

COVER PAGE

Using Generative Artificial Intelligence to Increase Access to Place-Based Knowledge

Project Initiation and Completion Dates: July 1, 2025 to June 30, 2027

Applicant: Deschutes Estuary Restoration Team

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Category 2 - innovative synthesis of scientific products to foster enhanced understanding

ABSTRACT - This project applies Generative Artificial Intelligence (GenAI) and Retrieval Augmented Generation (RAG) to synthesize and evaluate scientific evidence and policy in support of ecosystem recovery, using the Deschutes River Watershed at the southern terminus of Puget Sound, as a case study. Overwhelmed by extensive documentation, local agencies struggle to integrate and utilize ecological knowledge effectively. This project aims to develop a digital archive on the Salish Sea Restoration Platform, where a RAG/LLM (Large Language Model) interface will allow any user to analyze thousands of pages efficiently, improving decision-making and knowledge accessibility.

We will aggregate and categorize watershed documents, empower users with GenAI-driven analysis tools, empower technical experts, refine the interface, broaden community engagement, and share findings regionally. The approach leverages existing infrastructure to create a GenAI-enhanced knowledge repository, facilitating rapid synthesis and interdisciplinary insights. A technical advisory group and public workshops will ensure iterative improvement and accessibility.

This initiative challenges the assumption that ecosystem stewardship is limited by the existence of knowledge, proposing instead that consistent knowledge distribution and application are key barriers to stewardship. Special attention is given to communities that currently struggle with the capacity to process knowledge, and exploring the use of GenAI tools to evaluate compliance with policy requirements and planning goals. Ultimately, the project seeks to transform HOW stakeholders interact with environmental knowledge, fostering more informed decision-making and increasing community participation.

A. Background and problem statement

This project aims to apply emerging generative artificial intelligence technologies (GenAI) to the synthesis and evaluation of scientific evidence and policy to support ecosystems recovery and enhance social processes. We will develop these new capabilities through a case-study in the Deschutes River Watershed. These methods can then be replicated throughout other Puget Sound river basins.

The Deschutes River runs through the state capital of Olympia, and for the past 20 years, local teams have produced assessments, monitoring reports, action plans, and project summaries considering habitat, stream flow, water quality, pollution, forestry, climate change, shorelines, endangered species, and stormwater.

This mountain of paper easily exceeds 10,000 pages in our one little watershed. No individual can even report on the scope of this work. We keep generating and reformulating new documents hoping this leads to wise action. While our expert knowledge is buried in documents, very few people have time to read them all. We have overwhelmed ourselves with information.

Large Language Models (LLM) are a kind of GenAI that can be instructed to generate text mimicking natural writing, referencing training material, and in response to a prompt. Currently generated text is trained on the content of the entire internet. When applied to ecological knowledge, the resulting text is imprecise and sometimes inaccurate.

Retrieval Augmented Generation (RAG) uses a constrained “source of knowledge” to guide a Large Language Model’s outputs. This approach leverages the language production of a full LLM, but to report on a smaller body of identified knowledge. Imagine this as a shared intern that can read 10,000 pages in five minutes, remembers everything they have read, and can summarize, report, and cite with startling accuracy, while responding to transparent prompts that shape their motives and structures their outputs. RAG allows this “super intern” to be available 24 hours a day, bringing the cost of document review and synthesis to near zero.

Unfortunately our reliable sources of knowledge are disorganized, and scattered on hard drives and agency servers, or behind the paywalls of scientific publications. The Salish Sea Restoration Platform is the only public-facing open knowledge archive that can support unmediated interagency document management and interrogation. It has been developed through a state and federal partnership with a private partner, the Society for Ecological Restoration, to support all conservation professionals across institutions. Registered users can upload and categorize public documents from any source that does not violate copyright. Through this project we will add a RAG-LLM agent to The Platform. And test that interface by assembling all known reliable knowledge sources within a single watershed (see attachment), as well as governing legal authorities.

The management of knowledge becomes even more critical as we anticipate a flood of plausible misinformation—we have already identified deliberate AI-supported misinformation in public comment processes (NOAA pers comms). Most people do not realize that public agencies responsible for protecting ecosystems are in a *de facto* arms race in the management of knowledge. The genie is out of the bottle.

The other edge of this knife is the potential to rapidly increase expertise in ecosystem management across a broad community of practice by organizing evidence. Reliable ecosystem knowledge has become specialized, inaccessible and expensive to retrieve. GenAI in a RAG/LLM framework can be used to rapidly and accurately synthesize and analyze detailed knowledge from known and trusted sources.

B. Objectives and Outcomes

This is a Category 2 proposal, which will conduct an innovative synthesis of scientific products to foster enhanced understanding and analysis. This award will result in a broadly accessible tool that can support future work in any watershed at a low cost. This effort has both predictable and highly unpredictable outcomes and effects, because it fundamentally changes a community's relationship with place-based and ecosystem-based information.

This project will develop a shared archive of place-based information that can be interrogated using a RAG/LLM interface accessible by registered users. Registration is free, contingent on adherence to a social contract, but not anonymous. We will aggregate and archive all available documents that describe monitoring, assessment, analysis, or planning in the Deschutes Watershed. These resources will be loaded into the Salish Sea Restoration Platform, where they will be categorized and publicly available for public review and annotation by registered users. We will assemble a volunteer Technical Advisory Group of representatives from institutions engaged in local restoration, protection and monitoring. This Technical Advisory Group will be supported in interrogating assembled documents using the RAG/LLM interface, combined with manual fact checking. This experience will inform the improvement of the interface, with a focus on developing tools to support high-quality “prompt engineering” (methods for using a LLM to generate reliable text). We will then provide a series of public engagement and empowerment events. We will document the strengths, weaknesses, opportunities and threats of the RAG/LLM tool and share them regionally.

In summary, we aim to achieve the following objectives and outcomes:

- **Aggregate place-based documentation into a searchable archive**—we will build a collection of documents describing the Deschutes Watershed on the Salish Sea Platform, using a backdoor mass-upload capability that can turn an annotated bibliography and a stack of PDFs into a set of wiki pages that can then be annotated
- **Empower rapid analysis of that archive using GenAI**—we will develop a web-based RAG/LLM interface available to registered users on the Salish Sea Platform. This will

include specific tools to support prompt engineering to support scientific analysis of ecological topics.

- **Train technical experts to interrogate place-based knowledge**—we will generate a watershed-based cadre of individuals with the ability to interrogate all written knowledge in the watershed, and publish their findings.
- **Improve the interface**—based on iterative work by experts we will improve the interface to maximize the quality of LLM outputs.
- **Broaden community expertise in ecosystem management**—we will host community workshops that allow any member of the community to interrogate available evidence.
- **Share with all watersheds**—we will generate a report describing our methods and findings, and make the technology available to all watersheds in the Salish Sea.

We expect and hope that the outcomes of this work will be unpredictable—because the existing management of ecosystem knowledge is limited to rare experts at high cost and this project will decrease the cost of accurate and synoptic knowledge retrieval from documents. Ecosystem management knowledge is currently limited to a small body of experts. Even these experts lack synoptic understanding of the authorities, plans, observations, and risks we face as described in a large body of analytical work. It can take years for a new employee in the ecosystem industry to become conversant in the legal basis and written record of the conservation industry.

A RAG/LLM is among the most stable and robust applications of GenAI. Confining LLM generation to a specific body of work can be used to complete a well cited synthesis, as well as gap analysis of available evidence, and explore the relative importance of different factors and issues according to available documentation.

Under an GenAI-augmented system of knowledge management using a shared archive, ignorance is no longer a plausible position for someone involved in ecosystem management decisionmaking. The average citizen can rapidly develop a robust line of inquiry. Any public official can very rapidly develop a relatively well-informed opinion. We then depend on developing methods of sound and transparent thinking, that matches our new ability to access information.

