Environment and Natural Resources Trust Fund

M.L. 2026 Approved Work Plan

General Information

ID Number: 2026-049

Staff Lead: Noah Fribley

Date this document submitted to LCCMR: May 27, 2026

Project Title: Which Cisco are Strongest? Identifying Healthy Populations

Project Budget: $674,000

Project Manager Information

Name: Kenneth Zillig

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Project Reporting

Date Work Plan Approved by LCCMR: June 17, 2026

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: June 30, 2029

Final Report Due Date: August 14, 2029

Legal Information

Legal Citation: M.L. 2026, Chp. 104, Sec. 2, Subd. 06a

Appropriation Language: $674,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota to: (1) determine if certain cisco populations are better suited for Minnesota lakes experiencing higher temperatures and lower oxygen levels due to climate change; and (2) create a habitat suitability map for different cisco populations under different climate scenarios to guide management decisions.

Appropriation End Date: June 30, 2029

Narrative

Project Summary: Determine if Minnesota populations of cisco exhibit different tolerances to high temperatures and low oxygen conditions, assess habitat suitability for different cisco strains to protect and restore coldwater habitats.

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

Landscape change is altering our natural environment rapidly. Lakes are warming and losing oxygen, placing native and commercially important species at risk if environmental conditions exceed their physiological limitations. Cisco are an essential species both commercially, and to their ecosystems, serving as an essential food source for trophy fish such as walleye, lake trout and muskellunge. Threats to cisco populations have been dramatically documented in large summertime fish-kills of cisco populations which are 'squeezed out' of available habitat due to increasing water temperatures and decreasing oxygen in deep waters. However, cisco populations appear to differ in their lethal thresholds, differences which may make some populations at high risk, and others extra tolerant. It is currently unknown how much variation in oxythermal physiology exists, and which cisco populations are equipped to handle rapid environmental change. Effective and efficient management of cisco under changing conditions will benefit from greater predictability about which populations are at the most risk or may be most resilient to current and future environmental conditions.

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.

Determining which populations of cisco are at the most risk requires a population-specific understanding of their oxygen and thermal tolerances, and which lakes in Minnesota match those tolerances. We will gather physiological data on several populations of Minnesota cisco. We will collaborate with both MN DNR and tribal natural resource agencies to collect cisco embryos and rear them under different temperature and oxygen conditions. We will quantify temperature-specific population responses (e.g., survival, growth rate) of cisco embryos and larvae. We will rear cisco larvae through their juvenile life-stage. During this period we will quantify how temperature and oxygen affect fish growth, tolerance for extreme temperatures and metabolic performance. This knowledge will allow us to determine the environmental conditions under which cisco of different populations will thrive or be threatened. We will use these data to produce habitat suitability maps which will be applied to cisco populations throughout Minnesota. We will enable resource managers to identify cisco populations which may be at risk to future landscape change, as well as those populations exhibiting improved resilience which may be targets for stocking and species recovery. We will develop husbandry practices for rearing inland cisco populations which may increase capacity to restore Minnesota

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?

Cisco are crucial to Minnesota Lake ecosystems and represent an understudied inland fishery. Understanding that some cisco are threatened by increasing temperatures and low oxygen, it is essential to collect physiological data from several populations to identify which lakes exhibit acute risks and which may serve as refuges for cisco into the future. The variation in cisco tolerances is unknown and is a critical datapoint to predicting the species response to landscape change. The proposed habitat suitability maps will provide managers clarity as to which populations and under what conditions cisco are expected to survive or not, enabling their conservation.

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

Activities and Milestones

Activity 1: Collection and husbandry of at-risk Minnesota Cisco Populations

Activity Budget: $248,000

Activity Description:
We will collaborate with MN DNR as well as several Tribal Nations to spawn wild cisco and acquire fertilized eggs. Target populations include, but are not limited to, Lake Superior, Lake Koronis, Leech Lake, Mille Lacs, Green Lake, and a representative lake from the Canadian Shield (e.g. Snowbank Lake). We will plan to collect 3 to 4 populations per year via gill netting wild, adult cisco during their spawning events (October through January). Through these collaborations we will gather information on cisco spawning locations and timings which can bolster conservation efforts by improving protections for wild fish. Collected eggs will be incubated at the University of Minnesota in systems with proven efficacy in getting cisco to develop and hatch. We will then culture larval cisco through to their juvenile stage. Throughout this period, cohorts of embryos, larvae and juveniles will be sampled to describe their oxygen limits and optimal thermal conditions. We will use the opportunity of rearing so many populations to expand our understanding of the husbandry and rearing of cisco. If we succeed in producing abundant cisco, and if permitted by state agencies we would be eager to return reared fingerlings to our collaborators for stocking.

