



The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

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April 1, 2021

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

REQUESTED ACTION

Authorize the Department of Environmental Services (NHDES) to enter into a no-cost External Memorandum of Understanding (MOU) with the Connecticut Department of Energy and Environmental Protection; the Maine Department of Agriculture, Conservation and Forestry; the University of Massachusetts; the University of Rhode Island; and the Vermont Department of Environmental Conservation, to allow for enhanced scientific exchanges and cooperation concerning the earth sciences. Effective upon Governor and Council approval through April 21, 2026. This is a no cost MOU.

EXPLANATION

This MOU provides for the establishment of a formalized framework to facilitate collaboration among the six New England states in investigating the bedrock and earth surface materials that constitute the regional geology. Each state in New England has a geological survey, housed within each of the respective agencies that are signatories to this MOU, with an active interest in creating detailed, authoritative geologic maps. Greater understanding of geology and earth surface processes is critical for assessing the availability of groundwater resources during droughts, and predicting floods and other natural hazards. The need for detailed characterization of New Hampshire's geology was noted by respondents to a stakeholder survey conducted by the New Hampshire Geological Survey (NHGS) at NHDES in 2018. Specific comments highlighted the benefits of expanding access to the best available geologic maps and derivative products from NHGS.

The New England landscape largely reflects the characteristics of the underlying bedrock and relatively recent reshaping by glacial erosion and deposition. The bedrock geologic framework of New England spans the six states, and represents the culmination of tectonic events that occurred over more than 500 million years of earth's history. All the New England states have been glaciated and the resulting landscape shares common characteristics. This MOU is an acknowledgement of the shared geologic story and highlights opportunities for greater cooperation and collaboration among the six New England state geological surveys. Common interests include exchange of data, sharing of staff expertise, and collaboration on field data collection activities as appropriate in order to produce more detailed geologic mapping products. Cooperation will also enhance understanding of the characteristics of aquifers and groundwater

resources, which are not constrained by state boundaries, and therefore require investigations which are regional in scope.

This MOU is established to serve as a formal basis for cooperation among the six New England state geological surveys. No financial commitments are established in this MOU. If any cooperative work between NHDES and one or more of the signatories leads to a future project involving financial resources, such arrangements would be covered by future contract agreements between NHDES and the entities involved.

We respectfully request your approval.

A handwritten signature in black ink, appearing to read "Robert R. Scott", written over a horizontal line.

Robert R. Scott
Commissioner

MEMORANDUM OF UNDERSTANDING
FOR THE
NEW ENGLAND STATES GEOLOGIC MAPPING COALITION

comprising the

Connecticut Geological and Natural History Survey
A Division of the Connecticut Department of Energy & Environmental Protection

and

Maine Geological Survey
A Division of the Maine Department of Agriculture, Conservation and Forestry

and

Massachusetts Geological Survey
An Office of the University of Massachusetts

and

New Hampshire Geological Survey
A Division of the New Hampshire Department of Environmental Services

and

Rhode Island Geological Survey
An Office of the University of Rhode Island

and

Vermont Geological Survey
A Division of the Vermont Department of Environmental Conservation

This Memorandum of Understanding (hereinafter referred to as the "Agreement" or the "MOU") among the Connecticut Geological Survey, the Maine Geological Survey, the Massachusetts Geological Survey, the New Hampshire Geological Survey, the Rhode Island Geological Survey, and the Vermont Geological Survey (hereinafter referred to as the Parties), records the Parties' desire to cooperate in joint investigations and scientific exchanges concerning the earth sciences (including geology, hydrogeology, geochemistry, geochronology, geophysics,

and related investigations), on topics of mutual interest. This agreement is specifically undertaken to advance the understanding of the common characteristics of the crystalline bedrock and three-dimensional distribution of the glacial, periglacial, and post-glacial deposits underlying New England. It recognizes the fact that several tectonic events affected the bedrock geology of New England over more than 500 million years producing a geologic framework common throughout the region upon which New Englanders live and work. It further recognizes that continental glaciations of the last million years have profoundly modified the geologic framework and natural environment of the New England States. All these geological factors establish a commonality of interests and concerns among the Parties and citizens of these states. The Parties have agreed that reaching a better understanding of the fractured crystalline bedrock and three-dimensional framework of the region's unconsolidated geologic materials is needed to provide regional and national policy-makers with the earth-science information required to make wise decisions regarding urban and agricultural land use, the protection of aquifers, identification and assessment of geologic hazards, and the environmental well-being of the citizens of this geologically unique region.