C. Approach

Our technical approach is simple and direct, leveraging off-the-shelf existing resources. We leverage a decade of development on the Salish Sea Restoration Platform. The Platform uses the same software (MediaWiki) that runs Wikipedia. We will develop a new component of the platform that pre-digests PDF text into a vector database, converting text into a semantic code that can be “read” by a Large Language Model. A Retrieval Augmented Generation (RAG) utility will then deliver semantically related text retrieved from this database to an existing LLM (e.g. ChatGPT 4 plus) to generate outputs based on prompts.

To build a knowledge base for the Deschutes, we will work with Lead Entity/watershed resource inventory area (WRIA) coordination bodies, the Local Implementing Organization (South Sound Alliance for Ecosystem Health), and agency program staff, and GenAI-driven web-crawlers to build a single shared archive of Deschutes Watershed documents. The Salish Sea Platform will be developed to support rapid uploading of an annotated bibliography. These documents can then be selected through queries, and interrogated through a RAG/LLM interface.

Prompt engineering is the critical skill for using an LLM to produce synoptic and analytical text. The RAG/LLM interface design will provide users with prompt resources that increase the value of generated text, training the GenAI in norms of scientific thinking and analysis. LLM tools are not broadly used in ecosystem management except by a few early adopters. We will train a cadre of technical experts within the Deschutes Watershed to use GenAI to analyze a shared document archive. Participants will privately experiment between sessions, and will generate original research using the LLM. We will then evaluate findings. We will teach, develop and document strategies for prompt chaining, decomposition, self-critique, contextualization, framework use, and reverse engineering to provoke useful LLM analysis.

Our technical advisory group invitations will be designed to support interdisciplinary thinking and fact checking, with the aim of beginning to consider the application of GenAI to integrated watershed planning. Existing analyses are usually conducted in disciplinary silos. This platform will allow rapid assessment of interactions among and between disciplines. In addition, we will more rapidly identify gaps in useful knowledge.

Platform development will be led by the Salish Sea Restoration Platform working group, and their contractor WikiWorks in collaboration with DERT and the technical advisory group. Technical and Public engagement events will be led by the Deschutes Estuary Restoration Team and their contractors.

D. Engagement plan

This project is designed to empower both technical experts and the public by improving access to and application of ecosystem knowledge. We will engage two key social networks: (1) technical place-based knowledge holders, and (2) local policymakers and interested parties in the communities they serve. Our approach ensures that this project is shaped by those who will use it, increasing its impact on decision-making and ecosystem stewardship.

Technical Advisory Group (TAG): This opt-in forum will include representatives from local, state, federal, tribal, and NGO organizations involved in ecosystem management. TAG members will:

1. Identify key documents to include in the knowledge archive.
2. Test the GenAI interface to evaluate its ability to retrieve and synthesize relevant knowledge.

3. Provide feedback on strengths, weaknesses, and areas for improvement.

TAG will be recruited through the Local Integrating Organization (LIO) and WRIA 13 Lead Entity networks, ensuring broad representation across local technical organizations.

Public Engagement Workshops: These events will introduce the GenAI tool to policymakers, local officials, and interested members of the public. Participants will receive basic instruction in prompt engineering and will have opportunities to explore how AI-mediated knowledge retrieval can enhance decision-making. The workshops aim to:

1. Bridge the gap between technical expertise and public understanding.
2. Improve communication between policymakers and the communities they serve.
3. Encourage new ways of applying ecosystem knowledge to real-world issues.

Reducing Knowledge Asymmetry And Capacity Limitations

The Squaxin Island, Nisqually, and Chehalis Tribes monitor how government and private actions affect treaty-protected resources. This tool will be available to tribal governments and members, allowing for rapid analysis of new proposals against existing ecosystem management plans and legal frameworks. By increasing efficiency and effectiveness, it will help tribes protect and restore treaty rights. Tribal representatives will be invited to join the Technical Advisory Group.

Recognizing that tribal governments often act as watchdogs in environmental oversight, this project will ensure that GenAI tools support their efforts to review proposals, raise concerns, and link those concerns to legal requirements and environmental risks.

Knowledge asymmetry prevents individuals with less capital from participating in technical ecosystem stewardship processes. The development of a shared open knowledge network reduces knowledge asymmetry by allowing all participants to access the same pool of knowledge. Resource asymmetry is another factor where institutions with more financial capacity are able to more rapidly develop technical expertise and evaluate even open knowledge. Development of a GenAI interface enables individuals and less capitalized institutions to rapidly develop expertise

By working directly on two mechanisms that prevent participation in technical processes, this proposal provides an unusually direct vehicle for improving access to knowledge, and the capacity to rapidly develop technical expertise. We aim to increase the number and expertise of those who participate in ecosystem stewardship policy development.

Addressing Key Challenges in and Experimental Context

This project presumes that while knowledge is a limiting factor in ecosystem stewardship, the uneven distribution of knowledge, limited capacity to process knowledge, combined with

cultural norms that encourage ecosystem exploitation results in incremental degradation of ecosystem service baselines. We are designing the tool to address these issues by:

1. Expanding access to expert knowledge for all stakeholders.
2. Reducing information silos between agencies, governments, and the public.
3. Empowering local decision-makers and advocates with precise, relevant information.

This project is a applied experimental effort. We are experimenting in 1) the development of a RAG/LLM interface that can be used in a cross-institutional environment, 2) building a place-based open knowledge network, 2) training a cross-institutional team in the use of that network, and 3) evaluating its effectiveness. The technical and social uncertainties are what make this project so exciting.

Our estimated costs provide a safe buffer for completion of the scope, despite these uncertainties. We have had extensive *pro bono* conversations with our wiki developer to carefully scope the costs of the technical elements of the project. They are a motivated partner to develop a strong prototype. As a contingency to maximize public value, we aim to apply any surplus of resources to the development of additional place-based open knowledge archives in adjacent regions.

The project acknowledges issues such as the energetic costs of GenAI and the attribution of knowledge sources. We are conducting a controlled test, using a RAG system which focuses a LLM at a known body of evidence, and by using the tool in a community context where insight is systematically stored rather than reinvented, and where we can evaluate performance. Our approach maximizes learning and skill development, knowledge source citation, and control of language generation, while minimizing energy consumption and risk of machine hallucination.

Project Outcomes

All engagement efforts will contribute to the final deployment of an open-source, online resource supporting ecosystem management in the Deschutes Watershed. Findings from this project will also provide a framework and mechanism for expanding the tool into other watersheds at a reduced cost. A final fact sheet summarizing results will be widely shared to inform future applications of GenAI in environmental stewardship.

Following this investment the Salish Sea Restoration Platform will have the capability for the rapid import and archive of documents. We also anticipate experimentation with the use of GenAI-based tools to increase the efficiency and effectiveness of document discovery and processing.

The Platform, and the tools used in this project will be available to registered users of the Salish Sea Platform. The platform is open to all ecosystem stewards in the Salish Sea as a shared resource under an operating agreement and social contract.

