



Northwest Indian Fisheries Commission

6730 Martin Way E., Olympia, Washington 98516-5540
Phone (360) 438-1180 www.nwifc.org FAX # 753-8659

January 19, 2018

Heather Bartlett, Program Manager
Water Quality Program
Washington Department of Ecology
PO Box 47696
Olympia, WA 98504-7696

Re: Municipal Stormwater Permit Reissuance Informal Comments

Dear Ms. Bartlett:

Please accept these comments on the above-referenced permit reissuance, on behalf of the Northwest Indian Fisheries Commission (NWIFC).¹ The twenty member tribes of NWIFC have constitutionally protected, treaty-reserved rights to harvest, consume, and manage fish and shellfish in their usual and accustomed areas. These comments are submitted in view of the need to ensure protection and restoration of these and other reserved rights and resources, and to safeguard the health, livelihoods, and well-being of tribal members.

NWIFC offers the comments below in the spirit of advancing our shared responsibilities as co-managers of the environment that supports the fish resource. NWIFC understands that Ecology will seek formal comments on its reissuance of municipal stormwater permits at a later date. However, NWIFC appreciates that Ecology is also seeking informal input at this earlier juncture, when there is opportunity to craft an approach that significantly reduces the harms of stormwater.

Recent Scientific Studies Underscore the Need to Address Stormwater

The most recent scientific studies have emphasized the link between toxic contamination in our waters and the health of the salmon, humans and orca whales. In many cases, the same toxic contaminants that threaten the recovery of salmon and prey species also pose risks to humans and orcas. Moreover, studies have demonstrated a tight nexus between the complex mix of contaminants in stormwater and the alarming rates of pre-spawn mortality witnessed in adult coho throughout the Puget Sound region. Thus, while various efforts that focus on reducing and cleaning up individual toxic contaminants remain important, it will be crucial to address the

¹ The NWIFC member tribes are the Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh.

harms of stormwater as such. Additionally, when stormwater runoff alters the hydrology, geomorphology, and thermal regime of streams and rivers, it can adversely impact salmon at various life stages.

We highlight a few of these recent findings here, although this is not intended to be an exhaustive account. However, even this brief summary underscores the need to address stormwater as a linchpin in reducing the harms of toxic contamination throughout the web of life that sustains all of us.

Toxics in Stormwater Directly Linked to Pre-Spawn Mortality in Coho

PCBs, PAHs and a slew of other toxic pollutants in stormwater runoff have been shown to be responsible for dramatic pre-spawn mortality rates for coho. “Adult coho salmon are exceptionally sensitive to the harmful effects of toxic urban runoff. Field surveys spanning more than a decade have shown very high rates of mortality in urban streams from the central Puget Sound Basin.”² Research suggests that these extraordinary mortality rates – as high as 100% of coho exposed to highway runoff – are attributable to the complex mixture of contaminants present in this runoff, rather than to a single contaminant in isolation.³ The most recent studies provide evidence “for a critical loss of spawners across much of the Puget Sound coho population segment, which is closely correlated with landscape-scale measures of human population density and transportation infrastructure.”⁴ These findings support earlier studies identifying contaminants in stormwater runoff as the likely cause of coho mortality events and led researchers to conclude that “it will be difficult, if not impossible, to reverse historical coho declines without addressing the toxic pollution dimension of freshwater habitats.”⁵ Scientists now forecast a “substantively increased risk of local population extinction” in 40% of basins throughout the Puget Sound in the foreseeable future, if nothing is done to address the causes of pre-spawn mortality.⁶

Additionally, as you are aware, a recent Ecology report summarizing data collected between 2007 and 2013 from municipal stormwater permittees revealed that across four different land uses (low-density residential, high-density residential, commercial, and industrial), “copper, zinc, and lead were—more often than not—found to exceed (not meet) water quality criteria.... Dissolved zinc and copper in stormwater samples exceeded acute aquatic life criteria in 36% and 50% of

² Blake E. Feist, et al., *Roads to Ruin: Conservation Threats to a Sentinel Species Across an Urban Gradient*, __ ECOLOGICAL APPLICATIONS 1-15 (2017).

³ Jennifer K. McIntyre, *Soil Bioretention Protects Juvenile Salmon and their Prey from the Toxic Impacts of Urban Stormwater Runoff*, 132 CHEMOSPHERE 213-19 (2015); see also Eric Wagner, *What Makes Stormwater Toxic?* ENCYCLOPEDIA OF PUGET SOUND (2017), <https://www.eopugetsound.org/magazine/is/stormwater-mystery>.

⁴ Feist, et al., *Roads to Ruin*, *supra* note 1.

⁵ *Id.*

⁶ *Id.*

the samples, respectively, over the three years of data. Mercury and total PCBs exceeded chronic aquatic life criteria in 17% and 41% of the samples, respectively.”⁷

Toxics in Puget Sound at Levels that Produce Adverse Effects in Chinook and Pacific Herring

PCBs are currently present in Puget Sound at levels associated with adverse effects in Chinook and Pacific herring. Although there has been some progress in reducing levels of other toxic contaminants, PCB levels have persisted in many Pacific herring stocks; specifically, they are present in herring above thresholds for harmful effects⁸ and “showed no change in the highly developed and moderately developed basins during a 16- to 21-year period.”⁹ Similarly, a recent assessment of status and trends regarding PCB levels in Puget Sound found that “[a]dult Chinook salmon from all locations (and juveniles from one basin) exceeded PCB [harmful effects] thresholds.”¹⁰

PAHs are similarly present in Puget Sound at levels that are likely to be harmful to herring (although a precise effects level is in the process of development, “PAH-metabolites in herring will likely be comparable to or above such a threshold in all basins”¹¹). While there have been some localized improvements in PAH levels, they remain high and “conditions are not changing” throughout the Puget Sound.¹²

Toxics Identified as One of Three Key Threats to Southern Resident Orca Whale Survival

PCBs and other bioaccumulative toxic contaminants were recently cited as one of the three most significant environmental threats to the Southern Resident Orca Whales, whose numbers have declined precipitously in recent years. A recent population viability analysis singled out three factors – Chinook prey availability, noise and disturbance, and toxic contaminants – as the explanatory factors in the recovery of the Southern Residents.¹³ Notably, while PCB accumulation itself ranked third among these three factors, PCBs and other toxic contaminants also affect a more significant factor for orca health: Chinook salmon abundance (see discussion above).