ARTICLE 1

The Parties agree to conduct exchanges and cooperate on the basis of equality, reciprocity, and mutual benefit.

ARTICLE 2

Subject areas of cooperation are those of regional interest and may include:

1. Research on the regional geologic framework, particularly the completion of detailed, quadrangle-scale (1:24,000-scale), three-dimensional geologic maps and models in digital format, and the public dissemination of these data, maps and models, as well as interpretive information derived from them.
2. Research on geologic processes affecting crystalline bedrock with emphasis on regional boundaries and fracture systems.

3. Research on geologic processes relating to deposition of sediments by continental glaciers, glaciofluvial meltwaters, periglacial conditions, and wind.
4. Research on bounding surfaces with particular emphasis on the interface of crystalline bedrock and unconsolidated glacial materials.
5. Research on the region's hydrogeology and its fluid systems.
6. Research on the region's natural resources, with special emphasis on the nature, location, quantity, quality and availability of groundwater and mineral resources.
7. Research to establish the geochronology of important regional bedrock geologic events.
8. Geochronological investigations as required to understand the timing and sequence of the region's glacial history.
8. Research on geophysical techniques, procedures, and models that have potential for regional application in mapping the unconsolidated geologic materials in three dimensions.
9. Sharing of technology and information (consistent with the appropriate and/or necessary preservation and protection of the Parties respective proprietary and intellectual property rights) among the Parties and to both the private and public sectors.
10. Develop a training program that would prepare earth scientists for collecting, evaluating, and displaying geologic data in a GIS format with attendant databases and derivative maps for the user community.
11. Any other areas of geoscience research and development as may be mutually agreed upon.

ARTICLE 3

The cooperation may be conducted in the following forms:

1. Joint research and development projects, which may include joint planning and/or joint project execution and/or cost-sharing arrangements, among some or all of the Parties to this Agreement, which shall be referred to and understood as "Coalition Cooperative Agreements."
2. Exchange of scientific, engineering, and technical information including publications, reports, technical data, samples, specimens, and other materials, including data bases, computer codes, results, and methods of research and development as needed for the

cooperative projects (consistent with the appropriate and/or necessary preservation and protection of the Parties respective proprietary and intellectual property rights). These exchanges will be specified in future “Coalition Cooperative Agreements” entered into as contemplated by, and in general accordance with the terms of, this Agreement (consistent with the appropriate and/or necessary preservation and protection of the Parties respective proprietary and intellectual property rights).

3. Exchange and/or sharing of instruments, devices, tools, and components to help characterize, model, predict, test or verify earth materials and their occurrences, as specified in future “Coalition Cooperative Agreements” contemplated by this Agreement.
4. Collaborative exchange visits of individual scientists.
5. Joint organization of symposia, conferences, and workshops which will be specified in future “Coalition Cooperative Agreements” contemplated by this Agreement.
6. Joint effort in developing a program for training field geologists and data managers.
7. Such other scientific and technically-related cooperative activities as may be mutually agreed upon among the Parties that will further the objectives of this Agreement and which will be specified in future “Coalition Cooperative Agreements” contemplated by this Agreement.

ARTICLE 4

No financial commitments are established by the Agreement, and it is understood that participation by any of the Parties in future activities shall be subject to the availability of funds, and the willingness and consent of the individual Parties to participate in such future activities. In accordance with the principles of equality, reciprocity, and mutual benefit, each Party to this agreement will endeavor to share material and financial resources to the extent possible and permissible by law (and when otherwise feasible, reasonable and possible), in effect, “pooling” resources to accomplish mapping objectives that would require resources beyond those available to the individual parties. Cooperative activities under this Agreement will be subject to, and dependent upon, the human and financial resources available to the Parties, and the Parties respective interests, abilities, capacities and constraints. The terms and conditions of financing shall be established by the Parties before the commencement of each activity and shall be set forth

in each "Coalition Cooperative Agreement." Any costs incurred by a Party that were not previously agreed upon in each "Coalition Cooperative Agreement" shall be borne by the Party that incurs them.