Table 1 - Project Participants

Role	Name/Affiliation	Funding	Contribution/Qualifications
DERT Board Representative	Keith Dublanica,	in-kind	DERT board vice-president; Retired Science & Monitoring Coordinator, Governors Salmon Recovery Office
Contractor	TBD (Ross Strategic)	Contract	We have developed this scope in collaboration with Kristin Durance of Ross Strategic, who has experience deploying and evaluating GenAI augmented projects and processes, and is familiar with local ecosystem community. Ross facilitates both South Sound and Puyallup LIOs. We will evaluate the best contractual program and approach upon award.
DERT Lead	Mackenzie Kleiva	In-kind	Mack is the current program manager for DERT, supported by an active board representing a variety of local stewardship efforts, and will lead the community processes and archive construction.
Platform Steward	Paul Cereghino	In-kind or Contract	Paul Cereghino is the lead moderator of the Salish Sea Platform, and has a 21 year history in regional restoration planning and policy development.
SER Representative	Harold Hernandez	SER Contract	Harold Hernandez provides administrative oversight for SER Global, facilitating contracting and financial operations for the Salish Sea Platform partnership.
SERNW Representative	Eric Slough	In-kind	Eric Slough represents the SERNW board on the coordination circle for the Salish Sea Platform.
WikiWorks Lead	Bryan Hildebrand	SER Contract	Bryan is the lead project manager for WikiWorks and has supported development of the Salish Sea Platform. WikiWorks will assemble a team for development of the RAG/LLM/MediaWiki interface.
WikiWorks Developer	Yaron Koren	SER Contract	Yaron Koren is founder of WikiWorks and a long time steward of the MediaWiki open source project. He developed and maintains multiple long-term extensions for the MediaWiki platform.
Technical Advisory Group	TBD	In-kind	We have initial contact with staff from WRIA 13 Lead Entity, Squaxin Island Tribe, Alliance for a Healthy South Sound, City of Olympia, City of Tumwater, South Puget Sound Salmon Enhancement Group, and other local ecosystem stewardship partners. This network extends into neighboring bioregions.

Table 2 - Tasks and Schedule. See budget section for cost breakdown by task and year.

#	Task	Outputs & Deliverables	Lead	Due Date
1	Develop RAG/LLM	Secure LLM contract, build user interface including prompt engineering, develop mediawiki-LLM API, test and deliver prototype, iterate improvements.	PC BH	12/31/25 12/31/26
2	Build Archive	Establish expert network, discover documents, complete annotation, complete upload, QA/QC	MK	3/31/26

3	Tech Community Review	Invite participation, Host 4 in-person workshops with homework between to test and evaluate tool.	MK/ KD	6/30/26
5	Public Engagement	Host 3 in-person workshops with multiple pathways for use and evaluation. Workshops will focus on public servants, community activists, and elected officials.	MK/ KD	6/30/27
6	Documentation	Findings from development, archive construction, technical review and public engagement will be integrated into a single report.	KD	6/30/27

F: Budget

Attached at the end is a detailed budget estimate. The following tables provide a summary of costs by task and by object class over time.

Table 3 - Allocation of Budget By Recipient By Object Class by Year. Funding supports personnel costs at Deschutes Estuary Restoration Team, including a de minimus 10% indirect. Contracts support SER and web development, and increase capacity to support technical aspects of operations and documentation.

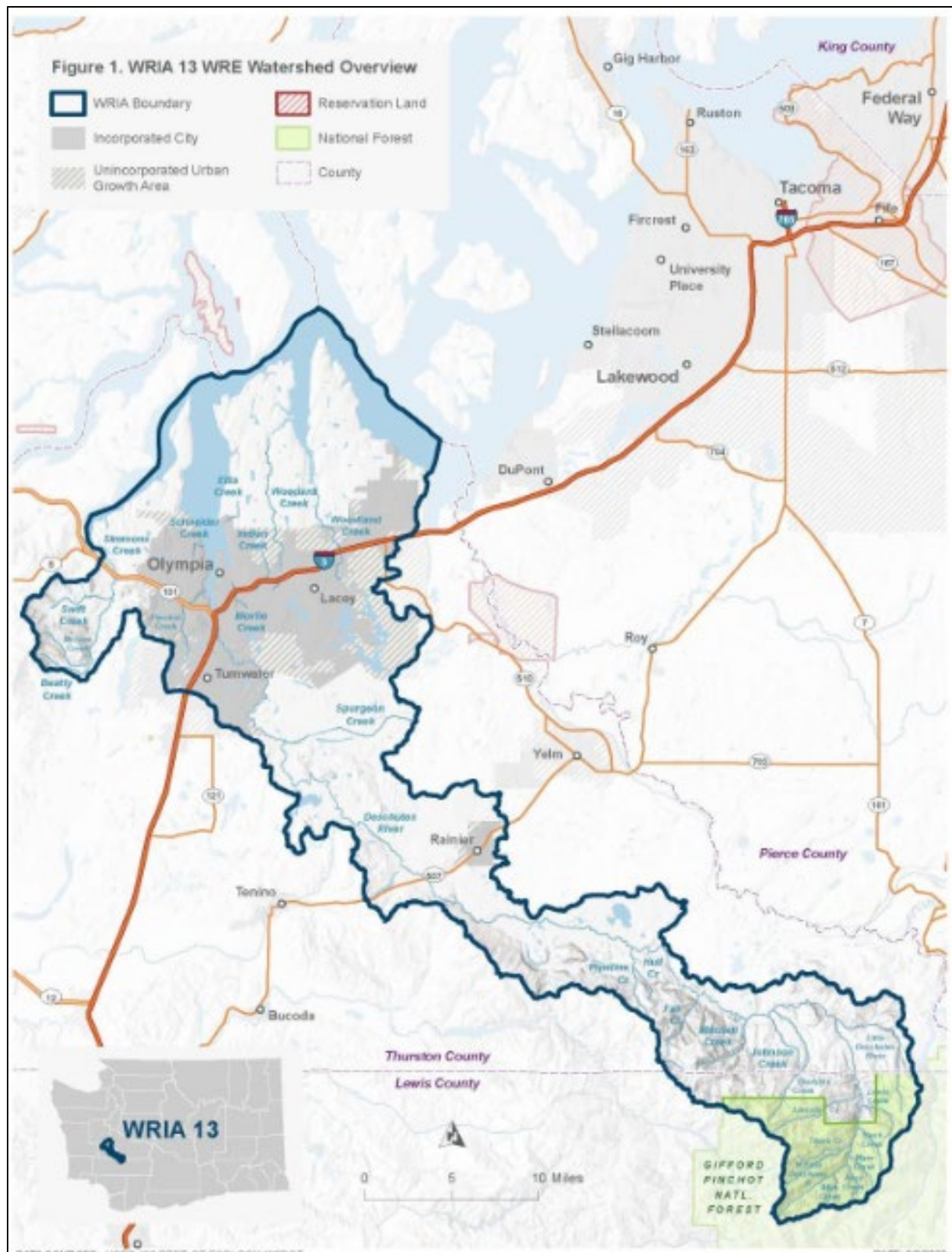
<i>Award Class</i>	Total	Year 1	Year 2
1. Personnel	\$ 33,294.90	\$ 20,622.91	\$ 12,671.99
2. Fringe	\$ 8,741.22	\$ 4,306.02	\$ 4,435.20
5. Contractual	\$ 91,103.68	\$ 54,579.35	\$ 36,524.34
6. Indirect	\$ 4,256.76	\$ 2,492.89	\$ 1,763.87
Grand Total	\$ 137,396.56	\$ 82,001.16	\$ 55,395.40

Table 4 - Allocation of Cost Among Tasks By Year. Spending is front loaded to construct the build the tools and construct the archive. The Technical advisory process extended between years, with public engagement and socialization of results in late winter of 2027.

