



# Environment and Natural Resources Trust Fund

## 2026 Request for Proposal

### General Information

**Proposal ID:** 2026-499

**Proposal Title:** Identifying Climate-Resilient Fisheries to Guide Minnesota Lake Management

### Project Manager Information

**Name:** Gretchen Hansen

**Organization:** U of MN - College of Food, Agricultural and Natural Resource Sciences

**Office Telephone:** (612) 624-4228

**Email:** ghansen@umn.edu

### Project Basic Information

**Project Summary:** We will assess factors supporting multi-species resilience to climate change, identify “bright spots” where fisheries thrive despite changing habitats, and develop decision options within the Resist-Accept-Direct framework for fisheries management.

**ENRTF Funds Requested:** \$671,000

**Proposed Project Completion:** June 30, 2029

**LCCMR Funding Category:** Fish and Wildlife (D)

### Project Location

**What is the best scale for describing where your work will take place?**

Statewide

**What is the best scale to describe the area impacted by your work?**

Statewide

**When will the work impact occur?**

During the Project and In the Future

## Narrative

### **Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

Minnesota's lakes and fisheries are changing as climate warming reshapes aquatic habitats. Warming temperatures have resulted in loss of coldwater and coolwater habitat in a significant number of Minnesota lakes, while others have gained warmwater habitat. However, we do not yet fully understand what these changes mean for fish populations. Fish populations respond to climate change through multiple pathways, including shifts in growth, abundance, and recruitment, but these responses are shaped by local conditions such as shoreline development, in-lake habitat, water levels, and species interactions. Popular sport fish such as walleye are declining in some lakes, while warmwater species like largemouth bass are increasing. Yet, responses to warming are highly variable—some lakes are faring worse than expected, while others maintain strong fisheries despite habitat loss. Identifying these “bright spots” and the conditions that support them is critical to informing effective management. Some lakes may support healthy populations of multiple species, while others face tradeoffs—such as high walleye abundance occurring only when northern pike numbers are low. Understanding these dynamics is essential to guiding Minnesota's Department of Natural Resources (DNR) as it implements Resist-Accept-Direct (RAD) strategies in lake management.

### **What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.**

This project will identify factors that promote resilience across species and explore management actions that can help sustain Minnesota's multispecies fisheries in a warming climate. We will conduct a multi-lake study to evaluate how fish populations respond to warming and assess what makes some lakes “bright spots” of resilience. Using long-term fish habitat data, we will identify case study lakes that have gained or lost key fish habitat and assess their fish communities using metrics of abundance, growth, and recruitment. We will identify characteristics of bright spot lakes based on input from fishery managers and field data collection. Field sampling will measure fish community structure, species interactions, food web dynamics, and limnological conditions across seasons. Additionally, we will engage fisheries managers and conservation practitioners to gather input on defining “good” fisheries and identifying actionable management strategies. Findings will be integrated into the Resist-Accept-Direct (RAD) framework to guide management options for multiple objectives across species in a changing environment, prioritizing conservation actions based on lake-specific resilience. We will develop practical tools, such as a fisheries resilience “cheat sheet,” to support science-based decision-making and ensure Minnesota's lakes continue to provide ecological, economic, and recreational benefits for future generations.

### **What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?**

By pinpointing factors under management control that support fish populations, this research will provide science-based solutions to protect the economic, ecological, and recreational value of Minnesota's lakes for future generations.

Specific outcomes include:

- Assessment of the distribution, biological interactions, and relative abundance of fish species with varying thermal tolerances across Minnesota lakes.
- Comprehensive understanding of lake factors and fish community compositions contributing to resilience in Minnesota lakes using observational data, statistical modeling, and semi-structured conversations with managers.
- Classification of Minnesota lake fisheries as bright, dark, hot, or cold spots to identify areas thriving despite environmental change.