ARTICLE 5

Activities under this Agreement shall be in accordance with applicable state and federal laws. The provisions of this Agreement shall not affect the rights or obligations of any of the Parties under other agreements or arrangements with other agencies, contractors, or individuals within or without the Parties' respective state boundaries.

ARTICLE 6

The scientific and technical results of cooperative projects conducted under this Agreement will be shared and published, in accordance with any specific terms agreed upon by the participating Parties for an individual project; such terms generally should include the provision that any joint publication of the results of studies resulting under this Agreement shall carry the Coalition logo (yet to be designed) and a statement acknowledging that the work was done in cooperation with the other participating Parties involved. Cooperative publications may be developed as the natural outlet for jointly supported cooperative projects conducted under this Agreement. When possible, the Parties will endeavor, in their future project agreements, to allow each Party to have the privilege of open-filing or publishing non-confidential, non-proprietary data from a cooperative project in a timely manner following review and opportunity for comment by each of the other Parties. Responsibilities for costs of publication should, whenever possible, be specified in the future "Coalition Cooperative Agreements" between the Parties, which also should, include appropriate intellectual property provisions, which recognize the rights and equities of each Party consistent with the applicable laws, regulations, and policies affecting the respective Parties.

ARTICLE 7

Whenever possible, the future "Coalition Cooperative Agreements" entered into by the Parties should appoint a coordinator who will facilitate communication and coordinate the joint activities.

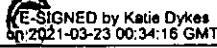
ARTICLE 8

This MOU shall become effective on the date upon which it is last signed by the Parties below, and shall remain in force for five (5) years, unless extended by mutual written agreement of the Parties. Any Party may withdraw from this Agreement by providing the other Parties with ninety (90) days advance written notice. Any such withdrawal or termination shall be without prejudice to the rights which have accrued under this Agreement to any of the Parties up to the date of such withdrawal or termination. The terms of this MOU may be modified at any time upon mutual agreement of all Parties.

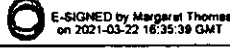
Agreed at Hartford, CT; Augusta, ME; Amherst, MA; Concord, NH; Providence, RI; and Montpelier, VT and to remain in force for 5 years from the latest date shown below, or until extended by mutual agreement of the Parties.

Signatures

For the Connecticut Department of Energy & Environmental Protection

By 
Name: Katie Dykes
Title: Commissioner
Date: March 23, 2021

For the Connecticut Geological and Natural History Survey

By 
Name: Margaret Thomas
Title: State Geologist and Director
Date: March 22, 2021

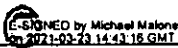
For the Maine Department Agriculture, Conservation and Forestry

By Amanda E. Beal
Name: Amanda E. Beal
Title: Commissioner
Date: 3/10/21

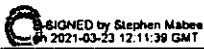
For the Maine Geological Survey

By Robert G. Marviny
Name: Robert G. Marviny
Title: State Geologist and Director
Date: 9 March 2021

For the University of Massachusetts – Amherst

By 
Name: Michael F. Malone
Title: Vice Chancellor for Research and Engagement
Date: March 23, 2021

For the Massachusetts Geological Survey


By 
Name: Stephen B. Mabee
Title: State Geologist and Director
Date: March 23, 2021

Date 


For the New Hampshire Department of Environmental Services

By March 24, 2021
Name: Robert R. Scott
Title: Commissioner

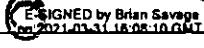
For the New Hampshire Geological Survey

By 
Name: Frederick H. Chormann, Jr.
Title: State Geologist and Director
Date: March 23, 2021

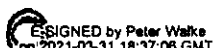
For the University of Rhode Island

By 
Name: Dr. Donald H. DeHayes
Title: Provost and Vice President of Academic Affairs
Date: March 31, 2021

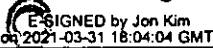
For the Rhode Island Geological Survey

By 
Name: Brian Savage
Title: Acting State Geologist
Date: March 31, 2021

For the Vermont Department of Environmental Conservation

By 
Name: Peter Walke
Title: Commissioner
Date: March 31, 2021

For the Vermont Geological Survey

By 
Name: Jonathan Kim
Title: Acting State Geologist and Director
Date: March 31, 2021



New England States Geologic Mapping Coalition