<i>Task</i>	Total	Year 1	Year 2
1. Develop RAG/LLM	\$ 46,101.83	\$ 33,561.49	\$ 12,540.34
2. Build Archive	\$ 18,713.29	\$ 18,713.29	\$ -
3. Tech Community Review	\$ 32,579.49	\$ 27,233.49	\$ 5,346.00
5. Public Engagement	\$ 23,955.20	\$ -	\$ 23,955.20
6. Documentation	\$ 11,790.00	\$ -	\$ 11,790.00
7. Admin & Indirect	\$ 4,256.76	\$ 2,492.89	\$ 1,763.87
Grand Total	\$ 137,396.56	\$ 82,001.16	\$ 55,395.40

Estimate Sheet						COLA -->	0.03		Year 1	2025-26	1	Year 2	2026-27	2
#	Task	Description	Recipient	Award OC	Cost OC	Total	Personnel	YR1 Hourly	Quantity1	Unit Cost1	YR1 Total	Quantity2	Unit Cost2	YR2 Total
1	1. Develop RAG/LLM	Facilitate Development Specs	Contractor	5. Contractual	5. Contractual	\$ 3,500.00			1	\$3,500.00	\$ 3,500.00	0		\$ -
2	1. Develop RAG/LLM	WikiWorks (Developer)	SER	5. Contractual	5. Contractual	\$ 25,000.00			1	\$25,000.00	\$ 25,000.00			\$ -
3	1. Develop RAG/LLM	Administration/Oversight	SER	5. Contractual	1. Personnel	\$ 3,708.65	SER Administrat	\$ 45.67	40		\$ 1,826.92	40		\$ 1,881.73
4	1. Develop RAG/LLM	Administration/Oversight	SER	5. Contractual	2. Fringe	\$ 1,298.03	SER Administrat	\$ 15.99	40		\$ 639.42	40		\$ 658.61
5	1. Develop RAG/LLM	WikiWorks (Developer)	SER	5. Contractual	5. Contractual	\$ 10,000.00					\$ -	1	\$10,000.00	\$ 10,000.00
6	1. Develop RAG/LLM	Coordinate Development Specifications	DERT	1. Personnel	1. Personnel	\$ 1,922.33	DERT Lead	\$ 38.45	50		\$ 1,922.33			\$ -
7	1. Develop RAG/LLM		DERT	2. Fringe	2. Fringe	\$ 672.82	DERT Lead	\$ 13.46	50		\$ 672.82			\$ -
8	2. Build Archive	QA/QC (includes basic PM meetings for team)	Contractor	5. Contractual	5. Contractual	\$ 5,203.00			1	\$5,203.00	\$ 5,203.00			\$ -
9	2. Build Archive	Coordinate document discovery and archive	DERT	1. Personnel	1. Personnel	\$ 3,844.66	DERT Lead	\$ 38.45	100		\$ 3,844.66			\$ -
10	2. Build Archive		DERT	2. Fringe	2. Fringe	\$ 1,345.63	DERT Lead	\$ 13.46	100		\$ 1,345.63			\$ -
11	2. Build Archive	Document discovery and archive	DERT	1. Personnel	1. Personnel	\$ 8,400.00	DERT Intern	\$ 20.00	420		\$ 8,400.00			\$ -
12	3. Tech Community Review	4 half day workshops + improvement spec	Contractor	5. Contractual	5. Contractual	\$ 18,410.00			1	\$18,410.00	\$ 18,410.00			\$ -
13	3. Tech Community Review	Develop, convene, and deliver workshops	DERT	1. Personnel	1. Personnel	\$ 10,495.92	DERT Lead	\$ 38.45	170		\$ 6,535.92	100		\$ 3,960.00
14	3. Tech Community Review		DERT	2. Fringe	2. Fringe	\$ 3,673.57	DERT Lead	\$ 13.46	170		\$ 2,287.57	100		\$ 1,386.00
15	5. Public Engagement	Facilitate 4, 1.4 hour, Public Engagement Workshops	Contractor	5. Contractual	5. Contractual	\$ 12,194.00					\$ -	1	\$12,194.00	\$ 12,194.00
16	5. Public Engagement	Develop, publicize and deliver workshops	DERT	1. Personnel	1. Personnel	\$ 8,712.00	DERT Lead	\$ 38.45			\$ -	220		\$ 8,712.00
17	5. Public Engagement		DERT	2. Fringe	2. Fringe	\$ 3,049.20	DERT Lead	\$ 13.46			\$ -	220		\$ 3,049.20
18	6. Documentation	Finalize documentation and Reports	Contractor	5. Contractual	5. Contractual	\$ 11,790.00					\$ -	1	\$11,790.00	\$ 11,790.00
19	7. Admin & Indirect	10% Rate on DERT Costs	DERT	6. Indirect	6. Indirect	\$ 4,256.76			1	\$2,492.89	\$ 2,492.89	1	\$ 1,763.87	\$ 1,763.87
						\$ 137,476.56								

Figure 1 – Map of the Deschutes River Watershed and WRIA 13. From HDR.



Attachment A - Initial Document Query

The following list of 69 ecosystem-related documents about the Deschutes Watershed and Budd Inlet was developed in approximately 30 minutes using Chat GPT 3.5

<u>PDF (Linked)</u>	<u>Keywords</u>	<u>Summary</u>
<u>City of Olympia 2010 GIS Basin Analysis</u>	Olympia, riparian forest cover, GIS analysis, water quality	This analysis utilizes GIS to examine basin characteristics in Olympia, exploring the correlation between riparian forest cover and water quality metrics.
<u>Deschutes Estuary 2023 Capitol Lake Deschutes Estuary Final EIS Chapter 3</u>	Capitol Lake, Deschutes Estuary, sediment loads, environmental impact	This Environmental Impact Statement chapter examines existing conditions in the Capitol Lake-Deschutes Estuary area, focusing on sediment loads from the Deschutes River and their implications for environmental health.
<u>DOH 2022 Budd Inlet Shellfish Growing Area Review</u>	Budd Inlet, shellfish growing area, fecal coliform, water quality standards	This annual review evaluates the water quality of the Budd Inlet shellfish growing area, focusing on fecal coliform levels to ensure compliance with standards for safe shellfish harvesting.
<u>Earth Economics 2017 Benefit-Cost Analysis of Thurston Climate Adaptation Actions</u>	Thurston County, climate adaptation, benefit-cost analysis, ecosystem services	This report provides a benefit-cost analysis of selected climate adaptation actions proposed in Thurston County, emphasizing the economic and ecosystem service benefits of implementing these strategies.
<u>Ecology 1979 Deschutes River Basin Instream Resources Protection Program</u>	Deschutes River Basin, instream resources, fish habitat protection, water rights	This document discusses the establishment of instream flow regulations in the Deschutes River Basin to protect fish habitats and other instream resources, balancing ecological needs with water rights.
<u>Ecology 1984 Effects of Sewage Treatment Plants in Budd Inlet</u>	Budd Inlet, sewage treatment plants, fecal coliform, water quality impact	This study evaluates the impact of three small sewage treatment plants on Budd Inlet's water quality, particularly focusing on fecal coliform bacteria levels in the vicinity of discharge zones.
<u>Ecology 1995 Deschutes River Watershed Initial Assessment</u>	Deschutes River Watershed, stream flow, groundwater recharge, initial assessment	This assessment examines the factors affecting stream flow and groundwater recharge in the Deschutes River Watershed, identifying key issues and potential management actions.
<u>Ecology 2004 Deschutes River Capitol Lake Budd Inlet TMDL</u>	Deschutes River, Capitol Lake, Budd Inlet, fecal coliform, temperature, TMDL	This technical report examines impairments due to fecal coliform, temperature, nutrients, and fine sediment in the Deschutes River, Capitol Lake, and Budd Inlet, proposing TMDLs to address these issues.
<u>Ecology 2007 Assessment of Surface Water/Groundwater Interactions and Quality</u>	Deschutes River Watershed, surface water, groundwater interactions, water quality	This assessment examines the interactions between surface water and groundwater in the Deschutes River Watershed, evaluating their effects on water quality and stream flow to inform management strategies.
<u>Ecology 2011 Budd Inlet Existing Information Summary</u>	Budd Inlet, fish habitat, environmental assessment, data gaps, Thurston County	This memorandum summarizes existing information on Budd Inlet's environmental conditions, identifying data gaps related to fish habitats and proposing areas for further study.
<u>Ecology 2012 Deschutes River Capitol Lake Budd Inlet TMDL</u>	Deschutes River, Capitol Lake, Budd Inlet, fecal coliform, TMDL	This Total Maximum Daily Load (TMDL) report addresses fecal coliform bacteria concentrations in the Deschutes River, Capitol Lake, and Budd Inlet, recommending reductions to meet water quality standards.
<u>Ecology 2012 Deschutes River Capitol Lake Budd Inlet Water Quality Study</u>	Deschutes River, Capitol Lake, Budd Inlet, water quality, nutrient loading, dissolved oxygen	This study by the Washington State Department of Ecology examines the water quality dynamics of the Deschutes River, Capitol Lake, and Budd Inlet, focusing on nutrient loading and its impact on dissolved oxygen levels.