Activity Milestones:

Description	Approximate Completion Date
Coordinate with the Minnesota DNR and tribal groups to capture wild, spawning cisco.	January 31, 2027
Incubate Collected Eggs until Hatch	March 31, 2027
Rear Larval cisco to Juvenile Life-stage	May 31, 2027
Maintain juvenile cisco throughout experiments	August 31, 2027
Coordinate with Minnesota DNR and tribal groups to capture a 2nd cohort of wild Cisco	January 31, 2028
Incubate 2nd Cohort of Collected Eggs until Hatch	March 31, 2028
Rear 2nd Cohort of Larval Cisco to Juvenile Life-stage	May 31, 2028
Maintain 2nd cohort of Juvenile Cisco throughout experiments	August 31, 2028

Activity 2: Measurement of Oxygen and Temperature Tolerance Traits of several Cisco Populations and lifestages.

Activity Budget: $240,000

Activity Description:
We will measure a suite of physiological traits which describe the thermal and oxygen limitations of cisco at different life stages (egg to juvenile) from each population. Once spawned, we will expose embryos to a range of incubation temperatures to assess the rates of successful hatch, size at hatch, and mortality rates. These data show which populations exhibit greater thermal tolerance. Among larval fish we will conduct critical thermal maxima trials and monitor temperature-dependent rates of development. These data show how early life thermal experiences may aid or hinder larval survival and recruitment to the population (e.g., fast spring warming v.s slow spring warming). Once fish achieve juvenile conditions we will rear them at several ecologically relevant temperatures (5 to 20°C). During this period we will track their growth rates enabling determination of optimal growing temperatures. We will measure their critical thermal tolerance establishing population-specific mortality to temperature. Finally, we will measure their metabolic performance to identify conditions that constrain the capacity of cisco to thrive. These data will tell us optimal thermal ranges and oxygen limitations. In conclusion, for each population we will have a holistic understanding of their oxygen and thermal requirements at several life-stages.

Activity Milestones:

Description	Approximate Completion Date
Determine the optimal and critical temperatures for cisco embryo development of collected populations	March 31, 2027
Identify temperature-dependent juvenile growth rates	August 31, 2027
Quantify the critical thermal temperatures of juvenile cisco of the collected populations	August 31, 2027
Conduct metabolic trials on cisco of several populations	August 31, 2027
Determine optimal and critical temperatures for 2nd cohort of Cisco Embryos	March 31, 2028
Identify temperature-dependent juvenile growth rates for the 2nd cohort of populatins	August 31, 2028
Quantify the critical thermal temperature of the 2nd cohort of juvenile cisco	August 31, 2028
Conduct metabolic trials on the 2nd cohort of Cisco populations	August 31, 2028

Activity 3: Construct habitat suitability maps for Minnesota Lakes for different cisco populations under different climate scenarios

Activity Budget: $186,000

Activity Description:

Current identification of at-risk populations of cisco relies on documenting mass die-off events which occur during late summer. The ability to predict when and where die-offs may occur is an essential step in mitigating die-offs or preventing them entirely. We will combine our physiological (metabolic performance, critical thermal and oxygen limits etc.) data gathered on several cisco populations with profiles of lake temperature and dissolved oxygen to produce habitat suitability maps that are lake- and population-specific. We will then incorporate predictive models that project lake temperatures and dissolved oxygen into the future thereby enabling these maps to respond to annual and decadal changes. While our focus is on cisco due to the specific oxythermal threats they face, these habitat suitability maps could be modified for any fish species and any lake with available environmental data. We thereby hope to provide a foundation for detailed, physiologically driven habitat maps for entire fish communities

Activity Milestones:

