



The State of New Hampshire APR 21 '20 AM 8:25 DAS
Department of Environmental Services



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Robert R. Scott, Commissioner

April 17, 2020

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 **SOLE SOURCE** agreement with the U.S. Geological Survey (USGS), Pembroke, NH, (VC# 175772-R001), in the amount of \$22,800 for installing staff gages at three locations and develop stage ratings based on field measurements of streamflow at each gage location, effective as of July 1, 2020 through December 31, 2022, upon Governor and Council approval. 100% General Funds.

Funding is available in the following account with the ability to adjust encumbrances between State fiscal years through the Budget Office, if needed and justified. Funding for fiscal year 2022 is contingent upon continuing appropriations and availability of funds.

	<u>FY 2021</u>	<u>FY 2022</u>
03-44-44-442010-1518-102-50731	\$13,050	\$9,750
Department of Environmental Services, Lakes-Rivers Management, Contracts for Program Services		

EXPLANATION

The agreement is **SOLE SOURCE** because USGS is the national leader in instream flow knowledge. The results from this study will provide data that are critical to the management of New Hampshire's water resources. The information will be used by New Hampshire water-resource managers for planning, management, and permitting decisions to help ensure adequate water for consumptive use, water-quality standards, recreation, and aquatic habitat protection.

The NHDES Instream Flow Program uses daily stream flow data collected at USGS gaging stations to evaluate protected instream flow conditions for applying management. High-quality and reliable results are important to ensure actions are undertaken only when required. NHDES needs sustained measurements of stream flows at more locations than are currently available. These three staff gages and stage ratings would allow NHDES to obtain daily flow data at currently ungaged locations and to post the data to the NHDES website for public use.

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This expenditure is critical at this time to prevent the Instream Flow Program from falling behind schedule for development of protected instream flows for New Hampshire's Designated Rivers under RSA 483. This expenditure also takes advantage of a window of opportunity for USGS availability. See Attachment A for more information.

Under the this Agreement, staff gages will be established by USGS at three locations, two of which were previously maintained as USGS streamgages. The timing of installations will depend on obtaining permissions from land owners. Field measurements will be collected over a range of conditions with emphasis given to streamflows at or below normal conditions (less than 75-percent flow duration). Streamflow data will be collected and finalized in accordance with USGS techniques and methods.

Under this Agreement, NHDES will provide \$22,800 (100%) to USGS to install the staff gages and develop stage ratings based on field measurements of streamflow at each gage location. The agreement has been approved by the Office of the Attorney General as to form, execution, and content.

We respectfully request your approval of this item.



Robert R. Scott, Commissioner

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 600000093
Agreement #: 20LGJFANH000008
Project #: LG40FDZ
TIN #: 02-6000618

Fixed Cost Agreement YES[X] NO[]

THIS AGREEMENT is entered into as of the July 1, 2020, by the U.S. GEOLOGICAL SURVEY, New England Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the New Hampshire Department of Environmental Services party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation the operation and maintenance of three staff gages and to develop and maintain stage-discharge ratings (per attachment), herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of \$0.00

- (a) by the party of the first part during the period
July 1, 2020 to June 30, 2022
- (b) \$22,800 by the party of the second part during the period
July 1, 2020 to June 30, 2022
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of:

Description of the USGS regional/national program:
- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www.usgs.gov/about/organization/science-support/science-quality-and-integrity/fundamental-science-practices>).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 600000093
Agreement #: 20LGJFANH000008
Project #: LG40FDZ
TIN #: 02-6000618

9. Billing for this agreement will be rendered quarterly. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name: Richard Kiah
Supervisory Hydrologic Technician
Address: 331 Commerce Way Suite #2
Pembroke, NH 03275-3718
Telephone: (603) 226-7819
Fax: (603) 226-7894
Email: rkiah@usgs.gov

Customer Technical Point of Contact

Name: Wayne Ives
Hydrogeologist
Address: 29 Hazen Drive
Concord, NH 03302
Telephone: (603) 271-3548
Fax:
Email: wayne.ives@des.nh.gov

USGS Billing Point of Contact

Name: Amanda Arsenault
Budget Analyst
Address: 196 Whitten Rd.
Augusta, ME 04330
Telephone: (207) 626-6617
Fax: (207) 622-8204
Email: aluszczk@usgs.gov

Customer Billing Point of Contact

Name: Wayne Ives
Hydrogeologist
Address: 29 Hazen Drive
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Telephone: (603) 271-3548
Fax:
Email: wayne.ives@des.nh.gov

U.S. Geological Survey
United States
Department of Interior

New Hampshire Department of Environmental
Services

Signature

JOHNATHAN, Digitally signed by
BUMGARNER, DN: cn=Johnathan Bumgarner
Date: 2020.03.24 10:28:15
By JOHNATHAN BUMGARNER Date: 03/24/2020
Name: Johnathan Bumgarner
Title: Director, New England Water Science Center

Signatures

By Wayne Ives Date: 3/26/2020
Name: Wayne Ives
Title: Instream Flow Specialist

By Robert R. Scott Date: 4/15/20
Name: Robert R. Scott
Title: Commissioner

By Joshua Harrison Date: 4/15/2020
Name: Joshua Harrison
Title: Assistant Attorney General
NH Dept. of Justice

* As to form, substance, and
execution.

