SYNTHESIS OF SELECTED NEP WATERSHED LEAD ORGANIZATION GRANTS ADMINISTERED BY THE DEPARTMENT OF COMMERCE AND THE DEPARTMENT OF ECOLOGY

PART 1

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March 2020

This project has been funded in part by the United States Environmental Protection Agency under cooperative agreement PC-01J32201-2 to the Puget Sound Partnership. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Acknowledgments

Writing of this document was supported by a grant from the EPA's National Estuary Program. Thanks to Charlene Andrade, Colin Hume, and Libby Gier for their collective input in project selection and refinement. Thanks to Heather Bush and Tara Newman for their help in document retrieval and sharing of their respective organizations' document libraries. Thanks to Aimee Kinney, Tessa Francis and my colleagues at Puget Sound Institute for their advice and feedback. Special thank you to the participating interviewees who shared their thoughts and opinions.

Suggested citation:

Wright, C.W. 2020. Selected NEP Watershed Lead Organization Grants Administered by the Department of Commerce and the Department of Ecology Part 1. University of Washington Tacoma, Puget Sound Institute.

Executive Summary

The Puget Sound Institute at UW Tacoma (PSI) was tasked with synthesizing the results of 25 grants awarded funding by the Environmental Protection Agency (EPA) through the National Estuary Program (NEP) Lead Organization grant (Watershed grant). Between 2011 and 2016, the Watershed grant program, administered by the Washington Department of Commerce and the Washington Department of Ecology, distributed NEP funds to support 85 projects to implement recovery priorities identified by the Puget Sound Partnerships' Action Agenda incorporating watershed-scale strategies to protect and restore Puget Sound. PSI analyzed over 350 documents including final summary reports, financial and progress reports, maps, meeting notes, economic analyses, and presentations provided by the grantees. PSI interviewed 23 grantees to better understand the grantees' perspectives on the successes, challenges and next steps for the projects.

The grant categories included projects related to:

- Market-based land conservation tools like Transfer of Development Rights (TDR) and Landscape Conservation and Local Infrastructure Programs (LCLIP)
- Market-based conservation strategies like ecosystem services demonstration projects and sustainable agriculture, forestland and tourism
- Watershed-based land use planning
- Climate change adaptation
- Improving environmental data with stream typing and mapping
- Critical Areas Ordinance updates
- Floodplain management and floodplain and riparian restoration

Findings and recommendations synthesizing the results of the document analysis and the grantee interviews are divided into two sections: the TDR and LCLIP grants (6 in total) and the non-TDR and LCLIP grants (19 in total).

Findings and recommendations for the TDR and LCLIP grants address the primary challenges and sentiments expressed by the interviewees. These include the need for additional education and outreach efforts related to the uncertainty surrounding the programs, steps to building advocacy and advance the adoption of the programs, and addressing competing priorities in resource-constrained municipalities across the Puget Sound.

Key findings for all grants:

#1 Resources Matter and the Grants Help – Every grantee said that the grants were invaluable for advancing restoration efforts in their areas, in particular that Commerce's involvement was particularly helpful. The grants should continue through another round of NEP funding.

#2: Outreach and Education Requires Diverse Approaches – Vary outreach and education methods depending on audience. Grantees found that using tried and true communication methods like mailers, newsletters, and town hall meetings are effective in certain regions, while other regions might benefit more from webinars, combining meeting agendas to reduce duplicate meetings and reduce travel times. Grantees recommended polling stakeholders to determine their preferences. They also suggested the importance of acknowledging and seeking buy-in from vocal or particularly oppositional stakeholders,

and identifying strategies to mitigate political issues in land transactions (such as hiring a mediator or consultants). Lastly, grantees found that holding face-to-face meetings was still the most efficient and effective method at managing consensus and generating progress in restoration efforts.

Specific recommendations related to TDR and LCLIP are:

#1: Education, Workshops and Outreach

City and county respondents expressed wide-ranging views on the feasibility of TDR and LCLIP programs. Some specific recommendations to enhance the feasibility of these program include:

- Hosting a workshop with planners, advocacy groups, city and county representatives, and elected officials to educate them on development rights programs, especially LCLIP
- Convening a working group of mediators (potentially comprised of local, trusted organizations like conservation districts) to cultivate, manage and sustain landowner-municipality relationships in order to facilitate transactions.
- Continuing to direct landowners, municipalities, and other stakeholders to Commerce's Growth Management website for information on available resources and who to contact for expert assistance.

#2: Assess the Market Projections of the Feasibility Studies

Real estate market fluctuations (such as future market demand in areas with to-be-completed light rail stations) have potentially made the recommendations and data provided in the feasibility studies conducted in 2011-2013 outdated and inaccurate. A survey should be administered to gauge whether city and county representatives need another round of feasibility studies. If results indicate that another feasibility study is warranted, cities that have the right enabling conditions (i.e. political support) should be selected as recipients of funding for an updated feasibility study. Feasibility studies are most useful for cities that are already on the path to implementation, so providing funding to cities with political opposition is less likely to achieve results and may be an inefficient use of funds.

#3: Evaluate the Current Parameters of the Region's TDR Programs

The success of TDR varies widely by jurisdiction. What works in some regions may not work in every region. A series of workshops should be convened with city and county representatives to address what they consider significant successes and barriers with regard to implementing TDR in their jurisdictions, focusing on current zoning and code regulations. These workshops should include advocacy groups, development industry professionals, landowners in sending areas, and other stakeholders. Items to address include:

- Innovative uses of TDR and how these may be effectively implemented in receiving areas with less demand for height-based density bonuses
- Changes to regional TDR codes that allow for opening up of sending areas
- Creating a TDR section on the existing municipal resources service center website or other information source that can provide municipalities with technical assistance

Six recommendations to address barriers or challenges that grantees expressed:

#1: Gather Timely Reflections – Complete timely analysis of successes and findings of the projects following grant close-out. For the majority of grants analyzed, upwards of five years had passed since close-out documents were published. Future program administrators should be provided funds and receive support for developing final analysis, conducting workshops and working with the applicants to summarize their efforts and next steps. Creating a 'post-grant dashboard' that tracks progress of the projects in real-time could help with this process.

#2: Ensure Maps are Accessible and Updatable – 13 of the projects resulted in the production of maps of some type, with six projects producing GIS-enabled maps. However, only four of the project's GIS maps are available online and most have data quality and replicability issues. Require that all maps are designed in the newest GIS format, provide adequate training to grantees for this purpose, and ensure that maps are available online either through the project's website or through the grantor's website(s). Maps could be uploaded maps to the state library system alongside other grant documents, if applicable.

#3: Address Staff Turnover and Priority Shifts at Both Administrative and Leadership Levels – Several grantees reported that staffing, and related political issues, hindered the success of their projects. Although a common theme expressed by the grantees, this is challenging for a grantor to address. Strategies the grantor could implement include:

- Hosting a workshop or working group to develop best practices for staff transitions to reduce institutional knowledge loss (such as uploading of all documentation onto a shared website and proper transfer of administrative materials to new staff)
- Providing additional funds for a limited term grant-funded personnel dedicated to the project, instead of staff members working on the project alongside having to carry out their standard duties (if project warrants)
- Hosting a workshop or working group to develop regional strategies for addressing changing political and policy priorities. This workshop could identify best practices for organizations on how to pivot when encountering priority changes

#4: Provide Technical Assistance for Modeling – The majority of the grants that used the Puget Sound Watershed Characterization (PSWC) model experienced minor challenges in data accuracy, inputs and mapping. Ecology has since adapted the model to address those challenges and provides technical assistance for model users. Continued technical assistance and decision support for modeling is needed to individually help users customize, incorporate and interpret local data inputs and outputs.

#5: Ensure Administrative Competency – Funders should ensure grantee organizations have strong project managers and administrators who are prepared to manage budgets and do the administrative work required for the project. Consider providing additional funding to hire a full-time grant administrator if a grant amount is large enough that it warrants extra administrative assistance.

#6: Ensure Websites and Data Are Available – On the *grantee* side, several grantees expressed frustration that they could not keep their data, maps or documents online post-grant because they lacked the funding to do so. Others commented that having their maps and information online has proved instrumental in gaining visibility for their programs. On the *grantor* side, of the 25 projects synthesized, five had no digital documentation or data whatsoever, resulting in the use of additional

administrative staff resources to analyze the grant deliverables. In some cases, grant deliverables are simply no longer available. Strategies to implement include:

- Ensuring the grantors (Ecology, Commerce, other grant administrators) catalog, store and maintain all materials/documentation digitally
- Encouraging the grantees to submit project metadata (where the project occurred, how much it cost, how much area was impacted, etc.) to the Puget Sound Project Atlas, the state library or similar open source data repositories
- Providing financial and administrative resources to keep critical project resources digitally accessible. Additional funding that extends past the grant close-out period may be needed to ensure that documentation remains digitally available in the future, particularly when grantees cannot host the documentation on their own websites due to cost or capacity issues.

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1. Introduction

The Environmental Protection Agency (EPA) awarded the Washington Department of Commerce (Commerce) and the Washington Department of Ecology (Ecology) a National Estuary Program (NEP) Lead Organization grant (Watershed grant) in 2011 to implement watershed-scale strategies to protect and restore Puget Sound. To accomplish these goals, Ecology and Commerce collaboratively developed the Watershed grant program to support local governments in carrying out projects that incorporate environmental needs into land use planning, urban development, climate adaptation planning and critical areas development. Between 2011 and 2016, the Watershed grant program distributed NEP funds to support 85 projects in implementing recovery priorities identified by the Puget Sound Partnerships' Action Agenda.

The following table describes the themes and categories of the grants and direct awards issued by the NEP Watershed Program from February 2011 (program inception) through 2016.

Grant Theme	Category
Improving Land Use	Riparian Protection in Agricultural Landscapes
	Watershed-based Land Use Planning
	Transfer of Development Rights Programs
	Critical Areas Ordinance Updates
	Protecting Farmland and Improving Agricultural Riparian Management Practices
Improving Stormwater Management	Stormwater Regulation Updates & Stormwater Management Planning
	Stormwater Guidance, Training & Research
	Stormwater Remediation
	Stormwater Retrofit Planning
Strategies for Riparian and Floodplain Protection and Restoration	Floodplain Management/Floodplain & Riparian Restoration
	Improving Environmental Data – Stream Typing & Invasive Species

The Puget Sound Institute at UW Tacoma (PSI) was tasked to synthesize the results of a portion of these projects for this document in order to inform and advance future work at project, programmatic and Puget Sound recovery levels. Out of 85 total grants, 25 grants were prioritized and selected for inclusion in this synthesis by representatives from the synthesis planning team (members from Commerce, Washington Department of Natural Resources and Ecology). These grants were selected because they inform the next steps of implementing the National Estuary Program with similar objectives in improving land use moving forward. The grants synthesized focus on investment areas of interest pertaining to the Land Development and Cover Implementation Strategy.

The Land Development and Cover Implementation Strategy (IS) was developed by the Puget Sound Partnership with a goal of slowing the pace of conversion of ecologically important lands in the Puget Sound region. The IS comprises several strategies collectively intended to meet this target. The strategies include protecting and restoring ecologically important lands, reducing barriers to infill and

redevelopment in Urban Growth Areas (UGAs), and supporting working lands (for agricultural purposes). The Watershed LO grants are projects that put these strategies into practice in the Puget Sound region.

PSI analyzed more than 350 documents including final summary reports, financial and progress reports, maps, meeting notes, economic analyses, presentations and more. The documents analyzed can be found in this publically accessible Box folder, managed by the Puget Sound Partnership. To further understand the context of the projects since the completion of the grant funding, PSI contacted the grant recipients (including city and county planners, non-profit staff, environmental economists, and consultants) requesting their participation in either: a) a semi-structured interview or b) answering a questionnaire created by Commerce and PSI (see Appendix for interview questions). Full transcripts of the interviews can be found in the Box folder.

18 of the grants were administered by Commerce and seven of the grants were administered by Ecology. Commerce's Watershed Protection and Restoration Program's Final Program Summary Report should be the primary resource for understanding the program and the perspectives from Commerce. That work should be referenced by the reader as this synthesis builds upon the content in that report.

This synthesis presents the results, findings and recommendations from the grantees themselves, alongside PSI's recommendations after analyzing grantees' deliverables. The selected grants are listed below.

1.2 Grants Reviewed in Analysis Table (in order of appearance)

Type of Grant	Primary Recipient and Partner Organizations	Project Title	Grant Administered By	Funds Allocated
TDR and LCLIP	King County	Integrating Market-Based Tools for Rural Land Protection and Restoration (Kirkland and Totem Lake)	Commerce	$200,000
TDR and LCLIP	Mountlake Terrace	Mountlake Terrace Urban Redevelopment and Watershed Protection	Commerce	$37,500
TDR and LCLIP	City of Shoreline and King County	Implementation of Regional Program Promoting Urban Redevelopment and Watershed Protection	Commerce	$42,060
TDR and LCLIP	Skagit County and City of Burlington and Forterra	Establish Transfer of Development Rights Program	Commerce	$285,223
TDR and LCLIP	City of Tukwila and King County	Implementation of Regional Program Promoting Urban Redevelopment and Watershed Protection	Commerce	$42,060
TDR and LCLIP	City of Tacoma and Pierce County	Urban Redevelopment and Watershed Protection Through Land Conservation Program	Commerce	$44,500

TDR and LCLIP/Subarea Plan/Land-Use Planning	Snohomish County	Managing Land Use	Commerce	$367,000
Market-Based Conservation Strategy	Nisqually Indian Tribe and Nisqually River Foundation, Nisqually Land Trust, Northwest Natural Resource Group, Earth Economics, Washington State University, WDNR	Nisqually Ecosystem Services Demonstration	Commerce	$170,000
Market-Based Conservation Strategy	Nisqually River Foundation and Nisqually River council Member Organizations	Building Momentum for Ecosystem Service-Based Incentives	Commerce	$181,559
Market-Based Conservation Strategy	Washington Department of Natural Resources and U.S. Forest Service, Washington Department of Health, Nisqually Tribe, Snohomish County, Nisqually Land Trust, Northwest Natural Resources Group and Willamette Partnership	Watershed Services Market Demonstration Projects in Nisqually and Snohomish Basins	Ecology	$200,000
Market-Based Conservation Strategy	King Conservation District and Cascade Harvest Coalition, Northwest Natural Resource Group, Calyx Sustainable Tourism	Snoqualmie Valley Grown and Active “When Cows meet Clams”: Promoting Sustainable Farms and Forests	Commerce	$153,402
Market-Based Conservation Strategy	Kitsap County and Olympic Property Group, Port Gamble S’Klallam Tribe, Suquamish Tribe, WSU-Extension, Great Peninsula Conservancy, Forterra	Sustaining Ecological Processes Working Forests on Lands at Risk of Development	Ecology	Unknown
Market-Based Conservation Strategy	Whatcom County and Whatcom Farm Friends, Whatcom Conservation	Enhancing Agriculture and Water Quality In Nooksack River Basin	Commerce	$358,471

	District, Department of Fish Wildlife			
Subarea Plan/Land-Use Planning	City of Duvall and King County Snoqualmie Watershed Forum	City of Duvall Land Use Planning	Commerce	$207,570
Subarea Plan/Land-Use Planning	Thurston County and Thurston Regional Planning Council	Deschutes Watershed Land Use Analysis	Commerce	$247,573
Subarea Plan/Land-Use Planning	Kitsap County	Planning by Watershed (Anderson Creek Watershed)	Commerce	$134,814
Subarea Plan/Land-Use Planning	Hood Canal Coordinating Council	Integrated Watershed Management Plan Using Watershed Characterization	Ecology	$300,000
Climate Change Adaptation	Thurston Regional Planning Council and TRPC member organizations, Earth Economics, Nisqually River Council	Watershed-based Approach to Climate Change Resiliency in Thurston County	Commerce	$249,996
Climate Change Adaptation	North Olympic Peninsula Resource Conservation and Development Council, Adaptation International, Washington Sea Grant	Planning for Climate Change on the North Olympic Peninsula	Commerce	$152,078
Improving Environmental Data – Stream Typing and Invasive Species	Kitsap County and Wild Fish Conservancy	Improve Stream Data to Protect Freshwater Ecosystems	Ecology	$369,176
Improving Environmental Data – Stream Typing and Invasive Species	Snoqualmie Tribe and Wild Fish Conservancy, University of Washington, U.S. Forest Service	Water-typing to Improve Land Use Management in the Snoqualmie Watershed	Ecology	Unknown
Improving Environmental Data – Stream Typing and Invasive Species	Tulalip Tribes and Skagit River System Cooperative, Wild Fish Conservancy, Northwest Indian Fisheries Commission, Island	Predictive Modeling Protecting Coastal Salmon Streams	Ecology	$186,923

	County, Whidbey Watershed Stewards			
Critical Areas Ordinance Updates	Island County	Island Co. Watershed Analysis; Update of Fish and Wildlife Habitat Conservation Area Code	Commerce	$250,000
Critical Areas Ordinance Updates	Island County	Review of Island County Wetland and Critical Areas Protection	Commerce	$250,000
Floodplain Management/Floodplain and Riparian Restoration	The Nature Conservancy, Western Washington Agricultural Association, Skagitonians to Preserve Farmland, NOAA, WDFW	Farms Fish and Floods Initiative (3FI)	Ecology	$305,000

1.3 Stakeholder Interviews

The interviews were conducted from July to October 2019. Grantee representatives (program managers, grant leads) were given the choice of a questionnaire or a 1-hour semi-structured phone/in-person interview, using the questionnaire as guidance. The semi-structured interview was conducted following the guidelines established in social science literature (Rubin and Rubin 1995). Each interview was audio recorded, transcribed, condensed and edited for accuracy and clarity.

