

**Toward Implementing  
the WRIA 9 Salmon Habitat Plan  
May, 2010**

***Addendum to Earth Economics April 2009 WRIA 9 Funding Mechanism Report:  
Generating Payments for Ecosystem Services***

*Prepared for:*



***Water Resource Inventory Area 9  
Watershed Ecosystem Forum***

*Funded by:*



***King Conservation District***

# TOWARD IMPLEMENTING THE WRIA 9 SALMON HABITAT PLAN

*MAY, 2010*

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Final Version 2.0

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## Table of Abbreviations

KC	King County
KCD	King Conservation District
KCFCD	King County Flood Control District
MBRT	Mitigation Banking Review Team
PES	Payments for Ecosystem Services
PSP	Puget Sound Partnership
RCW	Revised Code of Washington
TDR	Transfer of Development Rights
WCI	Western Climate Initiative
WRIA	Water Resource Inventory Area
WRIA 9	Water Resource Inventory Area 9, the management entity for the Green/Duwamish and Central Puget Sound Watershed
WSDOT	Washington State Department of Transportation

## EXECUTIVE SUMMARY

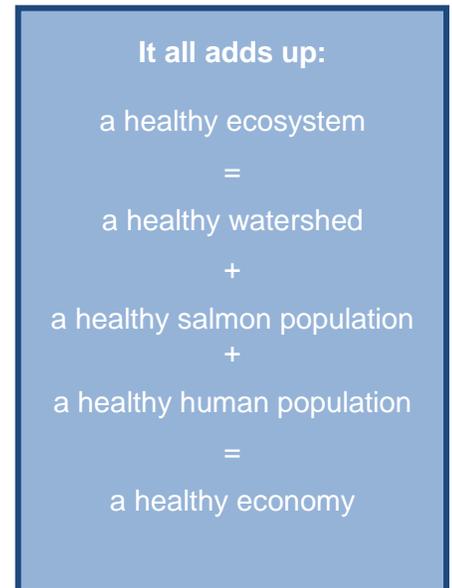
Healthy salmon populations can only thrive in a healthy watershed. A healthy watershed also provides a wide range of ecosystem goods and services including not just salmon, but also flood and storm protection, clean drinking water, recreation, and other benefits detailed in the Earth Economics 2009 report, “WRIA 9 Funding Mechanism Report: Generating Payments for Ecosystem Services.” These goods and services are essential to the health of people and the economy.<sup>1</sup>

In the Green/Duwamish and Central Puget Sound Watershed these ecosystem goods and services benefit over 700,000 residents. Science and experience tells us that when the health of a watershed declines, there is an associated decline in quality and quantity of ecosystem goods and services that the watershed provides. Investments are needed to restore natural capital to health, including salmon populations and to provide a higher quality of life to residents.

In 2005, Water Resource Inventory Area 9 (WRIA 9), the management entity for the Green/Duwamish and Central Puget Sound Watershed, adopted a comprehensive plan for protecting and restoring the watershed and salmon habitat with the adoption of *Making Our Watershed Fit For a King: Salmon Habitat Plan for the Green/Duwamish and Central Puget Sound Watershed (WRIA 9)* by all the local governments within the watershed. The Salmon Habitat Plan invests in natural capital through habitat restoration and protection projects and programs. To put this plan into action WRIA 9 requires dedicated funding mechanisms that will provide an average of \$20-30 million each year over 10 years.

By implementing the Salmon Habitat Plan, WRIA 9 is preserving, improving, and creating natural capital along the Green/Duwamish River and the coastal areas of the Central Puget Sound Watershed. Protecting and restoring natural systems provides a vast array of benefits for a lower cost than built-only capital approaches. This management strategy is far more efficient than replacing self-maintaining natural systems with human-built infrastructure that requires maintenance and must be replaced every 30-40 years. Natural systems are unsurpassed in preserving natural and human health and economic benefit at least cost. The Puget Sound region will benefit extensively from investing in now scarce ecosystem goods and services in the Green/Duwamish and Central Puget Sound Watershed, and the return on investment is significant. Not only does investing in natural capital protect and restore habitat for threatened and endangered species, **preliminary estimates conclude that as much as \$6.44 of benefit will be generated for every \$1.00 invested in this plan.**<sup>2</sup>

The WRIA 9 Salmon Habitat Plan mandates a \$300 million investment in natural capital in the form of habitat restoration and protection projects and programs that will require dedicated funding mechanisms to generate revenue averaging \$30 million each year over 10 years.



<sup>1</sup> The 2009 WRIA 9 Funding Mechanism Report can be found at <http://www.govlink.org/watersheds/9/pdf/WRIA9-Funding-Mechanisms-April-2009.pdf>

<sup>2</sup> See Appendix B of the 2009 WRIA 9 Funding Mechanism Report.

This report outlines proposed funding mechanisms for that plan based on principles of ecological economics to manage the economic efficiency, social equity and environmental sustainability of the Green/Duwamish and Central Puget Sound Watershed.

## This Document

An addendum to the 2009 WRIA 9 Funding Mechanism Report, this document outlines the results of the work completed between March 2009 and May 2010 by the WRIA 9 Management Committee and the larger WRIA 9 Ecosystem Forum, and Earth Economics economists and analysts. This work consisted of methodical evaluation proposed funding mechanisms described in the WRIA 9 Funding Mechanisms Report. Out of an initial 25 options, the WRIA 9 Management Committee identified eight options worthy of further analysis, and narrowed that down to the three most viable options to secure continued and sustainable funding for the implementation of the Salmon Habitat Plan. Each of these final three options is described in detail in this paper with a summary table identifying the authority (RCW), the scale of action (geographic/political region), the decision maker (policy makers empowered to proceed forward), and the revenue (amount of money raised towards implementation of the Salmon Habitat Plan).

Along with this document, Earth Economics has created a set of five policy briefs for decision makers. These briefs provide a summary overview of the history (Brief 1), analysis of the funding need (Brief 2) and the 3 funding options that are discussed in detail in this paper (Brief 3-5). The policy briefs and download locations are listed in Appendix A of this document.

## Recommendations

As a result of the study and our work with WRIA 9, Earth Economics recommends that WRIA 9:

1. Seek support for a \$0.01 increase in the 2011 Flood Control District levy. This increase could be approved before November 2010 as a first step toward a larger funding mechanism that more closely matches the needed \$30 million annual salmon restoration need.
2. Determine whether to pursue an assessment or fee or tax through a new taxing authority, a dime increase in the Flood Control District levy, or with independent taxing authority on property tax for WRIA 9 at a \$0.20 levy which would raise between \$20-30 million.
3. Seek legislation to allow an increase in the percentage of funds from flood control districts (and other Special Purpose Districts) that can be used for watershed projects, including salmon habitat projects.
4. Map, quantify, and evaluate ecosystem services for the potential benefits they provide across jurisdictions to set the Watershed Investment District design.
5. Develop necessary legislation for the Watershed Investment District.
6. Work with Washington State legislators for passage of needed legislation and vote of the people, or for county level Watershed Investment Districts.

## Adopted Strategy

A three-phase strategy to provide dependable and sufficient funding for the WRIA 9 Salmon Habitat Plan was proposed to the WRIA 9 Watershed Forum on May 13, 2010. The Forum discussed and adopted the strategy as outlined below:

- Phase 1: Approve an additional, initial funding mechanism for WRIA 9 in 2010. Approve a Flood Control District **levy increase** by November 2010, at a rate of \$0.01 per \$1,000 of property value raising an estimated \$1.68 million per year. The King County Flood Control District could also prioritize existing revenue from its levy be used to invest in

flood protection projects that have significant overlap with salmon habitat projects.

Phase 2: Approve an additional funding mechanism to raise \$20-30 million/year until phase 3 is accomplished. Legislation would be required to allow the KCFCD levy to be increased by an additional \$.10 and for these funds to be dedicated to WRIA 9. Another option is to approve legislation providing WRIA 9 with tax authority. This could enable a new \$10 per parcel **special assessment or fee or tax** generating an estimated \$1.86 million for WRIA 9. With property tax authority, and \$0.20 levy per \$1,000 assessed value tax applied to property in WRIA 9 over \$20 million could be raised annually.

Phase 3: Pursue creation of an inter-departmental and multi-jurisdictional **Watershed Investment District**, with a combined system of funding mechanisms that will provide the most cost-effective approach for integrated management of all ecosystem services.

## INTRODUCTION

### Problem Statement

Degradation of salmon habitat has had a devastating effect on Chinook salmon populations in the Pacific Northwest, where salmon and their habitat are woven into the very fabric of Northwest culture and economy. To many native tribes, the cultural value of salmon is beyond measure, and most citizens in the region believe that the existence of salmon is intrinsically valuable. In fact, most people indicate they are willing to pay for this value from salmon, even if they derive no direct recreational or other benefit. (Olsen 1991). People and communities located in and beyond the Green/Duwamish and Central Puget Sound Watershed benefit both from healthy salmonid populations, and the associated ecosystem goods and services, such as salmon, flood and storm protection, clean drinking water, recreation, and other benefits, that a healthy watershed provides.

Today, these ecosystem goods and services can be identified, mapped and valued across the Watershed. Tools that would benefit a variety of institutions, federal to local, could be developed and applied in the Watershed. These tools open up opportunities for gains in efficiency across watershed jurisdictions, such as stormwater districts, public utilities, cities, the county and more. Once restored, a healthy watershed supplies these vast benefits over the long term, reducing costs, government expenses and tax burdens. Figure 1 shows the Green/Duwamish and Central Puget Sound Watershed and subwatersheds in relation to other Puget Sound Watersheds.

The Salmon Habitat Plan provides a strategy that specifies 75 on-the-ground restoration projects; 57 habitat protection projects, and 30 programs totaling \$300,000,000 over 10 years. 56 of the 75 on-the-ground habitat projects are considered the highest priority because of their importance in addressing the decline of Chinook salmon.

This addendum to the 2009 Funding Mechanism Report describes the process used by the WRIA 9 Watershed Ecosystem Forum to identify and evaluate funding mechanisms to generate sufficient revenue for implementing the Salmon Habitat Plan to improve the health of the Green/Duwamish and Central Puget Sound Watershed and get its Chinook salmon population on the road to recovery.