Description	Approximate Completion Date
Calculation of Metabolic Index for multiple cisco populations	October 31, 2028
Acquisition of Minnesota Lake temperature, dissolved oxygen and bathymetry data	December 31, 2028
Integration of metabolic indices and lake data to construct maps of cisco habitat	February 28, 2029
Produce a public-facing portal for managers to visualize current and future environmental effects on cisco	May 31, 2029
Draft Manuscript for Peer-Reviewed Publication	May 31, 2029

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr. Gretchen Hansen	University of Minnesota - College of Food, Agricultural and Natural Resource Sciences	Principle Investigator: Supervise 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.	Yes
Dan Wilfond	Minnesota Department of Natural Resources	Dan will contribute by conducting cisco spawn take operations on several Minnesota Lakes. He will act as liaisons for the project to fisheries managers and MN DNR leadership	No
Brad Carlson	Minnesota Department of Natural Resources	Brad will contribute by conducting cisco spawn take operations on several Minnesota Lakes. He will act as liaisons for the project to fisheries managers and MN DNR leadership	No
Pat Brown	Red Lake Band of Chippewa Indians	Pat will contribute by aiding cisco spawn take operations on several Minnesota Lakes. He will act as liaisons for the project to the Red Lake Band of Chippewa Indians	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

1. One or more manuscripts slated for publication in a peer-reviewed journal such as the Transactions of the American Fisheries Society, Canadian Journal of Fisheries and Aquatic Science or Conservation Biology. The ENTRF will be mentioned as the funding support in any manuscripts.
2. In addition, our results will be conveyed in a final report to be distributed to the LCCMR via email as well as presented in person.
3. Dissemination of results will be conduct via attendance at relevant scientific conferences. Possible outlets include region conferences such as International Association for Great Lakes Research and more broadly focused conferences such as the International Congress on the Biology of Fishes, or the American Fisheries Society Conference. The ENTRF logo will be included as the funder of the research.
4. A public webinar where we will present the results of our research and the metabolic index mapping tool.
5.While Cisco have been reared in hatchery settings for several years (over two decades), laboratory-based work on these species is limited. This project will begin to develop expertise in conducting physiological work on coregonids through the training of early career scientists, graduate and undergraduate students.
6. Data generated in this project as well as analysis code will be made publicly available for future analysis and collaboration via online repositories such as Dryad and Github which can serve as a permanent public repository of this work. The ENTRF will be included as the funder of the research.
7. Habitat suitability mapping framework data will be made available to enable the mapping of other species using metabolic index values.
8. Collaborations with state and tribal partners will enable rapid translation of study results to resource management teams to apply to their local Cisco populations.

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?

Our results will be implemented through multiple avenues. Collaboration with tribal natural resource agencies and MN DNR will ensure that our approach meets partner priorities and will facilitate the incorporation of our results into conservation and management planning. The integration of physiological data with environmental conditions to generate habitat suitability maps for cisco populations throughout Minnesota that will be publicly available via a web-based platform. We will produce reports on cisco embryo and larval culture to facilitate future production of cisco for stocking or conservation needs. Finally, we will publish data and peer-reviewed publications in open access formats.

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

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Associate Professor: Dr. 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%	0.18		$42,158
Post-Doctoral Researcher: Dr. Kenneth Zillig		Project Manager. To conduct statistical analyses and coordinate with partners on implementation and integration of research			25.9%	3		$322,857
Graduate Student (TBN)		To coordinate and lead field work with state and non-profit partners, coordinate data acquisition, assist with analysis and communication. Includes salary, benefits and tuition costs.			23.2%	3		$178,606
Undergraduate Technician #1 (TBN)		To assist with fish husbandry and data entry, calculated as 10 hours per week for 52 weeks for each of 2 years at a rate of $16.50 per hour.			0%	0.5		$17,160
Undergraduate Technician #2 (TBN)		To assist with fish husbandry and data entry, calculated as 14 hours per week for 52 weeks for each of 2 years			0%	0.7		$24,024
							Sub Total	**$584,805**
Contracts and Services								
Minnesota Aquatic Invasive Species Research Center	Internal services or fees (uncommon)	Two research bays at the Minnesota Invasive Species Research Center (MAISRC) rental for 1 year (2026-27). 24.73 per bay per day, 365 days, two bays (24.73*365*2 = 18053)				1		$18,053
Minnesota Aquatic Invasive Research Center	Internal services or fees (uncommon)	Two research bays at the Minnesota Invasive Species Research Center (MAISRC) rental for 1 year (2027-28) Day charge per bay is 25.47, 365 days, 2 bays (365*25.47*2 = 18593.1)				1		$18,594
							Sub Total	**$36,647**