1.3.1 Interview Disclaimer

Each interviewee was provided with a written and verbal explanation of the Watershed LO synthesis and why they were being contacted. Consent to participate was verbally confirmed at the beginning of each conversation. At the request of interviewees and the project administrators, all identifying features of the interviewees and questionnaire respondents have been removed. No sentiments expressed in the interviewee responses should be attributed to a single interviewee at an organization. All interviewee responses, and thus the summary reports below, are confidential.

While we highlight individual opinions in specific segments of this report, the interviewees do not necessarily support the views, findings, or recommendations of this entire document. Grant administrators, including representatives from Commerce, Ecology, and DNR were not interviewed and have not provided structured responses to the interview questions, although they have contributed comments and feedback regarding the opinions and findings expressed by the grantees.

Not all grantees responded to the request for interviews/questionnaires. This was due to a variety of reasons, including staff members having moved to other organizations, retired, or were unavailable during the interview timeframe. 88%, or 23 of 25 of the grantees participated in interviews or answered the questionnaire. A list of the participating grantees is provided below.

1.3.2 Participating Grantees Table

Name	Type
City of Duvall	City
City of Tacoma	City
City of Tukwila	City
ECONorthwest	Consultant
Forterra	Non-profit organization
Heartland LLC	Consultant
Hood Canal Coordinating Council	Quasi-governmental organization
Island County	County
Jefferson County	County
King Conservation District/Cascade Harvest Coalition/Calyx Sustainable Tourism/NNRG	Quasi-governmental organization/Non-profit organization
King County Department of Natural Resources and Parks	County
Kitsap County	County
Local 20/20 (Jefferson County)	Non-profit organization
The Nature Conservancy	Non-profit organization
Nisqually River Foundation	Non-profit organization
North Olympic Peninsula Resource Conservation and Development Council	Quasi-governmental organization
Snohomish County	County
Snohomish County Surface Water Management Utility	County
Thurston County	County
Thurston Regional Planning Council	Quasi-governmental organization
Tulalip Tribe	Tribe
Washington Department of Natural Resources	Government agency
Whatcom County	County

2. Transfer of Development Rights (TDR) and Landscape Conservation and Local Infrastructure Programs (LCLIP) Grants

The cities of Mountlake Terrace, Shoreline, Tacoma, Tukwila and King County, Skagit County, and Snohomish County were collectively awarded $933,188 to evaluate feasibility of LCLIP and TDR programs. Five projects in the cities of Kirkland, Mountlake Terrace, Shoreline, Tacoma and Tukwila used grant funding to assess the feasibility of implementing LCLIP programs in specific locations within their jurisdictions. Three projects in King, Skagit and Snohomish Counties used NEP funding to implement or expand TDR programs in their jurisdictions. These eight municipalities partnered with non-profits like Forterra and consulting firms like Heartland and ECONorthwest, as well as additional municipal and local partners, to assess feasibility. Thurston County additionally investigated TDR as a sub-task of its Deschutes Watershed Land Use Analysis grant. Overall findings and sentiments expressed from eight

interviews has been aggregated along with grantees' deliverables analysis and is presented below. A summary table is presented at the conclusion of this section.

Background

Transfer of Development Rights (TDR) is a voluntary, incentive- and "market-based tool that can help jurisdictions meet their growth and conservation goals and provide economic and environmental benefits to their communities. In a TDR program, a jurisdiction identifies areas it wants to conserve, known as 'sending areas', and areas where it would like to direct additional development and growth, known as 'receiving areas'. Sending areas are often agricultural, forested, or open space lands, and receiving areas can be parts of cities, unincorporated urban areas, and rural areas that have the infrastructure and services in place to support higher levels of growth. Landowners in sending areas can choose to sell their development rights (also known as credits) to developers who are interested in gaining additional development potential in receiving areas. The sending property becomes protected through a conservation easement that permanently prohibits residential development but still allows other land uses such as farming and forestry. Developers get bonus incentives like extra floor area or building height on their properties by purchasing and extinguishing [successfully completing] development right credits from the sending areas" (King County 2019).

Sending area: Land that a city or county wants to conserve such as agricultural, forested or open space lands.

Receiving area: Land that a city or county would like to direct additional development and growth towards, such is in a downtown core designated for housing, transit and commercial space.

LCLIPs "allows implementation of new infrastructure projects in exchange for placing development rights into new and planned development" (Commerce Final Program Summary Report 2019). LCLIP allows cities to receive a portion of future county property tax revenue for local infrastructure investments if they implement a program to obtain regional development rights. Purchase of development rights, currently in use in Whatcom County, is another land conservation program. Whatcom's Purchase of Development Rights program seeks to ensure the "protection of the county's farmland, enhance the long-term viability of agricultural enterprises within the county and provide public benefit by retaining properties in permanent resource use." The County's secondary objective is to preserve areas of ecological importance and ensure the protection of "forestry enterprises as well as support healthy ecosystem function throughout Whatcom County." The PDR program does not transfer rights for development.

Successes: Counties

King County is the most well-known and successful county in Puget Sound for TDR and LCLIP implementation. King County's TDR program has protected over 144,500 acres of rural/resource land from 1998 to 2019 (King County 2019). King County has an inter-local agreement with Seattle, Bellevue, Sammamish, Normandy Park and Issaquah. King County code allows development right sales for use in cities and unincorporated urban areas of King County. "Rural" development rights are generated from the permanent protection of rural land including land zoned for long-term agricultural use, forest-land and rural open space.

"Urban" development right areas are sending areas that generally abut rural land but falls within the urban growth areas of a municipality. These "urban" sending areas are areas that, if preserved, provide a buffer between rural areas in unincorporated King County and true urban areas (like cities). Rural transactions can occur between private individuals and through King County's TDR bank. Urban development rights transactions do not currently occur through King County's TDR bank.

Through its TDR bank, King County has sold 1,024 rights for use in Seattle, 22 rights for use in Sammamish and 23 rights for use in Bellevue. Selling development rights is the first step towards successfully completing a full transfer of the rights (also known as extinguishing a development right). A developer will purchase the rights, proceed with construction of a building, and upon occupancy of the building or facility, the rights purchased are considered completed, or extinguished. So far, every right, or credit, sold by the TDR bank has been used in a development project except the 22 credits sold for use in Sammamish. The developer is still in the permitting stages of the project in Sammamish. If the project were to be unsuccessful, then the development rights could be used elsewhere or resold. A previous building moratorium has slowed TDR use in the City of Sammamish.

In the private market, 254 TDR credits have been sold amounting to $5.8 million in revenue for the County. Many of the recent transaction for private market development rights in King County are for accessory dwelling units (ADUs), particularly in rural King County, according to the King County representative. Development rights are purchased so the property owner can increase the size of their ADU above 1,000 sq. ft., the maximum size allowed in rural unincorporated King County. The purchase of a development right allows the property owner to expand their ADU up to 1,500 sq. ft., depending on lot size and zoning area restrictions (slope, gradient, etc.).

Thurston, Snohomish, and Pierce counties have all adopted TDR, to varying degrees. Snohomish and Pierce can also sell rights to Seattle, along with King County. Pierce County has a TDR bank with 40 credits. Kitsap County has a TDR bank with 23 credits. Snohomish County adopted a countywide TDR program in 2013. According to a Snohomish County representative, "progress on TDR has been slow", however, Snohomish County officials are considering drafting code language that would create a county-run TDR bank and may certify its first development rights shortly. Snohomish may issue 19 TDR certificates in 2019. Snohomish County is also "looking at expanding the TDR program to include rural lands with active farms as TDR sending areas without having the land owner go through a docket process (in order to make it easier) to formally re-designate to a resource land use according to the current code", a Snohomish representative said. Currently, a TDR sending area in Snohomish is "re-designated as a farmland or forest land use designation and rezoned to a corresponding resource zone before or at the time of issuance of TDR certificates" (section 30.35A.025 Snohomish County Code).

In 2017, the City of Arlington and Snohomish County both agreed to terminate the Arlington Pilot Program at the city's request, in order to expand receiving TDR certificates from all eligible TDR sending areas in the county, which the pilot program prevented. According to interviewees, Snohomish's countywide TDR program would provide more opportunities for the City of Arlington to use TDRs than the pilot program — which limited the source of potential sending areas to a portion of the Stillaguamish River valley.

Challenges: Counties

Some of the challenges facing counties considering implementation of TDR programs involved zoning designations of land for sending and/or receiving areas, a lack of demand in receiving areas (generally urban centers) and political opposition.

In Skagit County, TDR was not ultimately adopted following a feasibility study funded by the Watershed grant. According to Commerce's Final Program Summary Report, "one of the biggest concerns of stakeholders who opposed development of a TDR program in Skagit County was that it might compete with the Farmland Legacy Program that was already in place." The Farmland Legacy Program is a direct conservation funding program that provides the opportunity to purchase agricultural easements on farmland in Skagit County that are held by the County in perpetuity. Careful consideration was needed to ensure compatibility of the two programs, but some misconceptions and disagreement remained. There was also concern about whether or not there would be enough demand to support a TDR program in such a rural area. This is less of a concern for more urbanized counties, as dense growth and improved amenities tend to be more desirable to residents of these areas.

Failure to adopt TDR in Skagit County was not due to program design or results of the feasibility study but because of objections by a vocal minority of residents, interviewees said. Several interviewees observed that the political pressure was "too high on the city commission" and a decision was made to not implement due to perceptions that the program was controversial. Interviewees also commented on how "little effort was required to change policy direction" among county leadership. Interviewees stated that Skagit County suffered from a lack of an advocacy group because it did not fall within any advocacy organization's core program area.

In Snohomish County, there has been no certification of TDR credits in the county despite adoption of TDR in 2013. The county council amended their code recently, by limiting incentives for using TDRs in unincorporated urban areas of the county, primarily to multifamily zoned areas along a portion of SR 99. TDR credits issued by the County and used in unincorporated Snohomish receiving areas can only be used for multifamily residential densities, an interviewee confirmed.

In Thurston County, TDR was adopted but only allows parcels zoned as Long-Term Agriculture (LTA) to be eligible as sending areas. Thurston County staff commented that there are several challenges with TDR in Thurston County which prevented wide-spread implementation. First, because the sending areas are restricted to areas zoned for LTA, no other types of land (such as forest-land or land in agricultural use not zoned for LTA) can apply for TDR certification. The LTA zoning designation has a minimum lot size of 20 acres, but the majority of farms in Thurston County are 10 acres or less and are not zoned as LTA, limiting the sending areas available, a Thurston County representative said. Landowners have contacted the County representative "with interest in certifying their properties, but didn't qualify because they weren't zoned LTA".

Thurston County may be investigating development of "an open space plan that identifies more high-priority areas for land preservation and conservation — those would be the priority areas instead of areas zoned for Long-Term Agriculture" but "it has never been a high enough priority on the County's work plan or had dedicated funding, so there is no definite schedule to review the program" the interviewee said.

A second challenge facing Thurston County is a lack of market demand on the receiving side, according to an interviewee. Despite the County wanting "people to develop more densely in the County's urban areas", demand is not high in Thurston's primary urban markets of Olympia, Lacey and Tumwater. A respondent said that a challenge is the way TDR programs, because they are voluntary, do not require or "encourage developers to develop more densely". Without sufficient demand that requires more dense development, a developer would see no need to purchase development rights for their project.

Two additional options that Thurston County is considering for generating TDRs, according to an interviewee, is rural-to-rural transfers for certain types of development, such as impervious layer development (e.g. a parking lot) instead of the traditional rural sending area to urban receiving area. For example, in "exchange for developing something with impervious layers above the area limit in rural Thurston County, [a developer] could buy development rights that will [preserve] an [rural] open area elsewhere in Thurston". The second potential option under consideration is "looking at revising standards for detached accessory development units (ADUs)" in rural areas which could encourage purchase of a development right if a landowner builds an ADU on their property. This option has already been adopted in King County, as noted above.

Note – Thurston County did not receive a stand-alone grant to investigate its TDR program. The above information was provided during discussions regarding Thurston County's Deschutes Watershed Land-Use grant where TDR was investigated as a sub-task.

Successes: Cities

Overall, Seattle is the best example of a successful TDR and LCLIP program, according to interviewees, with revenues for Seattle estimated to exceed $27 million (City of Seattle). Seattle has exceeded its TDR sales milestone (800 TDRs) inked in the inter-local agreement between the city and King County for LCLIP. The inter-local agreement states that "in exchange for [Seattle] accepting 800 regional TDR credits for increased development capacity…the County will transfer to the City approximately $15.7 million of its additional current expense levy tax revenue generated in the Local Infrastructure Project Area (LIPA) over a 25-year period".

Seattle accepts TDR credits from King, Pierce and Snohomish counties, with square feet of density allotted varying by credit (dependent on the county of the sending area as well as the type of credit: forest, rural, or agricultural). Seattle and King County's LCLIP agreement allows a certain portion of revenues from property taxes of new construction in King County to go to Seattle for local infrastructure project, as Seattle has met the sales milestones required for the LCLIP program. Other cities differ in their levels of success.

Implementation of TDR and LCLIP in the cities of Shoreline, Tacoma, Mountlake Terrace and Tukwila is in the "next tier of progress" according to interviewees. The Watershed grant funding allowed all of these cities to undertake feasibility studies, and each city has had some political consideration of the tool, interviewees said. Interviewees commented that Mountlake Terrace could gain significant revenue from LCLIP with three new development projects on the horizon, a city representative stated. Mountlake Terrace can now quantify the tax revenues they would receive from those three new projects and can then borrow against it as more construction comes in, ensuring their programs will continue. The next

steps for Shoreline, Tacoma and Tukwila include estimating near term, suitable development in order to see if implementation of TDR is feasible.