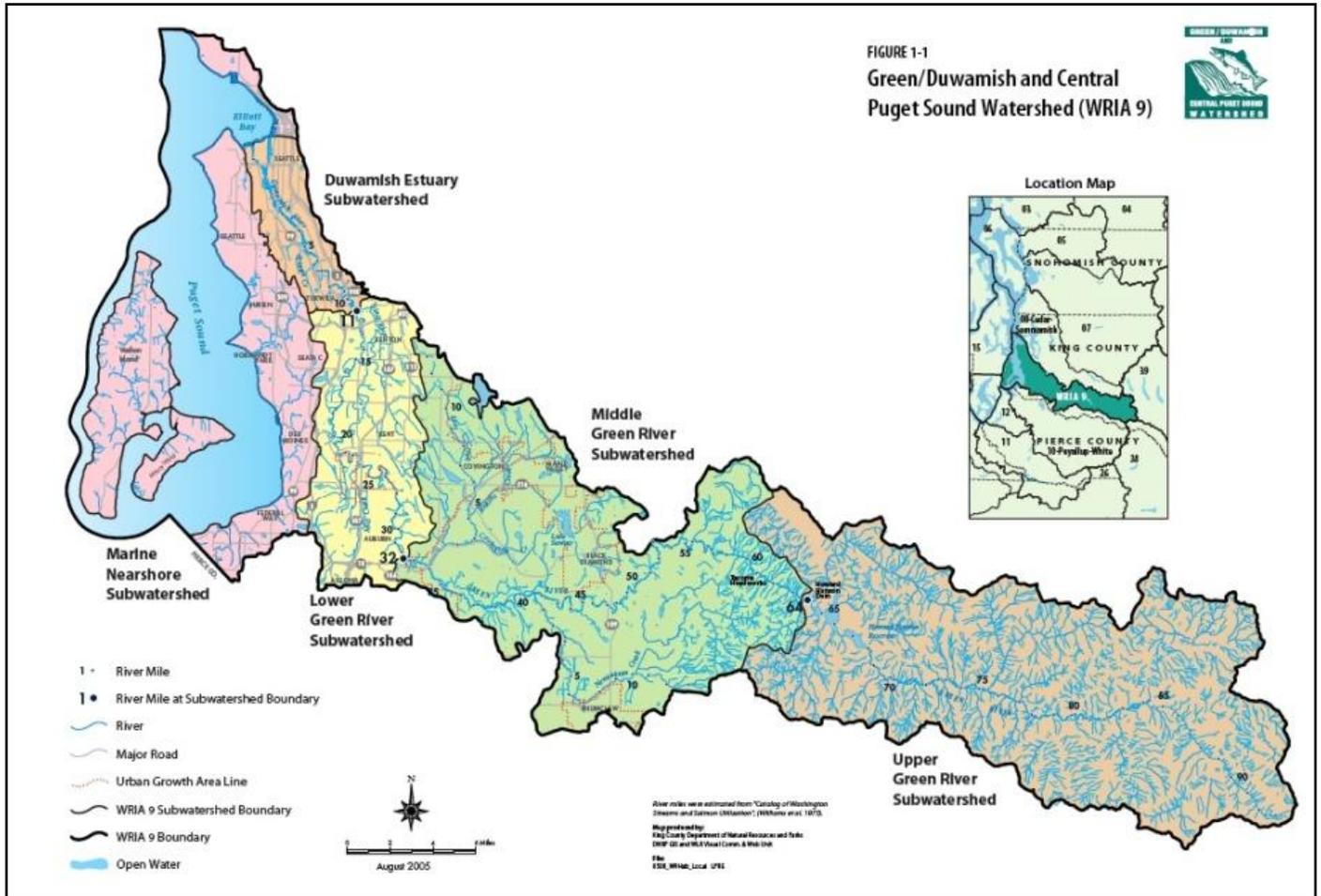


Figure 1: Green/Duwamish and Central Puget Sound Watershed and subwatersheds in relation to other Puget Sound Watersheds

## Current Funding

Today, there are three primary funding sources to implement the Salmon Habitat Plan:

1. **Interlocal agreements** among the 16 cities of the Green/Duwamish and Central Puget Sound Watershed and King County provide annual operating support.
2. The **King Conservation District** competitive grant program provides operating and capital project funding.
3. **Grants from local, state and federal agencies** provide operating and capital projects funding.

While these sources have brought us this far, the current funding mechanisms are clearly insufficient as sources of revenue for accomplishing the Salmon Habitat Plan at the Green/Duwamish and Central Puget Sound Watershed level. The Salmon Recovery Funding Board (SRFB) grant funding to WRIA 9 has declined overall by 84% in ten years to less than \$400,000 in 2010 (see figure 2). Green River Restoration Project (Army Corps of Engineers) and several grant sources may provide operating and project funding around \$5 million in 2010, including stimulus grants. However, future grant funding is highly uncertain. KCD Funding, though consistent, has been a declining source and will provide only about \$1.2 million to WRIA 9 in 2010.

A funding mechanism providing \$30 million/year for ten years would enable operating capacity and implementation of capital projects. It would provide matching funds for grants. In addition to habitat restoration, these funds would be spent in WRIA 9 providing jobs and economic development. Staff time in grant writing and uncertainty in funding and project implementation would be eliminated. Chinook salmon could be restored for present and future generations.

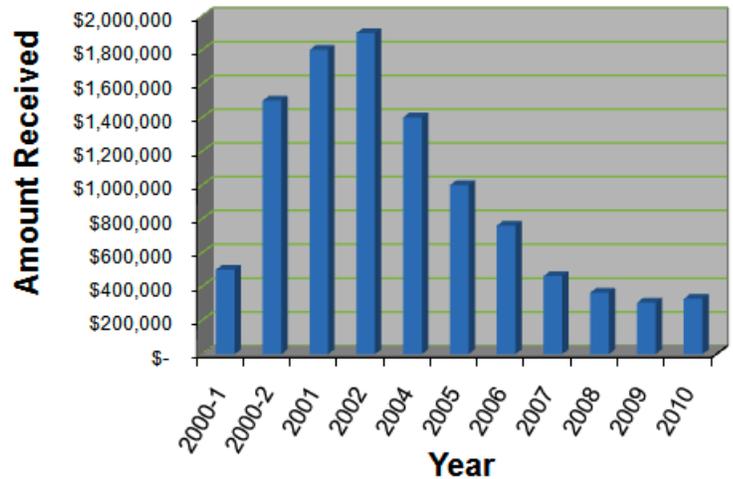


Figure 2: Salmon Recovery Board Grants received by WRIA 9

### 2009 Funding Mechanisms Report

At an Earth Economics workshop in August 2008, 25 possible funding mechanisms were identified. Earth Economics evaluated each mechanism for its funding potential, feasibility, and potential as either a disincentive for actions that damage salmon populations, or an incentive for benefiting salmon.<sup>3</sup> Out of the 25, eight were further developed and described in the “WRIA 9 Funding Mechanism Report: Generating Payments for Ecosystem Services”. This April 2009 report included a detailed analysis of these eight most viable funding mechanisms. A summary of this analysis can be found in Appendix C of this document.

<sup>3</sup> A complete project history can be found in Appendix B of this document.

**Table 1: List of eight funding mechanisms described in the April 2009 Funding Mechanism Report.**

Option	Description
Flood Control District Levy Increase	An increase of the Flood Control District levy to accomplish complementary objectives associated with both flood hazard management and salmon habitat restoration
Cruise Ship Passenger Fee	A per passenger cruise ship impact fee
Per Parcel Assessment Fee/Tax	A per parcel assessment fee for all properties within the Green/Duwamish and Central Puget Sound Watershed
Marine Shoreline Armoring Tax or Fee	A new district and tax on marine shoreline armoring impacts
Additional Impervious Surface Fee	An additional fee on impervious surface
Mitigation Banking Market	A mitigation banking market
Watershed Investment District	Research on opportunities to create a Watershed Investment District
Puget Sound Partnership	Pilot project in collaboration with the Puget Sound Partnership Action Agenda

### **Toward Implementing the WRIA 9 Salmon Habitat Plan**

Following the draft report, Earth Economics, WRIA 9 staff, and the WRIA 9 Watershed Ecosystem Forum worked to develop a set of criteria to carefully evaluate the practicality and feasibility of each funding mechanism. In the spring and summer of 2009, the WRIA 9 Watershed Ecosystem Forum evaluated the mechanisms based on the criteria. By using this analysis, Earth Economics refined the original eight proposed mechanisms to three final recommendations. The final phase of research focused on these three most highly ranked funding mechanisms:

1. Flood Control District Levy Increase
2. Per Parcel Assessment/Fee/Tax
3. Watershed Investment District

In April 2010, five policy briefs were developed to outline the project’s progress, current funding sources and the three highly ranked funding mechanisms. This addendum outlines key information and policy tools for implementing the WRIA 9 Salmon Habitat Plan using one or more of the three recommended funding mechanisms. These policy briefs are listed in the Appendix A of this document.

# IDENTIFYING AND SELECTING FUNDING MECHANISMS

## Types of Incentive and Funding Mechanisms

The rationale for a comprehensive approach to watershed-scale integration of funding is that both public and private entities within the Green/Duwamish and Central Puget Sound Watershed receive benefits from the Watershed. Truly public goods, like flood control, storm protection, and biodiversity cannot be privatized, and are best provided through a public utility model.

The following presents general definitions of types of funding mechanisms in an effort to provide rationale for the specific mechanisms described later in the report.

### Tax Funding Mechanisms

Tax funding mechanisms provide a means to collect funds based on real estate property value or market value of transactions (utility usage, services received, purchases, etc.). Washington State uses property tax, retail sales tax, business taxes, fuel tax and RTA tax (combines a vehicle tax and sales tax) to fund government activities. In addition to generating revenue, taxes can serve as an incentive to change behavior, discouraging activities that harm others. For example, taxes on cigarettes have been shown to reduce cigarette smoking and lung cancer rates, which in turn reduces both private and public health costs.

Typically, new taxes require significant legislation and/or public votes, and are subject to some limitations.

### Fee Funding Mechanisms

Funding mechanisms based on the application of a fee are an alternative to tax-based mechanisms. Fees are charged to parties based on a particular benefit provided, and are levied, collected and allocated to fund projects or programs that address a problem, or alleviate negative impacts. For example, local stormwater management fees are designed to provide funding for engineered stormwater management systems. These engineered systems mitigate flooding impacts in areas with a high concentration of impervious surfaces. The fee amount is related to the cost of the stormwater management required. Other fees in Washington State include title and registration fees for land and vehicles, permitting fees, and environmental impact fees.

Development of fee-based mechanisms may in some cases require establishment of a new district under legislative direction detailed in the Revised Code of Washington State.

### Watershed Investment District

The watershed investment district concept takes a multi-jurisdictional approach, similar to that of a public utility. Here, the approach would include management systems for a range of ecosystem services.

## Payments for Ecosystem Services

The Salmon Habitat Plan is designed to have clear economic and ecological benefits to residents of the Green/Duwamish and Central Puget Sound Watershed. These benefits begin with the basic existence value and cultural importance of salmon, priceless in monetary terms. The planned restoration projects will provide additional key ecosystem services including but not limited to:

- flood protection to properties in the floodplain
- carbon sequestration in the upper and middle watershed regions
- soil regulation
- water provisioning and purification

## Damage, Benefit, Work, and Pay

To determine who should pay for the projects outlined in the Salmon Habitat Plan, we began with a simple analysis of what parties have a stake in the restoration efforts, including where damage has originated from, who stands to gain from the co-benefits of restoration, and who will be directly involved with the process. Figure 3 shows the chain of actions that the Salmon Habitat Plan addresses.

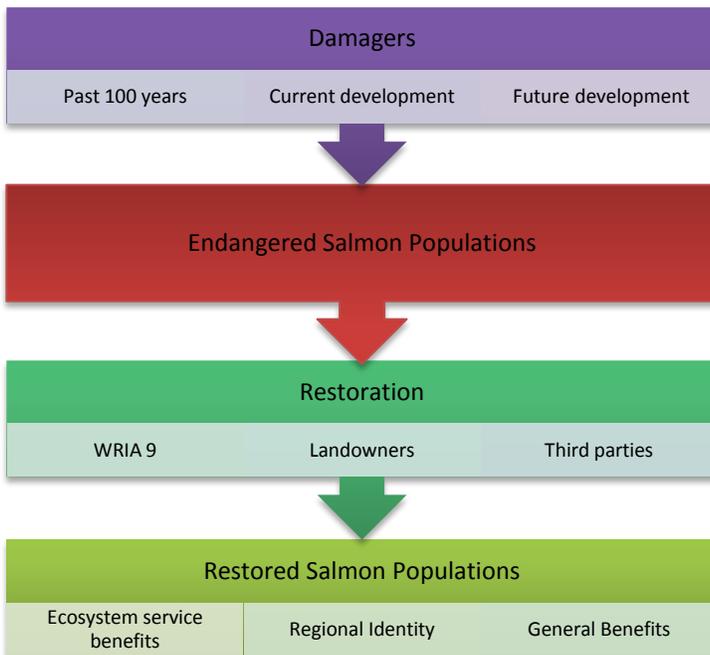


Figure 3: Salmon Restoration Process

For salmon restoration to be a sound investment, the sources of the damage must be controlled to prevent further habitat destruction. As the lifecycle of salmon has become better understood, the factors affecting their decline have been increasingly incorporated into local, state, and national policies. The critical importance of feeder bluffs to salmon habitat, for example, has led some jurisdictions in the Puget Sound to adopt strict regulations of marine shoreline management (Johannessen & MacLennan, 2007).

