Measure 3.2.a: Supplemental - Increase the number of projects that provide stormwater treatment or infiltration from 10 to 125 by 2017

MOVING THE NEEDLE

Stormwater Project Implementation

Department of Ecology

Heather Bartlett

April 27, 2016

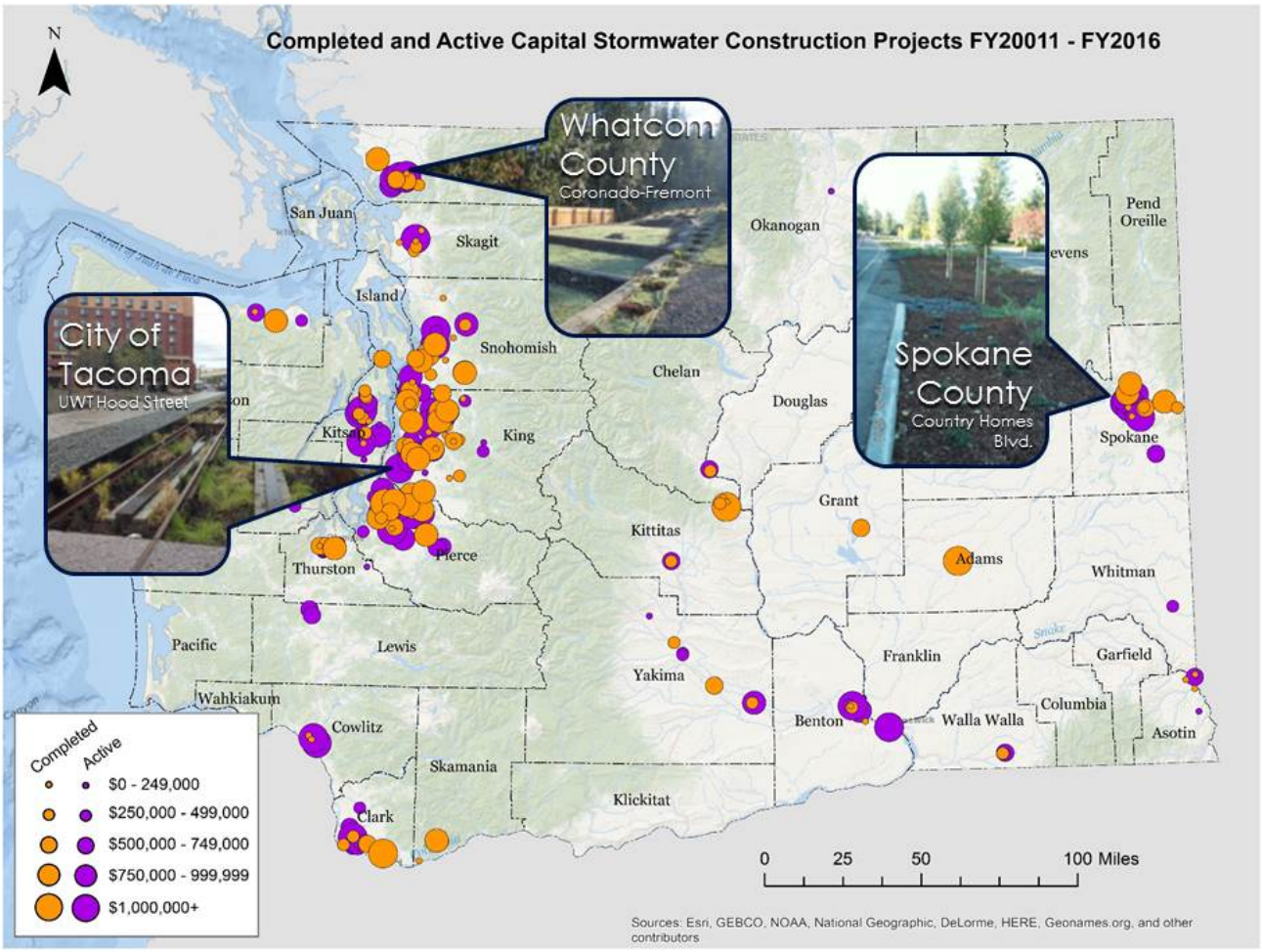
DEPARTMENT OF ECOLOGY
State of Washington

Why we need to manage our Stormwater.