The revenue projections and market demand forecasts produced by the Watershed grant-funded feasibility studies are now out-of-date because market conditions have changed, according to interviewees. To verify this, the cities of Shoreline and Tacoma have committed funds ($10,000 and $30,000, respectively) to update their previous feasibility studies by hiring Forterra and ECONorthwest in 2019. These studies may result in different rate calculation in 2019, code section refinements, or other fine-tuning of their TDR programs, according to Forterra and ECONorthwest. Results of these studies were not yet available to be incorporated into this synthesis.

For the cities of Fife, Puyallup, and Everett, TDR continues to be of interest, according to interviewees from Forterra. However, without more financial resources it is difficult for the cities to self-finance the projects, Forterra said. In Puyallup, Forterra is evaluating TDR and LCLIP with Puyallup also paying for an updated feasibility study out of their own budget. Forterra presented the findings of this study to city staff in 2018. In Fife, the unknown is "where and how to add more residential development [that uses TDR]", an interviewee said.

For the City of Everett, a TDR project for a developer to build 150 units of affordable housing along Highway 99 was approved in 2018. This project aims to conserve more than 200 acres in farmland in the Stillaguamish Valley.

The City of Normandy Park has an inter-local agreement with King County and has designated a sending area from the shoreline surrounding Vashon Island and a receiving area designated the Manhattan Village Subarea. This sending area was designated because constituents "don't want to build too high in [in Normandy Park] in order to preserve the view of the Vashon Island skyline", according to a King County representative. No credits have been sold for use in Normandy Park.

The City of Sammamish will have successfully completed 22 TDR credits, if the previously mentioned project occurs. The city has an inter-local agreement with King County and has designated a sending area in the "Emerald Necklace" area surrounding the city.

The City of Shoreline does not yet have an inter-local agreement with King County but is actively discussing next steps with the County pending the results of the revised feasibility study in 2019. According to a King County representative, there is "impetus [to consider LCLIP] as the two light-rail stations are coming".

Representatives confirmed that cities that value green space and understand that it improves livability, income and human well-being for residents, are more likely to adopt TDR and LCLIP.

Challenges: Cities

Three main challenges faced by the cities that received Watershed grant funding face are revenue uncertainty, particularly from LCLIP, lack of market demand for TDR, and political and administrative capacity and will.

Tukwila faces revenue uncertainty as well as a lack of market demand. Interviewees said that the feasibility studies completed in 2012 may be inaccurate and may understate the potential revenue

projections that TDR or LCLIP could bring in for Tukwila (revenue projections for Tukwila ranged from $2.5 million - $9.5 million, according to Heartland's 2015 report). However, adoption in Tukwila has not progressed past the feasibility stage despite interest among city council and council committees. Some challenges in Tukwila are "market and timing" because Tukwila "missed an opportunity to create a TDR market when they adopted the Southcenter [mall] subarea plan [in Tukwila] without an incentive zoning component." Next steps for Tukwila could include identifying areas "outside the Southcenter subarea where redevelopment could use TDR". However, success in Tukwila is dependent on if "a market is emerging [there] for construction that could use TDR", an interviewee said.

In Mountlake Terrace, Tukwila and Shoreline, interviewees confirmed that there is political will for adoption. The challenge is whether the cities can progress the TDR and LCLIP tools from the feasibility findings to legislation so that the program can move forward. It is a consistent hurdle to progress from recommendation to adoption — even with political will it takes continued engagement by advocacy groups to encourage adoption. The interviewees responded that the highest return on investment for these programs is where advocacy groups are most engaged in the political process.

In Kirkland, the City was unable to update zoning code to accommodate LCLIP despite the Kirkland City Council formally adopting and recommending TDR for their Totem Lake Business District in 2014. Kirkland does not currently have an inter-local agreement with King County.

The City of Tacoma's TDR program has not been a wide-spread success due to lack of market demand, an interviewee said. Although the "institutional barriers" for the program are negligible in Tacoma for the program and the City is "open for business", the demand has not "materialized", according to the interviewee. Tacoma collects development rights from anywhere in the region, regardless of whether in Pierce County or not. Tacoma is zoned for mixed-use development downtown with a floor-area ratio bonus (FAR) tied to TDR that makes it easy for a developer to use the system and compete TDRs. Connecting FAR to TDR, along with waiving any off-street parking requirements in Tacoma, incents developers to build there, an interviewee said. However, current development projects do not require maximizing FAR, and the smaller current projects only require the purchase of one or two development rights, which the city has readily available in their bank. Tacoma has recently completed a TDR with a downtown development that purchased 14 units (and the city recently sold two of their 11 initial development rights).

2.1 Findings of TDR and LCLIP Grants

Nearly all interviewees agreed that the Watershed grants were "pivotal in building momentum and getting early successes" for the grant recipients. Overall, respondents considered the grant funding to be instrumental in providing a "nudge" for the participating cities and counties.

> Interviewees responded that the NEP grant can "tip the scales" in helping cities to answer "the first questions" about the nature of adoption and that feasibility studies have a substantial impact on counties' and cities' potential adoption.

As demonstrated above, however, implementation of TDR and LCLIP has occurred with varying success rates. Several respondents cautioned that grantors should only fund cities that have the "greatest likelihood" to succeed by having both city council and leadership support and have upcoming development projects on the horizon (such as light rail stations). One interviewee said that "Commerce

should work with the cities as potential TDR receiving areas [because] cities are the key receiving areas for TDRs. [Our] county has only limited urban receiving areas and these areas will eventually be annexed to nearby cities." Interviewees said that there are many cities in the region that would pursue TDR and LCLIP if they had the financial resources to do so. Lastly, respondents commented that future rounds of subarea planning-related grants should have a provision requiring incorporation of TDR and LCLIP into any projects. Further findings from interviewee responses are presented below for each subject area.

Landowner Outreach and Education

Landowners vary in their receptivity to the TDR programs, according to interviewees. For farmers in certain counties, extinguishing their rights is not a "hard sell" if they are pleased with the monetary value of their land. In other counties, particularly King County, respondents estimated that around 50% of landowners who are contacted are interested in selling an easement but their **willingness depends on the appraisal of property values**. Landowners may not be satisfied with the appraised value and may hold off on selling.

> "After speaking with a lot of farmers, if they can buy another 40 acres of land or if they can pay off the mortgage on their house or they can send their kids to college then that's really meaningful. That's what TDR does for them." ~ Forterra

Interviewees confirmed that the best methods of outreach regarding TDR and similar programs is **long-term relationship building and word-of-mouth from neighbor to neighbor**. In King County, Water and Land Resources Division Basin Stewards cultivate relationships with landowners and act as the County's "boots-on-the-ground staff" providing technical service to do habitat protection and restoration projects. A representative from another county said that if data were available, "the county could map all active farms in rural and resource areas of the county and provide opportunities for the land owners to learn about the benefits of the TDR program."

Cities, counties and regional agencies can assist with education, negotiations, and understanding and meeting the expectations of landowners to encourage sales, interviewees said. Additionally, organizations need to continue to frame the benefits of TDR and similar land conservation programs to demonstrate how agricultural and forest landowners can use the sale of development rights to, for example, invest in their land for future generations.

Uncertainty of LCLIP

Seattle is the only city to adopt LCLIP in Puget Sound so far. Despite organizations like Forterra describing LCLIP as "risk-free" for the adopters, **there is a general perception that LCLIP programs are complex**, and there is a lack of understanding around 1) a municipality's obligations when adopting the program and 2) projected revenue for a municipality if they adopt LCLIP.

An interviewee from the City of Tacoma stated that there is "political trepidation" causing hesitation of full-scale adoption. Other interviewees also said that certain city council members believed that their cities would have to pay the funds back to the lending county for LCLIP. One interviewee found it hard to believe that LCLIP is a "no-strings-attached" funding source for infrastructure improvements. The potential to have to "pay back" borrowed funds from a county if they do not use their allocated monies in a certain time period or meet their county's target, they said, has convinced leadership from certain

cities that LCLIP is a liability because they are not certain they can use the funds allocated in the required timeframe.

According to the City of Shoreline's city council meeting notes from November 2017, city officials decided that "after evaluation of the program and discussion with other cities, [our] staff does not recommend the implementation of LCLIP at the City of Shoreline. Based on the lack of participation of other jurisdictions, the program's certain obligated costs and the uncertain tax revenue gains for the creation of open space outside of Shoreline, staff believes the complexity and risk associated with LCLIP do not offer enough advantage to the City at this time." This view echoes the sentiments expressed in the interviews. Education is lacking around LCLIP across the region, particularly regarding whether or not there is a penalty for early withdrawal.

As far as uncertain revenue projections of LCLIP, an interviewee explained that there hasn't been a "strong response to the amounts of projected revenue from LCLIP" and that "if the revenue projections from LCLIP were higher" adoption may be higher. However, this sentiment was not universally expressed and it is not known if it is widely held. A recommendation to address this is presented in Recommendation #1 below.

Competing Priorities

Competing priorities in urban planning, particularly developing affordable housing, are barriers to widespread implementation of TDR and LCLIP, according to several interviewees. Interviewees from King County said that affordable housing has been the "hot issue in development" and has taken precedence over other priorities. TDR has been pushed aside as development bonuses have been given for affordable housing units instead, according to interviewees. Snohomish County explained that TDR is one of many competing housing goals.

> "Our TDR program has to compete with other county goals including providing opportunities for more affordable housing, planning for light rail, increasing employment opportunities and protecting the environment. Decision makers have not directed [our] planning staff to integrate TDR with these other planning issues".
>
> ~ Snohomish County

When developing TDR programs, it is important to design new incentives in such a way as to avoid creating competition between conservation goals and affordable housing goals. King County encountered this challenge when designing a TDR program for Kirkland because the city already had bonus density provisions in place to incentivize affordable housing development. This conflict limited the opportunities for using TDR and for generating revenue through LCLIP.

Advancing TDR and LCLIP

In order to successfully implement TDR and LCLIP, a series of steps were identified which summarize the interviewees' responses. The steps need to occur sequentially as each "piece builds upon the past piece", as one interviewee described. The steps are:

> "That would be a really great to work on [TDR]. We have a lot of ideas that we've collected over time on how to improve that program but we don't have the capacity to make it a priority without having a grant program."
> ~ Thurston County

1) Funding: resource-constrained and cash-strapped cities and counties need funding capacity to pay for TDR and LCLIP (ensure Near-Term Actions are funded).
2) Feasibility Studies: city and county officials should rely on technical experts to conduct feasibility studies as most do not understand the program's complexity and how to optimize the tools.
3) Advocacy and Support: cities and counties needs advocacy and support, technical expertise to draft any legislation, and "champions on city councils". Without these, failure is likely.
4) Policy and Political Guidance: cities and counties need guidance and shepherding through short-lived political opportunities and policy windows. Failing to capitalize on continued momentum, or dragging a process out too long alienates supporters and the programs lose relevance to other issues – which are just as important and urgent for elected officials.
5) Market-Based Support: Once a program is adopted, cities need market-based support. According to the interviewees, it is not a "if you build it they will come" scenario — cities need help cultivating their own markets through outreach and advertising. Moreover, a relationship must be established between the market players to connect them and help to facilitate transactions (using the development rights banks like those maintained by King and Pierce counties helps).

2.2 Recommendations for TDR and LCLIP Grants

#1: Education, Workshops and Outreach

City and county respondents expressed wide-ranging views on the feasibility of TDR and LCLIP programs. In particular, there is some confusion regarding the financial, legal and political complexities around LCLIP. There may be additional confusion around projected revenues for a city that adopts LCLIP. A lack of standardized responses indicate that education efforts could be helpful. Additional outreach and education is needed to connect municipalities with landowners.

Recommendation: Host a workshop with planners, advocacy groups, city and county representatives and elected officials educating them on development rights programs, and particularly LCLIP. Convene a working group of mediators (potentially comprised of local, trusted organizations like conservation districts) to cultivate, manage and sustain landowner-municipality relationships in order to facilitate transactions. Continue to direct landowners and municipalities to Commerce's Growth Management website for information, so interested stakeholders know what resources are available, and who to contact for expert assistance.

#2: Assess the Market Projections of the Feasibility Studies

Real estate market fluctuations (such as future market demand in areas with to-be-completed light rail stations) have potentially made the recommendations and data provided in the feasibility studies conducted in 2011-2013 outdated and inaccurate, according to interviewees. Several cities, including Shoreline and Tacoma, are conducting feasibility studies out of their own budgets to update data and provide new recommendations.

Recommendation: Administer a survey to gauge whether city and county representatives need another round of feasibility studies. A survey could assess whether they believe if their previous studies are still accurate. If results indicate that another feasibility study is warranted, selectively fund cities that have the right enabling conditions, such as political support (see *Advancing TDR and LCLIP* above), to be recipients of funding for an updated feasibility study. Funding cities that have political opposition may be a non-starter and an inefficient use of funds because a feasibility study is most useful for a city already on the path to implementation.

#3: Evaluate the Current Parameters of the Region's TDR Programs

The success of TDR varies widely depending on city and county. What works in some regions may not work in every region. For example, the successes of Seattle's rural sending area-to-urban receiving area TDRs for height density bonuses may not be replicable in areas with less demand for dense development – in those areas TDR may be more effective for rural-to-rural/open space transfers, or for other types of development like accessory dwelling units. In other counties, like Thurston, one challenge identified is that the County currently restricts sending areas to areas zoned for Long-Term Agriculture.

Recommendations: Convene a series of workshops with city and county representatives to address what they consider some of the successes and barriers affecting implementation of TDR in their respective areas focusing on current zoning and code regulations. Include advocacy groups, development industry professionals, landowners in sending areas, or other stakeholders. Items to address include:

- Innovative uses of TDR and how may these be effectively implemented in receiving areas with less demand for height-based density bonuses
- Changes to regional TDR codes that allow for opening up of sending areas
- Creating a TDR section on the existing municipal resources service center website or other information source that can help municipalities with technical assistance

2.3 TDR and LCLIP Summary Table

Location	Current Status of TDR/LCLIP Programs that Received NEP Grant Funds	Completed Transactions (Funded through the NEP Grant)	Challenges	Next Steps
King County	Adopted and successful. King County's TDR program has protected over 144,500 acres of rural/resource land between 1998 to present. Has inter-local agreements with Bellevue, Issaquah, Sammamish, Seattle and Normandy Park.	The grant did not fund transactions/property acquisitions but did identify properties for acquisition. The grant also helped King County to conduct a feasibility study for the City of Kirkland. Note: Through its TDR bank, King County has sold 1,024 development rights for use in Seattle, 22 for use in Sammamish and 23 for use in Bellevue but these were not part of the NEP grant. Acreage conserved for these is unknown.	*See individual King County cities for details.*	Sammamish has identified development projects to complete 22 TDRs, but the credits are not fully completed. Normandy Park has a TDR program, but no transactions have occurred. Development rights sales are increasing in King County, particularly for size bonuses for accessory dwelling units in unincorporated rural areas of King County.
Skagit County	Not adopted	None	TDR was not adopted. Reasons for not adopting include political opposition, lack of advocacy and a pre-existing conservation easement program already existing in the county.	Unknown
Snohomish County	Adopted. In 2017, the City of Arlington and Snohomish County both agreed to terminate the Arlington Pilot Program at the city's request in order to expand receiving TDR certificates from all eligible TDR sending areas in the	None		Snohomish county officials are considering drafting code language that would create a county-run TDR bank as well as may certify its first TDR credits. Snohomish may issue 19 TDR certificates in 2019. *See also: City of Mountlake Terrace.*

	county, which the pilot program prevented.			
Thurston County	Adopted TDR only for sending areas zoned as Long-Term Agriculture.	None	Sending areas are limited to parcels that are zoned as Long-Term Agriculture. No other types of land can apply for TDR certification under the current rules, including land in agricultural use that is not zoned as LTA. The LTA zoning designation in Thurston has a minimum lot size of 20 acres, but the majority of farms in Thurston County are 10 acres or less and not zoned as LTA. Additional challenge is lack of market in areas designated as receiving areas, including the Cities of Olympia, Tumwater and Lacey.	Re-examining effectiveness of County's TDR program (including both sending and receiving area requirements) has been part of annual Comprehensive Plan amendments for many years. Lack of funding has prevented re-examination.
Pierce County	Adopted	None	TDR continues to be of interest in the City of Fife but next steps are unknown. *See also: City of Tacoma.*	Continues to operate bank of available credits for sale or purchase.
City of Kirkland	Not adopted	None	Kirkland had challenges with updating zoning code to accommodate LCLIP despite the Kirkland City Council formally adopting and recommending TDR for their Totem Lake Business District in 2014. Kirkland does not have an inter-local agreement with King County.	Continues to investigate TDR and LCLIP.