The day-to-day lifestyles of all residents of WRIA 9 have impacts that contribute to declining salmon populations. Driving, walking the dog, or maintaining the yard—many residents may not realize they can have serious

consequences for the health of Puget Sound and species that depend on it. Other damages that were done by past generations still need to be mitigated. On the other end, it is important to educate the public on the value of benefits they receive from restoration projects.

### Equitable Distribution of Costs

To preserve economic efficiency, social equity and environmental sustainability, costs can be distributed among those individuals or entities benefitting from, or impairing ecosystems that provide salmon habitat. Watershed residents are the primary beneficiaries of salmon, flood protection and other benefits of a healthy watershed ecosystem, and would benefit most from restoration efforts. As primary beneficiaries, they should invest in implementing the Salmon Habitat Plan. A wide variety of potential benefits from salmon habitat restoration are outlined below in Figure 4.



Figure 4: Benefits from WRIA 9 Salmon Habitat Plan

## SELECTION OF FUNDING MECHANISMS

The following funding mechanisms were designed to correspond with a specific beneficiary, or impairer of those ecosystem services identified as being improved through salmon habitat restoration. These proposed mechanisms also offer the advantage of aligning with Policy ES4: “Develop, continue, expand, and improve programs to encourage positive personal action in daily life,” as outlined in the WRIA 9 Salmon Habitat Plan. This Policy includes programs to raise awareness about natural yard care, good car maintenance, septic system maintenance, minimizing paving, using toxic free products, salmon-friendly car washing, pet waste cleanup, beach use etiquette, and other ecologically sound behavior (Green/Duwamish and Central Puget Sound Watershed WRIA 9 2005).

### Evaluation Criteria

Evaluation criteria were developed, adopted and applied by the WRIA 9 Watershed Ecosystem Forum, which ranked the mechanisms in the spring and summer of 2009. Figure 5 shows how each of the seven mechanisms performed against the following criteria:

**Political Viability:** Is the funding mechanism politically acceptable, acceptable to the public, or likely to have state support?

**Sustainable:** Does the mechanism make enough money, and have a long enough life, to implement the Salmon Habitat Plan?

**Ecologically Based:** Is there a nexus to salmon recovery and ecological goods and services?

**Fair:** Is the mechanism fair and equitable? Is the burden evenly spread?

**Low Implementation Cost:** Are the costs to administer the mechanism reasonable and appropriate?

**Revenue Sufficiency:** Does the revenue generated match the 10-year implementation needs?

**Minimize External Impacts:** Does the mechanism avoid threatening other funding sources/economic activities?

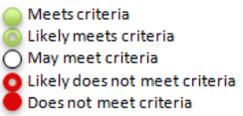
		Levy Increase on Flood Control Tax	Cruise Ship Passenger Fee	Per Parcel Assessment Fee/Tax	Marine Shoreline Armoring tax or fee	Additional Impervious Surface Fee	Mitigation Banking Market	Watershed Investment District
								
Votes		15	2	11	5	4	3	16
1	Is the mechanism politically viable?							
	<i>Is the funding mechanism acceptable politically? Is the mechanism acceptable to the public? Is the mechanism likely to have</i>	<i>Rather than use political viability as a selection criterion, the group opted to apply that criterion to ongoing discussions about funding mechanisms.</i>						
2	Does the mechanism make enough money, and have long enough life, to implement the Habitat Plan?							
	<i>Does the mechanism have long-range viability?</i>							
3	Is there a nexus to salmon recovery and ecological goods and services?							
4	Is the mechanism fair and equitable?							
	<i>Does the mechanism demonstrate fairness? Is the burden evenly spread, with no single group targeted?</i>							
5	Are the costs to administer the mechanism reasonable and appropriate?							
6	Does the revenue generated by the mechanism match the 10-year implementation needs?							
7	Does the mechanism avoid threatening other funding sources/economic activities?							

Figure 5: Decision Criteria for Mechanisms

In February 2010, the Forum voted and selected three mechanisms for further research including:

1. Flood control levy increase
2. Per parcel assessment/fee/ tax
3. Creation of a watershed investment district

## PROPOSED FUNDING MECHANISMS

### OPTION 1: Flood District Levy Increase

Overlap between the project objectives of the WRIA 9 Salmon Habitat Plan and those of the Flood Hazard Management Plan represents approximately \$38.4–72.1 million in projects, a portion of the total \$300 million of projects in the WRIA 9 Salmon Habitat Plan. Revenues from an increase in the King County Flood Control District (KCFCD) levy could fund overlapping projects and be leveraged as the local match for federal and state grants.

#### Background

Flooding in King County is a significant concern to a wide variety of stakeholders—for salmon restoration as well as for businesses, residents, and all parties tied to the local economy. The 100-year floodplain spans over 25,000 acres, with a total assessed valuation of over \$7 billion (King County Ordinance 15728). If flooding were to shut down economic activity in this area for even one day, the County would lose over \$46 million in foregone economic output (ECONorthwest).

The threat of such losses is quite real, as King County was declared a federal flood disaster area eight times between 1990 and 2006. In 2006, King County experienced extremely heavy rains and some of the worst flooding ever recorded. Several main highway routes, including Interstate 5 and Interstate 405, were shut down, millions of dollars in damages occurred, and several lives were lost. Recently, in 2009, flooding occurred again at severe levels, particularly in the town of Pacific.<sup>4</sup> The 100-Year Floodplain for WRIA 9 is shown in Figure 6.

#### Flood Districting

In 2007, King County Council (KCC) passed Ordinance 15728 to form the KCFCD, an independent special purpose district, to implement the Flood Hazard Management Plan which outlines over \$334 million in priority repairs over 10 years.<sup>5</sup> The Flood Hazard Management Plan is funded through a property tax assessment of \$0.10 per \$1,000 of assessed valuation. The King County Flood Control District (KCFCD) is an independent special purpose district of the State of Washington, authorized by Chapter 86.15 of the Revised Code of Washington (RCW). RCW 86.15 authorizes the King County Council to be the District's board of supervisors; thus the KCC is the governing body for the KCFCD.

Under RCW 86.15, flood control levy revenues are primarily intended to support flood and stormwater projects. RCW 86.15.035 allows a 10% portion of the revenue to be used to support cooperative watershed projects, approximately \$3.2 million per year, providing there is approval from the Flood District Board of Supervisors.

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<sup>4</sup> Recent news reports indicate that there is significant concern about use and viability of dams for flood protection:

[http://seattletimes.nwsourc.com/html/localnews/2008627490\\_apwapacificflooding.html](http://seattletimes.nwsourc.com/html/localnews/2008627490_apwapacificflooding.html)

[http://seattletimes.nwsourc.com/html/localnews/2008650646\\_apwahowardhansondam.html](http://seattletimes.nwsourc.com/html/localnews/2008650646_apwahowardhansondam.html)

<sup>5</sup> For more information on the King County Flood Control District, please visit the following link:

[http://www.kingcounty.gov/council/flood\\_district.aspx](http://www.kingcounty.gov/council/flood_district.aspx)

### Snapshot: Policy Brief 3

**Authority:** New state legislation, King County Flood Control District (FCZD2007-03.2), Special District Special Assessment (RCW 85.38.150)

**Scale:** Levy increase applied to all taxable assessed property in King County

**Decision Maker:** King County Flood Control District/King County Council for \$.01 increase, Legislature for allowing more than 10% of flood district funds for watershed work

**Revenue:** \$1.68 million with a \$0.01 increase of the KCFCD levy, \$16.8 million with a \$0.10 increase of the KCFCD levy

The King County Flood Control District Advisory Committee unanimously recommended disseminating this revenue via a Sub-regional Opportunity Fund. Further specifications include the following:

1. The 10% Subregional Opportunity Fund should be allocated to jurisdictions on a pro-rated basis.
2. Jurisdictions should have flexibility to determine which types of activities they wish to finance with these funds, so long as those activities are consistent with RCW 86.15.
3. Jurisdictions should have flexibility to determine where these funded projects should be located.

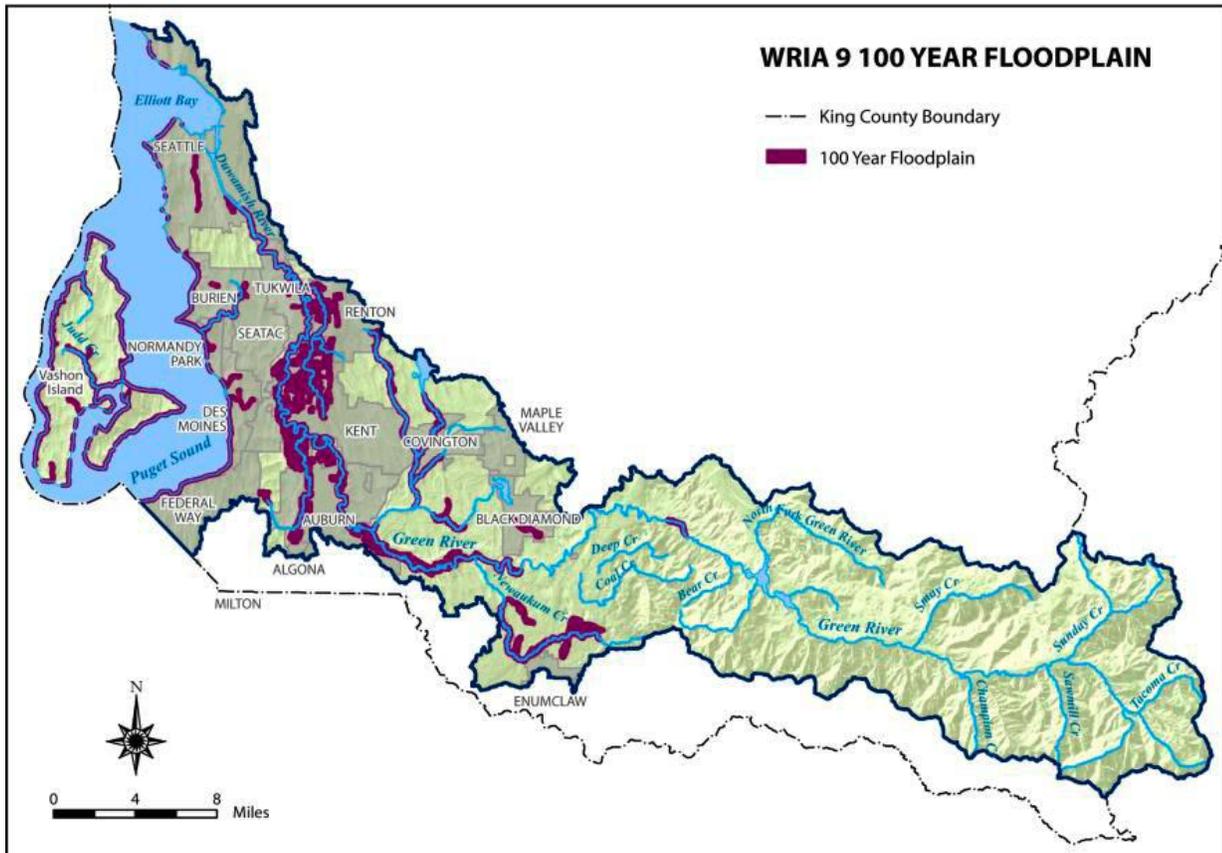


Figure 6: WRIA 9 and Floodplain Overlap

The Flood Control District levy in 2008 was set at a regular rate of \$0.10, with a maximum of \$0.50 authorized for each increment of \$1,000 in assessed parcel value. This rate is subject to limits constraining the levy from exceeding the following:

1. 1% of the market value of a property (Washington State Constitution);
2. \$5.90 per \$1,000 of assessed parcel value in aggregate with all other levies (RCW 84.52.043); and
3. A maximum of 101% of the highest regular levy since 1986 (RCW 84.55).