Resist-Accept-Direct decision options

## Activities and Milestones

### Activity 1: Identify multispecies bright spots in Minnesota fisheries

**Activity Budget:** \$132,717

**Activity Description:**

Bright spots are unexpected successes that have been used in a variety of fields to identify hidden factors contributing to unpredicted outcomes. In this activity, researchers will use long-term fish habitat data to identify lakes that have gained or lost key fish habitat and assess their fish communities' abundance and structure using statistical models. Model predictions will be used to identify lakes where fisheries metrics (growth, abundance, juvenile recruitment) of multiple species are higher than expected given habitat availability. Results from this analysis will display the relationship between fish habitat availability and current fish abundance for Minnesota lakes. Models will also quantify the relationship between fish growth and thermal habitat availability (optimal water temperature) in these lakes. Predictions will be used to classify lakes into four categories: bright (highly resilient lakes), dark (highly vulnerable lakes), hot (highly productive lakes), and cold (highly unproductive lakes). Through classification, researchers will analyze potential trade-offs for each lake type (e.g., a given lake may support walleye but only if northern pike are in low abundance). Tradeoffs between these fisheries metrics, like individual growth and population abundance, will directly inform potential management strategies produced in activity 4 and be summarized in a scientific report.

**Activity Milestones:**

| Description  | Approximate Completion Date |
|--|-----------------------------|
| Fisheries and limnological data sourced and combined for statistical analyses                            | December 31, 2026           |
| Analysis complete: Comparison of fish habitat availability with fisheries relative abundance information | March 31, 2027              |
| Identification of multispecies fisheries bright spots  | June 30, 2027               |
| Analysis of potential fisheries trade-offs identified for each lake type                                 | December 31, 2027           |
| Scientific report classifying lakes across multiple fisheries species and metrics                        | June 30, 2028               |

### Activity 2: Identify potential factors that make a lake a bright spot

**Activity Budget:** \$135,278

**Activity Description:**

In this activity, researchers will use a multifaceted approach to identify local factors that support bright spots in Minnesota fisheries, including a literature review and semi-structured conversations with fisheries and lake managers. The literature review will synthesize factors associated with bright spots including stocking and fishing history, land use change, biodiversity trends, species compositions, food web dynamics, habitat availability, water levels, and plant communities. This information will guide semi-structured discussions with resource managers to understand the importance of elements in driving fisheries resilience, as well as identify local factors contributing to unexpected success. Local factors that will be discussed include governance/management structure, management capacity, and local (e.g., lake association) priorities. We will then synthesize literature review and manager perspectives from conversations with existing biological knowledge of Minnesota fisheries (growth, reproduction, size structure, thermal tolerances, species composition) to generate hypotheses about mechanisms driving resilience. This activity will result in a comprehensive understanding of what and predictions of how these elements are driving fisheries resilience and vulnerability across Minnesota's lakes. The literature review will be formalized in a scientific report and major takeaways from meetings with resource managers will be shared in a public webinar.

**Activity Milestones:**

| Description   | Approximate Completion Date |
|---|-----------------------------|
| Literature review of factors associated with fisheries bright spots   | December 31, 2026           |
| Semi-structured conversations with fisheries and lake managers to identify hypothesized drivers of bright spots | June 30, 2027               |
| Literature review published and shared with broader community via presentations and webinars                    | December 31, 2027           |

### Activity 3: Identify characteristics that promote resilient fisheries

**Activity Budget:** \$288,321

**Activity Description:**

We will test hypotheses of fish resilience factors by selecting 12 case studies of bright and dark lakes and measuring how these factors contribute to unexpected outcomes. Case study lakes will span geographies, species, land usage, and angler interest to attain a representative sample of variable lake types. We will supplement existing DNR fish surveys with sampling at our study lakes. Sampling metrics will be identified in activity 2 however, previous research has identified watershed and shoreline land use, fish community structure, species interactions (e.g., prey availability), and limnological conditions including water levels as critical for supporting fish populations; therefore, we will measure these factors for all case study lakes. Fish community structure, species interactions, prey availability, and habitat usage will be measured using fish tissue, zooplankton, and macroinvertebrate stable isotopes of carbon and nitrogen. Limnological measurements will include water clarity (e.g., chlorophyll a, turbidity) and nutrient availability (e.g., total nitrogen, total phosphorus) will be analyzed from our water samples. This test will clarify the mechanisms and potential management levers to protect and expand bright spots despite environmental change. Lake classifications and influential factors will be summarized in a scientific publication detailing elements that support fisheries resilience.

