



The State of New Hampshire
Department of Environmental Services



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Robert R. Scott, Commissioner

April 15, 2021

His Excellency, Governor Christopher T. Sununu
 and The Honorable Council
 State House
 Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Environmental Services (NHDES) to enter into a **SOLE SOURCE** Agreement with the University of New Hampshire (UNH), Sponsored Program Administration (Vendor Code #315187-B083), Durham, NH, in an amount of \$26,327 to provide an update of UNH's assessment of the likelihood of future droughts and floods, effective upon Governor & Executive Council approval through October 31, 2021. Funding is 100% Federal Funds.

Funds are available in the account listed below.

FY 2021

03-44-44-441018-4790-102-500251

\$26,327.00

Dept. of Environmental Services, DWSRF Loan Management, Contracts for Program Services

EXPLANATION

The award is **SOLE SOURCE** because the assessment being updated was previously performed by UNH in 2014. It has been seven years since UNH's publication of previous drought and flood assessment for the State of New Hampshire. Under this Cooperative Project Agreement, UNH will provide an updated assessment for the State of New Hampshire that incorporates data for the increased period of record, as well as model output. This effort will build upon three decades of research and publication of results on regional weather, including recent work describing the potential influence on droughts and floods.

A budget breakdown is provided in the Cooperative Project Agreement. In the event that the federal funds become no longer available, general funds will not be requested to perform this work.

The Agreement has been approved by the Office of the Attorney General as to form, execution, and content.

We respectfully request your approval.

Robert R. Scott, Commissioner

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COOPERATIVE PROJECT AGREEMENT

between the

STATE OF NEW HAMPSHIRE, Department of Environmental Services
and the

University of New Hampshire of the UNIVERSITY SYSTEM OF NEW HAMPSHIRE

- A. This Cooperative Project Agreement (hereinafter "Project Agreement") is entered into by the State of New Hampshire, **Department of Environmental Services**, (hereinafter "State"), and the University System of New Hampshire, acting through **University of New Hampshire**, (hereinafter "Campus"), for the purpose of undertaking a project of mutual interest. This Cooperative Project shall be carried out under the terms and conditions of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, except as may be modified herein.
- B. This Project Agreement and all obligations of the parties hereunder shall become effective on the date the Governor and Executive Council of the State of New Hampshire approve this Project Agreement ("Effective date") and shall end on 10/31/2021. If the provision of services by Campus precedes the Effective date, all services performed by Campus shall be performed at the sole risk of Campus and in the event that this Project Agreement does not become effective, State shall be under no obligation to pay Campus for costs incurred or services performed; however, if this Project Agreement becomes effective, all costs incurred prior to the Effective date that would otherwise be allowable shall be paid under the terms of this Project Agreement.
- C. The work to be performed under the terms of this Project Agreement is described in the proposal identified below and attached to this document as Exhibit A, the content of which is incorporated herein as a part of this Project Agreement.

Project Title: Model Review and Drought/Flood Outlook for New Hampshire

- D. The Following Individuals are designated as Project Administrators. These Project Administrators shall be responsible for the business aspects of this Project Agreement and all invoices, payments, project amendments and related correspondence shall be directed to the individuals so designated.

State Project Administrator

Name: Brandon Kernen
Address: NH Dept. of Environmental Services
Drinking Water & Groundwater Bureau
P.O. Box 95
Concord, NH 033302-0095
Phone: (603) 271-0660

Campus Project Administrator

Name: Dianne Hall
Address: University of New Hampshire
Sponsored Program Administration
Service Bldg. & Fire Rm. A115
Durham, NH 03824
Phone: (603) 862-4848

- E. The Following Individuals are designated as Project Directors. These Project Directors shall be responsible for the technical leadership and conduct of the project. All progress reports, completion reports and related correspondence shall be directed to the individuals so designated.

State Project Director

Name: Thomas E. O'Donovan
Address: Director, Water Division
NH Dept. of Environmental Services
P.O. Box 95
Concord, NH 03302-0095
Phone: (603) 271-0667

Campus Project Director

Name: Dr. Mary D. Lemcke-Stampone
Address: New Hampshire State Climatologist
University of New Hampshire
Department of Geography
102 Huddleston Hall, 73 Main Street
Durham, NH 03824
Phone: (603) 862-3136

F. Total State funds in the amount of \$26,327 have been allotted and are available for payment of allowable costs incurred under this Project Agreement. State will not reimburse Campus for costs exceeding the amount specified in this paragraph.

Check if applicable

Campus will cost-share _____ % of total costs during the term of this Project Agreement.

Federal funds paid to Campus under this Project Agreement are from Grant/Contract/Cooperative Agreement No. _____ from _____ under CFDA# _____. Federal regulations required to be passed through to Campus as part of this Project Agreement, and in accordance with the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, are attached to this document as Exhibit B, the content of which is incorporated herein as a part of this Project Agreement.

G. Check if applicable

Article(s) _____ of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002 is/are hereby amended to read:

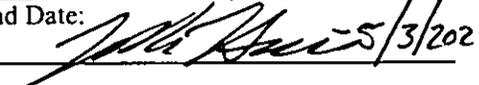
H. State has chosen **not to take** possession of equipment purchased under this Project Agreement.
 State has chosen **to take** possession of equipment purchased under this Project Agreement and will issue instructions for the disposition of such equipment within 90 days of the Project Agreement's end-date. Any expenses incurred by Campus in carrying out State's requested disposition will be fully reimbursed by State.