### Habitat Funding

In the fall of 2008, the Flood District Board of Supervisors decided to narrowly define the allowable uses of the flood district money to exclude habitat work unless specifically connected to a flood project. Specifications of this resolution include the following:

District funds may be expended for cooperative watershed management actions, including watershed management partnerships and other intergovernmental agreements, for the purposes of water supply, water quality, and water resource and habitat protection and management, provided that **Opportunity Funds expended for salmon habitat protection shall be linked to the construction of a flood or stormwater project, and provided further that all such funds shall be used for the implementation of watershed management plans.**

### Collaboration on Similar Goals

Contemporary approaches to flood management, such as the projects included in the King County Flood Hazard Management Plan, can provide flood protection, and benefit salmon habitat at the same time. These projects contribute to improving habitat health and are critical to recovering the Green River Chinook salmon population. Such projects involve channel rehabilitation, levee setbacks, bank restoration, and upgrade to roads with associated fish passages or riparian restoration.

At least five major projects in the Salmon Habitat Plan are quite similar in scope and location to projects specified in the Flood Hazard Management Plan (see Appendix D for a detailed analysis of overlap between the two plans). Several of the projects in these two plans may in fact produce identical outcomes depending on negotiation between decision makers.

### Opportunity

The KCFCD could prioritize overlapping projects between WRIA 9's Salmon Habitat Plan and the Flood Hazard Management Plan. Since there is an allowance in state law for 10% of KCFCD funds to be dedicated to wider watershed activities related to flood protection, a one penny increase could be dedicated to WRIA 9 with KCFCD and King County Council approval. The levy is applied at the county level, thus WRIA 8 and 7 would receive additional revenue while implementing flood management goals. Two alternatives for increasing revenue are presented below, a \$0.01 or a \$0.10 levy increase per \$1,000 of assessed value.

Both increases could be implemented through the same process. Since the KCFCD's levy is currently below the maximum rate of \$0.50 per \$1,000 of assessed value, the KCFCD's Board of Directors does not need voter approval to increase the levy. The KCFCD would need to have the levy increase approved by the KCFCD Board of Directors and then certified by the KCC. The KCC serves as the KCFCD Board of Directors. In order to provide more than 10% of KCFCD funds for watershed work, the state legislature would need to change state law.

### KCFCD Levy Increase of \$0.01

A penny increase to the KCFCD's current \$0.10 levy per \$1,000 of assessed value would generate **\$1.68 million** in additional revenue and could be applied under the 10% rule toward WRIA 9 (assuming that the KCFCD uses a 40%-40%-20% distribution of funds among WRIA 9, 8, and 7 and that the WRIA 9 projects were flood related).

**Pros:** The additional \$1.68 million could leverage funds from federal and state sources, such as the Green River Ecosystem Restoration Project between WRIA 9 and the Army Corps of Engineers. By funding overlapping projects, WRIA 9 staff may have more time available to work on grants and other salmon habitat restoration projects. This is a relatively small increase in the levy and may be acceptable to property owners.

**Cons:** This funding source alone will not fully fund the gap in revenue needed to implement the WRIA 9 Salmon Habitat Plan.

## KCFCD Levy Increase of \$0.10 and/or Prioritization of Overlap Projects

Prioritization of salmon/flood protection projects under current funding levels, or a \$0.10 levy increase (generating an estimated **\$16.8 million**) could fund several years of the Salmon Habitat Plan. The levy increase could not be placed into a WRIA 9 account as an independent funding mechanism unless additional state legislation was passed. The legislature would need to change the law to allow more than 10% of flood control district funds to be used for watershed projects.

**Pros:** This can fund a significant portion of the Salmon Habitat Plan in the near term. Funds could be used to leverage federal and state funding for the overlapping projects.

**Cons:** The \$0.10 levy increase may be difficult with other funding mechanisms moving forward. Additionally, the \$0.10 increase could put some districts close to the \$5.90 aggregate rate limit. If the aggregate rate in any district exceeds the \$5.90 limit, then the KCFCD would be second in line to decrease its levy rate to ensure that this limit is not reached. Currently, some districts in King County are as close as \$0.18 from the \$5.90 limit.

### Recommended Next Steps

Earth Economics recommends that WRIA 9 seek a \$0.01 levy increase for 2011. This increase could be approved in November 2010 as a first step toward a larger and more secure funding mechanism. Moreover, we recommend that KCFCD prioritize implementing the salmon and flood protection overlap projects under current funding levels. WRIA 9 should work with the legislature to allow more than 10% of flood control funds to be used for integrated watershed projects. We recommend that WRIA 9 immediately meet with KCFCD to gain support for the penny increase in the existing levy.

## OPTION 2: Assessment/Fee/Tax

### Background

One potential mechanism for funding Salmon Habitat Plan projects is the creation of a new taxing district for salmon restoration. In this scenario, residents would pay either a small per parcel assessment, fee or tax, or pay through a new property tax.

One method of creating a new taxing district is instituting an assessment, fee or tax on properties throughout WRIA 9. Another method would be creating a salmon restoration taxing district with the authority for an additional property tax levy.

Justification for an assessment/fee/tax is two-fold:

1. Development and changing land use in the Watershed have contributed to the significant need to restore habitat to recover salmon, and
2. Residents will gain economic benefits by restoring habitat and recovering the salmon population.

To fund the WRIA 9 Salmon Habitat Plan, we recommend applying a new and additional \$10 per parcel special assessment fee to be levied directly by WRIA 9. Applied to 185,700 parcels in WRIA 9, excluding tax-exempt

### Snapshot: Policy Brief 4

**Authority:** New state law required to create WRIA tax authority

**Scale:** King County

**Decision Maker:** King County Council, WRIA 9

**Revenue:** \$1.86 million to \$21.2 million annually

properties (King County GIS Center 2008b), this funding mechanism is estimated to generate approximately \$1.86 million in direct revenue to WRIA 9.<sup>6</sup>

### Opportunity

An assessment, fee or tax could be implemented by King County. Under Washington State Law, special assessment districts can be created if they provide a new service or increase service provisioning to a local area. Water Resource Inventory Areas (WRIAs) could become authorized to levy a special assessment by an act of the legislature. In this case, healthy salmon populations would be the primary service provided through restoration, though many other benefits would accrue to residents as well, such as better water quality, flood protection and recreational opportunities.

A levy rate of \$10 per parcel in the Watershed would generate an estimated \$1.86 million annually in direct revenue for WRIA 9. The King County Council could approve such a levy rate for the duration of the salmon habitat plan (10-20 years). While this mechanism alone will not be sufficient to fully fund the restoration plan, it would provide a relatively simple and reliable source of funding.

The per parcel property assessment, fee or tax would draw revenue from all landowners in the District, whether rural or urban, regardless of property value or parcel size. It provides consistent revenue, even with changing macroeconomic conditions, unlike a tax on property value. The number of parcels does not change even if property values do change.

As an alternate proposal to the per parcel assessment/fee/tax, a new increment of the property tax could generate funding for implementing the Salmon Habitat Plan. A district could be established at the WRIA level, but the current legal precedent for property taxation does not extend to WRIA jurisdictions (except under a lid lift from an existing tax district, Policy Brief #3).

To generate \$21.2 million in funding for WRIA 9, it would be necessary to set a new property tax levy at the rate of \$.20 per \$1,000 of property value applied to \$106 billion in estimated property value within WRIA 9 (Earth Economics, 2009). A property value tax has the potential to provide substantially more revenue than the per parcel fee.

Note: The increase in the flood district levy is based on a per parcel assessment, and this proposal for taxing authority for a property tax levy would both require state legislation. If a new tax district is pursued, it would also require state legislation. These two options (as described in Policy Brief 3 and Policy Brief 4), should be pursued exclusively to avoid two legislative processes. WRIA 9 could be empowered with tax authority for both a per parcel tax and a property tax levy under a single bill. Either way, the establishment of a taxing authority for WRIA 9 could be the first evolution toward a watershed investment district (Brief 5).

**Pros:** Both funding mechanisms would raise funds for WRIA 9 with existing collection systems that would be efficient. The per parcel assessment is immune to economic booms and busts. The tax levy raises more funds.

**Cons:** The per parcel assessment is not sufficient for funding the Salmon Habitat Plan. The new levy would require legislation.

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<sup>6</sup> Tax-exempt properties are defined in Chapter 84.39 of the Revised Code of Washington

## OPTION 3: Watershed Investment District

### Background

The Green/Duwamish and Central Puget Sound Watershed (WRIA 9) covers 664 square miles of land and water where nearly 700,000 people take up residence, and where many thousands more people work, commute, and play. Within WRIA 9, jobs, services and economic development are provided by thousands of businesses, 16 cities, the Port Authority, King County, federal agencies, water utilities and many other public institutions. All these people and institutions affect, and are affected by the watershed they share.

This common Watershed provides natural capital goods and services to all of these stakeholders. These goods and services include salmon (such as threatened Chinook and Steelhead) and other fish and wildlife, flood protection, water production, stormwater conveyance, carbon sequestration, biodiversity and recreation. Yet, there is no institution responsible for making sure, at the Watershed level, that these goods and services are being managed in a coordinated way that reduces overall costs and increases overall benefits.

### Problem

Washington State has established a great number of different independent tax districts, from ports and school districts to park districts and cities. King County alone has over 100 tax districts. This is largely a product of the State's populist history. In the early years, Washington State citizens did not want any single government agency to have too much control or too large a jurisdiction. Thus, from ports to parks, separate tax districts were established.

Washington State has previously created new tax districts to fund and manage individual ecosystem services. In nearly all of these cases, the boundaries of these districts have not corresponded to the geographic area in which the ecosystem services were generated or benefits received. For example, shellfish districts have not included the areas where water quality is degraded, causing damage to shellfish. Also, flood districts have traditionally been at the base of the watershed, when most of the flood protection is provided further up the watershed.

It is inefficient for management of flooding, stormwater, water quality, biodiversity (including both salmon habitat restoration and shellfish protection) and other ecosystem services to be individually districted. Moreover, there is unnecessary complexity and potential for conflict when these services are funded through separate jurisdictions, with separate legal precedents and jurisdictions overlapping in mission and geography, in some cases competing for limited funding. This complex piecemeal structure contains potentially redundant administrative functions. A more efficient solution would be to integrate all into one comprehensive system for funding, planning and management. Coordinated, these investments could be less costly, more effective, and longer lasting. The overall tax burden would be reduced with greater service provided.

### Scale of Management

A watershed is a productive unit providing a variety of benefits. The watershed level provides the best rationale for efficiently allocating resources by investing in the watershed's natural assets, and the goods and services

## Snapshot: Policy Brief 5

**Authority:** New state legislation needed, but consistent with RCW 865.15.035 and 39.34.200

**Scale:** WRIA 9

**Decision Maker:** WRIA 9 jurisdictions, State Legislature

**Revenue:** Flexible depending upon design options, Efficient-- fully meets restoration needs of Salmon Habitat Plan and other ecosystem goods and services

they provide. Because watersheds provide a variety of closely connected benefits, the existing system of providing these benefits through a variety of single purpose tax districts is more complicated and inefficient than necessary. The current system increases the likelihood that jurisdictions work at uncoordinated, competing, and cross purposes, instead of being organized in a way that facilitates collaboration to foster the suite of ecosystem services as a whole.

Ecosystem services provided in a watershed tend to conform to natural boundaries such as those of a water drainage basin. It makes sense to respect those boundaries rather than establish ecologically arbitrary jurisdictions. A tax district established at this level is the most appropriate means for integrating planning, funding and management of services such as flood control, stormwater management, carbon sequestration and others. This integrated approach is consistent with RCW 39.34.190 specifications for spending flood control district funding on watershed management plans. It is also consistent with RCW 39.34.200, which establishes a general precedent for watershed management partnerships.

Ecosystem services such as salmon habitat and flood control are physically inseparable; thus managing these services requires an integrated approach. Inherently, the funding mechanisms for the various ecosystem services overlap, since the payments for services are designed to correspond with benefits or damages to the same underlying processes and functions.