**Activity Milestones:**

| Description  | Approximate Completion Date |
|--|-----------------------------|
| Field sampling examining factors contributing to lake classifications      | October 31, 2028            |
| Analysis of case study lake data and fisheries metrics                     | April 30, 2029              |
| Results disseminated via written and online publications and presentations | June 30, 2029               |

### Activity 4: Co-producing Resist-Accept-Direct strategies for each lake classification

**Activity Budget:** \$114,684

**Activity Description:**

Resist-Accept-Direct (RAD) framework is a tool to help managers make informed strategies for responding to environmental changes. The RAD framework lays out three paths for management decisions: 1) Resist, work to maintain/restore historical conditions; 2) Accept, allow change to occur; and 3) Direct, actively shape towards new conditions. In this activity, researchers will integrate findings from activities 1-3 into the RAD framework to guide management options for multiple objectives across species, prioritizing conservation actions based on lake-specific resilience. Following lake classifications and driving factors, researchers will conduct semi-structured conversations with managers to co-produce feasible RAD strategies for each lake type. Conversations will focus on understanding past management decisions and feasibility of future options. For example, ‘super-bright spots’ that support multiple fish species resilience will require different strategies compared to ‘super-dark spots’ that don’t support fisheries resilience despite suitable conditions. We will summarize RAD options for each lake classification into practical tools, such as fisheries resilience “cheat sheets” to facilitate incorporation of RAD options into management planning, support science-based decision-making, and ensure Minnesota’s lakes continue to provide benefits for future generations. Findings will also be summarized in a scientific publication and shared in a public webinar.

**Activity Milestones:**

| <b>Description</b>  | <b>Approximate Completion Date</b> |
|---|------------------------------------|
| Conversations with fisheries managers to understand feasibility of potential management actions     | January 31, 2029                   |
| RAD options identified for each lake classification type  | May 31, 2029                       |
| Fisheries management 'cheat sheets' communicating RAD decision options for each classification type | June 30, 2029                      |
| Results disseminated via written and online publications and presentations                          | June 30, 2029                      |

## Project Partners and Collaborators

| Name           | Organization                              | Role  | Receiving Funds |
|----------------|---|---|-----------------|
| Camille Mosley | University of Minnesota                   | Post doctoral research fellow   | Yes             |
| Holly Embke    | United States Geological Survey           | Dr. Embke is a research scientist at the Midwest Climate Adaptation Science Center and an expert in climate change impacts on freshwater fish populations and working with partners to develop effective management strategies in the face of change. She will consult on study design, analysis, partner input, and communication. | No              |
| Heidi Rantala  | Minnesota Department of Natural Resources | Fisheries Research Scientist Dr. Heidi Rantala will provide her expertise in lake and food web ecology, contribute to and review publications, communicate results, and serve as a liaison between the project partners and MNDNR Fisheries.  | No              |

## Long-Term Implementation and Funding

**Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?**

Results from this project will be implemented into new and existing management plans by lake and fisheries managers statewide. The co-production of Resist-Accept-Direct strategies will determine management strategies for different levels of resilience in fish populations and will be reported in agency reports, public webinars, and scientific publications. All data and the literature review developed through project activities will be available online in a published data repository, including the assessment of local lake factors fostering fish resilience. One page graphics displaying our findings will be available to aid in optimization of conservation efforts.

## Other ENRTF Appropriations Awarded in the Last Six Years

| Name   | Appropriation                                  | Amount Awarded |
|--|--|----------------|
| Uncovering the Past to Protect Minnesota's Walleye Fisheries | M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 04m | \$1,121,000    |

## Project Manager and Organization Qualifications

**Project Manager Name:** Gretchen Hansen

**Job Title:** Associate Professor

**Provide description of the project manager's qualifications to manage the proposed project.**

Dr. Gretchen Hansen is an associate professor of fisheries ecology in the UMN-TC Department of Fisheries, Wildlife, and Conservation Biology. Dr. Hansen has extensive experience developing tools for fisheries management in the face of environmental change and has established collaborative relationships with partners in state, federal, and non-profit conservation agencies and organizations. Her work is not only scientifically rigorous but is also relevant for policy makers and stakeholders and has directly influenced fisheries policies. Dr. Hansen is an active member of national, regional, and state-level teams and working groups related to science based management of aquatic ecosystems, including the Midwest Glacial Lakes Partnership Science and Data Team, the Red Lake Fisheries Management committee as a technical expert, the Minnesota Department of Natural Resources Walleye Zebra Mussel task force, and the advisory board for the Minnesota Long Term Lake Monitoring program. She conducts high quality, high impact, and actionable science— as evidenced by publication and high citation rates in peer reviewed journals (n=76, 4336 citations). Dr. Hansen has secured over \$5.3M in extramural funding from international, federal, regional, and state sources since joining the

