



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Washington Water Science Center
934 Broadway St, Ste 300
Tacoma, WA 98402

February 20, 2025

Heather Bartlett
State of Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504

Dear Ms. Bartlett:

Enclosed is our standard joint-funding agreement (**25YGJFA30137**) between the USGS Washington Water Science Center and the WA State Dept of Ecology for the Regional status and trends monitoring of small streams for the Stormwater Action Monitoring (SAM) program, during the period January 31, 2025, through June 30, 2031, in the amount of \$2,853,500 from your agency. Please sign and return one fully executed original to Sharbra Gordon-Scott at gs-w-wa_agreements_dropbox@usgs.gov.

Federal law requires that we have a signed agreement before we start or continue work. Please return the signed agreement by **March 1, 2025**. If, for any reason, the agreement cannot be signed and returned by the date shown above, please contact Rich Sheibley by phone number (253)-552-1611 or email sheibley@usgs.gov to make alternative arrangements.

This is a fixed cost agreement to be billed quarterly via Down Payment Request (automated Form DI-1040). Please allow 30-days from the end of the billing period for issuance of the bill. If you experience any problems with your invoice(s), please contact Sharbra Gordon-Scott at phone number (253) 552-1698 or email at gs-w-wa_agreements_dropbox@usgs.gov.

The results of all work performed under this agreement will be available for publication by the U.S. Geological Survey. We look forward to continuing this and future cooperative efforts in these mutually beneficial water resources studies.

Sincerely,

Scott VanderKooi
Center Director

Enclosure
25YGJFA30137 (1)

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

Customer #: 6000000020
Agreement #: 25YGJFA30137
Project #YG00FNA
TIN #: 91-6001063
Ecology Contract #C2500096

Fixed Cost Agreement YES[X] NO[]

THIS AGREEMENT is entered into as of the **January 15, 2025**, by the U.S. GEOLOGICAL SURVEY, Washington Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the **WA State Department of Ecology** 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 Water Resource Investigations (per attached statement of work titled **Regional status and trends monitoring of small streams for the Stormwater Action Monitoring (SAM)**), 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) **\$0** by the party of the first part during the period
March 1, 2025 to June 30, 2031
- (b) **\$2,853,500** by the party of the second part during the period
March 1, 2025 to June 30, 2031
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: \$0.00

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://www2.usgs.gov/fsp/>).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
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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: Rich Sheibley
Research Hydrologist
Address: 934 Broadway Suite 300
Tacoma, WA 98402
Telephone: 253-552-1611
Fax:
Email: sheibley@usgs.gov

Customer Technical Point of Contact

Name: Heather Bartlett
WA State Dept of Ecology
Address: P.O. Box 47600
Olympia, WA 98504
Telephone: 360-628-4067
Fax:
Email: hbartlett461@ecy.wa.gov

USGS Billing Point of Contact

Name: Sharbra Gordon-scott
Budget Analyst
Address: 934 Broadway Suite 300
Tacoma, WA 98402
Telephone: (253) 552-1698
Fax: (253) 552-1581
Email: sgordon-scott@usgs.gov

Customer Billing Point of Contact

Name: Chelsea Morris
Address: P.O. Box 47600
Olympia, WA 98504
Telephone: 564-999-3052
Fax:
Email: Chelsea.morris@ecy.wa.gov

U.S. Geological Survey
United States
Department of Interior

WA State Department of Ecology

Signature

By _____ Date: _____
Name: Scott VanderKooi
Title: Center Director

Signatures

By _____ Date: _____
Name:
Title:

By _____ Date: _____
Name:
Title:

By _____ Date: _____
Name:
Title:

**Regional status and trends monitoring of small streams for the Stormwater Action
Monitoring (SAM) program Statement of Work**

A proposal prepared by the U.S. Geological Survey for Washington State Department of Ecology

December 6, 2024

BACKGROUND/INTRODUCTION

The Stormwater Action Monitoring (SAM) program is a cooperative regional monitoring effort collectively funded by the Phase I and II Municipal Stormwater Permittees in the Puget Sound region of Washington State. Under the SAM program, there is a regional effort to document and track the status and trends of small streams in the Puget Lowlands with respect to water chemistry, sediment chemistry, stream habitat and biota (algae and macroinvertebrates). The main goal of this status and trends program is to document whether stormwater management activities are protecting small streams in the region.