Equipment, Tools, and Supplies								
	Tools and Supplies	One Temperature Probe for Firesting Oxygen Meter, 5 Fiber Optic oxygen dipping probes ($563 ea), Materials for the construction of 12 respirometry chambers for measuring metabolic performance of Cisco. Included in the cost are snap-ware containers ($45), small 12V circulation pumps ($234), small pipe fittings, check valves, bulkheads ($437), two electronic cycling timers ($62), tubing ($247) and two large flush pumps ($166), Nitrogen gas ($7.12 per canister) and canister rental ($0.10 per day), Gas Regulator, Tubing and Fittings: Nitrogen Gas Regulator ($520), gas line tubing ($253) and assorted push-to-connect fittings ($340), solenoid valves ($190) and venturi injectors ($85) needed to dissolve nitrogen into rearing and test systems.	For conducting metabolic and hypoxia tolerance experiments. Materials to construct respirometry chambers and monitor temperature and oxygen.					$5,783
	Equipment	One Laptop Computer	To collect and store the data output from the Firesting Oxygen Meters.	X				$2,000
	Tools and Supplies	8 McDonald Hatching jars and hangars ($158 ea), 24 Well Culture Plates for the individualized incubation of Cisco larvae. 600 plates are needed ($2.17 ea.) for our experiment (6 populations x 10 temperatures x 10 plates per temperature)	Incubation of Cisco Embryos gathered from several MN Populations					$2,569
	Tools and Supplies	Fish Husbandry Materials: Airstones ($33), UV Sterilizer (2 ct, $200 ea), fish nets ($36), rearing buckets (~$243), Fish feed for both larval and juvenile size classes (~12 months of feed), estimated via contact with a distributor at $977 per year 24hr belt feeders (10) for feeding rearing tanks of Cisco ($293 ea.), Visible Implant Elastomer Tags and tagging equipment	For managing and maintaining fish culture systems and feeding larval and juvenile fishes					$6,848
	Tools and Supplies	Chemicals: 2 gallons of ethanol ($16 ea), one gallon Parasite-S (formalin treatment for egg fungus, $86), one gallon Iodophore ($95) for surface sterilizing embryos, and Virkon-S ($123) to creating sterilizing agent for field materials and sanitation mats. Total Boat Epoxy: 5 gallons of Epoxy resin kits ($180 ea)	Assorted chemicals for preserving fish specimens and sanitizing embryos and equipment and constructing incubation plates					$1,236
	Tools and Supplies	Field Collection Materials: Three 300' long gill nets ($850ea) for the capture of Cisco from target population lakes, as well as buoys for each net	Nets for the capture of live cisco adults from spawning aggregations in target lakes. Nets will be deployed					$3,200

		($100) and line ($50). Gas for the boat to capture fish ($200)	with the assistance of MN DNR or other local partners.					
	Equipment	Aqualogic DHSP-7: Water Heat Pump ($4700), Plumbing Materials: Stainless Steel Chilling coil materials ($ 360), motorized ball valves (n = 10, $35.50 ea.), PVC Pipe and Pipe Fittings ($2554), 10 Heat bars and 24 thermostats, HOBO loggers, small waterproof temperature recording loggers (n = 30, $79ea) for measuring the temperature of the aquaria in which the fish are housed.	Temperature control and management of fish rearing systems.					$11,504
							Sub Total	**$33,140**
Capital Equipment								
		One Firesting Oxygen Meter (4 - channel)	Oxygen sensing and recording equipment	X				$9,150
							Sub Total	**$9,150**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Field trips to acquire cisco embryos from several lakes in Minnesota. Costs estimated for 2 ppl* 6 trips split across years 1 and 2. Total based off estimated travel of 385 miles@$0.70/mi + 1 lodging nights per person @$185/night + 2 days of meals @$51/day per person for 2 people (meal estimate based on state per diem rate; actual costs will be reimbursed) = $843 per trip. One trip per population, 6 populations (843 * 6 = 5058)	Field trips to hatcheries and lakes to capture spawning cisco and acquire embryos					$5,058
	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, 500 miles@$0.70/mi + 2 lodging nights@$165/night + 3 days of meals (170 | meal estimate based on University per diem rate; actual costs will be reimbursed) ($1100 per conference)	Travel for one person to travel to two in-state conferences (e.g., the Minnesota chapter of the American Fisheries Society or the Water Resources Conference) to present and communicate results					$2,200