Ecology 2014 Deschutes Watershed Land Use Analysis	Deschutes Watershed, land use analysis, water quality, ecosystem management	This report analyzes current land use conditions in the Deschutes Watershed, exploring the relationship between development, pollution sources, and water quality, with a focus on integrated ecosystem management.
Ecology 2015 Deschutes River and Budd Inlet Tributaries Temperature and Dissolved Oxygen TMDL	Deschutes River, Budd Inlet, stream flow, water quality, temperature, dissolved oxygen	This report addresses temperature and dissolved oxygen impairments in the Deschutes River and Budd Inlet tributaries, discussing the impact of stream flow on water quality and proposing measures to improve conditions.
Ecology 2015 Deschutes River Percival Creek Budd Inlet Tributaries TMDL	Deschutes River, Percival Creek, Budd Inlet tributaries, TMDL, water quality, pollution reduction	This Total Maximum Daily Load (TMDL) report addresses multiple water quality issues in the Deschutes River, Percival Creek, and Budd Inlet tributaries, proposing strategies for pollution reduction to meet state water quality standards.
Ecology 2016 Budd Inlet Sediment Dioxin Source Study	Budd Inlet, sediment contamination, dioxins, source identification	This study investigates the sources of dioxin contamination in Budd Inlet sediments, analyzing potential contributions from various industrial and urban activities to inform remediation efforts.
Ecology 2020 Deschutes River TMDLs for Sediment and Contaminants	Deschutes River, Total Maximum Daily Load, sediment, contaminants, water quality	This document establishes Total Maximum Daily Loads (TMDLs) for sediment and contaminants in the Deschutes River and its tributaries, outlining strategies to achieve water quality standards and improve ecosystem health.
Ecology 2022 Budd Inlet Dissolved Oxygen TMDL	Budd Inlet, dissolved oxygen, TMDL, water quality standards, nutrient reduction	This document addresses the issue of dissolved oxygen deficits in Budd Inlet, establishing TMDLs and recommending actions to reduce nutrient inputs and improve water quality to meet state standards.
Ecology 2022 WRIA 13 Deschutes Watershed Plan	Deschutes River Watershed, WRIA 13, water resource management, ecosystem restoration	This plan outlines strategies for restoring and enhancing the Deschutes River Watershed (WRIA 13), focusing on integrated water resource management and ecosystem restoration efforts.
Ecology 2023 Budd Inlet Sediments Site Response to Comments	Budd Inlet, sediment contamination, dioxins, cPAHs, industrial pollution	This document addresses public comments on the Budd Inlet Sediments Site, discussing contamination from hazardous chemicals such as dioxins and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) originating from historical industrial activities.
EPA 2020 Deschutes River Bacteria TMDLs Technical Analysis	Deschutes River, Budd Inlet, fecal coliform, bacteria TMDL, shellfish harvesting	This technical analysis supports the development of bacteria TMDLs for the Deschutes River and Budd Inlet, aiming to reduce fecal coliform levels to protect shellfish harvesting and public health.
EPA 2020 Deschutes River TMDLs for Sediment and Contaminants	Deschutes River, sediment, bacteria, dissolved oxygen, pH, temperature, TMDL	This Total Maximum Daily Load (TMDL) document addresses multiple pollutants, including sediment, in the Deschutes River and its tributaries, outlining strategies to achieve water quality standards and mitigate contamination.
Evergreen 2001 Budd Inlet Deschutes Watershed Action Plan	Budd Inlet, Deschutes River Watershed, watershed action plan, pollution reduction	This action plan addresses pollution sources affecting Budd Inlet and the Deschutes River Watershed, proposing integrated management practices to improve water quality and ecosystem health.
Evergreen 2002 Budd Inlet Deschutes River Watershed Description	Budd Inlet, Deschutes River, watershed description, environmental studies	This document from The Evergreen State College provides a comprehensive description of the Budd Inlet and Deschutes River watershed, discussing environmental characteristics and challenges.
Evergreen 2004 Budd Inlet Deschutes River Watershed Action Plan	Budd Inlet, Deschutes River Watershed, growth management, watershed action plan	This action plan addresses growth management and environmental concerns in the Budd Inlet and Deschutes River Watershed, proposing strategies to balance development with ecological preservation.

Evergreen 2018 Budd Inlet Water-Associated Bird Abundance Study	Budd Inlet, bird populations, fish habitat, ecological study, species abundance	This thesis examines changes in water-associated bird populations in Budd Inlet, exploring potential links to fish habitat conditions and broader ecological implications.
Evergreen 2018 Effect of Groundwater Pumping on Baseflow	Deschutes River, groundwater pumping, baseflow, hydrologic impact	This research project examines the impact of groundwater pumping on baseflow in the Deschutes River, utilizing hydrologic models to assess changes in stream flow during dry seasons.
LOTT 2011 Budd Inlet Scientific Study Findings	Budd Inlet, fecal coliform sources, shellfish safety, water quality	This study identifies primary sources of fecal coliform bacteria in Budd Inlet, highlighting contributions from Capitol Lake/Deschutes River and Moxlie Creek, and assesses implications for shellfish safety.
LOTT 2016 Budd Inlet Treatment Plant Vulnerability Summary	Budd Inlet, wastewater treatment, flood vulnerability, infrastructure protection	This summary highlights the vulnerability assessment conducted for the Budd Inlet Treatment Plant, identifying potential flood risks from overland flow and combined storm/sewer systems. It recommends actions to protect critical infrastructure from flooding events.
LOTT Clean Water Alliance 2011 Groundwater Recharge Scientific Study Public Involvement Plan	Budd Inlet, groundwater recharge, reclaimed water, public involvement	This document outlines the public involvement plan for a scientific study on groundwater recharge using reclaimed water in the Budd Inlet area, aiming to engage stakeholders in sustainable water management practices.
LOTT Clean Water Alliance 2023 2050 Master Plan	Budd Inlet, reclaimed water, groundwater recharge, wastewater management	This master plan discusses the use of reclaimed water from the Budd Inlet Treatment Plant for beneficial purposes, including groundwater recharge, to support sustainable water resource management.
Mason Conservation District 2014 South Puget Sound Salmon Recovery Plan	South Puget Sound, Budd Inlet, salmon recovery, fish habitat, estuarine restoration	This recovery plan addresses strategies for restoring salmon populations in South Puget Sound, including Budd Inlet, by improving estuarine habitats and addressing factors limiting fish survival.
Olympia 2017 Flood Elevation Recommendation	Olympia, Budd Inlet, flood elevation, storm-driven flooding	This technical note discusses recommended flood elevation levels for construction projects in Olympia, particularly around Budd Inlet. It references historical storm-driven flooding events and provides guidelines to mitigate future flood risks in the area.
Olympia 2019 Sea Level Rise Response Plan	Olympia, Budd Inlet, sea level rise, flood risk management, adaptation	This plan addresses the challenges posed by sea level rise in Olympia, particularly around Budd Inlet, proposing measures to mitigate flood risks and enhance the city's resilience to climate-induced sea level changes.
Olympia 2019 Sea Level Rise Response Plan Chapter 5	Olympia, sea level rise, flood adaptation, Budd Inlet	This chapter outlines Olympia's approach to adapting to sea level rise, focusing on flood risks from high tides and storm surges in Budd Inlet. It presents strategies to protect vulnerable infrastructure and communities from anticipated flooding due to climate change.
Olympia 2021 Water System Plan Chapter 6 – Reclaimed Water Program	Olympia, reclaimed water, groundwater recharge, water system planning	This chapter of Olympia's Water System Plan discusses the city's reclaimed water program, including initiatives to use treated wastewater for groundwater recharge to support sustainable water resources.
Olympia 2023 Climate Risk and Vulnerability Assessment	Olympia, climate risk, vulnerability assessment, resilience planning	This assessment identifies and evaluates climate-related risks and vulnerabilities in Olympia, providing a foundation for developing strategies to enhance the city's resilience to climate change impacts.
Port of Olympia 2016 Budd Inlet Sediment Investigation Report	Budd Inlet, sediment contamination, chemometric analysis, pollution sources	This investigation report presents findings from sediment sampling in Budd Inlet, utilizing chemometric analysis to identify and differentiate between various pollution sources affecting sediment quality.
Thurston Conservation District 2017-2022 Strategic Plan	Deschutes River Watershed, Budd Inlet, farm conservation planning, strategic plan, sustainable agriculture	This strategic plan outlines the initiatives of the Thurston Conservation District from 2017 to 2022, emphasizing partnerships and programs aimed at promoting sustainable agriculture and farm

