

**Letter of Intent to
Submit an NPDES Effectiveness Study Proposal**

All fields must be completed

1. Proposed Study Title: Optimizing stormwater runoff treatment for preventing coho pre-spawn mortality
2. Short Description of Proposed Study:

Stormwater treatment technologies, including bioretention media, are designed to remove a short list of known pollutants. Meanwhile, the contaminant(s) responsible for the acute lethal toxicity of urban runoff to salmon are unknown. We propose using advanced analytical chemistry and cutting edge toxicology tools to 1) identify the chemical characteristics of the contaminants that cause pre-spawn mortality in coho salmon, 2) optimize a bioretention treatment media for removal of these toxicants, 3) test the optimized media with urban runoff from various sources, 4) validate the media by testing its effectiveness on adult coho spawners.

2. What specific Stormwater Management Program condition(s) or other permit condition(s) in the NPDES W. WA. Phase I and/or Phase II Municipal Stormwater Permit does your study address?

Phase I Permit:

Phase II Permit: S.4. Compliance with Standards (particularly S.4.G: information that may modify NPDES permits to better control the discharge of toxicants to waters of the state of Washington)

3. How will this study inform, assess effectiveness and/or support implementation of the specified NPDES permit conditions (e.g., project goal) and future permit conditions?

The NPDES permitting system is intended to prevent toxic injury to aquatic animals. However, current state of Washington NPDES regulations fail to prevent widespread acute mortality of coho salmon in streams receiving urban runoff, an issue that has received considerable regional interest. This study will help identify the responsible contaminants and will provide an optimized method for treating runoff. Identification of the responsible contaminants may help simplify permit requirements, lead to water quality protection via source control, enable the development of high efficiency treatment technologies, and help to insure the success of ecosystem protection and watershed restoration efforts.

4. What are the anticipated measurable outcomes or deliverables of this proposed study?

- 1) Chemical characterization of toxicant(s) responsible for pre-spawn mortality in urban runoff
- 2) Optimized bioretention treatment media for preventing toxicity
- 3) Validation of treatment media performance

5. How does this study advance regional understanding for stormwater management?

By gaining insight into the chemical characteristics of currently unmanaged toxicants in stormwater and linking that knowledge to treatment performance, this study will help stormwater management efforts meet permit objectives for ecosystem restoration and protection. These efforts will enable the implementation of improved runoff treatment technologies specifically designed to manage some of the highest risk toxicants known to be present in urban stormwater runoff.

6. Applicant(s) Contact Information:

Name: Jenifer McIntyre

Organization: Washington State University

Phone: 206-369-1832

Email: jen.mcintyre@wsu.edu

7. Permittees you are coordinating with (Provide contact information):

Research Partners: WSDOT (Dick Gersib: gersibd@wsdot.wa.gov; 360-570-6637),
Washington Stormwater Center (John Stark: starkj@wsu.edu), University of Washington

(Tacoma/Seattle; Ed Kolodziej: koloj@uw.edu), NOAA-Fisheries (Nat Scholz: Nathaniel.scholz@noaa.gov), USFWS (Jay Davis: jay_davis@fws.gov).

8. Select Stormwater Work Group study category (select all that apply):

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| <input checked="" type="checkbox"/> Source Control | <input type="checkbox"/> Retrofits | <input type="checkbox"/> Education & Outreach |
| <input checked="" type="checkbox"/> LID | <input type="checkbox"/> O&M | <input checked="" type="checkbox"/> Other: Water Quality - Biototoxicity |

Submit LOI to Brandi Lubliner (WA Department of Ecology) via email at Brandi.Lubliner@ecy.wa.gov