type: none"> 1. City Park and Recreational Master Plan 2. St. Cloud RiverWalk Master Plan 	City of St. Cloud Zoning PUD – Planned Unit Development
Elk River/Mississippi River	<ol style="list-style-type: none"> 1. City of Elk River’s Land-use Plan as “Greening” 	City of Elk River Zoning R1a and R1d – Single Family Residential
Great Northern Greenway Riverlink/Mississippi River	<ol style="list-style-type: none"> 1. RiverFirst Plan 	City of Minneapolis Zoning Primary Zoning District: I3 – General Industrial District Overlay Zoning District: MR and SH – Mississippi River Critical Area and Shoreland
Grey Cloud Dunes SNA Addition/Mississippi River	<ol style="list-style-type: none"> 1. City of Cottage’s Grove Comprehensive Plan – Access to River 2. Wash County’s Land and Water Legacy Plan as priority area 3. DNR SNA program as priority 	City of Cottage Grove Zoning R1 – Rural Residential
Crystal Spring SNA North Addition/St. Croix River	<ol style="list-style-type: none"> 1. City of Scandia is supportive 2. Wash County’s Land and Water Legacy Plan as priority area 	City of Scandia Zoning St. Croix River District
Bayport St. Croix Conservation Area/St. Croix River	<ol style="list-style-type: none"> 1. City of Bayport Comprehensive Plan 2. Wash County’s Land and Water Legacy Plan as priority area 	City of Bayport Zoning R2 – Single Family Urban
Chippewa County/Minnesota River	<ol style="list-style-type: none"> 1. Upper Minnesota Valley Regional Trails Plan 2. MN River State Trail Master Plan 3. MN River Fisheries MGMT Plan 	Chippewa County Zoning Minnesota River Management District