The study design for the SAM streams program uses a master sample list that generates a spatially balanced and random sample site list that can be used in probabilistic studies within the Puget Lowland ecoregion. The probabilistic approach allows the extrapolation of data collected at sampled sites to those at unsampled sites to generate a general understanding of regional stream condition. Results from this program are then used to track overall status and trends of small streams in the region and provide local projects with a context they can compare.

The first round of the SAM small streams sampling took place in 2015 and analysis of that data was released in 2018 (DeGasperi and others, 2018). The report from the first round proposed several changes the stream program for round 2. Changes were made to the number of sites, the sampling frequency, and parameters analyzed from water years 2020 to 2024, and the U.S. Geological Survey (USGS) led this newly designed long-term status and trends program. The first 5-year cycle began in October 2019 and ended in September 2024 under agreement number 20YGJFA30094 / C2000148 between USGS and the Washington State Department of Ecology (Ecology). This proposal outlines work needed for the next 5-year cycle, from water year 2025 to 2029, to maintain this important regional status and trends program.

PROBLEM

Stormwater runoff is a national problem and stormwater from developed areas can contribute to flashy flows and deliver a wide range of pollutants to our local waterways. Prior stormwater monitoring permit requirements focused on characterizing the quality of stormwater, primarily through outfall monitoring. However, there is a need to understand how stormwater runoff is impacting the quality of receiving waters and if the management activities to lessen these impacts are adequate for protecting small streams. The SAM small stream program aims to address this need by examining the status and trends of small streams in the Puget lowlands with respect to water and sediment quality, stream habitat (in-channel and riparian), and stream biota (algae and macroinvertebrates).

OBJECTIVES and SCOPE

The objective of this project is to assist local cooperators in conducting the next 5-year cycle of status and trends monitoring of small streams in the Puget lowlands. This work will include site evaluation and selection, deployment and maintenance of continuous water level sensors, and a one-time summer sample for water and sediment quality, stream habitat (in-channel and riparian), and stream biota (algae and macroinvertebrates). In addition, the USGS will be the lead on annually reporting of the findings for each water year to the Stormwater Work Group and other regional stakeholders.

RELEVANCE and BENEFITS

This proposal addresses many of the key elements of the strategic plans of the Department of the Interior (DOI) (<https://www.doi.gov/sites/doi.gov/files/u.s.-department-of-the-interior-fy-2022-2026-strategic-plan.pdf>), the USGS (U.S. Geological Survey, 2021) and its Water Mission Area, and elements of the Washington Water Science Center science plan.

For the DOI strategic plan, this project addresses Strategic Objective 4.1: People, Communities, and organizations benefit from U.S Department of Interior data, science, and information. Through the collaboration of USGS and Ecology, the status and trends assessment will provide monitoring and assessments of streams around the Puget lowlands in order to understand the changes to water quality and stream health in response to stormwater and land-use management.

This project addresses science directions of the USGS to understand ecosystems and predict ecosystem change through monitoring small streams in the region to better understand how to protect and manage the impacts to these systems. The project also will provide data to ensure water quality will meet human and ecological needs in the face of growth and development. Finally, this work falls under the science theme of a 'Earth and Biological Science Characterization, Assessment, and Synthesis' by assessing the status of freshwater resources and how they are changing (U.S. Geological Survey, 2021).

Under the Water mission area of the USGS, a water science strategy was developed (Evenson, and others 2013) to identify water science goals and objectives for the Nation. In particular, Goal 1, Objective 3: To provide information on the quality of water and to assess water resources to meet human and ecosystem needs, and to provide tools to manage and maintain the quality of our water resources.

Lastly, this project addresses the current science plan at the Washington Water Science Center by addressing the science themes of (1) Water Resources Monitoring (2) Managing, Protecting, and Restoring Aquatic Ecosystems, and (3) Integrated Watershed Resources Management and Landscape-scale Assessments (Barton and others, 2018). This project will develop a long-term and resilient data collection network of small streams in the region. This data collection will help managers understand the current status of stream condition and how it is changing and help better understand relations between land-use and ecosystem health.