This Project Agreement and the Master Agreement constitute the entire agreement between State and Campus regarding this Cooperative Project, and supersede and replace any previously existing arrangements, oral or written; all changes herein must be made by written amendment and executed for the parties by their authorized officials.

IN WITNESS WHEREOF, the University System of New Hampshire, acting through the University of New Hampshire and the State of New Hampshire, Department of Environmental Services have executed this Project Agreement.

By An Authorized Official of:
University of New Hampshire
Name: Karen M. Jensen
Title: Director, Research Administration
Signature and Date:
Karen Jensen Digitally signed by Karen Jensen
Date: 2021.03.24 17:32:14 -04'00'

By An Authorized Official of:
Department of Environmental Services
Name: Robert R. Scott
Title: Commissioner
Signature and Date:
 4/15/21

By An Authorized Official of: the New Hampshire Office of the Attorney General
Name: Joshua Harrison
Title: Assistant Attorney General
Signature and Date:
 5/3/2021

By An Authorized Official of: the New Hampshire Governor & Executive Council
Name:
Title:
Signature and Date:

EXHIBIT A

- A. **Project Title:** Model Review and Drought/Flood Outlook for New Hampshire Resilient Coastal NH (UNH)
- B. **Project Period:** Upon Governor and Council approval – October 31, 2021
- C. **Objectives:** It has been seven years since the publication of science-based climate impact assessment specifically for the State of New Hampshire (Wake et al., 2014a, b). A more generalized assessment of past and projected changes in the state's climate was published in the 3rd National Climate Assessment's State Climate Series (Runkle et al., 2017). Recently, a flood risk assessment for coastal NH included sections on past and projected changes in precipitation and flooding (Wake et al., 2019). Building on Wake et al., (2014a, b), Campus will provide an updated climate assessment for the State of New Hampshire that incorporates data for the increased period of record and climate model output. This effort will build upon three decades of research and publication of results on regional climate change including recent work describing the potential influence of climate change on droughts and floods in New Hampshire.
- D. **Scope of Work:** The report will be completed by Dr. Mary Stampone and Dr. Cameron Wake in collaboration with other Campus faculty. The report will include a thorough review of peer-reviewed scientific literature as well as the methods and downscaled global climate model simulations described in Wake et al. (2019). Campus will provide a synthesis of statewide station data through 2020 and CIMP5 output from the 4th National Climate Assessment as well as an updated summary on potential impacts on society and ecosystems.

The proposed Table of Contents is listed below.

Proposed Table of Contents

Executive Summary

I. Introduction

II. Historical Climate Change (1895 – 2020)

Annual, Seasonal, and Extreme Temperature Trends

Heating and Cooling Degree Days

Length of the Growing Season

Annual and Seasonal Precipitation Trends

Extreme Precipitation and Flooding Trends

Snowfall and Snow-Covered Day Trends

Drought Trends

Lake Ice-Out Trends

III. Projected Climate Change (from 29 downscaled global climate model simulations)

Annual, Seasonal, and Extreme Temperature Trends

Heating and Cooling Degree Days

Length of the Growing Season

Annual and Seasonal Precipitation Trends

Extreme Precipitation

Snow-Covered Day Trends

IV. Discussion and Conclusions

Appendix A. Methods

Historical Climate Change

Historical Global Climate Model Simulations and Future Emission Scenarios

Global Climate Models
 Statistical Downscaling Analysis
 Addressing Uncertainty
Appendix B. Climate Grids for select regions and cities/towns in New Hampshire

- E. Deliverables Schedule:** Campus will produce the following deliverables:
1. Campus will complete the literature review and data aggregation and prepare a draft of the report for review by the State will by June 30, 2021.
 2. Following review, the final report will be completed by September, 2021.

F. Budget and Invoicing Instructions: Campus will submit invoices to State on regular Campus invoice forms no more frequently than monthly and no less frequently than quarterly. Invoices will be based on actual project expenses incurred during the invoicing period, and shall show current and cumulative expenses by major cost categories as shown below. State will pay Campus within 30 days of receipt of each invoice. Campus will submit its final invoice no later than 60 days after the Project Period end date.

Budget Items	State Funding	Cost Sharing	Total
1. Salaries & Wages	\$ 18,014	-	\$ 18,014
2. Fringe Benefits	\$ 1,459	-	\$ 1,459
3. Travel	\$ 0	-	\$ 0
4. Supplies & Services	\$ 0	-	\$ 0
5. Equipment	\$ 0	-	\$ 0
6. Facilities & Admin.	\$ 6,854	-	\$ 6,854
Subtotals:	\$ 26,327	\$ 0	\$ 26,327
Total Project Costs:	\$ 26,327		

G. Other: Funding Credit – All final work products and outreach materials shall include the NHDES logo and shall state that “This project was funded by the New Hampshire Department of Environmental Services.” Examples of final work products and outreach materials include, but are not limited to, project reports, press releases newsletter articles, websites, and signage.

EXHIBIT B

There are no Federal regulations that are required to be passed through to Campus as part of this Project Agreement.