City of Mountlake Terrace	Not adopted	None	Market uncertainty	Light-rail station may provide opportunity for increased density in urban core. Has 3 development projects in varying stages of completion. City leadership is amenable to adoption.
City of Tukwila	Not adopted	None	Market uncertainty. Tukwila has not progressed past the feasibility stage.	Unknown
City of Tacoma	Recent transactions have occurred. Accepts development rights from King, Pierce and Snohomish banks and maintains own bank. Primary receiving areas are Downtown and Tacoma Mall area.	None	Market uncertainty. Current development projects have not required height density bonuses. City representatives are not convinced LCLIP is good fit for Tacoma. Unsure if city can pay back Pierce County if funds are borrowed for LCLIP.	Hired Forterra and ECONorthwest for a revised feasibility study in 2019. Results are forthcoming.
City of Shoreline	Not adopted	None	The City of Shoreline does not yet have an inter-local agreement with King County.	Hired consultants for a feasibility study in 2019. Actively discussing next steps with King County. Light-rail stations provide an opportunity for increased density in the urban core. Development in the downtown core may use the TDR program to achieve height bonus.

3. Market-Based Conservation Strategy Grants

3.1 Nisqually River Foundation and Nisqually Indian Tribe: Ecosystem Services Grants

The Nisqually River Foundation (NRF) and the Nisqually Tribe (Tribe) along with partnering organizations Nisqually Land Trust, Northwest Natural Resource Group, Earth Economics, Washington State University, and Washington Department of Natural Resources received a grant for an "Ecosystem Services Demonstration". NRF and Nisqually River council member organizations received a grant for "Building Momentum for Ecosystem Service-Based Incentives". Both of these grants aimed to complete ecosystem services transactions and create an ecosystem services market for the Nisqually Community Forest. Ecosystem services-based transactions are market-based strategies for the conservation of natural resource lands such as forest lands. The Tribe's grant was to "establish a framework for marketing the environmental and economic benefits that intact resource lands provide, such as habitat protection and reduction in surface water runoff. Providing landowners with compensation for the ecosystem services produced by their land can encourage them to keep those services intact." The grant also established the Nisqually Community Forest to return local forest lands to local control.

The Tribe and its partners' ecosystem services pilot grant-funded project resulted in protecting 36.4 acres of land at Lake Saint Clair, in Thurston County near Lacey as a perpetual easement, held by the City of Olympia, on the property purchased by the Nisqually Tribe. The easement sets minimums for the number of trees and the average basal area per acre that must be maintained on the property and institutes protection of the ecosystem services that benefit the City of Olympia's drinking water supply. "This ecosystem services purchase was the first of its kind and has paved the way for future purchases in other areas" (Commerce 2019). The Nisqually Community Forest Project (NCF), a non-profit managed by the Nisqually Land Trust, used the grant funding to acquire more land in the Nisqually Community Forest and to develop forest management scenarios including prioritizing target acquisitions. Additional non-NEP grants (including $500,000 from the PSE Foundation) were awarded to the Nisqually Land Trust in 2019.

Successes

The NEP grants were instrumental in helping the organization focus on "creating prioritization for which properties they would target" and what should occur when properties were obtained. The grant succeeded in establishing a community-managed working forest and facilitating four transactions that expanded it from 640 acres to 1,920 acres. The purchase was the first of its kind in Washington that allowed for a voluntary carbon sale.

Challenges

The Nisqually River Foundation identified and pursued a second ecosystem service transaction during the grant period which was ultimately unsuccessful because of the "Foster and Hirst decisions…which made it so that remote beneficiaries of ecosystem services could not take advantage of those services" (Commerce Final Program Summary Report). The Foster decision, also known as the 2015 Foster v. Ecology, City of Yelm, and Washington Pollution Control Hearings Board decision "overturned [Ecology's] approval of a water right permit for the City of Yelm that would have provided water for future growth. [Ecology] had conditioned Yelm's permit on an extensive mitigation package, which included offsetting the total quantity of new water use through water-for-water mitigation ("in-kind") and mitigating small impairment during the spring and fall with habitat improvements ("out-of-kind mitigation")." With the

court "emphasizing that mitigation must be strictly in-kind, in-time, and in-place, the court decision limited Ecology's "use of out-of-kind mitigation, such as habitat restoration, to offset impairment to protected rivers and streams." Ecology, therefore, could not approve NRF's "ecosystem services [project] as mitigation" because the legislative decisions limited Ecology's flexibility, making it more difficult to approve mitigation plans.

However, the Nisqually Community Forest did receive the credits from the first ecosystem services transaction and is now looking at "other ways to quantify the carbon capture potential" of the forest to model how much carbon will be retained on the property and how much the organization can sell those credits for if they choose to. One method of carbon capture quantification, offered by the California Carbon Air Resources Board was deemed too "expensive" and not applicable to the community forest as they are not "looking to sell into the regulatory market, only the voluntary markets", an NRF representative said. According to the interviewee, "there is no really accurate valuation of ecosystem services [provided by] actively managed forests." NRF is actively engaging with different organizations that do ecosystem valuation, in order to sell their credits by summer 2020, with a goal of focusing on carbon modeling.

Next Steps

The Nisqually Indian Tribe received a $14 million Clean Water State Revolving Fund loan to help buy and protect land in the Mashel River sub-basin which NRF is helping to manage. NRF is also managing a $2.8 million stream flow management grant to purchase more community forest land, a representative said. To that end, NRF is actively looking at acquiring some acreage of nearby timber-land that is up for auction. Recently, Hampton Lumber purchased approximately 1/6th of the timber-land. NRF failed in the bidding against Hampton, the interviewee said. However, the remained 5/6th portion of the timber-land may be for sale soon, according to a representative, so NRF is actively looking for a "bridge funder that could help make this transaction happen". Lastly, NRF may apply for funding through the Puget Sound Salmon Recovery Council to help Chinook and steelhead in the Nisqually watershed.

3.2 Washington Department of Natural Resources: Watershed Services Market Demonstration Projects

The Washington Department of Natural Resources (DNR) established two ecosystem services market-based demonstration projects in the Nisqually and the Snohomish watersheds, partially funded through the NEP grant and conducted from 2011-2013. Using NEP funds, DNR used the bank/market structure to purchase the Lake Saint Clair property mentioned above. A second ecosystem services market-based transaction project in the Snohomish basin was unsuccessful, and involved the DNR working with Snohomish County's Surface Water Management Agency team.

Challenges

The transaction was not successful due to several challenges. First, an interviewee felt that the agency struggled to decide how to quantify, determine or measure ecosystem benefits, and had a lack of understanding of the "science behind the transactions". Also, staff capacity and lack of grant funding was said to be a challenge. Second, the interviewee said that Snohomish only had money for "analytical work" rather than the "money for the transaction", which forced the grant team to do the "modeling in-house" with someone who didn't "have a background in modeling". Third, staff turnover created

confusion over roles and responsibilities between the DNR evaluation teams. Also, there was "a previous director [who] had lobbied hard for this project" only to ultimately be told that the project "wasn't in our wheelhouse", an interviewee said. Fourth, the project was just "not appropriate for a surface water management utility with a budget crisis" like the Snohomish Surface Water Management Agency team but instead "more appropriate for a large utility", an interviewee said.

Finally, during the course of the project participants active in workgroups questioned why these types of transactions would be occurring in areas that were "already critical areas". In particular, questions arose as to "why [government agencies] were paying people to protect these lands when they should be protecting them anyways". According to interviewees, these participants were questioning why regulatory protections were inadequate and conservation transactions were needed. This led to some challenges in getting support from agency and community participants.

Next Steps

The Snohomish team is investigating a potential pilot project that would be modeled after two successful channel migration easements in Montana. The project, if successful, would be the first channel migration easement transaction in Washington. Details and a timeline for this have yet to be determined. Through the project, DNR also modeled several aspects of the Nisqually watershed (released in this 2018 report), which may assist future transactions.

3.3 King Conservation District Farmland and Forestry Grant

King Conservation District (KCD) implemented a project called "'When Cows meet Clams': Promoting Sustainable Farms and Forests" for $153,402. Through the grant, KCD and their partners Cascade Harvest Coalition, Northwest Natural Resource Group and Calyx Sustainable Tourism developed outreach and training workshops for farmers and small forestland owners to diversify revenues on their land, promoted incentive-based stewardship, succession planning, niche tourism strategies for both farmers and forest landowners, and improved land management. The outreach and training programs included eight training sessions where the team invited Snoqualmie Valley farmers and small forestland owners to discuss stewardship, succession planning and development of niche tourism opportunities. The grant additionally conducted six tours of participating farms and forest areas and other events held on farms and in Forest Stewardship Council managed forest land where land owners shared best practices with regulatory agencies. According to the final report authored by Calyx and King Conservation District, participants were "impressed, relieved and perhaps surprised at the level of effort, sophistication and results from on-the-ground stewardship efforts by Snoqualmie Valley working farms and forest landowners."

Successes

King Conservation District and their partners have developed new programs and new approaches for conservation work as a result of the grant. For example, KCD has new and on-going programs that improve the economic viability of farms (such as KCD's development of regional food programs linking farms together, producing agriculture-based tourism maps and marketing experiences such as tourist "passports" for visitors of the participating businesses) as well as "local branding [efforts] of the Snoqualmie Valley", interviewees said. The grant experience helped to change how the organization approaches the "nexus of economic development and conservation", the interviewees said, because the

grant was an opportunity to “tie economic development to resource conservation”. At the time of the project, in 2011, there “wasn’t a place where everyone was talking to each other”, representatives from KCD said. The grant was a “valuable contribution to [further] the overall trend that we’ve all been working towards” an interviewee said. The contributions of Commerce and Ecology as administrators of the grant was “very unique and has a great value” and it was unique to see a “state economic development group” involved in administering an environmental grant, interviewees said.

Challenges

There has currently been no quantitative analysis of the results of the project because the team was unable to secure additional funding. KCD expressed interest in following-up with participants to see how or if additional sources of revenue have been added to some of the participants’ land (such as through the “passport” program and or other events).

Outreach exhaustion and “survey fatigue” occurred when reaching out to landowner participants. The interviewees felt that the participants are being over-burdened with communication materials related to both voluntary and regulatory conservation efforts. KCD said that in the Snoqualmie Valley, there is a surplus of organizations with “sometimes overlapping grant funding” that leads of over-saturation in the region and makes it difficult to collaborate. Because forest and farm owners are busy during the growing season, there tends to be a large number of training and outreach opportunities that occur in a relatively small window.

Interviewees responded that following project completion, there were no funds to keep the website with project materials available. Lack of storage and access for documents post-grant resulted in valuable work now unavailable to the public.

An additional challenge noted is that farming, forestry, floodplain programming in Puget Sound is often siloed – making integrated programming across the landscape challenging. Programming needs to make explicit the implicit connection between the upland basin and Puget Sound. Lastly, the prevention of loss of forest and farmland “must be addressed as they are often located in “edge” geographies that provide buffers between suburban intrusion and the ecosystem services provided by farms and forests”

Next Steps

KCD is developing projects that focus on economically viable stewardship programs that allow landowners to build business while being stewards of their land. KCD is actively looking at public-private partnerships for financing. The organization is engaging with local philanthropy foundations to make “collective, coordinated investments” for food systems-oriented education, and to develop shared infrastructure and resources.

As a grantor itself, KCD is encouraging its grantees to look for partnerships before looking for funding to avoid competing and duplicative projects. According to an interviewee, KCD’s goal is to support the innovative work coming out of the region by shifting towards longer-term, strategic investment grants. These grants are attempts to build collaboration along the “road map” of conservation with the “things [KCD] already knows we want to accomplish”.

3.4 Kitsap County: Sustaining Ecological Processes, Working Forests on Lands at Risk of Development

Kitsap County protected 6,690 acres of private working forest lands by working with Olympic Property Group, Port Gamble S'Klallam Tribe, Suquamish Tribe, WSU-Extension, Great Peninsula Conservancy, and Forterra with the goal of maximizing protection and restoration measures using Kitsap County's Ecosystem Stewardship Forestry Program. The project produced a revised map of a target area best suited for conservation, forestry and development based on ecological assessment, with assistance from the Watershed Characterization Technical Assistance Team (WCTAT). Additionally, the subtasks included implementing a forest stewardship policy as well as an economic landscape analysis of TDR opportunities, led by participating consultant Forterra. This task identified nearly 6,690 acres of Olympic Property Group land and 844 acres of adjacent county-owned lands available for conservation.

Successes

The project resulted in conserving 1,355 forest-land acres subject to an ecosystem-based conservation plan in perpetuity in the Port Gamble area. An additional 1,582 acres were also acquired and are subject to a similar conservation plan, run by a local land trust. The project also partially funded the purchase of the 535-acre Port Gamble Forest Heritage Park. The protected area of the park includes 1.5 miles of saltwater shoreline and 70 acres of tidelands.

With assistance from the NEP grant, Kitsap conserved 1,355 forest-land acres; partially funded the purchase of the 535-acre Port Gamble Forest Heritage Park, planted 16,000 trees, removed invasive species from 40 acres of county-owned forest-land in the Port Gamble area.

Challenges

According to final grant documentation, the funding awarded to the county was not enough to "complete a large-scale acquisition of land or conservation easements; but did help a community partnership to take critical next steps such as assessing on-the-ground conditions and appraising value of land, development rights, and timber rights". Because a larger-scale acquisition did not occur, the project team shifted focus to the acquisition and stewardship of the acreage mentioned above, which did result in successful conservation.

The project also resulted in assessment of Kitsap County's TDR program. According to a Kitsap County representative, the County "adopted a TDR program that has been incorporated into County Code, but so far participation [and] implementation has been limited" because of a lack of market demand for "residential development [in the county] which has not exceeded the threshold" to involve TDR. Further details can be found in the section above.