APPROACH

The USGS will continue to oversee the small streams status and trends monitoring program for the next 5 water years. The water year begins on October 1 of the previous calendar year and ends on September 30 of the current calendar year. For example, water year 2025 spans from October 1, 2024 to September 30, 2025. The approach will involve completing the following tasks annually:

- Task 1: Project management
- Task 2: Conduct site selection and deploy level loggers
- Task 3: Maintain level loggers and download data.
- Task 4: Conduct a one-time watershed health measure (WHM) and water and sediment chemistry sampling.
- Task 5: Summarize and reporting of the data

Task 1: Project management

Task 1 Deliverables:

- A. Kick off meeting notes
- B. Quarterly progress report on work completed. SAM study manager will post to SAM website.

Target date: See Table 2

The USGS project lead and SAM study manager will hold a project kick-off meeting to review the project scope, objectives, and timelines. During this meeting, they will review roles, responsibilities, and communication protocols to ensure a clear understanding among all parties.

Quarterly progress reports will be compiled and submitted to provide an update on the project's status. These reports will include key achievements, any issues encountered, and plans for the upcoming quarter if necessary. The quarterly progress reports will be prepared using the template provided by the SAM study manager. The USGS project lead may use this progress report to document deliverables in Tasks 2, 3, and 4.

Task 2: Conduct site selection and deploy level loggers

Task 2 Deliverables:

- A. Annual Memo confirming calibration and installation of water level loggers at selected sites. Memo will attach a spreadsheet of selected sites in the format required by Ecology databases.

Target date: See Table 2

Ecology has generated a master sample list of candidate streams and the USGS has the list of randomly chosen sites for the first 20 years of this project. Each spring/summer, the USGS will select 33 small

streams sites (urban gradient sites) to be sampled in summer of the following year. Site selection will begin using desktop reconnaissance to examine the site for access, gather landowner information, and determine suitability for the SAM program. For each site that looks acceptable, a field visit will take place to verify the site will conform to the site requirements for the SAM program. This verification will include (1) access to the site is possible either through right of way or private landowner permission, (2) the site is safe to sample, (3) there is a long enough reach to conduct the summer watershed health measure (WHM) sampling, which includes sampling for invertebrates, algae and habitat along a 150 meter (or greater) reach, and (4) there is flow at the site.

The goal is to conduct the site selection process during summer (August to September) to increase the chance there will be flow during the time when the WHM will take place the following sample year. For example, in summer of 2025, sites will be selected for WHM sampling in summer of 2026. During early stages of this program, several sites had to be dropped because there was no flow present during the summer sampling. A recommendation for future rounds of SAM small streams sampling was to conduct site selection at the same time the summer sample will take place so the number of sites that might be dropped is reduced. Detailed records of the site selection process, including reasons for sites being dropped will be kept and archived. Target completion date for site selection is September 30th of each calendar year. A total of 33 random sites will be chosen across a range of percent imperviousness cover within the basin. In addition, two reference sites will be sampled for a total of 35 streams sites each year.

Once the set of 35 final SAM sites are selected and confirmed, the USGS will deploy pressure transducers to measure water depth and temperature at each location. Continuous water depths will be used as an indicator of flow condition at each site as recommended by DeGasperi and others (2018). The water depth data will be used to calculate several flow metrics known to correlate to biological condition and vary with watershed urbanization (DeGasperi and others 2009, Booth and Konrad, 2017). Ideally, a full year of water level data will be needed to calculate these metrics, so the goal is to have the level loggers installed at each site by October 1 each year. In addition to the water level data, the loggers also record temperature; therefore, a continuous record of stream temperature will also be available for each location. Continuous temperature data will be used to examine thermal metrics of each stream including, at a minimum, the 7-day average daily maximum value, which is temperature metric used by Ecology in the published Washington State water-quality standards for freshwaters of the state (WAC 173-201A-200, Washington State Department of Ecology, 2020).