University of Minnesota faculty in 2018. Dr. Hansen has been invited to give several keynote addresses and seminars, and her research has regularly appeared in the media. Dr. Hansen has experience supervising students, post-doctoral researchers, and staff engaged in research and application of results.

**Organization:** U of MN - College of Food, Agricultural and Natural Resource Sciences

**Organization Description:**

The University of Minnesota Twin Cities is the state's land-grant university and one of the most prestigious public research universities in the nation. The research mission of the University is to seek new knowledge that can change how we all work and live. We apply our research and expertise to meet the needs of Minnesota, our nation, and the world through partnerships in addressing society's most pressing issues.

Within the University of Minnesota, faculty, staff, and students of Department of Fisheries, Wildlife, and Conservation Biology work on applied and fundamental problems related natural resource management and conservation. The mission of the Department of Fisheries, Wildlife, and Conservation Biology is to inspire and create solutions for biological conservation and management in a diverse and changing world. Our goals are to respond to societal needs for information and education pertaining to the conservation of our natural resources and to ensure excellent teaching, research, and outreach programs.

## Budget Summary

| Category / Name  | Subcategory or Type | Description  | Purpose | Gen. Ineligible | % Benefits | # FTE | Classified Staff? | \$ Amount        |
|--|---------------------|--|---------|-----------------|------------|-------|-------------------|------------------|
| <b>Personnel</b>   |                     |  |         |                 |            |       |                   |                  |
| Project manager<br>Gretchen Hansen   |                     | Lead all aspects of project, including study design, supervision of staff and students, data collection and analysis, interpretation and communication of results, and engagement with partners.   |         |                 | 36.6%      | 0.24  |                   | \$51,986         |
| Graduate student   |                     | To conduct statistical analyses, assist with fieldwork, and coordinate with partners on implementation and integration of research   |         |                 | 23.2%      | 1.5   |                   | \$178,606        |
| Research scientist   |                     | To coordinate and lead field work with state partners, coordinate data acquisition, assist with analysis and communication. (Researcher 5 salary 3 yrs + fringe)   |         |                 | 36.6%      | 3     |                   | \$319,808        |
| Undergraduate student workers  |                     | To assist with field work during summer 2027 and fall 2028, sampling processing at UMN lab facility, and data entry. (2 students = 3 weeks year 1 at \$15.25/hr , 21 weeks year 2 at \$15.25/hr , and 4 weeks year 3 at \$15.25/hr, each student works 32hrs/wk)                                   |         |                 | 0%         | 0.78  |                   | \$27,328         |
|  |                     |  |         |                 |            |       | <b>Sub Total</b>  | <b>\$577,728</b> |
| <b>Contracts and Services</b>  |                     |  |         |                 |            |       |                   |                  |
| University of Minnesota Natural Resources Research Institute Water Quality Testing | Service Contract    | Water chemistry analysis for 12 lakes at 3 sites per lake . Costs calculated based on per sample cost for Dissolved organic carbon (\$17.44), Total phosphorus + Total Nitrogen (\$49.80), chlorophyll-A (\$32.30), turbidity (\$11.70), Total Suspended Solids (\$21.90) and filtration (\$9.10). |         |                 |            | 0     |                   | \$5,121          |
| University of California Davis Stable Isotope Facility                             | Service Contract    | Stable Isotope sample processing for Carbon and Nitrogen (210 samples/lake, 12 lakes, \$10.50/sample)  |         |                 |            | 0     |                   | \$26,460         |
|  |                     |  |         |                 |            |       | <b>Sub Total</b>  | <b>\$31,581</b>  |