3.5 Whatcom County: Market-Based Tools to Enhance Agriculture and Water Quality

Whatcom County along with partnering organizations Whatcom Farm Friends, Whatcom Conservation District, and Washington Department of Fish and Wildlife investigated ecosystem service models for the conservation of agricultural land, "addressed local farmers' concerns across the landscape" and used the Puget Sound Watershed Characterization model (PSWC) model to prioritize areas for conservation. The team "used watershed characterization results to identify pilot locations to develop and test metrics that could be used to measure benefits of small scale projects so that they can be valued in a natural resources marketplace. These metrics quantified the benefits of actions on individual farms or areas for the agricultural economy and watersheds to improve monitoring. In addition to creating and testing the

qualitative and quantitative metrics, the pilot projects allowed the project team to explore options for protecting those properties through a transfer of development rights program and establishing a "no net loss" mitigation program, such as in lieu fee" (Commerce Final Program Summary Report).

Successes

Whatcom County views its current agricultural Purchase of Development Rights (PDR) program, developed in part during the grant, as a "sound strategy" for conservation and a model that they intend to replicate in other partnering counties. Whatcom's PDR program has successfully transacted 140 development rights resulting in the protection of 1,200 acres since August 2004, at a cost of $6.8 million. A PDR program is an out-right purchase of the right, rather than a transfer.

A Whatcom County representative also said that the grant was very helpful in "capacity-building" and the County would "absolutely" accept new grant funding if awarded in order to "connect the mitigation dots", scale up "ecological connectivity", and pursue "comprehensive or complete ecological and watershed health, prioritizing entire reaches of a watershed reach or ecological corridor". A representative also said that the maps produced during the project are still being used by the local Whatcom Watershed Improvement District (WID) in their report planning. The maps are available in an interactive story map format.

Whatcom County's outreach efforts during the grant period were (and still are) effective, according to an interviewee. The County produces a natural resource-themed mailer and e-newsletter with a specific forestry section including information on development rights projects. For every mailer sent out to approximately 18,000 recipients, the County receives two or three applications for property transaction inquiries. The interviewee views this an effective form of outreach because they continue to receive voluntary applications for development rights transaction. The County finds that word-of-mouth works very effectively for communication of property sales. Additionally, having the Watershed Improvement District story maps available online has been very beneficial for public outreach, the interviewee stated.

Challenges

The goal of Whatcom County's project was to achieve a land transaction. The land transaction for the first pilot site (in the Bertrand watershed), where the County had produced a development right and had already received initial payments from a single landowner, failed because the "financial implication were not significant enough for the property owners and the transaction fell through". According to the interviewee, the "project already had a conservation easement on [that particular] parcel that had removed future development potential (i.e. the property owner had already been paid for an successfully completed, or extinguished, development right), so the remaining ecosystem uplift values, based on standardized and mandated appraisal standards didn't value that ecosystem uplift to the level of financial expectation that the property owner had." The County pursued a second transaction, on another pilot site (in the Fishtrap watershed), which was agricultural protection land, but the County failed to close easements on this location. The reason for failure was not reported.

Another challenge identified was that the maps produced at the time of the grant quickly became out-of-date and the mapping data was not detailed enough, nor communicated in a way that allowed it to be used effectively by the staff at the time of the grant, according to the interviewee. The interviewee said that, "the data provided [during the grant work] did provide sub-basin and drainage specific

assessments related to water quality, soil limitations, and habitat to a certain degree. [However], after spending more time working with these maps [we found that] higher resolution and real-world, and sometimes real-time, data is required…we need to be able to pull up a map and visually see where are there habitat deficiencies, where is ecological connectivity severed, specifically where are surface flow issues, or water quantity issues or agricultural challenges. Having a colorful map with sub-basins colored by priority might be a good broad indicator, but does not effectively direct projects on the ground."

Next Steps

To continue improving on the GIS data gathered during the grant, Whatcom County hired a GIS analyst who re-uploaded and re-analyzed the data. The GIS analyst is incorporating stakeholder input from local farmers and mapping priority areas for restoration including "moving into specific drainages to perform drainage based management ([with pilot projects including] Dakota, Bertrand-Schneider, and South Fork Nooksack basins). With this effort we will be looking to incorporate the Salmon Recovery Plan habitat assessment data, the Ag-Watershed Project assessment, water rights, crop types, WDFW PHS layers, and more to develop a high resolution list of needs and opportunities." To that end, the GIS analyst at Whatcom County is now "working on providing additional assessment work" to "assess specific parcels and develop public interfacing maps to more effectively depict and demonstrate priorities and threats", the interviewee said.

The County is still pursuing its "ultimate goal" of establishing a natural resources marketplace, but there is a lack of understanding around how it would "play out in the landscape", according to the interviewee. As far as conservation efforts, the County is focusing on lands that "don't fit neatly into land designated as agricultural land" and is looking at conservation easements on working forestland and other priority areas. The County is currently working on a PDR project in the Bellingham region on a large rural forestry zone of approximately 36,000 acres for the nearly 1,000 development rights that are available in that area, according to the interviewee. Whatcom also has a TDR program which "focused on removing development rights from the Lake Whatcom Watershed (Bellingham's drinking water source), but the program has only completed 2 transactions," the interviewee confirmed. The County is hoping to look further into critical areas protections and continuing to partner with Whatcom Conservation District on their Conservation Reserve Enhancement Program (CREP) which has a goal of closing 5-7 conservation easements annually.

4. Subarea Plans/Watershed-based Land Use Planning

4.1 City of Duvall: Watershed Land Use Analysis

The City of Duvall updated its comprehensive plan and municipal codes, and developed specific sub-basin land use strategies using watershed-based planning. The team developed a new UGA land use plan, developed enhancements to current zoning and sensitive areas regulations, and created a new stormwater plan incorporating low-impact development. Duvall also assessed watershed conditions using the Puget Sound Watershed Characterization model (PSWC) model in addition to locally available information and created watershed overlays to help communicate resource needs to elected officials and the general public. The results encouraged development of regulations and incentive-based programs to address those needs (Commerce Final Program Summary Report).

Two and a half years after the grant award, the City of Duvall incorporated the watershed plan, along with the Critical Area updates and Tree Protection Policies, into its Comprehensive Plan. As part of the Comprehensive Plan, Duvall has elected not to develop on 60-70% of annexed land, with a goal of guiding development only into the remaining 30-40%. As some of the parcels that are available for development are difficult to develop, the city is dedicating resources to do riparian work and tree protection in certain critical areas and for trees requiring additional protection.

Successes

Community members and Duvall's city council are supportive of the environmental sustainability aspects of the watershed plan, interviewees said. During the grant, a "diverse advisory community" was established comprised of planning commissioners, county/state representatives, community members and building industry representatives. The planning process was lengthy, though, due to the "building industry's opposition to some of the proposed density choices". The industry became supportive, however, once they understood the policy provisions of developing in Duvall and that they could still build there (although with certain caveats regarding the annexed areas). A city representative commented that the success of the project was due in part to community buy-in and having established resources to pursue the watershed planning process.

An interviewee from the city considers Duvall to be an "anomaly", as it is "cutting-edge" in regards to conservation-oriented planning and its development guidelines in residential areas. Duvall has a planning commission and city council that are "not risk-adverse", the interviewee said, indicating that the City may be in favor of continuing to adopt conservation-favorable policies. A representative said that Duvall additionally benefits from skilled city staff, established partnerships and shared vision among various city departments, including the public works departments, who are the "champions and stewards" of the city's infrastructure.

Duvall's outreach methods, including putting flyers into utility bill mailings, holding open houses, having its advisory group present at large community meetings, and being present at community events (such as during stormwater education events or on Earth Day) have been successful and continue to be used, the interviewee said.

Challenges

The City of Duvall has yet to quantify the results of its adopted watershed plan. As several projects were permitted over 10 years ago, prior to the new plan being adopted, the City is waiting until the projects have been developed in order to see what works, a representative said. To retrofit existing stormwater infrastructure is very expensive, so Duvall is trying to be proactive about its approach to stormwater management. This includes looking for funding sources to establish a rain garden program as well as building greenways and replacing culverts. Duvall has successfully replaced several of its culverts recently, including three culverts as part of its partially PSRC-funded project, Duvall Main Street, for a total of seven culvert replacements.

Next Steps

"If Duvall hadn't had the NEP grants the city wouldn't be where it is today as the city can't do [feasibility studies] by pulling money out of the general fund". Representatives requested that the Watershed LO

grants "continue to fund projects in communities that have done watershed planning." The grant work helped to create the city's first environmental sustainability components of their Comprehensive Plan and set the stage for Duvall's stormwater planning and policy. The City has since applied for and received a grant for a stormwater infrastructure updates, which is ongoing.

Although the city received another NEP grant in 2016 focused on mitigation of stormwater impacts, ("Stormwater Element Update and Retrofit Pre-Design Project") Duvall could do with more funding for stormwater projects, specifically stormwater ponds in the city's most affected watershed, Cherry Creek in WRIA 7, which enters into the Snoqualmie River north of Duvall and receives drainage from 8,314 acres of the overall subbasin, the interviewee said.

4.2 Thurston County: Deschutes Watershed Land Use Analysis

Thurston County developed a land use plan in the Deschutes River Watershed that utilized a watershed-based approach to identify actions to protect ecological functions in the watershed. The initial goal of the project "was to 1) build on the County's ongoing septic assessment, 2) develop the EPA grant-funded project Translating Watershed Science to Local Policy, and 3) support the goals of the Sustainable Thurston regional plan — with the information [ultimately] to be incorporated into the County's Comprehensive Plan as part of the scheduled 2016 update" (Thurston County Final Project Report 2018). The grant helped the County to develop and implement "changes to land use, zoning, and development regulations in the Deschutes River Watershed" (Commerce Final Program Summary Report). The results of the project were intended to guide growth in the watershed and increase public understanding of water quality issues in the region.

Thurston County developed a background report that "compiled and synthesized information about current conditions" in the watershed, along with an updated wetlands layer for the watershed. Different management approaches, including education and outreach, regulation/zoning changes and conservation efforts were developed to address environmental concerns. Additionally, a stakeholder group developed 18 actions to address environmental concerns, with the "highest priority focused on developing new programs for education and restoration, rather than on zoning or regulatory changes" (Thurston Final Report 2017). As a result of this, little code language was developed and adopted into the Comprehensive Plan.

Successes

According to a representative from Thurston County, the Deschutes Watershed grant "brought together a lot of different partners and information and has infiltrated a lot of the ways people are designing things". It has "pulled information from a lot of areas and it helped to create projects that can create multiple benefits — a lot of [conservation-based organizations] working in WRIA 13 use this grant work to base their recommendations on the work that was done with this project." Additionally, the "watershed characterization work and the support received from Ecology" during the project was "really beneficial", as is the Washington Department of Fish and Wildlife (WDFW)'s high resolution change detection data used for the project, the interviewee commented.

For the project's education and outreach components, Thurston County mailed a community survey to all residences in the Deschutes watershed to obtain background information and gauge interest levels at the beginning of the project. Interested stakeholders could then opt-in to the stakeholder advisory

group if they wanted to participate. The County invited the "opposition" to participate in the planning meeting as it was considered helpful to have opposing stakeholders present at the meetings. Additionally, the interviewee explained that community outreach must be "multi-pronged", is "resource-intensive in terms of staff time" because you "can't just hold an open house" to generate stakeholder buy-in.

Challenges

The biggest challenge to the ongoing success of the project is lack of implementation by partner organizations, due to political and staffing issues, as they rely upon partners to implement the project and several actions have suffered from the "lack of capacity", the interviewee commented.

A recommended action to expand voluntary septic assessments was identified in the plan and work has been ongoing. Thurston County has a 14% septic failure rate with particularly harmful watershed effects from failed septic in the Upper Deschutes River area (Thurston Scenario Development Report 2016). However, initial discussions to transition to a mandatory septic system to mitigate the harmful effects failed as it was deemed "too controversial". Ongoing issues with enforcement of these actions include the varying "perceptions and opinions among watershed residents [that] includes hostility among some toward government intervention in land use activities, even when in support of community goals" (Thurston Final Report 2017).

An outreach and education program to increase water conservation education wasn't implemented due to capacity challenges and ongoing funding and staffing needs to sustain the project moving forward. The interviewee recommended that another outreach campaign be funded with a new grant dedicated for outreach.

The updating of regulations and zoning in agricultural areas "didn't have very much effect because [regulations] only affect new development and restrictions are already much stricter than they were in the past", the interviewee said. The "regulations that we have on shoreline protection and stormwater are already pretty strong and they are great for new developments — if and only if they are implemented correctly and enforced." Furthermore, the enforcement of the regulations is "a big if because of low staff capacity" and compliance issues are only known about if "a neighbor calls. The rules are great, but stricter rules aren't needed, it's really the enforcement."

The interviewee stressed the importance of developing incentives to increase ecologically beneficial activities in areas that have legacy developments, in addition to bolstering enforcement. The legacy developments are "contributing to ecosystem degradation, and nothing triggers improvement unless they come in for a permit and aren't grandfathered or unless there is an incentive to do some kind of voluntary improvement." The interviewee said that the County continues to investigate ways of improving incentive-based conservation, like refining its TDR program by expanding the sending areas (which are currently limited to those areas zoned for Long-Term Agriculture only).

Next Steps

Thurston's Comprehensive Plan update is underway with the aim of finishing it by the end of 2019. The Comprehensive Plan will incorporate "some of the findings from this project" including "priority actions

like water conservation, riparian restoration, supporting greater stewardship and maybe an action to continue to look at ways to expand septic maintenance and operations program."

The respondent confirmed that Near-Term Action 13025 (NTA), as part of the Puget Sound Partnership's 2018-2022 Action Agenda, was written in 2018 to further pursue watershed-based restoration actions. The research that arose from the project regarding water quality, particularly around sediment and nutrient issues (such as Total Maximum Daily Loads), "could all be addressed and improved" if restoration actions were to occur. Of particular interest to Thurston County regarding the NTA, the interviewee commented, was how to develop a restoration program that doesn't simply do stormwater management retrofits when the "County's water quality issues exist higher in the watershed."

4.3 Kitsap County: Planning by Watershed

Kitsap County looked at ways in which the Puget Sound Watershed Characterization (PSWC) model could be utilized at the local level for planning purposes. The Little Anderson Watershed was selected as a pilot case for utilizing a "planning by watershed" approach for Kitsap County with the PSWC model. The PSWC Technical Team worked with County staff to identify the most appropriate sub-watershed boundaries within Little Anderson Watershed. "This allowed the models for Water Quantity and Water Quality to be run for only the Little Anderson Watershed, with results relative to only that geography." (Little Anderson Watershed Characterization Final Report). The Water Quality model was limited by data availability. Ultimately, the team modeled only one parameter, sediment.

Kitsap County mapped geologically hazardous areas in need of updating because the Little Anderson Watershed is "known for its geologically hazardous areas, especially along the shorelines and ravines" (Planning by Watershed Summary Report). The maps were intended to be incorporated into the County's Critical Areas Ordinance and Comprehensive Plan updates to include more hazard-specific development standards. The resulting maps now provide more accuracy in depicting where hazards are located.

Challenges

The team had challenges with conducting the watershed analysis alongside the initial phases of the Comprehensive Plan update because of capacity issues. The same staff "were working on this project [as] on the Comprehensive Plan [and thus] the analysis report was not completed until well after it would have been useful" according to the team's conclusion in Kitsap's Planning by Watershed Summary Report.

Successes

The grant project piloted the use of the PSWC at the local watershed scale and helped to produce information for decisions on zoning and densities. According to a Kitsap County representative from the planning department, the county "did develop a much more detailed and defensible geohazards data layer that has been added to our Critical Areas Ordinance and is currently in use in issuing building permits."

Additionally, the Little Anderson Creek Watershed Working Group, a citizen workgroup, has been active in conservation work in the area including working with WDFW recently on beaver relocation training.