### Opportunity

The WRIA 9 Watershed Ecosystem Forum brings Watershed stakeholders to a common table, resulting in reduced conflict, increased collaboration, secured sustainability and improved efficiency for all participants. Natural evolution of WRIA 9 would involve working with these stakeholders on salmon restoration, and improvements in additional ecosystem services to ensure that Watershed investments are mutually beneficial, and not at odds with each other. Conflict would be reduced, collaboration increased, resulting in savings of hundreds of millions of dollars, and more effective provisioning of goods and services.

This, the final recommendation, and the most important long-term vision resulting from this WRIA 9 funding mechanisms project, is to develop an integrated watershed-scale investment district and management structure that facilitates coordination and collaboration among existing districts, and can include services such as salmon restoration, which have no tax authority institution to ensure efficient provisioning. Because ecosystem services provide large social benefits, each ecosystem service needs to be covered by at least one institution. The creation of a watershed investment district is based on a conceptual shift that existing tax districts relating to natural capital should be coordinated at the scale of Green/Duwamish and Central Puget Sound Watershed. Over time, if a merger of some districts, such as neighboring storm districts, was supported by the relevant jurisdictions and proved sustainable and efficient, this might be undertaken. Such an approach would require state legislative action to establish WRIA 9 as an independent taxing district, and to expand the jurisdictional mandate beyond salmon restoration.

A watershed investment district would be responsible for the health of the Green/Duwamish and Central Puget Sound Watershed, provisioning and distributing a suite of ecosystem services based on detailed mapping of areas in which each service is generated and areas where beneficiaries are located. Examples include the following:

- **Salmon** are provided by spawning and riparian areas, as well as transition zone, estuarine and marine systems. Local watershed-scale management would be aligned with Puget Sound goals and institutions and help lead the way for sustainable, sufficient and well governed solutions.

- **Flood protection** is provided by upper watershed forests and also by structures such as dams, wetland and levees. The beneficiaries of flood protection are in the lower flood prone areas of the watershed.
- **Carbon sequestration** is primarily provided by forests of the upper watershed and in deltas of the lower watershed, while the beneficiaries are global: everyone benefits no matter where carbon is sequestered. Local watershed-scale management would be aligned with global goals.

Additional ecosystem services to be coordinated in a watershed investment district include salmon habitat functions, biodiversity conservation, carbon sequestration, flood protection, and stormwater conveyance.

This vision of an integrated Green/Duwamish and Central Puget Sound Watershed investment mechanism helps to justify a more rational, fair and efficient system to the existing districts. Although it requires legislation, an integrated watershed-scale approach to managing ecosystem services ultimately presents the most economically efficient, socially equitable and environmentally sustainable proposal as a WRIA 9 funding mechanism. It would increase the efficiency and effectiveness of existing tax districts, and improve coordination and collaboration among them.

WRIA 9 as a jurisdiction is not currently authorized to levy a tax of any kind under the current legislation. In order for WRIA 9 to directly levy a property tax, it would first be necessary to establish the legislative precedent for WRIA 9 as a taxing district. State legislative action would be required to establish Watershed Resource Inventory Areas (WRIA) as independent taxing districts and expand the jurisdictional mandate beyond protecting and restoring salmon habitat. This integrated approach is consistent with RCW 865.15.035, which provides specifications for flood control districts and cooperative watershed management actions. It is also consistent with RCW 39.34.200, which establishes a general precedent for watershed management partnerships.

### Watershed Investment District Options

There are two design options for a watershed investment district. Each would implement salmon restoration, help facilitate communications, and coordinate investment.

**OPTION 1: Watershed Investment District without taxing authority**, having a forum structure, like WRIA 9, where existing jurisdictions meet to coordinate investments, specifically for salmon restoration. This design could be approved at the county level or with an interlocal agreement. A stable funding mechanism based on Briefs 3 or 4 could be utilized to fund the Salmon Habitat Plan and other actions to improve the health of the watershed.

**OPTION 2: Watershed Investment District empowered as a taxing authority**, implementing salmon restoration projects by providing funding support and matching funds, and hosting data management tools for use by all jurisdictions within the Watershed. This design would require action by the Washington State Legislature to create a watershed investment district as a separate tax district. The creation of such a district could also require a vote of approval by people within WRIA 9. A tax authority funding mechanism could be structured as described in the Analysis section below.

Further dialogue and development are needed to see which option would be best for WRIA 9. A target date for legislation could be early 2012.

The Watershed Investment District would improve efficiency by aligning the management scale of a watershed with watershed-scale natural and built capital. For example, better, less costly flood control could be established by using funding to help cities throughout the Watershed and King County redesign storm water systems to recharge groundwater. This integrated management approach would attenuate peak flows, resulting in reduced flooding and greater groundwater resources for salmon and drinking water.

## Analysis

A watershed investment district with tax authority could be funded more fairly than an addition to property taxes. The provisioning, beneficiaries and impairments of ecosystem services can be mapped at the watershed scale. Each ecosystem service has a different provisioning map (landscape area which provides the benefit), beneficiary map (who gains from the service) and impairment map (what damages the service). For example, salmon are provisioned by spawning areas, riparian habitat, the transition zone, estuarine and marine areas. The beneficiaries are those who enjoy, eat or sell salmon. Impairment is caused by pollution, impermeable surfaces, loss of habitat, competition, overfishing and other interferences with salmon. Actions on salmon restoration overlap with flood protection, such as drinking water, carbon sequestration and recreation, can be mapped across the land and seascapes. Collaboration with, and among, existing institutions like public water utilities and flood districts can be more effective. With the provisioning, impairment and beneficiary maps, funding mechanisms that are sustainable, fair and efficient can be generated. In addition, the overlap of benefits from potential projects can be revealed, providing co-financing opportunities, such as flood protection, stormwater, aquifer recharge, and salmon restoration. The District could bill beneficiaries and those causing impairments, and pay provisioners. This would likely increase rural incomes where ecosystem services are provided and provide benefits to urban areas.

**Pros:** A watershed investment district is an economically efficient system offering incentives to those who provide benefits, and charging fees to those who receive benefits or cause impairments.

**Cons:** A watershed investment district is a new structure requiring legislation and a significant amount of planning and development time.

## Recommended Next Steps

- Set salmon restoration needs - Done!
- Map, quantify, and evaluate ecosystem services for the potential benefits they provide across jurisdictions to set the Watershed Investment District design
- Develop necessary legislation for the Watershed Investment District
- Work with Washington State legislators for passage of needed legislation and vote of the people, or for county-level watershed investment districts

## CONCLUSION AND RECOMMENDATIONS

Healthy watersheds and the salmon populations they support are essential to the health of our economy. Investments in healthy ecosystems as natural capital assets within the Green/Duwamish and Central Puget Sound Watershed will provide tremendous value in the form of beneficial ecosystem services.

The WRIA 9 Salmon Habitat Plan mandates a \$300 million investment in natural capital in the form of habitat restoration and protection projects and programs that will require dedicated funding mechanisms to generate revenue averaging \$30 million each year over 10 years.

This report outlines proposed funding mechanisms for that plan based on principles of ecological economics to manage the economic efficiency, social equity and environmental sustainability of the Green/Duwamish and Central Puget Sound Watershed.

Table 2 summarizes the three-tier strategy to provide dependable and sufficient funding for the WRIA 9 Salmon Habitat Plan that was proposed, discussed and adopted by the WRIA 9 Watershed Forum on May 13, 2010.

**Table 2: Three-Phased Strategy Approved by the Watershed Forum**

<b>Phase 1:</b>	Approve an additional, initial funding mechanism for WRIA 9 in 2010. Approve a Flood Control District <b>levy increase</b> by November 2010, at a rate of \$0.01 per \$1,000 of property value raising an estimated \$1.68 million per year. This mechanism would provide a stable funding source for supporting the salmon recovery program and capital projects construction over 3-7 years while other funding mechanisms are pursued that raise funds closer to the \$30 million per year to implement the Salmon Habitat Plan. The King County Flood Control District could also prioritize existing revenue from its levy be used to invest in flood protection projects that have significant overlap with salmon habitat projects.
<b>Phase 2:</b>	Approve an additional funding mechanism to raise \$20-30 million/year until phase 3 is accomplished. Legislation would be required to allow the KCFCD levy to be increased by an additional \$.10 and for these funds to be dedicated to WRIA 9. Another option is to approve legislation providing WRIA 9 with tax authority. This could enable a new \$10 per parcel <b>special assessment, fee or tax</b> generating an estimated \$1.86 million for WRIA 9. With property tax authority, and \$0.20 levy per \$1,000 assessed value tax applied to property in WRIA 9 over \$20 million could be raised annually.
<b>Phase 3:</b>	Pursue creation of an inter-departmental and multi-jurisdictional <b>Watershed Investment District</b> , with a combined system of funding mechanisms that will provide the most cost-effective approach for integrated management of all ecosystem services.

## Recommendations

As a result of the study and our work with WRIA 9, Earth Economics recommends that WRIA 9:

1. Seek support for a \$0.01 increase for 2011 Flood Control District levy. This increase could be approved before November 2010 as a first step toward a larger funding mechanism that more closely matches the needed \$30 million annual salmon restoration need.
2. Determine whether to pursue an assessment or fee or tax through a new taxing authority, a dime increase in the Flood Control District levy, or with independent taxing authority on property tax for WRIA 9 at a \$0.20 levy which would raise between \$20-30 million.
3. Seek legislation to allow an increase in the percentage of funds from flood control districts (and other Special Purpose Districts) that can be used for Watershed projects, including salmon habitat projects.
4. Map, quantify, and evaluate ecosystem services for the potential benefits they provide across jurisdictions to set the Watershed Investment District design.
5. Develop necessary legislation for the Watershed Investment District.
6. Work with Washington State legislators for passage of needed legislation and vote of the people, or for county-level watershed investment districts.

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## APPENDIX A: LIST OF WRIA 9 POLICY BRIEFS ON FUNDING MECHANISMS FOR SALMON

<i>Brief</i>	<i>Title</i>	<i>Link</i>
<b>1</b>	<b>Project History</b>	<a href="#"><u>WRIA 9 (Green/Duwamish River Watershed) Policy Brief #1</u></a>
<b>2</b>	<b>Current Funding</b>	<a href="#"><u>WRIA 9 (Green/Duwamish River Watershed) Policy Brief #2</u></a>
<b>3</b>	<b>Flood Control District Levy Increase</b>	<a href="#"><u>WRIA 9 (Green/Duwamish River Watershed) Policy Brief #3</u></a>
<b>4</b>	<b>Assessment/Fee/Tax</b>	<a href="#"><u>WRIA 9 (Green/Duwamish River Watershed) Policy Brief #4</u></a>
<b>5</b>	<b>Watershed Investment District</b>	<a href="#"><u>WRIA 9 (Green/Duwamish River Watershed) Policy Brief #5</u></a>

## APPENDIX B: PROJECT HISTORY UPDATE

### Prior to 2009 Report

At the request of the WRIA 9 Forum Management Committee and Steering Committee, representing the 17 local government members of WRIA 9, as well as other public and private members, and by a majority vote of the King Conservation District, the District approved a grant in June 2008 to Earth Economics to examine new mechanisms to fund implementation of the WRIA 9 Salmon Habitat Plan.

As part of this grant, Earth Economics hosted a workshop in August 2008 that included initial brainstorming of potential funding mechanisms. Participants at this event included representatives from WRIA 9, King County Department of Natural Resources and Parks, Pierce County Planning Department, various cities and public utilities, representatives from local non-profit organizations and consulting firms as well as members of the general public.

In October 2008, research on potential funding mechanisms was presented to the WRIA 9 Ad Hoc Funding Committee. Facilitated discussion in this meeting focused on advantages and disadvantages of each funding mechanism and general impressions of feasibility. In early November 2008, a revised table of funding mechanisms was presented to the WRIA 9 Steering Committee for additional input and discussion. In November 2008, Earth Economics presented preliminary research for this report to the WRIA 9 Forum of Local Governments, including elected officials or staff representatives of 16 local governments that have jurisdiction in WRIA 9, as well as King County and Tacoma Water Utility.