Pressure transducer data for each stream will be used to calculate a continuous record of average stream depth in the reach which can be used to estimate various flow metrics such as the flashiness index (Booth and Konrad, 2017). To calculate depth at each site, the pressure transducer must be corrected to the local barometric pressure to determine the pressure of the water column only. Therefore, two (2) pressure transducers are needed per site, one for the water pressure, and one for the local barometric (air) pressure.

Prior to deployment, each level logger will be checked for depth and temperature in the laboratory. Level loggers will be placed in a calibrated tank to check the pressure at a minimum of 2 different water levels. For temperature, a 5-point check will take place in a constant temperature water bath. The 5-point temperature check will follow standard USGS protocols and occur prior to and at the end of deployment to document instrument drift (Wagner and others, 2006).

Deployment of the level loggers in the field will follow USGS guidelines and recommendations for measuring stage (Sauer and Turnipseed, 2010) and experiences from monitoring in water years 2020 to 2024. Each site will provide unique conditions for the installation of the instream level loggers and installation will vary on a site-by-site basis. Briefly, each level logger will be secured to an anchor to the stream bed consisting of a fence post, rebar, or angle iron. Each level logger will be installed off the bottom of the streambed to ensure they are not buried during their deployment and stage will be related to stream depths measured during the WHM sampling in summer. A reference point will be established during deployment in order to account for instrument drift or physical changes in the logger location during the water year.

Task 3: Maintain level loggers and download data

Task 3 Deliverables:

- A. Annual Memo summarizing continuous data completeness at all sites for each water year.

Target date: See Table 2.

Throughout the water year, USGS staff will visit each site to maintain each level logger deployment. Site visits will include the confirmation of logger location to the reference point established during initial deployment. Data will be downloaded from the level loggers. Loggers will be cleaned as needed and reinstalled in the stream. Finally, a reference point measure will be recorded to correct the record for any inadvertent shifts during data download. Data will be archived on an internal USGS server and data checked for quality and completion.

Task 4: Conduct a one-time watershed health measure (WHM) and water and sediment chemistry sampling

Task 4 Deliverables:

- A. Annual Memo confirming data collection completeness and data quality issues for each site. Memo to include a final spreadsheet of selected and dropped sites with brief site description and reasons for dropping sites.

- B. Memo confirming data uploaded to the relevant database. Water and sediment chemistry is submitted to Ecology's Environmental Information Management (EIM) database. Stream habitat and Riparian measures are submitted to Ecology's WHM database.

Target date: See Table 2.

Each site will be visited in the summer (July 1 through October 15) for a one-time watershed health measure (WHM). The WHM at each SAM site is modeled after an existing program at Ecology called the Watershed Health program. Watershed health monitoring will follow standard operating procedures (SOPs) for field measurement and sampling and are provided in this project's approved Quality Assurance Project Plan (QAPP) (Song and Sheibley, 2020). These SOPs are also available online and maintained by the Ecology Watershed Health team at:
[https://apps.ecology.wa.gov/publications/UIPages/PublicationList.aspx?IndexTypeName=Topic&NameValue=Standard+Operating+Procedure+\(SOP\)+%e2%80%94+Watershed+Health+Monitoring&DocumentTypeName=Publication](https://apps.ecology.wa.gov/publications/UIPages/PublicationList.aspx?IndexTypeName=Topic&NameValue=Standard+Operating+Procedure+(SOP)+%e2%80%94+Watershed+Health+Monitoring&DocumentTypeName=Publication).

The WHM consists of a detailed field measure of in-channel and riparian metrics across 11 transects over a 150-meter reach at the study site. In channel characteristics are estimated for large woody debris, stream slope and sinuosity, assessing bank erosion vulnerability, substrate size and embeddedness, quantifying habitat units, estimating fish cover features, and channel dimensions (width, depth and thalweg distance). In addition, several riparian measures are determined and include riparian cover using a densiometer, assessing human influence, and assessing riparian vegetation structure. Data collection for this part of the WHM is facilitated using a standardized electronic field form developed by Ecology. The form is used with a field tablet to ensure data collection is complete and follows the same protocols at each study site. Data from the tablet is then uploaded to the Ecology's WHM database where it undergoes a quality review and physical metrics are calculated according to methods in Janisch, 2013.

