Department of Ecology Unmanned Aerial Systems (UAS) Project Description and Checklist

Environmental Assessment
Ecology Program Name

Watershed Health Monitoring
Project Title

Edward Krynak	360-742-1581
Ecology Project Manager Name	Phone Number
Scott Collyard	360-522-3996
Ecology Unit Supervisor Name	Phone Number
Jessica Archer	360-890-2721
Ecology Section Manager Name	Phone Number
Annette Hoffmann	360-972-6113
Ecology Program Manager Name	Phone Number

Type of UAS operation (select one)

- ✓ Ecology owned and operated
- ☐ Contracted
- ☐ Volunteer (not an Ecology employee)

Brad McMillan & Jake Kleinknecht
UAS Pilot(s) in Command (if known)

564-200-2415, 360-972-4737
Phone

FAA Remote Pilot Certified	✓ Yes	☐ No*
Ecology Certified	✓ Yes	☐ No*

** If No, certification by both FAA and Ecology is required prior to approval of project*

Reason for using UAS

The comprehensive monitoring of stream habitat remains a labor-intensive endeavor, requiring significant personnel commitment and field time. Furthermore, the complexity of stream ecosystems can be difficult to capture by ground-based crews alone, particularly for extensive reaches that can range from 500 m to 2 km. Unmanned Aerial Systems (UAS) present a compelling opportunity to enhance our ability to accurately assess and monitor Washington's diverse watersheds. Using UAS to collect high-resolution data we will be able to enhance the data collected by traditional methods and generate a more comprehensive picture of these critical ecosystems. In addition, UAS deployment has the potential to reduce field crew exposure to hazards and

Project site location description *Please include latitude and longitude if known*

Over the next four years, Watershed Health Monitoring (WHM) will conduct surveys in the Snake River (2025), Upper Columbia (2026), Northeast Washington (2027), and the Unlisted salmon (2028) recover regions. Within each region, WHM will randomly select up to 5 drone survey sites. Site locations will be finalized upon completing office reconnaissance and securing access permission from relevant agencies and landowners. Additionally, the Status and Trends Sentinel site located on the Hamma Hamma River within the Olympic National Forest (coordinates: 47.59729, -123.15308) and Ambient Biological Monitoring sites that fit the Wide Site protocol will be included. Drone flights will prioritize Wide Protocol sites, defined by a minimum bankfull width of 25 meters,

Project Description/Purpose *Please include communication strategy if applicable*

To assess the overall health of Washington's diverse watersheds, the Watershed Health Monitoring program conducts random sampling of streams and rivers statewide. This comprehensive approach provides a consistent and objective picture of biological, chemical, and habitat conditions, allowing us to track trends and identify areas needing attention (https://ecology.wa.gov/research-data/monitoring-assessment/river-stream-monitoring/habitat-monitoring/watershed-health).

However, traditional ground-based surveys have limitations. To gather higher-resolution data and enhance our understanding of stream health, we are incorporating Unmanned Aerial Systems (UAS) technology at wide sites; sites with a bankfull width greater than 25 m. This innovative approach will enable us to develop new habitat metrics, refine existing habitat metrics, and improve overall data precision and accuracy.

Ultimately, these enhanced and new metrics will improve our ability to answer critical questions

Scheduled Dates of Projects

April 15, 2025	Ongoing
Project Start Date	Project End Date

Does airspace require LAANC approval or authorization by FAA or Air Traffic Control? ☐ Yes ☑ No

Will UAS be used regularly during project? ☑ Yes ☐ No

Type of data to be collected

- ☑ Environmental monitoring
- ☑ Mapping/Orthomosaic
- ☑ Site Photos
- ☑ Temperature/Thermal imaging
- ☑ Structure-from-motion (SfM)
- ☑ Photography/Videography
- ☐ Lidar
- ☐ Other

If applicable, Ecology has approved a Quality Assurance Project Plan (QAPP) for monitoring projects that include data collection with a UAS ☐ Yes ☐ N/A

Project Checklist

- ☑ Pilot in command (PIC) has FAA Part 107 certification, and the training necessary to operate the UAS used in this project
- ☑ Proper notification and permissions (LAANC or FAA/ATC permission) will be received if UAS flight will occur in controlled airspace. ☐ N/A
- ☑ Project team has reviewed and understands the Department of Ecology UAS Policy 22-06 (applies to Ecology employees only).
- ☑ PIC has provided the Project Manager with a copy of the UAS Standard Operating Procedure (SOP).
- ☑ Project team has read The National Telecommunications and Information Administration's (NTIA) document "Voluntary Best Practices for UAS Privacy, Transparency, and Accountability"

Signatures

Digitally signed by McMillan, Brad (ECY) Date: 2025.04.10 15:31:33 -07'00'	4/10/25
Ecology UAS Coordinator	Date
Krynak, Edward M. (ECY) Digitally signed by Krynak, Edward M. (ECY) Date: 2025.04.10 18:09:35 -07'00'	4/10/2025
Ecology Project Manager	Date
Archer, Jessica (ECY) Digitally signed by Archer, Jessica (ECY) Date: 2025.05.02 08:53:14 -07'00'	
Ecology Supervisor or Manager	Date
Collyard, Scott (ECY) Digitally signed by Collyard, Scott (ECY) Date: 2025.07.01 14:20:25 -07'00'	
Ecology Program Manager	Date
Hoffmann, Annette (ECY) Digitally signed by Hoffmann, Annette (ECY) Date: 2025.05.07 09:56:57 -07'00'	
E Digitally signed by Heather R. Bartlett Date: 2025.06.11 12:30:58 -07'00'	Date

NOTE: Proper documentation of project and UAS use must be included on Ecology's Drones - Washington State Department of Ecology website after approval of this checklist and project according to Ecology's UAS Policy 22-06

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