4.4 Implementing Watershed Characterization in Hood Canal by Hood Canal Coordinating Council

The Hood Canal Coordinating Council (HCCC) became the authorized sponsor of a voluntary In-Lieu Fee (ILF) mitigation program in 2012 and the HCCC used grant funding to identify specific mitigation receiving site opportunities in each of the four Hood Canal service areas for the ILF mitigation program from 2012-2015. The ILF program, or tool, allows a landowner to voluntarily "make a one-time payment to the ILF program instead of implementing their own mitigation project. The payment funds will be used by HCCC to implement mitigation projects that are strategically sited with respect to a watershed's ecological needs. The primary purpose of the ILF Program is to meet the goal for no net loss of aquatic resource functions."

HCCC identified these mitigation areas by developing a roster list of individual mitigation receiving sites. Suitable sites (marine and freshwater wetlands) were identified for mitigation and added to the roster list following investigation (GIS analysis and field observation). The grant helped HCCC to remove potential barriers to ILF implementation and prioritize watershed-based mitigation by reviewing local development ordinances, identifying preferred mitigation approaches, and developing policy and regulatory language (HCCC 2015).

Also using the grant funding, HCCC developed a watershed conservation plan, the Integrated Watershed Plan (IWP), that analyzed the conservation potential and prioritized strategies to address threats to the HCCC's stated ecological foci: salmon, forests, forestry, shellfish, and commercial shell fishing.

The grant enabled staff at HCCC to develop and implement the ILF program. The program was authorized and signed off on by the Army Corps and implemented in 2012. HCCC has additionally developed a flowchart that explains, to the planning staff at each of the three counties HCCC works in, how the ILF program works for new permittees.

Successes

HCCC successfully sold credits to WSDOT for a highway widening project in Belfair and HCCC then bought a 17-acre wetland with the credits with a goal of restoration. In 2017, following the $6.9 million fee paid by the Navy in 2012 to offset the damages caused by their Explosives Handling Wharf construction project, HCCC successfully bought another site, 6.7 acres near Kitsap County's Anderson Landing Preserve on Hood Canal, for the first saltwater mitigation site in Washington.

HCCC continues to use the program for the credit sales process and is actively looking for sites to restore. For the marine credits, a suitable list of properties is short as few have interested or willing landowners. HCCC is taking an "opportunistic approach" to obtaining marine off-shore sites, an interviewee said, as the program works only when "land is available and [if HCCC] has a need then will look at acquiring" the appropriate sites. Using the ILF tool to examine sites, and rank them according to impact is useful but HCCC has said they cannot always be as "prescriptive as they are directed to be [by funders] because opportunities aren't always available". However, HCCC still has excess credits available and ready to spend on restoration projects.

As of February 2019, HCCC has 35 marine credits and 23 wetland credits for use in WRIA 15, according to their 2018 quarterly report.

The flow charts that were developed during the grant continue to be helpful for regulatory staff that may need to identify mitigation opportunities for projects they might issue a permit for, interviewees said. The flow charts assist regulatory staff in a guided process of how to use the ILF program when they issue a new permit. As HCCC is a non-regulatory agency and ILF is voluntary, HCCC uses the flow chart to remind regulatory staff to "not forget about mitigation", a representative explained.

One unexpected effect of the ILF program is that private landowners in the region who intend to make modifications to their own property (such as shoreline projects) that may impact neighboring wetland habitat, have figured out how to avoid the in-lieu fee by modifying the extent of their project (such as location, size, materials, etc.). This has not deterred landowners from impacting wetlands entirely, but avoiding having to pay a mitigation fee may reduce the ecological damages caused because a project is scaled down. The benefit of education and outreach around the campaign has served to make landowners more aware of the impacts their land and property may have on wetlands, HCCC said.

The Integrated Watershed Plan (IWP) serves to identify the strategies that guide HCCC's work and is the "over-arching unifying document we use for our work". The priorities identified in the IWP "dictates actions and projects we pursue for funding and opportunities [and serves as] our ecosystem recovery plan as designated by the Puget Sound Partnership" HCCC representatives said. The IWP directly informs the HCCC's web site which is the organization's primary tool for outreach and provides real-time information on the ecological status of the Hood Canal.

Challenges

HCCC representatives commented that it is difficult to quantify the ecological impact the project has had because it is "hard to run it through a crediting tool like a restoration protection tool (such as Ecology's Freshwater Wetland Tool or their Marine Interim Tool)". HCCC reviews each site to determine how many credits are obtainable per respective site, but as HCCC stewards and manages the property for 7-10 years, the long-term ecological impacts have not yet materialized and are unknown.

HCCC interviewees expressed consternation that the quantification of credits were "stuck with the Army Corps of Engineers" due to staffing and resource constraints at the agency. The Corps assists in tracking the status of the projects by quantifying credits sold or generated and their impact. HCCC expressed interest in potential grant funds awarded to the Corps to help expedite the review process of their marine credits.

The most persistent challenge for HCCC's ILF program is to identify suitable private property for sale, particularly marine shoreline. Landowners who own suitable sites must be interested in selling their land. HCCC cannot do restoration work on publically held lands, per regulation. If a public land site is found and bought using credits, HCCC's partnering land trust agency cannot hold that land in perpetuity. Therefore, HCCC looks for private land so that the land can be acquired fully by the land trust, allowing HCCC to handle all aspects of restoration, monitoring, launch, and stewardship of the land.

Regarding the project, the interviewee commented that in the early stages of the project the organization believed they could just "walk their way down the roster list of the best suited sites for restoration and sell credits to buy the land - but the reality is that each of the parcels are owned by a private property owner – if you don't have a willing seller then you don't have the opportunity." Landowners demand certainty when buying their land and are only interested in pursuing the project in

a limited duration of time – if a project takes too long to materialize then that property may no longer be available. As for the sites that were initially identified in the roster list, HCCC staff remarked that they would have to "pretty much start over on the roster list now" and peg suitable sites with a "time-stamp" signifying their "expiration date". As HCCC has "zero control" over when a project comes in, they are unable to be proactive about the buying of mitigation credits as they are a non-regulatory agency – it is only if an agency or landowner approaches them that they can enact the ILF program.

HCCC found the administrative burden of the grant, including the tracking of each individual task, to be challenging. The interviewee recommended that a simplification of the invoice and budget tracking by each tasks would assist in reducing the time spent constantly adjusting specific line items. Valuable staff time spent in administrative capacities takes away from implementation and "doing" of the work.

Next Steps

HCCC is continuing to look at high priority areas in WRIA 15 and 17 for potential acquisitions. Instead of focusing on individual parcels, which have a short "shelf-life", interviewees said that they "zoomed out" to focus on potential acquisitions in particular areas that may become available in the next few years. A HCCC representative explained that the grant was necessary to establish their list of roster sites, identify and reduce policy barriers to ILF implementation, and develop a watershed plan. They claimed they would not pursue another NEP grant as the project is now supported by credit sales. However, they urged grant funding to be awarded to individual counties for mitigation fee program implementation and technical advising.

5. Climate Change and Adaptation Grants

5.1 Thurston County Regional Planning Council

Thurston Regional Planning Council (TRPC), along with TRPC member organizations, Earth Economics, and the Nisqually River Council, produced a climate adaptation plan in 2018 which identified 91 science and evidence-based actions to help the region prepare for and adjust to climate impacts. This grant provided TRPC with funding to complete a "much needed" first step in a larger effort of climate change adaptation, according to a TRPC interviewee. The project included the development of a public engagement strategy, a summary of climate science, a vulnerability and risk assessment, a ranking of actions based on risk and benefit-cost and the production of a climate adaptation plan.

Successes

Science summary and vulnerability assessments, funded by the grant, have been "very useful" and have "helped to provide data [and] information that supports the messaging in [our] mitigation and adaptation plans". Recommendations from the climate adaptation plan were incorporated into the County's Comprehensive Plan in 2018. Additionally, a climate mitigation plan funded by Lacey, Olympia, Tumwater, Thurston County and facilitated by TRPC identified a priority list of approximately 20 mitigation actions that build on the 91 adaptation actions. The mitigation plan complements the adaptation plan but differs in that it outlines mitigation actions for the region, including setting targets to reduce carbon pollution emissions to 45% below the regional 2015 baseline by 2030 and 85% below the 2015 baseline by 2050. The County will continue to revise the mitigation plan throughout 2019.

Challenges

A representative from TRPC commented that moving forward with the actions identified in the adaptation plan is sometimes difficult as "the people who came up with those actions are not the same as the implementers". However, certain actions, such as riparian restorations and fire prevention education are "moving forward", an interviewee confirmed.

Next Steps

Thurston County is considering climate-focused risk analysis of infrastructure, such as stormwater infrastructure, by modeling current and projected climate impacts, such as large precipitation events, and adjusting infrastructure accordingly, the interviewee said.

Currently, TRPC is hosting climate mitigation plan advisory workgroup sessions to develop the criteria that would prioritize the risks and costs of certain mitigating actions. That criteria is then meant to be applied to an inter-jurisdictional recommended list of actions, such as agreed-upon greenhouse gas emission reduction targets, that are to be implemented through the plan by 2022.

5.2 North Olympic Peninsula Resource Conservation and Development Council (NODC)

The North Olympic Peninsula Resource Conservation and Development Council (also known as the North Olympic Development Council or NODC) developed an adaptation plan to address the impacts of climate change in the Olympic Peninsula. NODC held multiple large-scale climate adaptation workshops, identified climate vulnerabilities in the region, and developed an adaptation plan focusing on Jefferson and Clallam Counties.

The grant led to updates of Jefferson and Clallam Counties' Comprehensive Plans and Shoreline Master Programs. Clallam County has updated its Shoreline Master Program in accordance with the findings from the plan. Jefferson County has incorporated a climate resilience section in its newly updated Comprehensive Plan.

Successes

Involvement of community members around the climate adaptation efforts was considered a success. This success could be attributed to the unique geography, resource-based economies, and vulnerable transportation corridors unique to the region, interviewees stated. Stakeholders in the region explained that the region "has a lot to lose" because of climate change and so the workshop participants were engaged from the beginning of the grant process. Several stakeholders, including timber industry representatives and elected officials who had initially opposed the adaptation strategies have since "bought in" to the project and have contributed valuable data regarding the vulnerabilities of the region, interviewees said.

The inter-municipal joint agreement allowed for greater momentum in the planning process. The project also helped to "legitimize concerns" politically as the planning documents are "continually being relied on" as a valid reference point in discussions and strategy sessions across the region.

Stakeholder outreach efforts conducted as part of the grant resulted in participation from more than 175 stakeholders. The interviewees described stakeholder efforts as "traditional" and included radio,

newsletter and newspaper announcement. Outreach through social media was not as effective because of lack of broadband access affecting internet speeds in the region and an older populace that is not as active on social media.

Challenges

Despite being touted as a success, interviewees felt that "progress wasn't as top-down as they had hoped". Each organization in the region involved has hesitated to incorporate the planning documents prepared through the grant and create strategies to address the climate impacts acknowledged in the plan. Interviewees praised the opportunity provided by the grant funding, as it helped inform many people through workshops and the knowledge base generated, but the subsequent work has not been strategic. Instead, it was described as "more haphazard without clear prioritization". Respondents attributed this to the challenges of long-range planning and adaptation efforts (generally involving large, expensive infrastructure projects) that economically-constrained local governments cannot undertake these efforts as proactively – when they are having to be reactive to issues that come up in business-as-usual. Interviewees characterized the stance of participating organizations as having "general political agreement that these things need to happen – but then a lot of things need to happen".

Next Steps

Throughout 2018 and 2019, a stakeholder group led by NODC and local Jefferson County non-profit Local 20/20 gathered with county and city officials to share information, develop action items and track progress in an online metrics tracker 'dashboard'. NODC is facilitating and leading the effort wherein participating cities can enter information to report on their progress so far. NODC is leading meetings in 2019 to determine how to move items forward, identify funding and develop a more "strategic approach" by incorporating regional, not just individual cities', planning efforts. NODC and their partners are having consultants meet with the group to present about adaptation strategies as well as consider technical assistance grant applications.

Local 20/20 (along with Adaptation International, which created the matrix) has been driving the project forward by maintaining a 'dashboard' to track progress and letting the 22 jurisdictions track and update their progress on the 81 climate adaptation actions. The monitoring 'dashboard' was officially concluded in the fall of 2018.

The organizations are "opportunistic" and continue to seek funding to move the projects forward. NODC and Local 20/20 are aiming to host facilitated meetings to determine the "next best actions" and create a shared regional vision.

6. Improving Environmental Data: Stream Typing and Invasive Species Grants

6.1 Kitsap County: Improve Stream Data to Protect Freshwater Ecosystems

Kitsap County and Wild Fish Conservancy (WFC) used LiDAR and GIS to identify stream locations and water types more accurately than their current WDNR hydrology data. Water-typing is on-the-ground stream mapping, where fish-bearing information and locations can be more accurately determined.

According to a Kitsap representative, the WDNR maps "significantly underestimate [Kitsap] County's Critical Areas". The WDNR maps indicate that many Critical Areas are not receiving protection they need under current regulations" because the maps "greatly underestimate the amount of streams present" an interviewee said. WFC and Kitsap County collected stream location data showing that actual stream mileage likely exceeds 1,200 miles, which is 19 percent higher than the 975 miles of streams mapped using the original WDNR hydrology data.

A GIS database was updated with stream locations (by navigating to the "Choose A Theme" pull-down menu where you can select "Critical Areas" and using the search tool at the top to search for Parcel No. 202602-1-002-2006. The streams to the north and east have been surveyed by WFC, and the ones to the south and west are the original DNR hydro data. The surveyed data shows "increased sinuosity").

Successes

"The water-typing data has been used in decision-making for building permits. The same data has also led to better analysis of riparian areas when intersecting those better-located streams with other datasets, such as the C-CAP/NLCD data. [The water-typing data] is very helpful in permitting and analysis of land use", a representative said. "With the updated mapping we can more accurately analyze riparian conditions and make informed decisions on land use and habitats for watersheds. These analyses show us good information at a watershed scale, and where surveyed it can be used in permitting with high confidence."

Challenges

As compared to the water-typing, the modeling was not as successful and is not used for permitting. According to a Kitsap representative, "the modeling was an attempt to circumvent the necessity of the water typing through computer simulation of the stream channel location and fish-bearing conditions." The biggest problem was with "stream initiations", an interviewee said, continuing "the location requires a specific drainage size to initiate a stream, but that size tends to vary based upon average precipitation, soils, and geologic conditions. Our average precipitation [in Kitsap County] varies greatly from North to South; with the South end receiving up to almost 90 inches a year, with the North end limited to just under 30 inches/year. Soils and geology vary from deep glacial tills to surface exposed rocks and shallow bedrock, both which affect the stream initiation point" making a more generalized model difficult to create. Overall, the challenges were classified as "technical in nature…there are many ways to manipulate data and model the outcomes; we needed to satisfy ourselves with a method and move on." The team has not yet accomplished the original project goal of submitting the results to a peer-reviewed journal.

Next Steps

According to the Kitsap County representative, the team continues to have "contact with all [stakeholders] involved through the West Sound Watersheds Council (WSWC), and our LIO-driven NTA process" and also participates in "Ecology's WRIA 15 Watershed Restoration and Enhancement Committee" where they "work with an even larger group of regional players to incorporate the impacts

of permit-exempt wells, future land use potential, and activities for restoration of impacted stream flows."