G3: 3.2a Stormwater Infiltration and Treatment Projects

Current State: Improving

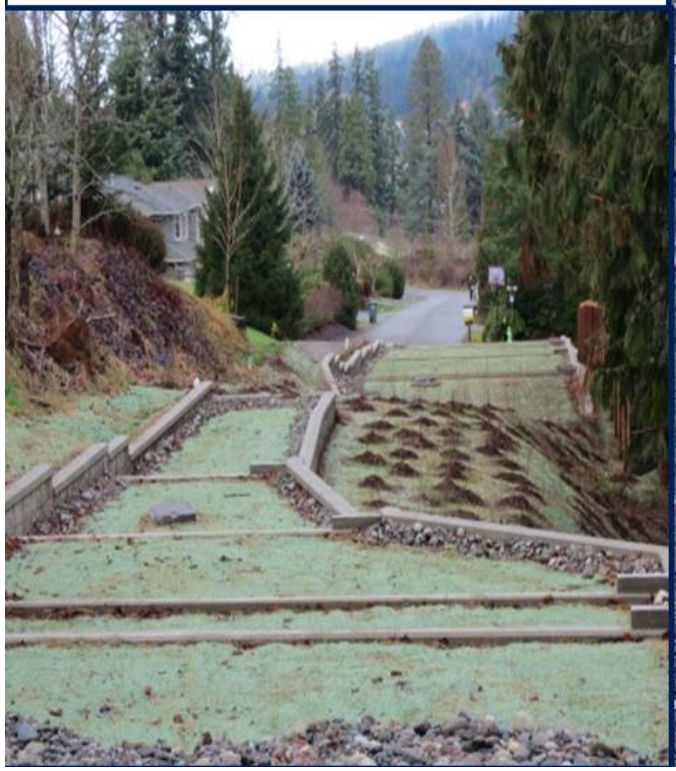
Ecology is on-track to meet the goal of 125 completed projects by 2017

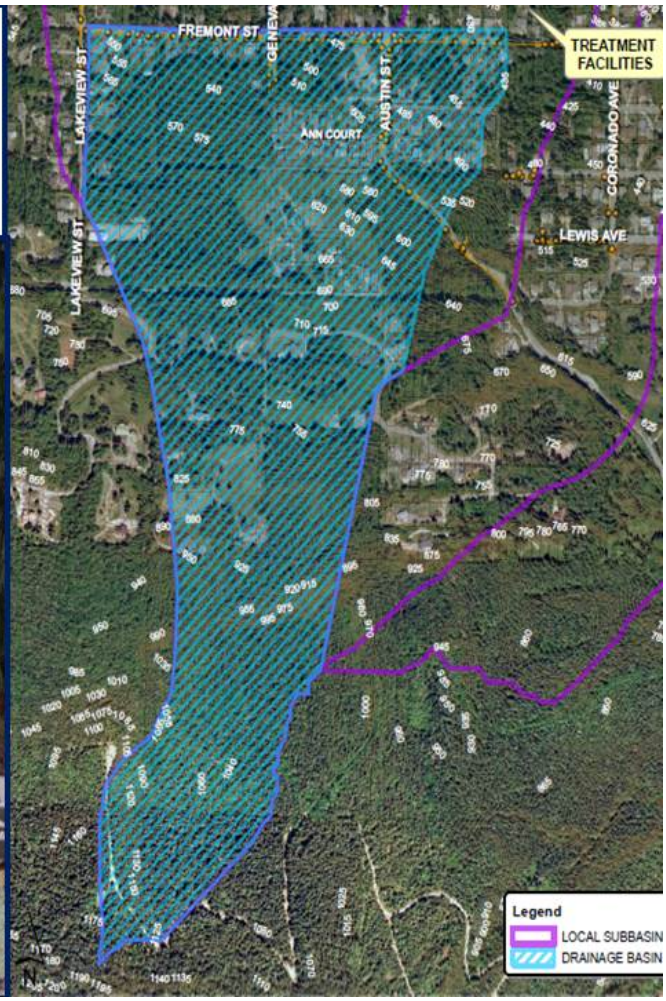

Completed and Active Capital Stormwater Construction Projects FY20011 - FY2016
N
Whatcom County
Coronado-Fremont
City of Tacoma
UWT Hood Street
Spokane County
Country Homes Blvd.
San Juan
Skagit
Island
Snohomish
Okanogan
Pend Oreille
Chelan
Douglas
Kitsap
King
Spokane
Grant
Kittitas
Pierce
Thurston
Adams
Whitman
Pacific
Lewis
Franklin
Garfield
Yakima
Wahkiakum
Columbia
Benton
Walla Walla
Asotin
Cowlitz
Skamania
Klickitat
Clark
Completed
Active
$0 - 249,000
$250,000 - 499,000
$500,000 - 749,000
$750,000 - 999,999
$1,000,000+
0
25
50
100 Miles
Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors


City of Tacoma: UW Hood Street Retrofit

Spokane County: County Homes Boulevard

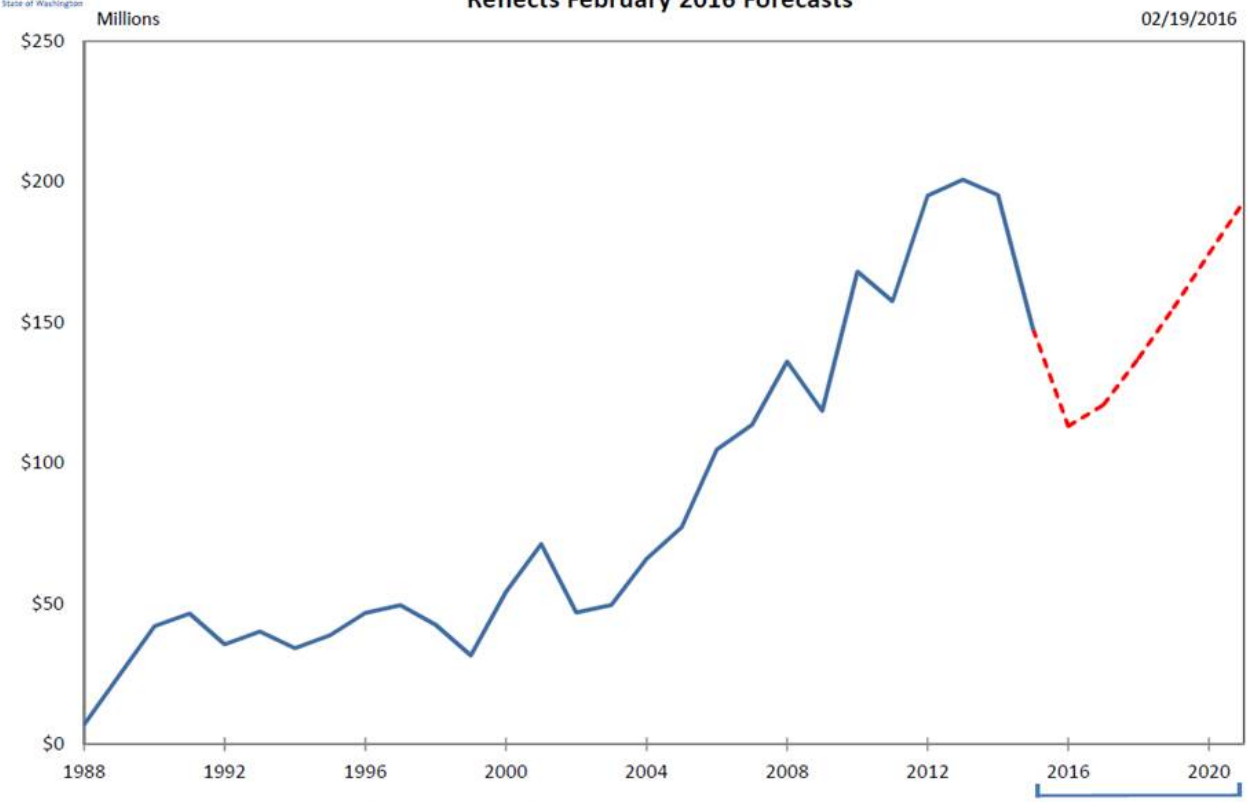
Whatcom County: Coronado-Fremont Stormwater Improvements