In addition to the physical measures of channel and riparian characteristics, samples for sediment chemistry, water quality, periphyton (algae), and macroinvertebrates are collected and processed at the site. The procedures for the collection of these parameters will follow the 2020 SAM streams QAPP (Song and Sheibley, 2020) and Ecology SOPs for algae (Larson and Collyard, 2019) and invertebrate sampling (Larson, 2022). Invertebrates will be classified to calculate the benthic index of biological integrity (BIBI) for each site, a multimetric index based on the invertebrate species (Karr, 1991). Periphyton species will be identified and quantified to determine a trophic diatom index (Van Dam and others, 1994). Water quality samples will be collected following standard procedures used by Ecology (Lubliner, 2014; Hartman, 2019) and consistent with USGS protocols. Water quality parameters include total and dissolved nutrients, chloride, total suspended sediment, turbidity, dissolved organic carbon, hardness, dissolved oxygen, pH, temperature, specific conductance, total and dissolved metals, E. coli, and fecal coliform bacteria. Sediment chemistry will be determined on a composite sample collected from depositional areas of the reach based on USGS methods and described in Song and Sheibley

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(2020). Sediments will be analyzed for grain size, percent solids, total organic carbon, metals, PAHs, PBDEs, and phthalates.

The summer watershed health measure and collection of samples for sediment, water, algae and invertebrates will be completed at all 35 sites annually between July 1 and October 15.

Laboratory data will be reviewed first by the USGS project lead for errors, missing data, and adherence to measurement quality objectives. The project lead will implement corrective actions if needed with the assistance from the Laboratory. At the end of each year's data collection effort the complete dataset will be reviewed by the SAM study manager for adherence to completion and data quality objectives. Upon completion of these reviews, all data will be uploaded by the USGS to the EIM database for publication.

Field data collection as part of the WHM activities will be submitted to Ecology where a review of the data will be completed between Ecology and USGS staff. Once this data review is complete the WHM data will be uploaded by Ecology into their WHM database and be publicly available.

Task 5: Summarize and reporting of the data

Task 5 Deliverables:

- A. Annual memo confirming continuous stage, temperature, and calculated metrics archived in ScienceBase.
- B. Report summarizing annual monitoring and status assessment results using template provided by SAM study manager.
- C. Presentation to Stormwater Work Group on annual monitoring and status assessment results.

Target date: See Table 2.

Annually, USGS will review the continuous stage and temperature data for errors, missing data, and adherence to measurement quality objectives. This process involves an analysis, approval, and audit of the data as part of the standard USGS data review and publication policies for continuous data. Once the continuous data has been finalized and approved, the USGS will calculate hydrologic and temperature metrics and publish reviewed data and metrics in ScienceBase as a companion Data Release to the project report.

USGS will also provide an annual status report to the Stormwater Work group (SWG), the stakeholder group that oversees the SAM program and regional stakeholders. Water quality, sediment quality, biological and habitat metrics will be summarized and described after all the data are available from the field season. Annual reports will be published on the SAM status and trends website following a thorough review by USGS and following agency fundamental science practices. In addition to written

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summaries for release on the SAM website, USGS will present findings in an annual presentation to the SWG.

From experience during water years 2020 to 2024, final data delivery from the biological samples is typically not received until spring after the year the data were collected. Therefore, each annual summary report will be provided to Ecology and the SWG by December 1st of the year following the end of the sample year. For example, the annual summary report for the data collected in summer 2025 will be published by December 1st, 2026. In addition to this annual report, a presentation of the data will be given to the SWG, targeted for their winter meeting, usually in February each year.

QUALITY ASSURANCE/QUALITY CONTROL

All activities proposed under this proposal will follow approved QAPPs and SOPs to ensure that all data collection is representative, complete, and consistently collected across all sites. For reference, the most recent SAM small streams QAPP (Song and Sheibley, 2020) will be followed. Methods in the 2020 QAPP closely follow USGS field procedures in the National Field Manual (<https://water.usgs.gov/owq/FieldManual/index.html>) and the Washington Water Science Center quality assurance plan (Conn and others, 2017).

Quality control samples for water and sediment chemistry will be collected and analyzed each sample year. There will be a minimum of 3 field replicates and 1 field blank analyzed for all water and sediment parameters each sample year.