Earth Economics has previously completed work on valuation of ecosystem services for WRIA 9, providing the economic justification for salmon habitat restoration, including a \$5 million project at the North Wind's Weir. Additionally, Earth Economics drafted Chapter 6, the Ecological Economics Foundation of the WRIA 9 Salmon Habitat Restoration Plan (specifically highlighted in the 2020 Award given to the Salmon Habitat Plan as a whole), and most recently they worked with KCD staff on an analysis justifying an increase in the assessment for the King Conservation District.

### Scoping and Selection of Funding Mechanisms

Earth Economics convened a one-day meeting in 2008 to identify potential fundraising mechanisms for WRIA 9. The meeting brought together local experts from WRIA 9 staff, cities, and King County as well as ecosystem service experts, academics specializing in ecosystem functions and experts from private firms. Half of the meeting provided the setting including reviewing ecological economics principles for setting funding mechanisms, actions outlined in the WRIA 9 Salmon Habitat Plan and both the economics and ecology of WRIA 9. The second half of the meeting was devoted to brainstorming potential funding mechanisms. There were no criteria or requirements except that the potential mechanism could raise partial or complete funding for the Salmon Habitat Plan. After review by Earth Economics staff for feasibility, a list of 21 potential funding mechanisms was prepared for the WRIA 9 Ecosystem Watershed Forum.

## Ecosystem Watershed Forum Meeting Outcome

On May 13, 2010, the WRIA 9 Ecosystem Watershed Forum met to discuss the three funding mechanisms they had previously selected with the subsequent research developed by Earth Economics. With five briefs and three general funding mechanisms the group discussed the options; a motion was offered and approved to:

- 1) Pursue the \$0.01 cent increase in the flood levy;
- 2) Increase the levy by \$0.10; and
- 3) Create a watershed-based authority.

The motion provides for a three-phased approach to securing sufficient funding to implement the WRIA 9 Salmon Habitat Plan. The first action is to pursue a one-cent increase in the King County Flood Control District providing 10% of the total KCFCD funding to the three WRIAs in King County and dividing the funding in a 40/40/20 split between WRIAs 9, 8 and 7. The second phase would provide for a larger funding mechanism either through prioritization of the KCFCD projects overlapping with the WRIA 9, or setting out taxing authority for WRIA 9 for an increase in KCFCD dedicated to WRIA 9, or development of a WRIA 9 tax authority empowered to tax property value. The third phase will take place after further refinement and the development of legislation to create a Watershed Investment District. The Forum will next work on defining what the watershed-based-authority means and how it would be structured.

These decisions are historic. One hundred years ago, there were few roads, generally dirt tracks in WRIA 9. Because tax authorities were created to lay down roads, progress was made for the entire economy. Our natural capital has been severely degraded in WRIA 9, and so a new funding mechanism for conserving, maintaining and restoring salmon habitat is needed. WRIA 9 has taken the bold step of working collaboratively with stakeholders and institutions to generate the kind of watershed planning that will bring sustainable, sufficient, fair, efficient and well governed funding mechanisms to implement the WRIA 9 Salmon Habitat Plan and restore wild fish to viable populations.

## APPENDIX C: MECHANISMS NOT SELECTED (INCLUDED IN 2009 REPORT)

### FUNDING FROM MARINE SHORELINE ARMORING IMPACTS

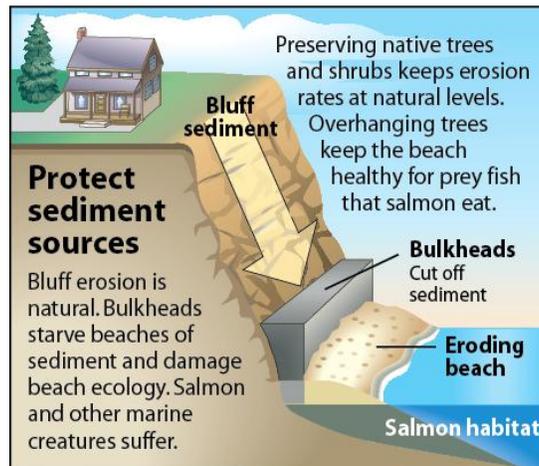
Marine shoreline armoring presents one of the most significant impacts of land-use development affecting natural shoreline protection. There are already 805 miles of armoring, primarily through bulkhead development, along the Puget Sound and Northern Straits, covering 34% of the coastline (Johannessen & MacLennan 2007). Well over half the marine shorelines in WRIA 9 have some form of armoring on them. In 1972, Washington State established legislative protections for natural marine shorelines by passing the Shoreline Management Act (RCW 90.58).

This precedent setting law was established to “prevent the inherent harm in an uncoordinated and piecemeal development of the state’s shorelines” based on conclusions that “shorelines of the state are among the most valuable and fragile of its natural resources.”

This legislation contains three broad policies:

1. to encourage water-dependent uses,
2. protect shoreline natural resources,
3. and to promote public access.

Despite this imperative for limiting the impact from bulkheads and other forms of marine shoreline armoring, there is little to no indication that the current regulatory approach actually protects nearshore ecosystems.



Bulkead impacts on habitat.

### Effects on Natural Processes

The Green/Duwamish and Central Puget Sound Watershed has experienced ecological impacts from development that are much more concentrated and significant than in almost any other watershed in the State. Nearshore ecosystems in particular have been altered by the addition of seawalls, bulkheads, and other forms of marine shoreline armoring intended to protect the adjacent properties from natural erosion. Even on Vashon/Maury Island, which is considered relatively undeveloped and is outside the Urban Growth Area, 50% of the shoreline is armored.

The health of Chinook salmon and other salmonid species depends on nearshore natural ecosystem processes and functions that include erosion and deposition along marine shorelines. Bulkheads and other armoring devices degrade the nearshore habitats that provide habitat for many salmon prey species, including surf smelt, sand lance, and herring. For salmon, shoreline armoring causes habitat shifts; loss of shoreline vegetation, wetland vegetation, and large wood, and changes in food resources (Department of Ecology 2008). In addition, salmon need nearshore habitat with healthy eelgrass beds for food and shelter from predators along their migratory path.

## Continuing Trend

The Washington State Department of Fish and Wildlife is authorized as the permitting agency for development of new marine shoreline armoring. While the rate of permits issued for new bulkhead development was steadily decreasing in the 1980s into the 1990s, from over 200 permits issued per year to slightly more than 100, this rate has remained steady since the mid-1990s (Cornwall and Mayo 2008). Research indicates that none of the hundreds of permit applications received in recent years have been rejected. It is not clear whether the permitting agency has been authorized to deny applications. If not, this permitting process cannot be used to control the rate of development. Furthermore, anecdotal evidence indicates minimal review of bulkhead development permits. Investigative research by the Seattle Times uses relatively conservative methods to conclude that the rate of new bulkhead development across all of Puget Sound has been at least 5 miles over the past 2 years—approximately 13,200 feet or more per year. A preliminary estimate of permits granted in 2008 for marine shoreline armoring development just within WRIA 9 shows approximately 2,469 lineal feet of new development.<sup>7</sup>

This stable rate of bulkhead development has occurred despite shoreline development restrictions and the protection of Chinook salmon under the Endangered Species Act. The steady rate of armoring and apparent minimal oversight presents a clear concern, given that bulkheads and other forms of marine shoreline armoring are a significant cause of damage to salmon habitat and other shoreline natural resources.

As residents have altered their shorelines, salmon have lost critical habitat. The WRIA 9 Salmon Habitat Plan attempts to undo some of this damage, and includes numerous projects that target specific locations for bulkhead removal and shoreline restoration. Even as these projects are completed, shoreline armoring elsewhere in the Puget Sound will continue to damage salmon populations.

## Reversing the Impact

One way that landowners can mitigate the damage caused by armoring would be to pay a damage tax or fee corresponding to the amount of shoreline that they or previous owners of their property have altered. These funds would then pay for restoration projects in the Habitat Plan partly compensating for the previous damage. Landowners choosing alternative management strategies such as “soft” armoring could receive an exemption. Such an exemption would align well with many of the goals, programs, and policies outlined in the Salmon Habitat Plan.

To assist landowners with the transition, the Salmon Habitat Plan includes Program goal N-3: Create an Incentive Program to Encourage Multiple Family/Neighborhood Use of Docks and Boat Ramps. Two policy goals from the Salmon Habitat Plan are also relevant—Policy IN2: Support shorelines exemption for properties affected by salmon habitat restoration projects that would relocate the location of the ordinary high water mark, and Policy IN3: Support bioengineering alternatives for shoreline bank stabilization and flood control facilities where feasible. To change landowner behavior, proposed funding mechanisms focused on marine shoreline armoring would be most effective if coupled with a program to educate landowners on salmon-safe alternatives for natural shoreline protection.<sup>8</sup>

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<sup>7</sup> Based on data on permits granted in 2008 (Department of Fish and Wildlife 2009). Data presented number of permits within each permit range (<101 feet, 101-200 feet, 201-300 feet, 300-500 feet, >500 feet) and averages for each range were applied for preliminary estimates. More detailed analysis will provide greater precision in estimates.

<sup>8</sup> A report providing information on and evaluation of alternative methods for shoreline stabilization has been prepared for the Puget Sound Action Team in 2006 (Gerstel and Brown 2006).

### **Proposed Mechanism: Property tax on marine shoreline armoring**

A property tax on marine shoreline armoring would directly connect the Green/Duwamish and Central Puget Sound Watershed restoration revenue stream with one of the most significant causes of damage to healthy salmon habitat. The proposed funding mechanism is analyzed at a tax levy rate of \$.33 per \$1,000 of property value. At this rate for the 2008 estimate of \$3.1 billion in property value (King County GIS Center 2008a, 2008b); the revenue generation potential is approximately \$1 million.

A new district to levy a fee on these properties would be created through a statutory resolution of legislative authority or petition to county legislative authority. Thus, this particular funding mechanism requires a greater degree of legislative action than other funding tools in this report. Legislation would also outline the formation of these new marine shoreline armoring districts and delineate their powers and authority. This process was undertaken in the formation of the Shellfish Conservation Districts formed under Chapter 90.72 of the Revised Code of Washington (RCW).

The process of establishing a new district may be time-consuming and meet political resistance from property owners. The simplest district boundary would include all waterfront properties; parcels without any shoreline armoring would be eligible for exemption. In addition to Program goal N-3, this program would help landowners implement alternative management techniques to protect their property.

If established, this mechanism would be relatively fair and also encourage behavioral change to improve the nearshore ecosystem and benefit salmon populations. Setting the tax high enough to affect behavior acts in concert with the high level of assessed values for most shoreline properties. In the scale of needed revenue, this mechanism is small, but the rate may be scaled for greater revenue generation. This proposal will also provide a strong incentive to change development strategies and best practices, reducing the extent of damage to ecosystem health over time.

### **Alternative Mechanism: Permitting fee on marine shoreline armoring**

This proposed funding mechanism would introduce a flat or per lineal foot fee for permits for any future armoring of marine shoreline properties or changes to existing armoring. As a means to implement the Shoreline Management Act, a permit fee would help to improve the current permit system by providing an added financial disincentive to property owners.

A proposed permit fee levied at \$25 per lineal foot of new development (one-time fee) is estimated to generate approximately \$111,105 in revenue, based on the estimate of 2,469 feet in new permits each year. This is a relatively small amount of revenue for the fee; hence the proposal of this funding mechanism as an alternative option. It is possible that the fee would encounter less political resistance than a property tax, since only those landowners making changes to the armoring on their property would be affected. The downside of this mechanism is that damage already done is not mitigated.

As observed in the introductory paragraphs, the amount of marine shoreline already armored is significant, so a charge that does not address existing armoring will have lower revenue potential and less impact on behavior. In addition, it is likely that the permitting agency would want to receive all or part of such a fee, as there would be some additional overhead involved with managing the payments. Another potential negative is that introducing a fee provides an incentive for landowners to avoid the permitting process by illegally undertaking their desired actions. Assuming the fee is set high enough to alter behavior, the effectiveness of this mechanism would decline over time.