ATTACHMENT A



Development of stage-discharge ratings at select sites in New Hampshire

July 1, 2020 to June 30, 2022

*U.S. Geological Survey, New England Water Science Center, NH-VT Office in cooperation with
New Hampshire Department of Environmental Services*

Background

The New Hampshire Department of Environmental Services (NHDES) Instream Flow Program requires streamflow data at select locations to manage Designated Rivers. As demands on streamflow in the form of regulation, withdrawals, and diversions increase, it is critical to ensure that there is adequate streamflow to meet various objectives, such as public water supply, agricultural and industrial water usage, recreation, and aquatic habitat protection. Typically, streamflows are determined at U.S. Geological Survey (USGS) streamgages. However, it is impractical to gage all streams in New Hampshire and at many sites where streamflow data is needed, streamgages do not exist. In 2018 USGS, in cooperation with NHDES, evaluated methods to estimate streamflow by employing record extension techniques used to reconstruct historic records of streamflow by correlating between streamflows at the site of interest and concurrent streamflows at a nearby long-term USGS streamgage (Olson and Meyerhofer, 2019). The purpose of this proposed workplan is to implement alternative methods for providing streamflow data at select locations by 1) installing and maintaining USGS staff gages at three select sites in New Hampshire and 2) collecting field measurements of discharge for the development of stage-discharge ratings.

Objectives

The purpose of this workplan is to:

1. Install and maintain USGS staff gages at three select locations (table 1).
2. Develop and maintain stage-discharge ratings based on field measurements of streamflow at each location for a period of two years.

Table 1. Select locations for USGS staff gages in New Hampshire [TBD, to be determined].

Site Number	Name	Drainage Area (sqmi)	Period of record
TBD	Piscataquog River near Goffstown, NH	TBD	
01084000	North Branch River near Antrim, NH	54.8	1924-70, 2009-11
01137940	Ammonoosuc R blw Lisbon Dam, at Lisbon, NH	288	2009-2011

Approach

Staff gages will be established at three locations, two of which were previously maintained as USGS streamgages (table 1). The timing of installations will be dependent on obtaining permissions from landowners. Staff gages will be established at previously monitored locations on the North Branch near Antrim (USGS station 01084000) and Ammonoosuc River at Lisbon (USGS station 01137940) if landowner permission is granted. A suitable location for erecting a staff gage on the Piscataquog River near Goffstown will be selected based on consultation with the NHDES Instream Flow Specialist.

Field measurements will be collected over a range of conditions with emphasis given to normal and below-normal streamflow's (less than 75-percent flow duration). Six to ten discharge measurements will be collected annually to establish and maintain the stage-discharge rating at each location. Discharge measurements will not be collected during periods affected by backwater from ice. Streamflow data are collected and finalized in accordance with USGS techniques and methods as published in the following documents:

- A) Discharge Measurements at Gaging Stations, <https://pubs.usgs.gov/tm/tm3-a8/>
- B) Stage Measurement at Gaging Stations, <https://pubs.er.usgs.gov/publication/tm3A7>
- C) Levels at Gaging Stations, <https://pubs.usgs.gov/tm/tm3A19/>
- D) Computation of Continuous Records of Streamflow, <https://pubs.er.usgs.gov/publication/twri03A13>

Additional references in surface water techniques and methods can be viewed at <https://nd.water.usgs.gov/pubs/wdr/wdrnd001/htdocs/d.publicationsw00.html>

Relevance and Benefits

Results from this study will provide data that are critical to the wise management of New Hampshire’s water resources. The information can be used by New Hampshire water-resource managers for planning, management, and permitting decisions to help ensure adequate water for consumptive use, water-quality standards, recreation, and aquatic habitat protection.

Products

Field measurements and ratings will be quality assured according to USGS protocol. Field measurements will be published and publicly available through the USGS National Water Information System: Web Interface. Stage-discharge ratings will be provided through the USGS ratings depot at

https://waterdata.usgs.gov/nwisweb/get_ratings?site_no=XXXXXXXX&file_type=exsa where XXXXXXXX refers to the eight digit USGS streamgage identifier.