| Equipment, Tools, and Supplies |                    |   |  |  |  |  |                  |                 |
|--------------------------------|--------------------|---|--|--|--|--|------------------|-----------------|
|                                | Tools and Supplies | Field and lab supplies for case study lake sampling-good for entire project   | Field and lab supplies: (PPE [\$500], ponar grab and wash bucket [\$1340], Coolers [\$264], kick nets [2@\$190], buckets [5@\$20], Beach seine [\$750], minnow traps [15 @\$18], decontamination gear [\$500], ethanol [\$500], sample grinder [\$1322]; magnifying lamps [\$90]; lighting for invertebrate processing [\$76]; travel dissecting microscope [\$500]; misc. field processing gear [trays, forceps, squirt bottles, etc \$250]; misc. lab processing supplies [dissecting kits, drying trays; \$250] |  |  |  |                  | \$7,092         |
|                                | Tools and Supplies | Field and lab supplies for case study lakes required for each case study lake | Field and lab supplies for stable isotope processing that scale with number of lakes sampled. Cost listed here is per lake (vials [\$75], vial boxes [\$78]; bags [\$43], dry ice [\$120], regular ice [\$40], tin capsules for isotopes [\$22], isotope sample trays [\$13], petri dishes [\$6]); gloves and misc. disposables for processing [64.50], multiplied by 12 lakes.  |  |  |  |                  | \$5,538         |
|                                | Equipment          | Digital camera  | "Digital camera for documenting shoreline, riparian zone, nearshore underwater environment"  |  |  |  |                  | \$180           |
|                                | Tools and Supplies | Rite in the Rain paper  | Paper for datasheets for field sampling (fish, limno, food web) and lab processing. Waterproof physical data archive   |  |  |  |                  | \$135           |
|                                | Tools and Supplies | Boat gasoline   | Gasoline for boat for field work related to studying shoreline development, collecting water quality samples, collecting fish samples.   |  |  |  |                  | \$260           |
|                                |                    |   |  |  |  |  | <b>Sub Total</b> | <b>\$13,205</b> |
| <b>Capital Expenditures</b>    |                    |   |  |  |  |  |                  |                 |

|                                     |   |  |  |  |  |  |                  |                 |
|-------------------------------------|---|--|--|--|--|--|------------------|-----------------|
|                                     |   |  |  |  |  |  | <b>Sub Total</b> | -               |
| <b>Acquisitions and Stewardship</b> |   |  |  |  |  |  |                  |                 |
|                                     |   |  |  |  |  |  | <b>Sub Total</b> | -               |
| <b>Travel In Minnesota</b>          |   |  |  |  |  |  |                  |                 |
|                                     | Miles/ Meals/ Lodging                         | Fieldwork in case study lakes (bright and dark). Travel to and from lakes ~ 12 lakes and lodging. Costs estimated for 12 travel weeks for year 2, and 3 travel weeks for year 3. Total based off weekly costs of 600 miles@\$0.70/mi + 4 lodging nights per person @\$165/night + 5 days of meals @\$68/full day per person & @\$51/travel day (2 days of trip) for 2 people (meal estimate based on state per diem rate; actual costs will be reimbursed) | Fieldwork to visit case study lakes to collect data on lake habitat, water quality, fish community interactions to identify characteristics of bright spot lakes.  |  |  |  |                  | \$35,280        |
|                                     | Miles/ Meals/ Lodging                         | Travel for two people to attend two project coordination and co-production of knowledge meetings in each of years 1 and 3. Costs estimated per meeting as 400 miles@\$0.70/mi + 2 lodging nights@\$165/night per person + 1 day of meals @\$68/day + 2 travel days of meals @\$51 day for 2 people (meal estimate based on University per diem rate; actual costs will be reimbursed)  | Travel for two people to attend two project coordination and co-production of knowledge meetings in each of years 1 and 3 to identify characteristics of bright spot lakes and integrate project results into fisheries conservation planning tools. |  |  |  |                  | \$5,120         |
|                                     | Conference Registration Miles/ Meals/ Lodging | Travel for in state meetings and conferences 1 person attending 1 per year in years 2 and 3. Costs estimated as \$250 registration fee, 400 miles@\$0.70/mi + 2 lodging nights@\$165/night + 1 day of meals @\$68/day + 2 travel days of meals @\$51 day (estimates based on University per diem rates, actual costs will be reimbursed)   | Travel for one person to travel to an in state conference (e.g., the Minnesota chapter of the American Fisheries Society or the Water Resources Conference) to present and communicate results   |  |  |  |                  | \$2,060         |
|                                     |   |  |  |  |  |  | <b>Sub Total</b> | <b>\$42,460</b> |
| <b>Travel Outside Minnesota</b>     |   |  |  |  |  |  |                  |                 |
|                                     |   |  |  |  |  |  | <b>Sub Total</b> | -               |
| <b>Printing and Publication</b>     |   |  |  |  |  |  |                  |                 |