All water and sediment samples will be analyzed by Manchester Environmental Lab (MEL). MEL is a Washington State accredited lab and meets the requirements that an accredited lab be used for funding provided for this project. Costs for these analyses are covered under a separate agreement between Ecology's Water Quality Program and MEL.

Samples for algae and macroinvertebrates will be analyzed by Ecology's contract lab. Costs for these analyses are covered under a separate agreement between Ecology's Environmental Assessment Program and Ecology's contract lab.

All interlaboratory comparisons, standard reference materials, and general laboratory quality control are being managed by Ecology and MEL staff. The USGS will maintain an independent laboratory evaluation program following USGS guidance throughout the duration of the project.

For continuous data collection, each level logger will be checked for accuracy by checking for depth and temperature in the laboratory. Level loggers will be placed in a calibrated tank to check the pressure at a minimum of 2 different water levels. For temperature, a 5-point check will take place in a constant temperature water bath and compared to a NIST-certified thermometer. The 5-point temperature check will follow standard USGS protocols and occur prior to and at the end of deployment to document instrument drift (Wagner and others, 2006).

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DATA MANAGEMENT

All data for this project will be uploaded to and stored in the Ecology Environmental Information Management (EIM) database, as required under this permittee funded program. Continuous stage and temperature records and metrics calculated from these records will be published in ScienceBase as a companion Data Release to the project report on an annual basis.

All field forms and field notes will be scanned and uploaded to an internal USGS server which is backed up daily. All electronic records will be available to Ecology upon request. All WHM data collected using field tablets are uploaded as single data collection event (DCE) file per site to Ecology's WHM database.

Finally, a detailed data management plan (DMP) for this project, developed from experiences during the 2020 to 2024 sample years will be maintained internally and updated throughout the project to ensure high quality data and data preservation. This DMP will follow guidance published in the Washington Water Science Center data management plan (Conn and others, 2019) and include details on file management and standardized folder directory structures and procedures for review and archiving of all project data.

TIMELINE and PRODUCTS

The timeline for this project will begin once the Joint Funding Agreement is signed and end after publication of the final annual report of the 2029 water year data (estimated to be December 31, 2030).

Within each sample year, the deployment of new level loggers will be completed by October 1 of that water year and all field work (WHM, water and sediment, and biological sampling) will be completed by October 15 of the sample year.

The USGS will publish an annual summary of small stream status that will be published on the Ecology's SAM website (<https://ecology.wa.gov/regulations-permits/reporting-requirements/stormwater-monitoring/stormwater-action-monitoring/sam-status-and-trends>). This will resemble the style and format of a USGS fact sheet and will be published by December in the year following completion of summer sampling. For example, data collected in WY2025 will be published by December 2026. A more detailed and formal status and trends report will be completed after the 5 years of sampling (after January 2031) and will be funded under a different joint funding agreement.

Continuous water level and temperature records and metrics calculated from these records will be published in ScienceBase as a companion Data Release on an annual basis. This data release will be published in December following the sample year; for example, data from WY2025 will be published by December 2026.

Aside from the major deliverables above, an annual summary of the sample year progress and challenges will be submitted to Ecology as a brief memorandum each fall in order to relay any major project challenges. Lastly, an annual update in the form of a presentation will be given to the Stormwater Workgroup during their winter meeting (February of each calendar year).

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The approximate timeline is outlined below in two formats. Table 1 shows the timeline of each task by the federal fiscal year (FY) and Table 2 shows the target dates of each deliverable. The federal FY corresponds to the water year (FY2025 goes from October 1, 2024 to September 30, 2025). Q1: October to December, Q2: January to March, Q3: April to June, Q4: July to September.