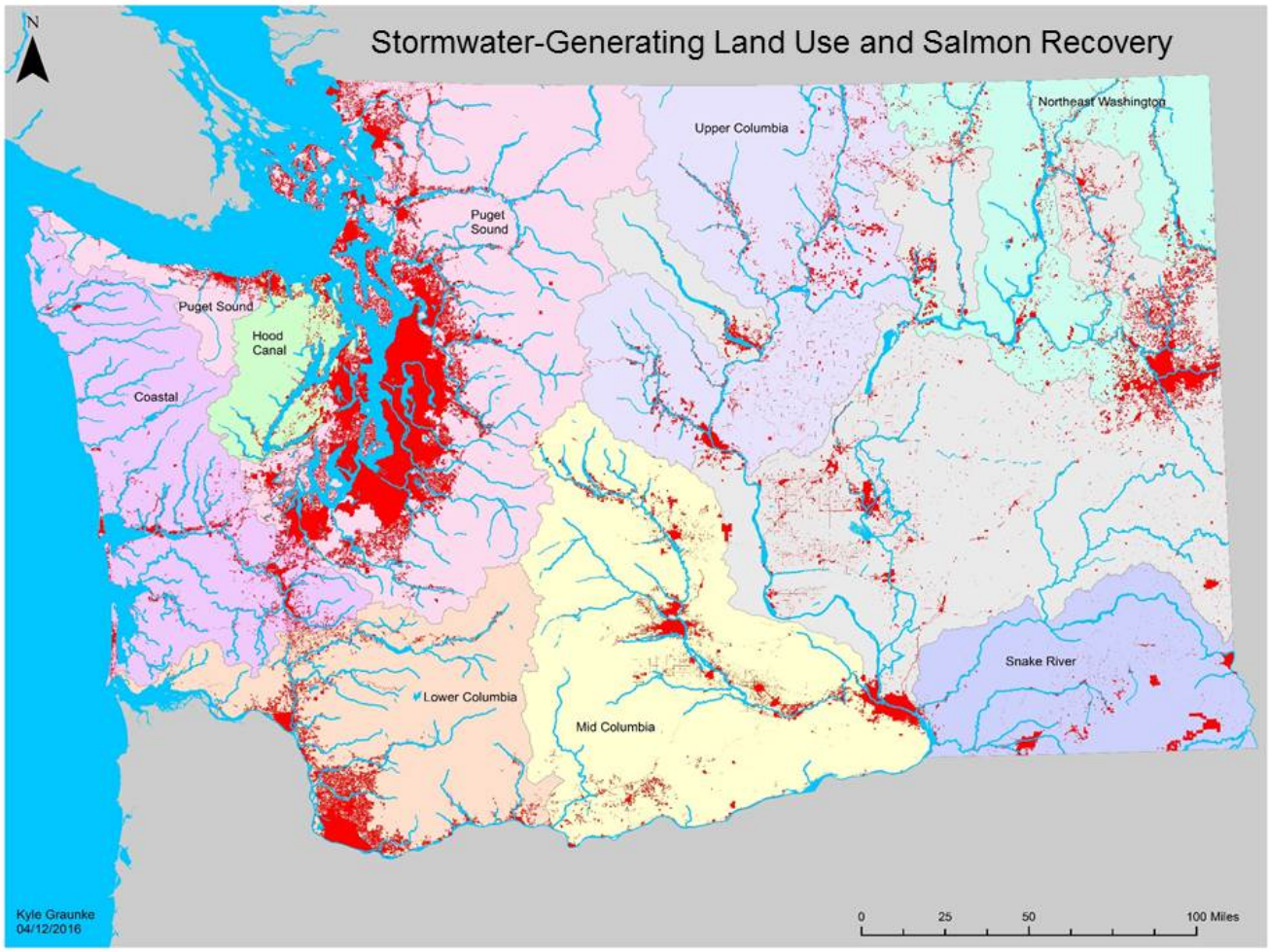


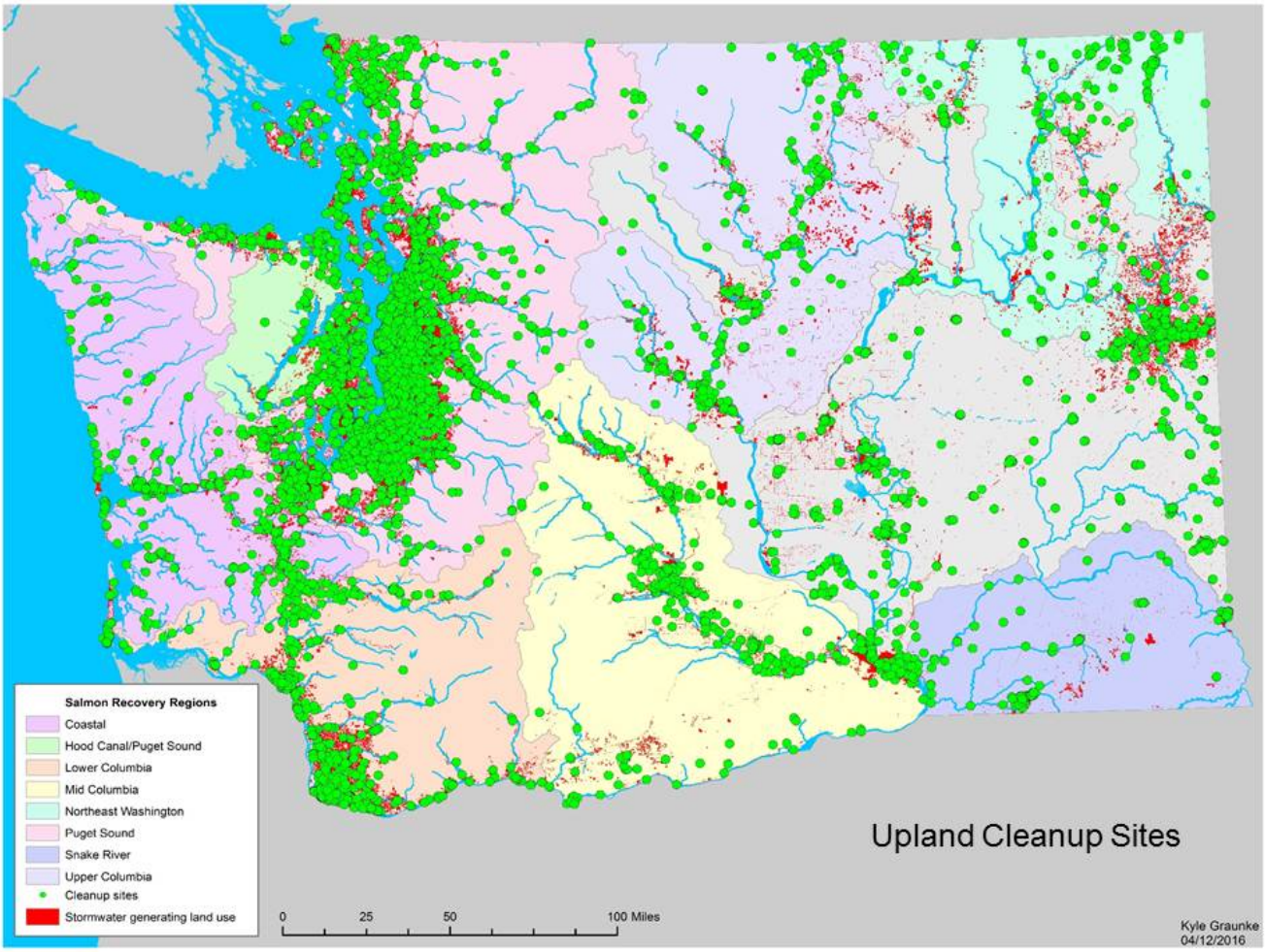
Hazardous Substance Tax Revenue

Reflects February 2016 Forecasts



Source: HST GAAP revenue sourced from Agency Financial Reporting System (AFRS). Data prior to 1997-99 Biennium extracted from Department of Revenue tax reference manual. HST forecast data sourced from Department of Revenue. Fiscal Year 2016 reflects actual collections through Fiscal Month 07 and forecast for the remainder of the fiscal year.





Coho salmon spawner mortality in western U.S. urban watersheds: bioinfiltration prevents lethal stormwater impacts

Julann A. Spromberg[1], David H. Baldwin[1], Steven E. Damm[2], Jenifer K. McIntyre[3], Michael Huff[4], Catherine A. Sloan[1], Bernadita F. Anulacion[1], Jay W. Davis[2], and Nathaniel L. Scholz[1]

[1]*National Marine Fisheries Service, NOAA, Seattle, WA*
[2]*U.S. Fish and Wildlife Service, Lacey, WA*
[3]*Washington State University, Puyallup, WA*
[4]*Suquamish Tribe, Suquamish, WA*

Supplemental Video 2.
Second example of a field observation of a symptomatic adult coho in a Seattle-area urban stream, from 2005. Symptoms are representative of the early-onset phase of the mortality syndrome, and include lethargy, loss of orientation, gaping, and surface swimming. This coho subsequently lost equilibrium and died within 1-2 hrs.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Supplemental Video 3.
Adult coho spawners exposed under controlled experimental conditions at the Grovers Creek hatchery facility to either clean well water, unfiltered urban runoff, or runoff treated using bioinfiltration. Following a 4 hr exposure, the coho were individually transported from treatment tanks to an observation tank containing clean water for video observation. Control coho in clean well water were asymptomatic, as evidenced by rapid movements, normal equilibrium, and avoidance behavior. By contrast, spawners exposed to untreated stormwater displayed the conventional symptoms of the pre-spawn mortality syndrome, including lethargy and a loss of equilibrium. These overt indicators of lethal toxicity were abolished when the same source of urban runoff was pre-treated using bioinfiltration; spawners from this treatment group were qualitatively indistinguishable from clean water controls.