"The stream-typing work is on-going, but in a limited fashion based on budgets and salmon priorities. It is very helpful in permitting and analysis of land use, so future methods of funding are always being reviewed." In 2018, higher resolution LiDAR data was collected for the Kitsap Peninsula, and according to an interviewee "if funding can be secured, we would like to work on developing a method for hydro creation across our varied landscape."

Additionally, the planning team at Kitsap County, along with the Suquamish Tribe and the Washington Environmental Council have recently been funded $375,000 by Ecology to develop a 'Natural Resources as an Asset' analysis. The program will examine "ecosystem services across the County. The county will apply those services and potential impacts (or gains) to future conditions as we try to bring our land-use and development scenarios into ones that represent "No Net Loss" and even go beyond that to implement a net gain in ecosystem services that impact the environment and the associated communities", the Kitsap representative explained.

6.2 Snoqualmie Tribe and Wild Fish Conservancy: Stream-typing in the Snoqualmie Watershed

Note: Project participants were unresponsive when asked to comment on this project. The below information is summarized from the unfinished draft final project report published in January 2018 and stored on the Department of Ecology's database.

The Snoqualmie Tribe and Wild Fish Conservancy received a Watershed LO grant administered by Ecology to verify the water type classification within two Snoqualmie sub-basins. Field data collected during this project and previously collected by Wild Fish Conservancy were used to evaluate and refine a LiDAR-based model to predict the distribution and classification of two prioritized sub-basin of the Snoqualmie Rivers: Cherry Creek and Peoples Creek. Field staff performed surveys to correctly map and classify streams within the two basins where landowners provided access. The Tribe evaluated the use of environmental DNA (eDNA) techniques to supplement traditional fish species composition and distribution surveys used to inform water type classification. The two streams were water-typed and ground-truthed to correct inaccurate modeled water type maps produced by the Washington Dept. of Natural Resources (DNR), according to Wild Fish Conservancy. Water-typing is on-the-ground stream mapping, where correct locations and fish-bearing information are recorded.

From 2015-2017 the project team conducted field assessments on 95 stream reaches within the Cherry and Peoples Creek basin in WRIA 7. During this phase of the project the team requested permission from 876 property owners in 2016 and 181 in 2017; permission to access was granted on 207 parcels. Additionally, survey data were collected from within public right-of-ways. The survey encompassed 122 miles of streams. The team found that the DNR regulatory maps were inaccurate, and located an additional 12.1 miles of stream channels not found on the DNR water type maps. The team then mapped the data, noting discrepancies and errors from different surveys and the DNR-produced maps using FOSS GIS.

A GIS map was produced and presented to King County staff in February 2018 and is available here. The preferred GIS tool were FOSS (Free and Open Source Software) packages, specifically QGIS and Whitebox GAT, among others. The current status of this project is unknown.

6.3 Tulalip Tribes: Predictive Modeling Protecting Coastal Salmon Streams

The Tulalip Tribe was awarded a Watershed grant administered by Ecology for their project "Predictive Modeling Protecting Coastal Salmon Streams". The project was initiated to address insufficiencies in WDNR's hydrology data that did not accurately depict small coastal streams in the Whidbey Basin, similar to the Kitsap County project mentioned previously. By identifying the prevalence of small streams across Whidbey Basin, and those streams' importance for juvenile salmon rearing, the project aimed to increase understanding of the ecological function of small coastal streams. According to an interviewee, the goal of the project was "that the small coastal streams identified with the model are included as critical habitat for salmon recovery efforts to ensure they are properly managed and protected for the future".

To update data on the existence of small coastal streams in the Whidbey Basin, the Tulalip Tribe and partnering organizations Skagit River System Cooperative, Island County, and the Northwest Indian Fisheries Commission conducted stream habitat surveys and fish sampling. With the data collected from the surveys, the team developed a predictive hydrographic model to identify coastal streams in the Whidbey Basin that had the potential for juvenile Chinook salmon rearing. Stream sampling to determine juvenile chinook presence began in 2008, continued through 2013 with support from the Watershed grant, and has continued in a reduced capacity recently with sampling done in WRIA 8 (at locations such as the restored 'Greenwood Creek' and Kayak Point near Stanwood).

Successes

This project has led to increased protection and restoration of coastal streams in Whidbey Basin, such as Island County's culvert prioritization work, and results have been incorporated into Island County's Critical Areas Ordinance standards. Island County has been "proactive" in their restoration efforts, interviewees said, with projects like installing fish-friendly culverts at Kristofferson Creek near Stanwood (by replacing the current culverts with larger box culverts). This project was funded through a Salmon Recovery Funding Board (SRFB) grant. Results of the project have additionally informed a culvert prioritization study undertaken at BNSF railroad sites in the region funded by the Washington Department of Fish and Wildlife's Estuary and Salmon Restoration Program. The Tulalip Tribes also received SRFB funding to support Greenwood Creek restoration efforts.

Challenges

According to interviewees, a challenge with the water-typing (in this case, identifying the type of stream and the existence of Chinook in that stream) was determining whether Chinook were present in certain streams – but these streams often had blocking culverts at stream mouths which affected fish presence. Because of the blocking culverts at several sites surveyed, the data entered was a "zero" (or null) in terms of fish presence. The large amount of 'null' sites resulted in needing to "make up a factor in the multi-variate analysis" of the predictive model, making it less accurate. With a small sample size due to lack of data and model refinements needed, interviewees said, replicating the model outside of WRIA 8

and the Whidbey Basin has proved challenging. Since the conclusion of the project, the predictive model the project developed has not been heavily utilized.

Additional challenges cited were logistical and political. These included turnover of planning directors at Island County which may have led to difficulties integrating the results fully into that county's Shoreline Master Plan. A lack of staff understanding of how to incorporate the water characterization work in other aspects of salmon recovery plans has also been challenging. Internal staff turnover, difficulty with partnering organizations, and difficulty obtaining access to private land for surveyors during sampling were other challenges, interviewees confirmed.

Next Steps

If provided future funding, Tulalip Tribe and partners would continue to gather data from a greater spatial extent and conduct more extensive monitoring. Additional data gathered could include conducting a presence/absence analysis at streams with/without culverts as well as comparing stream gradients to determine species' presence (Chinook vs. Coho). Refining the model by conducting multiple years of sampling on 30-40 streams would create more robust data, respondents said.

A white paper has been published showing the results of the study, with the authors intending to add in DNA information on salmons' rivers of origin. Interviewees confirmed that they would like more funding to do long-term monitoring and eventually publish the results in a peer-reviewed journal.

A final priority is to run the predictive model for areas outside of the Whidbey Basin or help other partnering groups use the model and continue to incorporate findings in strategic recovery plans, particularly in Island County.

7. Critical Areas Ordinances Grants

7.1 Island County: Review of Island County Wetland and Critical Areas Protection; Watershed Analysis and Update of Fish and Wildlife Habitat Conservation Area (FWHCA)

Island County updated its Fish and Wildlife Habitat Conservation Areas (FWHCA), a type of Critical Area that establishes the requirements for protecting species and habitats, and updated their wetland and critical areas protections. The project team used a watershed-based approach to review and update the County's Comprehensive Plan and development regulations, including a multidisciplinary review of current wetland and critical areas protections.

This project led to policy changes for wetland protection and mitigation, changes in development codes, and updates to the County's best management practices for agriculture (and stormwater) in critical areas. Improvements to monitoring programs were also recommended. Following three public hearings, the proposed changes to the Critical Areas Ordinance were adopted in 2017.

Challenges

Island County used Ecology's Puget Sound Watershed Characterization model (PSWC) as a means to improve management of these critical areas. The Technical Advisory Group had concerns regarding the accuracy of the model as compared with finer scale habitat and water quality data that were available locally, so the PSWC information was not incorporated into the updates as planned. The group found

that because Island County consists of several small, independent tributaries unlike the large, diverse and connected watersheds that are found in other areas, applicability of the PSWC model was limited in Island County. However, Island County did use the PSWC model to characterize water flow and water quality assessments to identify important areas and potential future management issues for streams.

An additional challenge was political changes that occurred in the county at the time of the grant project resulting in administrative challenges such as scope creep and project delays. According to the interviewee, there were additional "political variables", such as shifts in county politics that resulted in "support for [what we] originally had been doing was not what we had support for at the end of the project".

Successes

Extensive and early public involvement in the process by Island County's technical advisory groups including representatives from the agricultural industry, conservation districts, county departments, state agencies and others was helpful for disseminating the technical information and validating it. A series of regional public meetings updating stakeholders on the process, along with providing information on the County's website, allowed for collection of a significant amount of public comments on the process. This was important because "Island County has a very publically engaged populace" with "three or four distinct geographic areas and different practical concerns among the populace" which makes "public involvement necessary and challenging", the interviewee stated.

The County sent direct mailers to sample groups of parcels along with a master mailing list for email distribution. When county staff went to do housing inspections they also distributed fliers to households – and those neighbors shared the fliers with each other. The county found this to be as effective, if not more effective, than social media.

Next Steps

The Department of Ecology continues to use, refine and improve the PSWC model since addressing Island County's challenges with the model. Ecology provides technical assistance for users of the model and tailors data inputs to meet the specialized needs of jurisdictions like Island County.

8. Floodplain Management/Floodplain and Riparian Restoration Grants

8.1 The Nature Conservancy: Farms Fish and Flood Initiative (3FI)

The Nature Conservancy (TNC) and Western Washington Agricultural Association, Skagitonians to Preserve Farmland, National Oceanic and Atmospheric Administration (NOAA), and Washington Department of Fish & Wildlife (WDFW) established the Farms Fish and Flood Initiative (3FI) to "create and advance mutually beneficial strategies that support the long-term viability of agriculture and salmon while reducing the risks of destructive floods" in the Skagit Valley (3FI Final Project Summary Report). 3FI is the "first landscape scale effort in the Skagit Delta" to work on "estuary restoration, flood risk reduction and farmland protection". The grant resulted in the development of a scope of work for hydrodynamic modeling, an alternatives analysis tool to score projects, a farmland preservation strategy and an "agricultural industrial cluster" study.

Successes

According to a representative from TNC, a "suite of partners have convened and the partners are still meeting. In a place as contentious as the Skagit, that is a big deal. This is something even though they are not turning dirt. This is a very challenging landscape that is just fraught with contentious politics."

Ongoing sub-projects are underway that began during the 3FI Initiative including the "Skagit Tidegate and Fish Initiative (TFI), a framework that balances estuary restoration for Chinook salmon recovery and the need to maintain critical drainage infrastructure" led by the Skagit Dike, Drainage and Irrigation Districts. The projects were identified using the Estuary Restoration Strategic Assessment, a multi-benefit 'alternatives analysis' and assessment criteria that "evaluated the potential benefits and impacts of more than twenty project concepts for estuary restoration. In a collaborative decision-making process placing equal weight on farms, fish, and flooding, they used data to develop recommendations for restoration actions that will increase estuarine habitat for salmon while providing benefits and minimizing negative impacts for farms and flood risk reduction" (3FI Final Project Summary Report).

Challenges

One challenge that the project faces is continuing to have productive conversations with farmers and gaining access to private land. According to a TNC representative, "the farm community [in Skagit] has been losing land here for decades to development and more recently to restoration projects and so there is this resistance to it…the idea behind the 3FI is how to keep ag whole while restoring fish and dealing with floodplain management issues." The project sought to address this by identifying multi-benefit projects so the project organizations can interact with farmers by saying "[our teams have] got these projects that meet these three community priorities like reducing flood, protecting ag, restoring salmon habitat, are you willing to talk? They are much more likely to get the first cup of coffee with you or at least the first couple [if so]."

Next Steps

Following the grant, the 3FI Oversight Team conducted outreach to landowners and dike/drainage districts to "assess where opportunities may exist for projects to move forward." In 2018, the Skagit Hydrodynamic Model Project results were presented, led by WDFW and the Nature Conservancy. These results expanded on the concepts proposed during the Watershed grant, applied for Floodplain by Design funding, and identified projects designed to "achieve long-term viability of Chinook salmon tidal delta habitat and community flood risk reduction in a manner that protects and enhances agriculture and drainage." The Skagit hydrodynamic modeling project, as part of the 3FI initiative, "devised a work group made up of farm, fish and flood interests and spent 5 years developing the approach, methods and science to evaluate 23 project concepts plus three combination projects. The work group was led by WDFW, NOAA and TNC. The result is a strategy for moving projects forward that maximize benefits and minimize impacts across the three interests. In 2018, a comprehensive project technical report was released." With funding from the Estuary and Salmon Restoration Program of the Washington Department of Fish and Wildlife, the project co-leads recently developed summary communication materials.

According to the TNC representative, the next step is "is [project participants] need to start going out and talking to landowners. [They] need to suss out the ability to move projects forward and identify the projects leads who can acquire the lands and work with the landowners to implement them." Currently

the project is being led by WDFW and the Skagit Dike and Drainage District Consortium with TNC no longer offering leadership support. The team has identified 13 projects that are highest priority with one of the 13 completed (the $16.5 million Fir Island Farm project) and two others that are advancing through the implementation pathway (Milltown Island and Deepwater Slough Phase 2/Island Unit).

9. Key Findings for Non-TDR and LCLIP Grants

The sections below describe several key findings from the projects detailed above. The next section provides recommendations to support the findings.

#1: Resources Matter and the Grants Help

The grants work. All but one of the 26 grantees said that they would apply for another round of grant funding. The lone opt-out respondent, Hood Canal Coordinating Council, said that their project was now self-sufficient and would not need grant funding to continue. Kitsap County said that the grant helped provide data that is "very helpful in permitting and analysis of land use" and used daily for permitting.

> The "Commerce-Ecology union in funding [these projects] was so unique…and has an incredible value. We don't typically think of resource conservation and economic development together but we need to…it provides an opportunity that was never there before."
> ~ King Conservation District

> The grant "created space across departments so we could look at the most important issues, frame and provide support for ways that programs would be developed towards the future". The grant let "us do what we need to do" instead of "triaging" and applying "Band-Aids"
> ~ Thurston County Regional Planning Council

Thurston County Regional Planning Council said that the results of their climate grant "helped to provide data [and] information that supports the messaging in [our] mitigation and adaptation plans" and "it helped to create projects that can create multiple benefits — a lot of [conservation-based organizations] working in WRIA 13 use this grant work and base their recommendations on the work that was done with this project." The City of Duvall commented that "if Duvall hadn't had the NEP grants the City wouldn't be where it is today as the City can't do [feasibility studies] by pulling money out of the general fund". They recommended that the grants should "fund projects in communities that have done watershed planning." Hood Canal Coordinating Council also said that awarding grant to individual counties for mitigation fee program implementation and technical advising would be helpful.

Commerce's involvement in their project was particularly valuable, according to grantees like King Conservation District. KCD said this was particularly relevant for them, as they were focused on creating additional economic development opportunities for farmers who conserve their farmland in the Snoqualmie Valley. Having a "state economic development group in an environmental project was compelling and was a nice connection…if there are ways that Commerce resources could be part of a support network for projects" focused on economic development, that would be even more beneficial moving forward, interviewees responded.

> "The scale of the need is immense. Any sort of capacity building that pays for more staff time to actually implement what we know now that would be hugely beneficial."
> ~ Whatcom County

The grants were "pivotal in building momentum and getting early successes".
~ Forterra

Respondents considered the grant funding to be instrumental in providing a "nudge" for the participating municipalities in the TDR and LCLIP arena as well. Interviewees said that grant funding can "tip the scales" in helping cities to answer "the first questions" about the feasibility of adopting of market-based land conservation programs (see details and recommended steps in TDR section).