		conservation planning in the Deschutes River Watershed and Budd Inlet regions.
Thurston Conservation District 2020-2025 Strategic Plan	Deschutes River Watershed, Budd Inlet, farm conservation planning, strategic plan, natural resource management	This strategic plan outlines the goals and objectives of the Thurston Conservation District for 2020-2025, focusing on natural resource management, including farm conservation efforts in the Deschutes River Watershed and areas surrounding Budd Inlet.
Thurston County 2009 Totten and Eld Inlets Watershed Characterization	Deschutes River Watershed, land cover change, watershed characterization	This report presents a watershed characterization of the Deschutes River Watershed, identifying restoration and mitigation sites to address land cover changes and support environmental management.
Thurston County 2010 Flood Hazard Mitigation Plan	Thurston County, Budd Inlet, Deschutes River Watershed, flood hazard mitigation, growth management	This plan outlines strategies for mitigating flood hazards in Thurston County, including the Budd Inlet and Deschutes River Watershed areas, considering growth management and land use changes.
Thurston County 2011 Flood Hazard Mitigation Plan	Thurston County, flood hazard mitigation, Budd Inlet, Deschutes River	This comprehensive plan outlines strategies for mitigating flood hazards in Thurston County, focusing on areas including the Deschutes River and Budd Inlet. It addresses historical flood events, risk assessments, and proposed mitigation measures to protect public safety and infrastructure.
Thurston County 2012 Basin Evaluation and Management Strategies	Thurston County, riparian forest cover, basin evaluation, management strategies	This report evaluates various basins in Thurston County, analyzing the relationship between riparian forest cover and aquatic health to inform management strategies.
Thurston County 2012 Riparian Areas Fact Sheet	Thurston County, riparian habitats, fish habitat, streamside vegetation, environmental protection	This fact sheet highlights the importance of riparian areas in supporting fish habitats and outlines measures for their protection and restoration within Thurston County.
Thurston County 2013 Estimates of Current and Future Impervious Area and Forest Lands	Thurston County, Deschutes River Watershed, impervious surfaces, forest lands, land cover change	This report estimates current and future impervious areas and forest lands in Thurston County, focusing on the Deschutes River Watershed, to assess impacts on basin health and inform land use planning.
Thurston County 2013 Hydrologic Modeling in Support of Watershed-Based Land Use Planning	Thurston County, Deschutes River Watershed, hydrologic modeling, land use planning	This report documents the use of hydrologic modeling to support watershed-based land use planning in Thurston County, aiming to protect aquatic resources in the Deschutes River Watershed amidst changing land cover.
Thurston County 2013 Stream Water Quality Map	Thurston County, stream water quality, mapping, environmental planning	This map illustrates the general water quality of streams in Thurston County as of 2007, serving as a resource for environmental planning and assessment.
Thurston County 2013 Watershed Characterization Guide	Deschutes River Watershed, Budd Inlet, watershed characterization, farm conservation planning, natural resource management	This guide offers a comprehensive characterization of watersheds in Thurston County, including the Deschutes River Watershed and Budd Inlet areas, providing planners with information to support farm conservation planning and natural resource management.
Thurston County 2013 WRIA 13 Assessment Chapter 3 – Land Use	WRIA 13, Deschutes River Watershed, land use, land cover change	This chapter provides an assessment of land use and land cover changes within WRIA 13, including the Deschutes River Watershed, analyzing urbanization impacts and guiding future planning efforts.
Thurston County 2014 Deschutes Watershed Land Use Analysis	Deschutes Watershed, land use, pollution, water quality	This report analyzes current land use conditions in the Deschutes Watershed, exploring the relationship between development, pollution sources, and water quality, with a focus on sediment and contaminant impacts.
Thurston County 2014 WRIA 13 Assessment Chapter 6 – Water Quality	WRIA 13, Deschutes River, fecal coliform, water quality assessment	This chapter assesses water quality within Water Resource Inventory Area (WRIA) 13, including the Deschutes River, focusing on fecal coliform contamination and its sources.

Thurston County 2015 Deschutes Watershed Land Use Analysis	Deschutes River Watershed, land use analysis, farm conservation planning, watershed management	This report presents a land use analysis of the Deschutes Watershed, evaluating current conditions and proposing scenarios to guide future development and conservation efforts, with an emphasis on sustainable farming practices.
Thurston County 2015 Deschutes Watershed Land Use Analysis	Deschutes River Watershed, land use, stream flow, groundwater recharge	This report analyzes land use scenarios in the Deschutes Watershed, evaluating their impacts on stream flow and groundwater recharge to inform sustainable development planning.
Thurston County 2015 Woodard Creek Basin Water Resource Protection Study	Woodard Creek Basin, forest cover, riparian zones, water resource protection	This study assesses the Woodard Creek Basin, focusing on forest and riparian cover's impact on water resources, and provides recommendations for protection strategies.
Thurston County 2016 Hydrologic Modeling in Support of Watershed-Based Land Use Planning	Thurston County, hydrologic modeling, land use planning, stream flow, groundwater recharge	This report documents the application of hydrologic modeling to support watershed-based land use planning in Thurston County, focusing on protecting aquatic resources by evaluating impacts on stream flow and groundwater recharge.
Thurston County 2016 Stream Water Quality Report	Thurston County, stream water quality, monitoring report, environmental health	This report by Thurston County Environmental Health Division presents data on stream water quality collected during the 2014-2016 water years, assessing various parameters to inform environmental health initiatives.
Thurston County 2016 WRIA 13 Assessment Chapter 4 – Geology and Hydrogeology	WRIA 13, Deschutes River Watershed, geology, hydrogeology, groundwater recharge	This assessment chapter provides detailed information on the geology and hydrogeology of WRIA 13, focusing on factors influencing groundwater recharge and stream flow in the Deschutes River Watershed.
Thurston County 2017 Voluntary Stewardship Program Appendix H	Deschutes River Watershed, Budd Inlet, farm conservation planning, Voluntary Stewardship Program, baseline conditions	Appendix H provides baseline conditions for Thurston County's Voluntary Stewardship Program, detailing existing farm conservation practices and outlining strategies to enhance agricultural viability while protecting critical areas in the Deschutes River Watershed and Budd Inlet regions.
Thurston County 2018 Climate Adaptation Plan	Thurston County, climate change, adaptation strategies, resilience planning	This comprehensive plan outlines strategies for Thurston County to address and adapt to climate change impacts, focusing on enhancing community resilience through targeted actions and policies.
Thurston County 2022 Flood Hazard Mitigation Plan Updates	Thurston County, flood hazard mitigation, plan updates	This webpage provides information on the latest updates to Thurston County's Flood Hazard Mitigation Plan. It includes public comments and outlines ongoing efforts to address and reduce flood risks in the region.
Thurston County 2023 Climate Change Vulnerability Assessment	Thurston County, climate vulnerability, risk assessment, adaptation planning	This assessment evaluates the vulnerabilities of Thurston County to climate change impacts, identifying key risks and proposing adaptation strategies to enhance resilience across various sectors.
TRPC 2017 WRIA 13 Salmon Habitat Recovery Committee Lead Entity	Deschutes River, WRIA 13, salmon habitat recovery, fish habitat restoration, Thurston County	This document details the efforts of the WRIA 13 Salmon Habitat Recovery Committee in coordinating salmon recovery projects, emphasizing the significance of collaborative approaches to restoring fish habitats.
USGS 1994 Hydrology and Quality of Ground Water in Northern Thurston County	Northern Thurston County, groundwater hydrology, groundwater quality, recharge	This study provides a comprehensive analysis of groundwater hydrology and quality in northern Thurston County, including assessments of recharge rates and their implications for water resource management.
USGS 1999 Ground-Water Flow Model of the Deschutes River Basin	Deschutes River Basin, groundwater flow, numerical simulation, recharge	This report presents a conceptual model and numerical simulation of groundwater flow in the Deschutes River Basin, offering insights into recharge processes and their influence on stream flow.
Wild Fish Conservancy 2018 WRIA 13 Deschutes Watertype Assessment	Deschutes River, WRIA 13, watertype assessment, fish habitat, stream classification	This report presents findings from water type assessments conducted in the Deschutes River watershed, aiming to accurately classify streams to ensure appropriate fish habitat protections.