							Sub Total	**$7,258**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
	Publication	Open access publication fee for peer reviewed journal articles	Publishing research results in open access journal so that the public can read results without being behind a paywall					$3,000
							Sub Total	**$3,000**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$674,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Capital Equipment		One Firesting Oxygen Meter (4 - channel)	Oxygen meters of these types are the state-of-the-art method of measuring metabolic rates in an efficient manner. Alternative tools include Witrox meters from the brand Loligo, but Loligo products are both more expense and require additional software licensing costs to function. Therefore, we have selected to use Firesting Meters by Pyroscience instead. **Additional Explanation :** The Firesting Oxygen Meters are necessary to measure the metabolic rates of fishes and to conduct hypoxia trials. These meters will continue to be used to assess the metabolism and hypoxia performance of fishes after the completion of the project.
Equipment, Tools, and Supplies		One Laptop Computer	In order to function the Firesting Oxygen Meters must be connected to a dedicated computer which collects and stores the data from the Firesting Meter. Each meter requires it's own computer.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
In-Kind	Minnesota Department of Natural Resources	Minnesota DNR Fisheries staff will provide in-kind support for this project. Specifically, Dan Wilfond, Area Fisheries Supervisor and Bradley Carlson, Fisheries Specialist Intermediate will contribute by conducting cisco spawn take operations on several Minnesota Lakes. They will act as liaisons for the project to fisheries managers and MN DNR leadership with an in-kind contribution of 104 hours each annually for each of the three years of the project totaling $37,170.00 and 624 hours.	Secured	$37,170
			State Sub Total	**$37,170**
Non-State				
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. Is not applied to tuition or capital expenses.	Secured	$326,905
In-Kind	Red Lake Band of Chippewa Indians Department of Natural Resources	Pat Brown and his staff will contribute technical assistance and logistic help on the Red Lake Reservation. They will act as liaisons for the project to fisheries managers and Red Lake Tribal Council with an in-kind contribution of 80 hours to the project valued at $8,000.	Potential	$8,000
			Non State Sub Total	**$334,905**
			Funds Total	**$372,075**

Total Project Cost: $1,046,075

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: 6805c38c-e62.pdf

Alternate Text for Visual Component

Multiple cisco populations will be studied across lifestages to build physiological performance values. These values will then be combined with temperature and oxygen measurements across Minnesota's lakes to construct habitat suitability maps for both current and future environmental scenarios. At-risk and resilient populations will also be identified....

Supplemental Attachments

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

Title	File
MN DNR Letter of Support	8731daac-693.pdf
Red Lake DNR Letter of Support	0e5f6930-9b4.pdf
UMN_Sponsored_Programs_Administration_Endorsement	deb9a23e-d87.pdf
Cisco_ENTRF_Research_Addendum_Final	fee515ed-009.docx

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

To accommodate the reduction in budget we made several changes to the workplan. We have reduced the target number of studied populations from 6 to 4. This allowed us to reduce the amount of laboratory space needed to be rented, we are no longer renting any space for a third year. We have reduced personnel costs slightly, we have also removed a 2nd oxygen sensing system to both save costs as well as accommodate increases in price due to import tariffs. We have also updated the activities and milestones, providing more granular milestones that better match the proposal and project timeline.

11.9.2025: We have updated the workplan to reflect the revisions provided by LCCMR staff.

5.27.2026: we have update the workplan budget to reflect a change in the cost of MAISRC Containment Lab research space. The total cost during our research project has increased from $35,582 to $36,647 and increase of $1,065. We have reduced our allocations for fish husbandry costs by the same amount so that the overall budget total remains unchanged.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

Yes

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 project:

Dr. Gretchen Hansen (UMN), Minnesota DNR.

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

N/A