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Table 1: Tasks by Federal Fiscal Year

Task or Element	FY 2025				FY 2026				FY 2027				FY 2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Task 1. Project Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Task 2. Site selection and logger deployment				X				X				X				X
Task 3. Maintenance of data loggers	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Task 4. Summer WHM sampling				X				X				X				X
Task 5. Summarize and reporting of the data				X	X			X	X			X	X			X

Task or Element	FY 2029				FY 2030				FY 2031			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Task 1. Project Management	X	X	X	X	X	X	X	X	X	X	X	X
Task 2. Site selection and logger deployment												
Task 3. Maintenance of data loggers	X	X	X	X								
Task 4. Summer WHM sampling				X								
Task 5. Summarize and reporting of the data	X			X	X			X	X			

Table 2 Deliverable Target Dates by Water Year

Deliverable	WY2025	WY2026	WY2027	WY2028	WY2029
1A: Kick-off meeting	30 days after final signature				
1B: Quarterly progress memos	NA*	12/30/2025	12/30/2026	12/30/2027	12/30/2028
	3/30/2025	3/30/2026	3/30/2027	3/30/2028	3/30/2029
	6/30/2025	6/30/2026	6/30/2027	6/30/2028	6/30/2029
	9/30/2025	9/30/2026	9/30/2027	9/30/2028	9/30/2029
2A: Site selection and logger deployment memo	NA*	9/30/2025	9/30/2026	9/30/2027	9/30/2028
3A: Continuous data completion memo	9/30/2025	9/30/2026	9/30/2027	9/30/2028	9/30/2029
4A: Summer sampling completion memo	12/30/2025	12/30/2026	12/30/2027	12/30/2028	12/30/2029
4B: Data upload to EIM Memo	6/30/2026	6/30/2027	6/30/2028	6/30/2029	6/30/2030
5A: Water level and temperature analysis and publication to ScienceBase	12/30/2026	12/1/2027	12/1/2028	12/1/2029	12/1/2030
5B: Annual status report	12/1/2026	12/1/2027	12/1/2028	12/1/2029	12/1/2030
5C: Annual report presentation	2/15/2027	2/15/2028	2/15/2029	2/15/2030	2/15/2031

* not, applicable, task completed in previous agreement

PERSONNEL

This work will be overseen by a research hydrologist and a team of hydrologic technicians, ecologists, and physical scientists. Each team member has multiple years of experience doing this work. Each team member is part of the Washington Water Science Center in Tacoma, WA.

BUDGET and FUNDING SUMMARY

Funding for this project is summarized below and covers all activities for the next 5-year cycle of the SAM small streams project. Due to the time to wait for final laboratory and biological data delivery, a few tasks for this 5-year sampling effort will carry over into FY2030 and FY2031.

USGS Customer #: 6000000020
 USGS Agreement #: 25YGJFA30137
 USGS Project #YG00FNA
 Ecology Contract number C2500096

Table 3 Budget by Task

	FY 2025	FY 2026	FY 2027	FY 2028
Task 1. Project Management	\$25,730	\$28,020	\$27,940	\$29,270
Task 2. Site selection and logger deployment	\$46,314	\$50,436	\$50,292	\$52,686
Task 3. Maintenance of data loggers	\$30,876	\$33,624	\$33,528	\$35,124
Task 4. Summer WHM sampling	\$102,920	\$112,080	\$111,760	\$117,080
Task 5. Summarize and reporting of the data	\$51,460	\$56,040	\$55,880	\$58,540
Total Indirect Costs	\$224,900	\$246,000	\$244,600	\$256,300
Total	\$482,200	\$526,200	\$524,000	\$549,000

	FY 2029	FY 2030	FY 2031	Total Project
Task 1. Project Management	\$30,610	\$20,000	\$10,000	\$141,570
Task 2. Site selection and logger deployment	\$55,098	\$ -	\$ -	\$254,826
Task 3. Maintenance of data loggers	\$36,732	\$ -	\$ -	\$169,884
Task 4. Summer WHM sampling	\$122,440	\$ -	\$ -	\$566,280
Task 5. Summarize and reporting of the data	\$61,220	\$45,000	\$30,000	\$388,140
Total Indirect Costs	\$268,000	\$58,000	\$35,000	\$1,332,800
Total	\$574,100	\$123,000	\$75,000	\$2,853,500

Indirect costs include all overhead charged to the project. Indirect costs include a percentage of salary for center management, IT, safety and administrative staff; facilities charges for building rent and maintenance; support for IT equipment and computer networks; USGS editorial and publication expenses; and services from the USGS headquarters office in D.C. The indirect fund rates are fixed and determined annually by the Department of Interior as a percentage of total project costs.

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