[WRIA 13 2021 Deschutes Watershed Plan](#)

Deschutes Watershed, water resource management, climate adaptation

This watershed plan addresses water resource management in the Deschutes Watershed, incorporating considerations for climate change impacts and proposing adaptive strategies to ensure sustainable water use.



Dear PSEMP review team for Monitoring to Accelerate Recovery:

Using Generative Artificial Intelligence to Increase Access to Place-Based Knowledge

The Deschutes Estuary Restoration Team (DERT), a non-profit 501(c)(3) corporation, respectfully submits the accompanying submission, responding to the Monitoring to Accelerate Recovery request for proposals (RFP). This innovative, informational, and iterative pilot project applies Generative Artificial Intelligence (GenAI) and Retrieval Augmented Generation (RAG) to synthesize and evaluate scientific evidence and policy in support of ecosystem recovery. As this project specifically addresses elements and information available and forthcoming in the Deschutes watershed and estuary, the process can be replicated, while enjoying economies of scale, in the other fifteen (15) major watersheds in Puget Sound, and their sub-basins.

The format, while similar to the Salish Sea WiKi (citation), will incorporate newer AI technologies, as well as improved quality assurance/quality control (QA/QC) methodologies.

DERT anticipates future benefits and improvements to water quality and habitat integrity in the Deschutes watershed, while addressing threats to ESA-listed salmonids and the southern resident orca whale population. Additional benefits are expected for the identification and protection of cultural resources, all within an iterative and interactive process with a user-based interface for uploading and queries. DERT, in cooperation and collaboration with the Squaxin Island Tribe, the NWIFC, the WA Department of Enterprise Services, Port of Olympia, City of Olympia, City of Tumwater, Thurston County, South Puget Sound Salmon Enhancement Group, the Thurston Conservation District, et.al., is excited and enthusiastic to submit this innovative application, and believe it a key element in accelerating ecosystem recovery in Puget Sound, and beyond.

Many thanks, and if questions or comments, please do not hesitate to contact me.

Respectfully,

Keith Dublanica, Vice-President
Deschutes Estuary Restoration Team
360.628.6181
keith@deschutesestuary.org
cohokisutch@gmail.com



DECISION LOG for Deschutes Estuary Restoration Team (DERT) :
for submitting to the Puget Sound Environmental Monitoring Program -
Monitoring to Accelerate Recovery RFP:

**Using Generative Artificial Intelligence to Increase
Access to Place-Based Knowledge**

A quorum of the DERT Board of Directors made the following
decisions March 25, 2025 for submission to PSEMP 3/28/2025

See DRAFT document LINK as background

Approve / aye	Disapprove/ Nay	Abstain	Recuse / COI
Dave Monthie			
Sue Patnude			
Cole Bandino			
Casey Allen			
Katrina Keleher			
Grant Gilmore			
Ray Willard			
		Keith Dublanica	
			Dave Peeler



SQUAXIN ISLAND TRIBE

March 26, 2025

Puget Sound Ecosystem Monitoring Program
Puget Sound Partnership
Olympia, Washington

Dear PSEMP Grant Review Team,

The Squaxin Island Tribe's Natural Resources Department strongly supports the Deschutes Estuary Restoration Team's (DERT) innovative proposal to develop a Generative AI-Mediated Knowledge Management Tool. Protecting and restoring the Treaty-guaranteed natural resources is a core mission of the Squaxin Island Tribe. This initiative directly aligns with our commitment to sustain and enhance natural resources—including water quality, fish, shellfish, wildlife, timber, and plants—while also promoting, preserving, protecting, and restoring critical habitats. By improving our capacity to synthesize and evaluate scientific data and policy, this tool will significantly strengthen ecosystem recovery efforts in the Deschutes River Watershed, a vital area within our region.

Effective knowledge management is essential to our role as stewards and co-managers of natural resources. The Tribe, in collaboration with its partners, regularly analyzes extensive environmental, economic, and policy data to support regional decision-making. A Retrieval-Augmented Generation (RAG) AI tool will enhance our ability to synthesize reports and policies, enabling us to more easily identify trends, gaps, and opportunities. This will strengthen our capacity to develop strategies that integrate habitat restoration with land use planning, transportation systems, and climate resilience initiatives.

We look forward to collaborating with DERT and other partners in the development of this resource. Your engagement plan, which includes training technical experts and expanding community involvement, aligns with our values of inclusivity and transparency. Together, we can leverage advanced technologies to transform how we interact with environmental knowledge, fostering more informed decision-making and enhancing community participation.

Sincerely,

Scott Steltzner

Environmental Program Manager

Squaxin Island Tribe Natural Resources Department



MEMBERS:

City of Lacey
City of Olympia
City of Rainier
City of Tenino
City of Tumwater
City of Yelm
Confederated Tribes of the
Chehalis Reservation
Nisqually Indian Tribe
Town of Bucoda
Thurston County
North Thurston Public Schools
Olympia School District
Tumwater School District
Intercity Transit
LOTT Clean Water Alliance
Port of Olympia
PUD No. 1 of Thurston County

ASSOCIATE MEMBERS:

Lacey Fire District #3
Puget Sound Regional Council
The Evergreen State College
Thurston Conservation District
Thurston Economic
Development Council
Timberland Regional Library

March 26, 2025

Puget Sound Ecosystem Monitoring Program
Puget Sound Partnership
Olympia, Washington

Dear PSEMP Grant Review Team,

The Thurston Regional Planning Council (TRPC) is pleased to support the Deschutes Estuary Restoration Team's (DERT) proposal to develop a Generative AI-Mediated Knowledge Management Tool. TRPC's mission is to support collaborative, data-driven planning that enhances sustainability and resilience in our region. This tool will improve access to complex environmental reports to help local governments and organizations integrate overlapping work in land use, transportation, and natural resource planning. By streamlining document review, this platform will strengthen our ability to coordinate regional efforts that balance environmental restoration with community growth.