## **FUNDING FROM IMPERVIOUS SURFACE IMPACTS**

The Green/Duwamish and Central Puget Sound Watershed urban areas are among the most densely populated and developed in the state, resulting in the area having a relatively high concentration of impervious surfaces.

The detrimental effect that water runoff from impervious surfaces has on salmon habitat is well documented; this non-point source pollution is among the least regulated. Salmonid populations are adversely affected by the contaminants carried by water running across impervious surfaces, as well as by sedimentation and habitat loss due to surface water discharges. Salmon survival is critically linked to management of surface water and stormwater runoff. Stormwater discharges from impervious surfaces also are the primary way in which pollutants are conveyed to the marine waters of Puget Sound.

A study of impervious surface in the Snohomish WRIA 7 reveals a 255% increase in impervious surface from 1972 to 2006 (Powell, Cohen, Yang, Pierce and Alberti 2007). Specific data on the rate of increase in WRIA 9 are not available, but the rate of increase has likely been significant.

In Washington, surface water management is defined as a fee for service, which allows each jurisdiction to determine its own payment system. The amount of the fee imposed correlates with the amount of contribution to the problem, rather than being defined by income or value such as taxes. Some districts have opted to designate each property in Equivalent Surface Units (ESU)—an estimate of the average amount of impervious surface on residential properties. Commercial and industrial properties are charged in terms of the number of ESUs on each property.

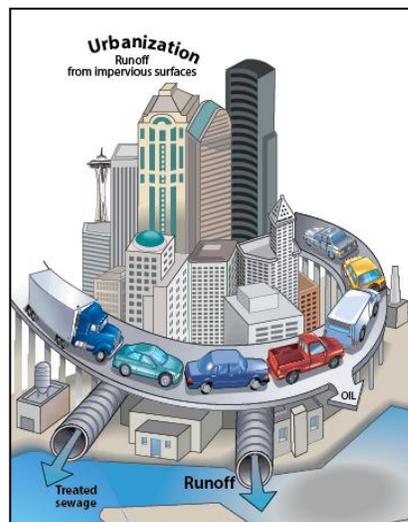


Figure 6: Impervious surface impacts.

### Rainfall to Runoff

These charges on impervious surfaces rely on hydrological modeling to determine the fraction of rainfall that becomes runoff from a parcel. These runoff coefficients vary depending on how pervious (permeable) a surface is, based on the fact that more stormwater will run off of hard or impervious surfaces while pervious or permeable surfaces will absorb more water.

King County currently assesses a flat charge of \$111 per residential property, while commercial properties pay rates that vary depending on the amount of impervious surface per property. As the following table shows, rates for other jurisdictions within the county vary from \$83 (Seatac) to \$183 (Kirkland). In Minneapolis, this system has been developed a bit further through delineation of three categories of residential property size—high, medium, or low (City of Minneapolis 2008).

## King County Surface Water Fee Rates:

Classification	Percent impervious	Rate	Unit
Very light	< 10%	\$111.00	per parcel
Light	10.1-20%	\$277.39	per acre
Moderate	20.1-45%	\$597.85	per acre
Moderately heavy	45.1-65%	\$1,005.67	per acre
Heavy	65.1-85%	\$1,363.76	per acre
Very heavy	85.1-100%	\$1,737.74	per acre

In 1974, Bellevue was one of the first cities to introduce a surface water management fee and now has one of the most advanced payment systems. All properties, including residences, are charged based on the amount of impervious surface divided by the total square footage, with credits for additional management tools or wetlands on the property (NRDC 1999). Damon Diessner, the former Assistant Director of the Bellevue Utilities' Environment Department, has observed that "areas that are nearly fully developed need to focus on retrofits, restoration, and reversal of the impacts of existing development, whereas areas that are sparsely developed can focus on protecting, preserving, and enhancing high quality water resources" (Water Environment Research Foundation 2008).

In King County, addressing the environmental impacts of surface water through salmon restoration and other projects is considered to be the responsibility of the WRIAs, though a small portion of the surface water management fees they collect is directed towards salmon restoration. Generally, revenues from surface water management fees are strictly limited in use by state statutes and King County code to ensure that money is spent only on surface water management (King County Surface Water Management 2008).

### Fee Exemptions

Any new or increased fee should reasonably include these existing exemptions for practices that reduce runoff:

- **Stormwater Facility Discount** for landowners with onsite water quality treatment facilities meeting County standards.
- **Sixty-Five-Ten Discount** for landowners with at least 65% of land forested, no more than 10% impervious surface and applying Best Management Practices.
- **Pervious Surface Absorption Discount** for non-residential landowners with at least 10% of land served by flow control Best Management Practices.
- **Impervious Surface Cost Share and Credit Program** for commercial landowners with a plan for converting impervious surface to (1) native-vegetated landscape, (2) compost-amended lawn or (3) grassed, modular-grid pavement.
- **Open Space Discount** for landowners with property classified as "open space", "agriculture" or "timber" and enrolled in the Current Use Taxation Program.

The City of Seattle has a more complex system for determining this fee, in comparison with King County. New rate specifications take effect in 2009, establishing that single-family residential and duplex parcels smaller than 10,000 square feet are now divided into four categories, each associated with a range of parcel sizes (e.g., 3,000 to 4,999 square feet). Each rate category is assigned a flat fee that increases as the parcel size range increases. However, all properties assigned to the same rate category will be charged the same fee, regardless of variances in lot size. Large single-family residential/duplex parcels (10,000 square feet or greater) are no longer charged a flat fee. Rather, these properties are charged in the same manner as commercial properties.

Starting in 2009, there will be a rate credit assigned to qualifying parcels with fully functioning, well-maintained stormwater management systems providing that these systems meet City Stormwater, Drainage, and Erosion Code requirements. Another potential rate credit will be available to parcels with low-impact development facilities, such as rain gardens and swales or detention vaults. The level of these rate credits is variable, depending on the degree of stormwater management effectiveness. Starting in 2009, properties with significant amounts of highly pervious surfaces on their properties may qualify for new low-impact drainage rates: unit rates will be charged per 1,000 square feet and not per acre.

### Shared Management Strategies

Though many of the municipalities within King County have taken steps to control the source causes of surface water runoff, there is abundant opportunity for greater collaboration and a coordinated approach, given that the damaging impacts extend beyond jurisdictional boundaries. Since reducing the source of the problem is a top priority, those who continue to contribute to the problem, which is any landowner with impervious surface on their property or anyone who utilizes impervious surface elsewhere (roads, parking lots, shopping malls, etc.), should help pay the costs of mitigating that impact.

The combined strategy of a funding mechanism that also offers an impact reduction incentive will strengthen salmon restoration efforts and prevent the need for such measures in the future. Ongoing collaboration between local, County and WRIA representatives will support these efforts to create salmon-friendly, natural solutions to surface water management. Increasing use of permeable surfaces for roadways and driveways, development of bioswales and infiltration ponds, as well as other sustainable urban drainage systems will support many shared water management goals.

The WRIA 9 Salmon Habitat Plan includes these goals throughout their policy and program recommendations. For example, Policy IN4 recommends a “surface water fee reduction for landowners with properties that are at least 65% forested and have no more than 10% impervious surface”. Policies WQ2, WQ3, and WQ4 also address surface water management.

### Proposed Mechanism: Fee on existing impervious surface

This mechanism would annually charge all landowners based on the amount of impervious surface within the parcel, similar to the existing impervious surface fee described above. This particular fee-based funding mechanism is limited in feasibility, since King County and most cities in WRIA 9 already assess a similar fee for stormwater management programs. Levying this fee may also require amendment of the Revised Code of Washington to authorize use of surface water management fees for salmon habitat restoration, unless the fee can be established as an impervious surface fee outside of the existing authorization for stormwater management fees. This proposed funding mechanism would not require establishing a new tax district, unlike the other mechanisms.

The recommendation in this report represents only one option among many possibilities for structuring such a fee mechanism, in this case with focus on achieving a standard level between county and municipal rates. This rate proposal may be modified to raise the rates higher or lower across the entire county or at a smaller scale as negotiated through further discussion among the relevant parties. This negotiation may also include discussion

of fee distributions that would modify existing inter-local agreements to allocate additional funding from impervious surface fees.

We propose a fee on impervious surfaces in addition to the current King County and city surface water fee. Seattle fee rates were chosen for this comparison because the fees are scaled by percent of impervious surface. Using any other municipal fees for this comparison would result in potential inequity from fees not scaled to the concentration of impervious surface within a parcel.

The proposed impervious surface fees have been scaled to establish uniform rates at both city and county levels. Other jurisdictions could match this rate level. In another discussion, we recommend revising the jurisdictional divisions between these systems for a coordinated surface water management and investment system at the watershed scale.

The proposed impervious surface fee increase applies to residential and commercial parcels within unincorporated King County only. Parcels with less than 10% impervious surface can be designated as exempt from this increase, which effectively includes a majority of residential parcels. These parcels would still be subject to the existing per parcel fee. Further exemptions may also be warranted for parcels with pervious surfaces or other strategies for mitigating the impact of impervious surfaces, based on existing exemption information discussed previously. Proposed annual impervious surface fee rates and estimated revenue from parcels in unincorporated King County are presented in the table below.<sup>9</sup>

**Proposal for Additional Annual Fees on Impervious Surfaces:**

Percent impervious	Parcels	Proposed annual fee increase per acre	Estimated revenue
Less than 10 %	9502	0	\$-
10–20%	4310	\$456	\$1,965,360
20–45%	9033	\$500	\$4,516,500
45–65%	8659	\$590	\$5,108,810
65–85%	4149	\$698	\$2,896,002
Greater than 85%	1418	\$711	\$1,008,198
<b>Total</b>			<b>\$15,494,870</b>

Applying this fee only to unincorporated King County creates an impervious surface funding mechanism with greater parity to municipal fees. Since other municipalities levy fees on impervious surfaces at a rate lower than either the King County or Seattle rates, these municipalities can adjust fees in relation to current or proposed county rates. A more complex impervious surface fee could be structured on aggregate calculation of rates from multiple jurisdictions, a process beyond the projections in this report.

<sup>9</sup> Estimates were generated using parcel and value data from King County GIS Center (2008c)

This fee increase represents a potential inequity due to increasing fees charged to rural landowners in order to establish uniformity of fees scaled to impacts. Exempting residential parcels with less than 10% impervious surface would reduce this inequity. The revenue generated from this funding mechanism would be dedicated to mitigating the overall impact on critical habitat for threatened salmon species as well as funding stormwater management activities.

## FUNDING FROM CRUISE SHIP IMPACTS

The Port of Seattle, central to the shoreline of the Green/Duwamish and Central Puget Sound Watershed, is now the main Northwest point of departure for Alaskan-bound cruise ships, receiving valuable economic benefits from the additional passenger traffic. However, cruise ships also bring with them a number of damages that are less frequently discussed. Each week, a typical ship generates

- 150,000 gallons of sewage,
- 1 million gallons of greywater,
- Over 130 gallons of hazardous waste,
- 8 tons of solid waste, and
- 25,000 gallons of oily bilge water.

Moreover, it has been estimated that each week a ship dumps 6,000 gallons of untreated sewage sludge. Current law allows this material to be dumped 3 miles offshore, but cruise lines claim to do so at 12 miles (Felleman 2008).

### Incidents of Dumping

There are documented incidents of cruise ships illegally dumping waste in Puget Sound, despite a legal restriction that prohibits such dumping in any location that is less than 3 miles from the coast. In 2005, Celebrity Cruise Lines was fined \$100,000 by the Washington State Department of Ecology for dumping by the vessel Mercury of over 500,000 gallons of wastewater in Puget Sound over multiple incidents (Stiffler and Millares Bolt 2006), this being one of the largest environmental damage penalties in history; the previous year Norwegian Cruise Lines was fined for dumping 16,000 gallons of wastewater into Puget Sound (Environmental News Network 2002).