#2: Outreach and Education Requires Diverse Approaches

Stakeholder outreach requires a "multi-pronged" effort because you "can't just hold an open house".
~ City of Duvall

The following findings and accompanying recommendations arose across the board and were each mentioned by at least five or more interviewees each.

"It's about being at every event in the community, being at the farmers market, being at the STEM expo at the high school, being at the fair, just having a presence and sharing information with folks helps people become comfortable with a program."
~King Conservation District

Use tried and true methods of communication (physical mailers, pamphlets distributed during routine home inspections, town hall meetings)**.** Grant projects by Whatcom County, Island County, the North Olympic Peninsula Resource Conservation and Development Council, and Thurston County all benefited from "traditional" methods of outreach, which included newsletters, newspaper articles and even radio advertisements. Whatcom County sends a newsletter to approximately 18,000 recipients and receives two or three property transaction inquires for each newsletter sent. The North Olympic Peninsula Resource Conservation and Development Council clarified, and this can apply to many grantees, that it is key to understand your audience and the locations where social media is not effective, either because of the populace or technology constraints. King Conservation District, along with its partners, try to host hyper-local events so stakeholders do not have to travel too far in Puget Sound. This requires hosting significantly more events to "meet people where they are."

Know when traditional methods are less effective. King Conservation District, a group that works with stakeholders across the traffic-heavy Snoqualmie Valley region and Seattle, also recommended using webinars so participants are not hindered by increasing travel times across the region.

Work within existing standing meetings. Add agenda items to pre-existing meetings that may be hosted by other like-minded organizations or combine meetings to present information so participants are not required to make an extra trip for information.

"One of the big questions that we need people to answer is: 'What is the easiest way for you to take in information that's useful to you?'"
~ King Conservation District

Ask participants how they would like to receive information, whether through newsletters, pamphlets, phone calls, or online. Adjust outreach efforts according to the response. This polling should be done early and often because conservation projects require "extensive and early public involvement" to achieve success, Island County representatives said.

> It is surprising how "little effort was required to change policy direction" [for TDR].
> ~ A County Employee

Do not underestimate vocal stakeholders. Thurston County found reasonable success by inviting "opposition" stakeholders to their workgroups. However, Skagit County's TDR program failed due to a vocal opposing minority that exerted political pressure that was "too high on the city commission". For the North Olympic Peninsula Resource Conservation and Development Council's (NODC) climate adaptation plan, buy-in of concerned community members was instrumental to its success. According to representatives from NODC, stakeholders involved in the project knew that the region "has a lot to lose", so workshop participants were engaged from the beginning of the grant process.

Identify strategies to alleviate political issues in land transactions such as hiring a mediator or consultants. Land transaction are significantly political – Whatcom County recommended using a mediator between a government agency and a landowner and the King Conservation District commented on the challenges of working with landowners that are being "over-burdened" with regulatory conservation efforts. The Nature Conservancy commented that even engaging with farmers in the Skagit region is "a big deal [because Skagit] is a very challenging landscape that is just fraught with contentious politics."

> "There is simply no substitute for talking with [landowners] to start to understand their needs and objectives are and how they might mesh with project needs and objectives."
> ~ The Nature Conservancy

Nothing tops a face-to-face meeting, and patience doesn't hurt. Whatcom County, Forterra, and King County expressed that their most effective forms of outreach for development rights is establishing long-term, face-to-face relationships with landowners. The Nature Conservancy commented that how the work they have been doing for years includes getting a "thousand cups of coffee with landowners" to establish relationships.

10. Recommendations from Non-TDR and LCLIP Grants

The sections below describes six recommendations to address barriers or challenges that grantees expressed. This report provides recommendations for 18 Commerce-administered projects, and incorporates findings from grantees from the seven Ecology-administered projects. Additional details on the 18 Commerce-administered projects can be found in Commerce's Final Program Summary Report.

#1: Gather Timely Reflections

Representatives from all but three of the 25 projects lamented that the project had closed such a long time ago that it was difficult to remember the details of their grants. In four of the grants, the interviewees were not even present during the time of the grant, or had been hired half-way through, and commented that they could not accurately comment on the work. According to a representative from The Nature Conservancy's Farms, Fish and Floods Initiative (3FI), all program managers involved with the grant had moved on from their respective organizations – making grant follow-up challenging. In several of the projects actions remain to be completed – such as the updating of Comprehensive Plans.

Recommendations: For the majority of grants analyzed, upwards of five years had passed since close-out documents were published. Grantors should complete timely analysis of the successes and findings of the projects following grant close-out, including:

- If a post-grant workshop has been convened for the grants, ensure that documentation of the workshop, including lessons learned, are made available.
- Future program administrators should be provided funds and receive support for developing final analysis, conducting workshops and working with the applicants to summarize their efforts and next steps. Creating a 'post-grant dashboard' that tracks progress of the projects in real-time could help with this process.
- Consider creating a 'post-grant dashboard' that tracks progress of the projects in real-time if it has not been done already – this could be administered by the grantor or an organization like Puget Sound Partnership. See #6 for related recommendations.

#2: Ensure Maps are Accessible and Updatable

13 of the projects resulted in the production of maps of some type, with six projects producing GIS-enabled maps. However, only four of the project's GIS maps are available online and most have data quality and replicability issues. According to a Whatcom County representative, one of the biggest challenges was in replicating in real-time the GIS data they received. This resulted in having to hire a new GIS analyst to update some of the data to ensure map interactivity, replicability and real-time availability. Certain projects, like the one conducted by the King Conservation District, produced static maps of farms and forests in the Snoqualmie Valley region (in PDF format) which are very helpful for project participants and the public but quickly become outdated as sites change, development occurs, new priority areas are identified and so on. Best practice to avoid the two above challenges is to have grantees produce publically available GIS maps using open-source GIS software, much like the Snoqualmie Tribe and Wild Fish Conservancy have done with their water-typing data.

> "Whenever I'm doing my agricultural or ecosystem planning I do still go back and refer to the technical documents [of this grant] because…there were some pretty robust, incredible planning proposals or project briefs that are still helpful when I'm trying to wrap my head around the intersection of agriculture and ecosystems and development. It would help to have that data readily available."
>
> ~ Whatcom County

Recommendations: Require that all maps are designed in the latest GIS format, provide adequate training to grantees for this purpose, and ensure that maps are available online after the project (either through the project's website or through the grantor's website). Consider uploading map to the state library system, if applicable.

#3: Address Staff Turnover and Priority Shifts at Both Administrative and Leadership Levels

> There is "general political agreement that these things need to happen – but then a lot of things need to happen".
>
> ~ North Olympic Development Council

Several grantees commented that staffing, and related political issues such as competing priorities, hindered the success of their projects. Four of the grants (including grants at Island County, Tulalip Tribes, The Nature Conservancy and Thurston Conservation District) were all hindered by staff turnover, including one grant that had two of their staff move on over the course of the project. Staff turnover "has been a barrier for implementation of this project", another interviewee said, with leadership turnover resulting in the "project getting handed off a couple of times". In this case, one director initially "lobbied hard" for the project, only to leave and then another ending up managing the project "which wasn't a good fit", an interviewee explained. Grantees also commented on challenges of shifting government and constituent priorities during the course of the project.

Recommendations: Although a common theme expressed by the grantees, this is challenging for a grantor to address. Strategies the grantor could implement include:

- Hosting a workshop or working group to develop best practices for staff transitions to reduce institutional knowledge loss (such as uploading of all documentation onto a shared website and proper transfer of administrative materials to new staff)
- Providing additional funds for a limited term grant-funded personnel dedicated to the project, instead of staff members working on the project alongside having to carry out their standard duties (if project warrants)
- Hosting a workshop or working group to develop regional strategies for addressing changing political and policy priorities. This workshop could identify best practices for organizations on how to pivot when encountering priority changes

#4: Continue to Provide Technical Assistance for Modeling

Even a reliable and well-supported model, such as Ecology's Puget Sound Watershed Characteristic (PSWC) model, did not function well in every region and watershed during the time of the projects. This is a well-known issue and is addressed in Commerce's Final Program Summary Report: "[The modeling] problems underscore the need to use finer scale, local data alongside the PSWC's regional scale data for local applications of the model, both to add detail and to ensure accurate conclusions". The majority of the 13 grants that used the PSWC model experienced some minor challenges with data accuracy, inputs and mapping. Ecology continues to improve and adapt the PSWC model to address local challenges experienced by counties like Island and Kitsap, and provides technical assistance for model users.

Recommendations: Continue providing technical assistance and decision support for modeling through the Watershed Characterization Technical Assistance Team. Continue to work individually with model users to customize, incorporate and interpret local data inputs and outputs.

#5: Ensure Administrative Competency

Grantees commented on the importance of ensuring administrative capacity, particularly in regards to having project staff that can do budget and fiscal management. One project experienced challenges

because the “project was out of [the municipality’s] wheelhouse” and would have been “more appropriate for a larger [jurisdiction]”, an interviewee said.

That sentiment was echoed by another grantee who commented that their grant included several partner organizations whose strengths were not in budgeting and fiscal management, although they were relied on to do those tasks. They recommended that tasks should “play to people’s strengths”.

Recommendations:

- Ensure grantees have strong project managers and administrators who are prepared to manage budgets and do the administrative work required of the project.
- Consider providing additional funding to hire a full-time grant administrator if a grant amount is large enough that it warrants extra administrative assistance.

#6: Ensure Websites and Data Are Available

On the **grantee** side, several grantees expressed frustration that they could not keep their data, maps or documents post-grant online because they lacked the funding to do so. Others commented that having their maps and information online has proved instrumental in getting their programs visibility, particularly Whatcom County’s agricultural story maps, Hood Canal Coordinating Council’s mitigation program, and Wild Fish Conservancy’s maps.

On the **grantor** side, of the 25 projects synthesized, five had no digital documentation or data whatsoever, resulting in additional administrative staff resources to analyze the grant deliverables. In some cases, grant deliverables are simply no longer available.

Recommendations:

- Ensure the grantors (Ecology, Commerce, other grant administrators) catalog, store and maintain all materials/documentation digitally
- Encourage the grantees to submit project metadata (where the project occurred, how much it cost, how much area was impacted, etc.) to the Puget Sound Project Atlas, the state library or similar open source data repositories
- Provide financial and administrative resources to keep critical project resources digitally accessible. Additional funding that extends past the grant close-out period may be needed to ensure that documentation remains digitally available in the future, particularly when grantees cannot host the documentation on their own websites due to cost or capacity issues.

11. Appendix

Appendix A: Interview Questions for Land-use Planning (TDR and LCLIP) Grant Recipients

Not all respondents answered every question. As the interviews were semi-structured, interviewees were prompted the questions but allowed to focus on what they felt most relevant as is best practice in semi-structured interviews (Crabtree and Miller, 1999).

We are contacting you to follow up on a grant you received through the Department of Commerce under the Environmental Protection Agency (EPA)’s National Estuary Program in the 2011 to 2013 grant cycle. We are currently beginning an analysis of the outcomes of these projects in an attempt to

quantify accomplishments and the ecological uplift that has been gained. To that end, we have some questions that will be useful to have answered as we get started, and we would greatly appreciate any information you are able to provide.

These questions are specific to grants that involved some assessment of Transfer of Development Rights (TDR) or Landscape Conservation and Local Infrastructure Programs (LCLIP) programs. Even if your TDR/LCLIP program has not been implemented at this time or has not had measurable results yet, we are also interested in metrics that will tell us about potential and projected gains if and when implementation occurs.

1) Has TDR/LCLIP been implemented as related to your project?

2) To what extent and are targets being met? Have any transactions occurred/development rights transferred? Is this more or less than expected at this point? What would help increase the use of the program?

3) How will the TDR credits accepted help to build capacity for higher densities of future growth (what will they be used for)? Do you have plans or ideas for expanding the uses for other needs?

4) Please comment on how much effort was required to go from the feasibility assessment completed under the grant to actually implementing the program(s) (i.e. cost, effort, decision points). Can this be quantified? Are there creative ways to quantify?

5) What are your projections for future conservation (number of acres and by what date, ecosystem services protected, and how much growth can be tied to TDR)?

6) Are GIS data layers available for further analysis? If so, please can you provide a link or provide data?

7) How will the TDR credits accepted help to build capacity for higher densities of future growth (what will they be used for)? Do you have plans or ideas for expanding the uses for other needs?

8) Did you combine your efforts with other similar programs or cross program mitigation programs (ESA, VSP, conservation, restoration, or recovery-type programs)? Do you have ideas of how to combine with other programs?

Questions regarding your experience working on this project:

9) Did you feel this project was successful? Is the work on-going and are you directly involved?

10) What were three challenges you encountered during the course of this project? Do you anticipate future challenges? What might be creative ideas for resolving the challenges?

11) Please provide information on what, if any, additional funding sources were used?

12) Would it have improved the implementation of the program if decision makers approved implementation of the program upfront vs. after the technical program was developed? Or would a pre-funded position helped it to be implemented? Or other ideas helped it move forward?

13) What would help increase the use of this program? What can Dept. of Commerce or other agencies do to help increase the use of this program?

14) How can landowners be identified on a larger scale (especially in rural areas, if applicable)? Are there any operational tools to help? Would it be helpful to have database listings, development right banks, etc.?

15) Would you be interested in serving on an advisory committee to try and improve, leverage, or promote the use and success of implementing TDR/LCLIP programs? Can you recommend others who could help?

16) Do you have any additional comments?

Appendix B: Interview Questions for All Other Grants

We are contacting you to follow up on a grant you received through the Department of Commerce under the Environmental Protection Agency (EPA)'s National Estuary Program in the 2011 to 2013 grant cycle. We are currently beginning an analysis of the outcomes of these projects in an attempt to quantify accomplishments and the ecological uplift that has been gained. To that end, we have some questions that will be useful to have answered as we get started, and we would greatly appreciate any information you are able to provide.

1. Was the project successfully implemented?
    a. If yes, what level of implementation has occurred/is likely?
    b. If not, what were some barriers that prevented implementation? Please explain whether the barriers were/are technical, political, financial, or other.

2. Has your project resulted in updates to your municipality/county's Comprehensive Plan? To what extent?

3. Did you feel this project was successful (even if it did not lead to implementation)? Please explain if you felt it was useful and whether it has been (or will be) worth the cost and effort.

4. What were three challenges you encountered during the course of this project? Do you anticipate future challenges?

5. How do you expect the program to do in the future? If it ended with completion of grant funding, what will help it continue?

6. What, if any, ecological uplift (benefits) have occurred? Acres of forest land/farmland conserved/protected from development? Please detail any former or current processes and projections.

7. Are GIS data layers available for further analysis? If so, please provide a link.

8. What ongoing community and stakeholder awareness efforts are being implemented as a result of this work?

9. What worked best with contacting stakeholders and participants? Physical mailers? Email? What was the response rate?

10. Have there been any efforts to establish a working group to encourage partnering and information sharing around water/land resource issues in the watershed?

11. If your grant included participant survey, mailers, or interviews, have the results of these been compiled and published?

12. Do you have any additional comments?

12. Acronyms

Acronym	Meaning
DNR	Washington State Department of Natural Resources
EPA	United States Environmental Protection Agency
ILA	Inter-local Agreement
IS	Implementation Strategy (under the Puget Sound Action Agenda)
LCLIP	Landscape Conservation and Local Infrastructure Programs
LO	Lead Organization (under NEP)
NEP	National Estuary Program
NTA	Near-Term Action
PDR	Purchase of Development Rights
PSWC	Puget Sound Watershed Characterization model
TDR	Transfer of Development Rights
UGA	Urban Growth Areas
WCTAT	Watershed Characterization Technical Assistance Team
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

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