|                       |             |   |  |  |  |  |                    |                  |
|-----------------------|-------------|---|--|--|--|--|--------------------|------------------|
|                       | Publication | Open access publication fee for peer reviewed journal article | Publishing research results in open access journal so that the public can read results without being behind a paywall    |  |  |  |                    | \$3,200          |
|                       |             |   |  |  |  |  | <b>Sub Total</b>   | <b>\$3,200</b>   |
| <b>Other Expenses</b> |             |   |  |  |  |  |                    |                  |
|                       |             | Shipping of dried samples to stable isotope facility          | Samples will be dried and ground and packaged at UMN and shipped to UC-Davis for analysis of stable isotope composition. |  |  |  |                    | \$400            |
|                       |             | Boat maintenance  | Maintenance of lab-owned boats used for field sampling, including winterizing and regular maintenance                    |  |  |  |                    | \$2,426          |
|                       |             |   |  |  |  |  | <b>Sub Total</b>   | <b>\$2,826</b>   |
|                       |             |   |  |  |  |  | <b>Grand Total</b> | <b>\$671,000</b> |

Classified Staff or Generally Ineligible Expenses

| Category/Name | Subcategory or Type | Description | Justification Ineligible Expense or Classified Staff Request |
|---------------|---------------------|-------------|--|
|---------------|---------------------|-------------|--|

## Non ENRTF Funds

| Category         | Specific Source  | Use   | Status                     | Amount           |
|------------------|--|---|----------------------------|------------------|
| <b>State</b>     |  |   |                            |                  |
| In-Kind          | Fish and Game funds  | Fisheries Research Scientist Dr. Heidi Rantala will provide her expertise in lake and food web ecology, contribute to and review publications, communicate results, and serve as a liaison between the project partners and MNDNR Fisheries. In this role, Dr. Rantala will provide \$33,500 in match (salary and fringe) over the 3-year duration of the project totaling 624 hours. | Secured                    | \$33,500         |
|                  |  |   | <b>State Sub Total</b>     | <b>\$33,500</b>  |
| <b>Non-State</b> |  |   |                            |                  |
| In-Kind          | University of Minnesota foregone indirect costs (54% MTDC) | Administrative costs associated with support of research activities including payroll and human resources, finance, facilities, and IT. If this award is reduced from the requested amount, the proposed cost sharing will be reduced proportionately.  | Secured                    | \$362,340        |
|                  |  |   | <b>Non State Sub Total</b> | <b>\$362,340</b> |
|                  |  |   | <b>Funds Total</b>         | <b>\$395,840</b> |

**Total Project Cost: \$1,066,840**

**This amount accurately reflects total project cost?**

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [86579bfc-be7.pdf](#)

#### *Alternate Text for Visual Component*

Graphics representing warming temperatures, changes in fish species composition and size resulting from climate change. Project outcomes including identifying bright spots and factors that create them as well as developing management plans for adaptation. Includes diagram showing possible actions in response to climate change, and UMN and MNDNR logos....

### Supplemental Attachments

#### *Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other*

| Title                              | File                             |
|------------------------------------|----------------------------------|
| MN DNR support letter              | <a href="#">86fd3adf-be4.pdf</a> |
| Sponsored projects approval letter | <a href="#">40a860bf-f27.pdf</a> |

## Administrative Use

**Does your project include restoration or acquisition of land rights?**

No

**Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?**

Yes, I understand the UMN Policy on travel applies.

**Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?**

No

**Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?**

N/A

**Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?**

N/A

**Does your project include original, hypothesis-driven research?**

Yes

**Does the organization have a fiscal agent for this project?**

No

**Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?**

No

**Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care,**

treatment, education, training, instruction, or recreation to children")?

No

**Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:**

Camille Mosley, Holly Embke

**Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements**

Yes, I understand