Integrated planning depends on timely and accurate information. TRPC regularly analyzes large volumes of environmental, economic, and policy data to support regional decision-making. A Retrieval-Augmented Generation (RAG) AI tool will help overburdened staff identify trends, gaps, and opportunities. This will improve our ability to evaluate alignment between habitat restoration, land use planning, transportation systems, and climate resilience initiatives. Investing in smarter knowledge management will help our region proactively address environmental challenges while supporting sustainable development.

We look forward to working with DERT and other regional partners to develop this resource. We hope a shared, AI-supported platform will foster greater collaboration among agencies, nonprofits, and policymakers, ensuring that our collective efforts are well-informed and strategically aligned. By leveraging new technology to support integrated planning, we can advance regional priorities more efficiently and effectively. We appreciate your consideration of this proposal and the opportunity to strengthen the connections between science, policy, and planning in Thurston County.

Sincerely,

Marc Daily, Executive Director
Thurston Regional Planning Council

md:bl



Marc Daily
Executive Director

2411 Chandler Court SW
Olympia, WA 98502
360-956-7575
360-741-2545 Fax
www.trpc.org

March 21, 2025

Puget Sound Ecosystem Monitoring Program
Puget Sound Partnership
Olympia, Washington

RE: Generative AI-Mediated Knowledge Management Tool in WRIA 13 Proposal

Dear PSEMP Grant Review Team,

The WRIA 13 Salmon Habitat Recovery Lead Entity is pleased to support the Deschutes Estuary Restoration Team's (DERT) proposal to develop a Generative AI-Mediated Knowledge Management Tool. As an organization dedicated to advancing salmon recovery in the Deschutes Watershed, we recognize the need for innovative tools that help align local policies with habitat restoration efforts. This AI-driven platform will improve access to critical data and policy insights, ensuring that restoration decisions are informed, strategic, and responsive to evolving environmental conditions.

The Lead Entity was created in 1999 in Washington State under RCW 77.85 to establish a technical and a citizen committee that uses current science to set restoration and conservation priorities for salmonids, and review and rank project application annually for the Washington State Recreation and Conservation Office through the Salmon Recovery Funding Board. The Lead Entity is comprised of representatives from the fisheries co-managers: the Squaxin Island Tribe and the Washington Department of Fish and Wildlife; municipalities: Thurston County and the Cities of Lacey, Olympia and Tumwater; quasi-governmental organizations: Thurston Conservation District and the Thurston Regional Planning Council; non-profits: the South Puget Sound Salmon Enhancement Group, Wild Fish Conservancy, Capitol Land Trust, the Deschutes Estuary Restoration Team; Washington State agencies: Department of Ecology and the Conservation Commission; and local landowners.

One of the challenges in salmon recovery is bridging the gap between scientific research, policy frameworks, and local implementation. A Retrieval-Augmented Generation (RAG) AI tool will help WRIA 13 partners track regulatory changes, synthesize relevant research, and evaluate the effectiveness of restoration actions. By streamlining information access, this resource will enhance collaboration among local governments, nonprofits, and tribal partners, fostering a more integrated and adaptive approach to salmon habitat recovery.

We look forward to working with DERT and other partners to develop and apply this tool. Strengthening the connection between policy and restoration actions is essential to achieving long-term salmon recovery goals. By leveraging AI-driven knowledge management, we can improve coordination, maximize restoration investments, and ensure that local policy decisions support the health of the Deschutes Watershed and its salmon populations.

If you have questions, please feel free to contact me. Thank you in advance of your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read 'A. Hatch-Winecka', with a stylized, flowing script.

Amy Hatch-Winecka, WRIA 13 Lead Entity Coordinator, Senior Planner

hwamy@trpc.org

360.741.2524



Phone (360) 412-0808
Email spsseg@spsseg.org
Web www.spsseg.org

6700 Martin Way East Suite 112
Olympia, Washington 98516

March 24, 2025

Puget Sound Ecosystem Monitoring Program
Puget Sound Partnership
Olympia, Washington

Dear PSEMP Grant Review Team,

The South Puget Sound Salmon Enhancement Group (SPSSEG) is pleased to support the Deschutes Estuary Restoration Team's (DERT) proposal to develop a Generative AI-Mediated Knowledge Management Tool. Our work to restore salmon habitat depends on strong science, effective partnerships, and local policies that support long-term ecosystem recovery. This AI-driven platform will provide a more efficient way to access, analyze, and apply information coming from other sectors of local activities that affect salmon recovery.

One of the greatest challenges in salmon recovery is ensuring that local land use and environmental policies align with habitat restoration goals. A Retrieval-Augmented Generation (RAG) AI tool will help SPSSEG and our partners track regulatory changes, assess potential policy impacts, and identify opportunities and new allies where salmon recovery can integrate with local needs. By streamlining access to critical information, this project will strengthen the connection between science, policy, and on-the-ground restoration efforts.

We look forward to collaborating with DERT and other partners to develop and apply this tool. A knowledge management platform that integrates ecological science with policy frameworks will help ensure that restoration projects are not only effective but also supported by local governance. We hope this resource will advance coordinated, science-based salmon recovery efforts in South Puget Sound.

Sincerely,

A handwritten signature in black ink, appearing to read "Cole Baldino".

Cole Baldino
WRIA 13 Restoration Project Manager
South Puget Sound Salmon Enhancement Group



Mendy Harlow
Executive Director
p: 360.275.3575 ext. 123
f: 360.275.0648
mendy@pnwsalmoncenter.org
P.O. Box 2169 | Belfair, WA 98528
www.pnwsalmoncenter.org

Deepening the connection between land, people, and salmon through restoration, education, and research.

Re: Monitoring to Accelerate Recovery proposal by Deschutes Estuary Restoration Team

To Puget Sound Environmental Monitoring Program:

On behalf of the Deschutes Estuary Restoration Team (DERT), we respectfully submit a letter of support and endorsement from the Hood Canal Salmon Enhancement Group for their submission regarding Monitoring to Accelerate Recovery. This project is specific to the Deschutes watershed and estuary in southern Puget Sound, and anticipates future benefits to water quality, ESA-listed salmonids and southern resident orca whale population. An additional benefit is expected for the identification and protection of cultural resources.

As one of the fourteen salmon enhancement groups in Washington state, our mission at HCSEG is to deepen the connection between land, people, and salmon through restoration, education and research to ensure that wild salmon are once again abundant in the Pacific Northwest. The work being done by DERT will positively affect our overall goal of restoring salmon and riparian habitat and protecting our watersheds for future generations.

This innovative, informational pilot project, applies Generative Artificial Intelligence (GenAI) and Retrieval Augmented Generation (RAG) to synthesize and evaluate scientific evidence and policy in support of ecosystem recovery. As this project specifically addresses elements and information available and forthcoming in the Deschutes watershed and estuary, the process can be replicated, while enjoying economies of scale in the other fifteen (15) major watersheds in Puget Sound. As mentioned in the application, the format is similar to the Salish Sea WiKi (citation) but intends to incorporate newer AI technologies with improved QA/QC.

Please note the DERT, in cooperation and collaboration with the Squaxin Island Tribe, the NWIFC, the WA Department of Enterprise Services, Port of Olympia, City of Olympia, City of Tumwater, and Thurston County, is excited and enthusiastic to submit this application. We also have worked with many of these organizations. On behalf of DERT and their project partners, we urge you to support this endeavor which we believe will be a key innovative element in accelerating ecosystem recovery.

Sincerely,

Mendy Harlow

Director, Hood Canal Salmon Enhancement Group