Certainly, more dumping occurs than those instances where violators have been caught and fined, but beyond anecdotal evidence it is not possible to generate an accurate estimate for the extent of this problem. This represents a significant source of damage to water quality and marine ecosystem health, and the impact is distributed throughout Puget Sound as a result of tide and current circulation.

This damage affects the entire Puget Sound, so a fee would need to be divided among several jurisdictions. Still, this would be an important step towards connecting cruise ship passengers with their environmental impacts. Devoting the money to environmental restoration will ensure that the natural beauty that draws cruise ships in the first place will be protected and maintained.

### Proposed Mechanism: Cruise ship impact fee per passenger

This mechanism would assess a fee of \$25 for every passenger on cruise ships departing from the Port of Seattle. A similar program has been implemented in Alaska, where the state charges a \$50 fee for all passengers, and municipalities add their own surcharges. It may be of limited feasibility for this funding to go solely to WRIA 9 without some distribution among other jurisdictions and entities, yet this mechanism still has the potential to raise a large sum of money.

The total number of cruise ship passengers visiting Seattle was estimated to be over 800,000 in 2009 (Port of Seattle 2008). Given the amount of money individuals spend on a cruise, \$25 is relatively small. Setting the fee

at \$25 fee per passenger would generate approximately \$20 million in revenue. This fee may present a small disincentive to passengers; also, the revenue from this funding mechanism would vary with cruise ship market fluctuations. This fee is also subject to fluctuations resulting from changes in cruise passenger levels.

It would be appropriate to conduct some analysis on the impact to market demand resulting from a fee. While the fee is relatively small compared to the total cost of a cruise ship ticket, it may encourage consideration of other nearby ports as alternatives.

## MARKET MECHANISMS

In the past decade, interest in using market-based mechanisms to fund environmental preservation, restoration, or improvements has expanded enormously. Some of the current international leaders of this field include Costa Rica, Australia, and China. In Washington State, a number of efforts to launch ecosystem service markets have emerged:

- **wetland mitigation banking** programs initiated by the Department of Transportation and by the Department of Ecology, as discussed below,
- a **conservation banking market** pilot initiative by the Washington Conservation Commission,
- a **regional market for tradable development credits** initiated by the Department of Community, Trade & Economic Development,
- the **mandatory carbon market** initiated by Washington State and other states in the Western Climate Initiative (WCI).

The most applicable market mechanism with potential to advance the WRIA 9 Salmon Habitat Plan at this time is wetlands mitigation banking, as wetlands mitigation banking systems have already been established in Washington State. Other market mechanisms still under development may offer further opportunities once established. Market mechanisms are proposed as a complementary strategy for WRIA 9 funding, but not as a primary funding mechanism, because such systems result in a one-to-one ratio of habitat loss to habitat restoration with no net increase.

**Wetlands mitigation banking** is based on a policy of “no net wetlands loss”. This means that any development that will cause unavoidable damage to wetlands must offset its impact through the restoration, creation, or in some cases, preservation of wetlands loss elsewhere. Until recently, strong preference has been given to on-site mitigation efforts—mitigation that occurs elsewhere on the property itself. However, on-site efforts may not be most effective in ensuring real mitigation. Generally, wetlands restoration efforts are more effective at a larger scale. This shift in thinking has led to the creation of wetlands mitigation banks, where many project offsets can be consolidated in one geographic area that has a higher likelihood of achieving ecological success.

Chapter 90.84 of the Revised Code of Washington State, “Wetlands Mitigation Banking,” outlines the State’s wetlands policy, which adopts the federal sequence for wetlands management under CWA Section 404. In 2004, the state legislature appropriated \$120,000 for a pilot program for wetland banking during fiscal year 2005, which was later extended to last through 2007. Mitigation banks can be formed by private entrepreneurs or public entities (e.g. ports, transportation departments, public works agencies).

The process for forming banks is as follows:

1. Bank proponent submits a prospectus.
2. Interagency Mitigation Bank Review Team (MBRT) reviews the prospectus.
3. Bank proponent responds to feedback from the MBRT.
4. Prospectus is sent out for public comment.
5. Bank proponent submits draft Mitigation Banking Instrument.
6. Federal and state agencies and local jurisdiction give final approval.

Once formed, a wetland mitigation bank should provide a number of valuable wetland functions, such as flood control, improved water quality, groundwater recharge, and fish and wildlife habitat. Regulatory agencies charged with certifying the bank then determine the number of credits available at the bank, which can be sold to developers or public agencies who bear compensation or mitigation obligations.

### Forming a Mitigation Bank

The Washington State Department of Transportation (WSDOT) is currently the largest mitigation banker in the State of Washington. The first project, the Springbrook Creek Wetland & Habitat Mitigation Bank Project located in the Renton area, will ultimately restore or enhance 130 acres of wetlands. The bank will serve WSDOT's mitigation needs once completed in 2009. Funding has come from a 2003 transportation fund, the City of Renton, and several other sources. Construction has been underway since the spring of 2007, and as of January 2009 crews had installed a drainage system and parts of the boardwalk, with a spring 2009 final completion goal. The project will provide a number of valuable ecosystem enhancements, such as habitat diversity, improved water quality and hydrologic function, and improved riparian functions. This type of mitigation approach offers a greater ecological value than mitigating through more, smaller projects, and allows for mitigation in advance of project development.<sup>10</sup>

King County has one of several wetlands mitigation banks planned for implementation in the State of Washington.<sup>11</sup> The Lake Washington-Sammamish Watershed Mitigation Bank is to be located in Redmond, Washington. Proposed by Habitat Bank NW, LLC., this bank would service all of WRIA 8 below 2,500 feet in elevation (U.S. Army Corps of Engineers 2008). The prospectus for these wetlands mitigation bank was submitted in January of 2008 (Habitat Bank LCC 2008), and the draft proposal in April 2008. This proposal is now being evaluated by the Mitigation Bank Review Team, and credits should be available in 2009 (Habitat Bank LCC 2009).

Although often the most significant ecological and economic benefits of wetlands mitigation banking arise from the geographic continuity of projects, there are also a number of “umbrella banks” in the United States. Umbrella banks developed multiple compensation sites under a single instrument. This is likely to be the most relevant approach for WRIA 9, which plans a variety of projects sited at locations most likely to improve the overall health of the Watershed. Clark County Mitigation Bank is proposing three umbrella banks. Additional bank sites may be added later as amendments (U.S. Army Corps of Engineers 2007).

**Transfer of Development Rights (TDRs)** offer another market-based mechanism worthy of note, though it is of less relevance to developing WRIA 9 funding mechanisms. TDRs allow property owners who want to develop their land to pay for that right in trade with a property owner who agrees not to develop land somewhere else. The stated purpose of the program in King County Code (Chapter 21A.37) is “to transfer residential density from eligible sending sites to eligible receiving sites through a voluntary process for permanently preserving rural resource and urban separator lands that provide a public benefit”.

The benefit of TDR is to channel development away from the more healthy rural areas of the Watershed to the already urbanized portions of the Watershed where the marginal impacts on the ecosystem should be less. Sending sites can be rural lands, resource lands, or urban separator areas with R-1 zoning as designated by the King County Comprehensive Plan. Public lands are not eligible. Receiving sites are strictly delineated as well, but generally must be in urban areas appropriate, or planned for, increased development. WRIA 9 may be able

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<sup>10</sup> For more information on the WDOT mitigation banking program, please see the following web site:  
<http://www.wsdot.wa.gov/Environment/Biology/alternativemitigation.htm>

<sup>11</sup> For more general information on mitigation banks in Washington State, please see the following web site:  
<http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/index.html>

to encourage TDR exchanges on pieces of private property, especially important for conservation and restoration.

**Conservation banking** is another market-based approach to ecosystem service management that is focused on endangered species populations and habitat. Precedents for conservation banking can be found in legislation such as the Endangered Species Act, for which the focus of banking is on conservation of listed species populations and habitat. Similar to other market mechanisms, conservation banking provides a trading mechanism by which development and conservation are balanced in order to ensure no net loss of critical ecosystems. There are also potential opportunities for establishing conservation banking systems as market mechanisms for supporting protection of state priority habitats and species, lands protected under critical area ordinances, fragile shoreline ecosystems or specific ecosystem services. This report and proposal for funding mechanisms does not include detail on conservation banking options due to the fact that conservation banking systems have not yet been established in Washington State. However, pilot projects to implement conservation banking have been undertaken by the Washington Biodiversity Council (WBC 2008).

## APPENDIX D: SALMON HABITAT PROJECT OVERLAP ANALYSIS UPDATE

The following table details planned salmon habitat restoration projects within WRIA 9 that have overlapping goals and scope for a particular location also identified for planned projects in the King County Flood Hazard Management Plan. This analysis was prepared by Dennis Clark, WRIA 9 Staff, and Sarah McCarthy, King County Flood Control District.

FHMP Identification	WRIA 9 Project Identification	WRIA 9 Salmon Habitat Project Description	FHMP Information	Upstream River Mile (WRIA 9/ FHMP)	Downstream River Mile (WRIA 9/ FHMP)	Bank	Jurisdiction	Costs (low estimate)	Costs (high estimate)
Desimone Levee #1(FLG013); Desimone Levee #2 (FLG014); Desimone Levee #3 (FLG007); Desimone Levee #4 (FLG021)	LG-13: Acquisition, Levee Setback, and Habitat Rehabilitation Between RM 15.3 and 14.7 (Right Bank)	Sets back existing levees, improves flood storage and conveyance, restores channel edge and riparian habitat conditions	This is a priority project for the FHMP; scoping of projects begins in 2009 followed by acquisition and then construction.	15.3/15.6	14.7/14.65	R	Tukwila	\$503,980.00	\$577,007.00
Briscoe Levee Projects 1-3 (FL8016)	LG-12: Briscoe Off Channel Habitat Rehabilitation Between RM 16.1 and 15.8 (Right Bank)	Completes Briscoe Levee setback at Kent's Briscoe Park by removing relict revetment, reconnecting floodplain, rehabilitating channel edge, and creating riparian/wetlands habitat.	Sets back steep, eroding revetment, increases flood storage/conveyance capacity, restores riparian vegetation and shallow marginal habitat	16.1	15.8	R	Kent	\$34,610,100.00	\$40,468,400.00
Russell Upper Levee Project (Russell Road #2)	LG-10: Mainstem Maintenance (including the Boeing Levee Setback and Habitat Restoration) Between RM 20.5 and 16.3	Sets back existing levees and revetments, improves flood storage and conveyance, restores channel edge and riparian habitat conditions. Includes individual projects listed separately here as LG-11 and several other sites.	Sets back steep, eroding revetment, increases flood storage/conveyance capacity, restores riparian vegetation and shallow marginal habitat. Construction begins 2015.	20.46	20.42	R	Kent	\$703,600.00	\$1,208,800.00
Riverside Estates/Reddington (FL8021)	LG-1: Riverside Estates Side Channel Rehabilitation at RM 28.8 (Left Bank)	Reconnects off-channel habitat to mainstem. Breaches or removes Reddington Levee, replaces flood management function in setback location.	Re-connects side-channel to store and convey floodwaters. Corrects chronic flooding of mobile homes due to malfunctioning flapgate/culvert system. Acquisition to begin in 2009 with construction to follow in subsequent years.	28.8/29.54	28.8/28.68	L	Auburn	\$2,587,200.00	\$3,696,000.00
Middle Green River Floodplain Acquisition: Naglich (Wallace)/Cooke (Krueger)/Metzler-O'Grady	MG-19: Protection of Functioning Habitat along the Middle Green River Mainstem	Protection of priority habitats through acquisition, including in the Green River Natural Area (RM 40 to 35).	Purchase and remove single-family home. Should be integrated with levee setback of Lone's Levee and restoration of Burns Creek.Planned acquisition in 2009 or 2010 will fulfill acquisition phase of this project.	38.78	38.20	R	King County	\$23,739.00	\$26,172,248.00