⁷ Washington Department of Ecology, Western Washington NPDES Phase I Stormwater Permit: Final S8.D Data Characterization 2009-2013, at 12–13, <https://fortress.wa.gov/ecy/publications/SummaryPages/1503001.html>.

⁸ James E. West, et al., *Current Conditions, Time Trends and Recovery Targets for Toxic Contaminants in Puget Sound Fish: the Toxics in Fish Dashboard Indicator* (undated), <https://wdfw.wa.gov/publications/01364/wdfw01364.pdf> [hereinafter West, et al., *Current Conditions*].

⁹ James E. West, et al., *Time Trends of Persistent Organic Pollutants in Benthic and Pelagic Indicator Fishes from Puget Sound, Washington, USA*, 73 ARCH. ENVIRON. CONTAM. TOXICOL. 207-29 (2017).

¹⁰ West, et al., *Current Conditions*, *supra* note 8.

¹¹ *Id.*

¹² *Id.*

¹³ Robert C. Lacy, et al., *Evaluating Anthropogenic Threats to Endangered Killer Whales to Inform Effective Recovery Plans* (2017).

Several of the contaminants discussed above are not only harmful to herring, salmon and orca, but to human health as well (e.g., mercury, PCBs, and PAHs), as recognized by Washington's current human health criteria. Tribal members and other people who consume herring, salmon, and other fish are thereby exposed to levels of these contaminants that can cause cancer and other serious health impacts. It is also worth noting that the contaminants addressed in Washington's aquatic life and human health criteria reflect only a fraction of the contaminants that are released to our waters.¹⁴ Many of the standard efforts to monitor and regulate these contaminants proceed one chemical at a time, and so do not account for the synergistic and antagonistic effects of exposures to the mixtures found in the real world – mixtures that include the unregulated contaminants as well. The scientific research on pre-spawn coho mortality has demonstrated the importance of accounting for these interactions – suggesting that the toxicity of real-world stormwater may be greater than the sum of its parts.

This is an Opportunity to Act on the Science

The scientific findings sketched above present a clear imperative. Indeed, although scientists are generally conservative in discussing the implications of their research, the conclusions they have drawn from recent studies are stark:

The most important water quality threat to aquatic systems now is non-point source pollution. The coho mortality phenomenon is one of the few contemporary examples of urban stormwater causing the overt death of a widely distributed keystone species with high societal value, both economically and culturally.¹⁵

Fortunately, there is an opportunity to act on the science and address stormwater runoff. The Phase I and Phase II permits being reissued by Ecology cover much of the area in western Washington that drains to the waters that support the salmon, and all those who depend on the salmon. These permits will be issued for five-year terms, which will determine the level of effort undertaken in these crucial next years by the public entities charged with managing stormwater. These next five years are of import not only because of the worrisome scientific status and trends data discussed above, but also because of the extraordinary human population growth projected in the region.

Recent studies have also suggested opportunity in the form of available solutions. Researchers explain that “the common goal is to slow, spread, and infiltrate stormwater, to reduce high flows (i.e., flooding) and filter pollutants.”¹⁶ In the Puget Sound region, studies have demonstrated that bioinfiltration can provide a cost-effective solution: “simple and

¹⁴ Wagner, *What Makes Stormwater Toxic?*, *supra* note 3.

¹⁵ Feist, et al., *Roads to Ruin* (internal citation omitted), *supra* note 1.

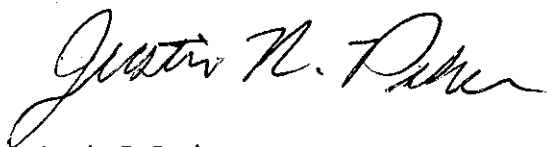
¹⁶ *Id.*

inexpensive soil columns can be very effective at removing chemical contaminants” and protecting the health of coho and other aquatic species.¹⁷

The urgency and insights provided by recent research might be incorporated into various facets of the municipal permits being reissued by Ecology. To take but one example by way of illustration, Ecology might seek a more ambitious “level of effort” for structural stormwater controls from its Phase I permittees. While Ecology’s proposed introduction of a retrofit incentive point system appears a promising step, it seems that asking permittees to meet only the level of effort managed by the “average” achieved during the last permit cycle may aim too low. Why not ask permittees in the coming cycle to match the level of effort of their better-performing peers (a level that is not unreasonable, given that some permittees have already been achieving it)?

The larger point is that the science tells us that the situation for salmon is dire (and likely to worsen with increasing human population). A cause for the “overt death” of coho is stormwater, and, happily, there are some solutions that are “simple and inexpensive.” Of course NWIFC recognizes that bioinfiltration will not be the solution to every stormwater problem, and that the municipal permit reissuance effort is significant and complex. However, NWIFC urges Ecology to seize this opportunity to make more progress to address the harms of stormwater in this upcoming permit cycle.

Sincerely,



Justin R. Parker
Executive Director

cc: NWIFC Commissioners

¹⁷ *Id.*