Project Timeline

Timeline for this project is shown below [FY, fiscal year].

Task	State FY 2021												State FY 2022											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Staff installation	X	X																						
Rating development and maintenance	X	X	X	X	X	X				X	X	X	X	X	X	X	X	X				X	X	X

Project Staffing, Costs, and Funding

Work required to meet the objectives will be carried out by hydrologic technicians from the USGS. These USGS staff will collaborate, as needed, with state officials. The total cost of the

project for the two-year period is \$22,800 to be provided by NHDES with installation costs of \$1,100 per site and rating development and maintenance costs of \$3,250 per site per year.

Task	State Fiscal Year	
	2021	2022
Staff installation	\$3,300	
Rating development and maintenance	\$9,750	\$9,750
Total	\$13,050	\$9,750

Reference

Olson, S.A., and Meyerhofer, A.J., 2019, Development and evaluation of a record extension technique for estimating discharge at selected stream sites in New Hampshire: U.S. Geological Survey Scientific Investigations Report 2019–5066, 23 p., <https://doi.org/10.3133/sir20195066>.

For further information contact:

Richard Kiah, rkiah@usgs.gov, or (603) 226-7819

Department of Environmental Services

Main Menu Logout

Item Request Tracking - Maintenance (Edit)

Apr 13, 2020 v1.0
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Save Delete Report Attachments Associate Return (All bolded fields are required) Next G&C 05/06/2020

Request Id: **WD-WMB-03-2020-11**

Title: **Development of stage-discharge ratings at select sites in New Hampshire**

Description: Authorize the Department of Environmental Services (DES) to enter into a SOLE SOURCE agreement with the U.S. Geological Survey (USGS), Pembroke, NH, (VC# 175772-R001), in the amount of \$22,800 for installing staff gages at three locations and develop stage ratings based on field measurements of streamflow at each gage location. Effective upon Governor and Council approval through December 31, 2022. 100% General Funds.

Check all that apply: G & C Retroactive Fiscal DOIT Sole Source
 Other PC Deployment Req.

Item Status: **ACTIVE**

Initiated: **03/17/2020**
(mm/dd/yyyy)

Expiration: **12/31/2022**
(mm/dd/yyyy) Reminders

Expected G&C Date: G&C Agenda#: Expected Fiscal Date:

Amount \$: **22,800.00** Percentage Breakdown: Federal: **0** State: **100** Other: **0**

Total Encumbrance \$: **22,800.00** NH 1st Req. #:

Originator: **Schmidl, Joseph** Phone: **803-271-3280**

Secondary Contact: **Vachon, Jordan** Phone: **803-271-3297**

Request Type: **Grant Agreement** Req. Elements Paper documents are routed

Region(s): Find Towns Town(s):
 BELKNAP CARROLL CHESHIRE COOS GRAFTON HILLSBOROUGH MERRIMACK ROCKINGHAM STRAFFORD SULLIVAN
 ACWORTH ALBANY ALEXANDRIA ALLENSTOWN ALSTEAD ALTON AMHERST ANDOVER ANTRIM ASHLAND

Vendor: Job#:

Attachments Folder: \\granite\Shared\DES\DES-RESTRICTED\Repository\URT\WATER_DIVISION\WATERSHED_MANAGEMENT\2020\WD-WMB-03-2020-11

Item Tracking History

	Assigned To	Assigned Date	Status	Review Completed	Review Comments
View/Edit	Scott, Robert	04/13/2020			
View	Carlson, Susan	04/09/2020	Approved	04/13/2020	- Carlson, Susan
View	Schmidl, Joseph	04/07/2020	Approved	04/09/2020	- Vachon, Jordan
View	Carlson, Susan	04/01/2020	Not Approved	04/07/2020	1. The funding string says FY20 but the project period isn't effective until FY21 2. in the agreement the funding need is split between FY 21 and FY 22, so why are funding 100% in FY21? 3. I redid the letter to make the explanation section flow better but given the financial times, I believe we need to beef up the reasons why its so essential that we spend General Funds right now. - Carlson, Susan
View	O'Donovan, Thomas	04/01/2020	Approved	04/01/2020	- O'Donovan, Thomas
View	Pelletier, Rene	04/01/2020	Approved	04/01/2020	- Pelletier, Rene
View	Diers, Ted	04/01/2020	Approved	04/01/2020	- Diers, Ted
View	Schmidl, Joseph	03/17/2020	Approved	04/01/2020	- Vachon, Jordan

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