
Product Delivery Summary

Product Title:

Water Quality Benefits Valuation

Product Identifier: SSWR.401.3.1

Product Contact and Affiliation (Center or Office/Division/Branch): Matthew Heberling (OW-OGDW-SRMD-RRB)

Current Planned Delivery Date: FY26 Q4

Problem/Agency Research Drivers:

The research in this output focuses on addressing missing or incomplete categories of water quality benefits and help to expand the capacity of current economic valuation models. The categories include Office of Water priorities such as coastal beach water quality, impacts on housing markets, and source water protection benefits related to Effluent Limitation Guidelines, the Clean Water Act, and the Safe Drinking Water Act as well as supporting state and local decision-making.

This product focuses on the economic valuation approaches, as opposed to the water modeling, to examine changes in water quality, stream condition, estuaries and related ecosystem services to address agency and partner needs.

Approach:

The approaches in this output and product ranged from surveys and other primary data collection to economic valuation methods, like source water protection economics and hedonic analysis, that use existing or secondary data. Both types help to address missing or incomplete categories of water quality benefits as defined by the Office of Water's priorities.

The delivered product describes the overall Water Quality Benefits portfolio of research and an economic survey to examine the public's willingness to pay for delisting salmon populations from the Endangered Species Act.

Results:

We have produced a set of presentations that have added to the knowledge of water quality benefits as well as informed partners of the portfolio of research. After each fiscal year, we have compiled a list of the accomplishments at the output level. The accomplishments were organized by product and delivered to the OW partners.

For this delivered product, we describe an approach to help guide stormwater management strategies and protect salmon populations.

Anticipated Outcome/Expected Use:

The results from this economic research can be used in many ways. Some of the accomplishments will contribute to a water quality valuation modeling framework. OW economists are also interested in using data that we collected for some of their own analyses, in collaboration with our ORD team. States and EPA regions have used/will use results of this research to inform their policy and management decisions.

For this delivered product, we will add previously unavailable policy-relevant data and models to the broader area of understanding the benefits of water quality.

Relationship to ORD Cross-Cutting Priority Topics:

N/A

Related Communications Materials:

Our research portfolio is presented on the public-facing EPA web page: Human Dimensions of Water Quality Research, <https://www.epa.gov/water-research/human-dimensions-water-quality-research>.

Presentations:

Papenfus, M., and R. Labiosa. Addressing 6PPD-Quinone Pollution in Puget Sound. Presented at American Fisheries Society, Honolulu, HI, USA, 09/15/2024 - 09/19/2024.

Heberling, M. Office of Research and Development (ORD) Water Quality Benefits Research. Presented at A Special Economics Seminar sponsored by Office of Policy Analysis, U.S. Department of the Interior, Virtual, OH, USA, 11/29/2022 - 11/29/2022.

Cross-cutting Product Tags: 1201, 2201, 2202, 2203, 3112, R3

Partners/Customers and Contributors

Name	Organization	Role	Active
Marisa Mazzotta	ORD-CEMM-ACESD-MAB	Contributor	No
Kate Mulvaney	ORD-CEMM-ACESD-EMRB	Contributor	Yes
Michael Papenfus	ORD-CPHEA-PESD-FEB	Contributor	Yes
Tom Hollenhorst	ORD-CCTE-GLTED-ESB	Contributor	Yes
Matthew Heberling	OW-OGDW-SRMD-RRB	Contributor, Product Contact	Yes
Price James	University of WI	Contributor	Yes
Justin Bousquin	OW-OWOW-WRAPD-WDIB	Contributor	Yes
Rajbir Parmar	OMS-OHCO-RCD-PSB-PSSB	Contributor	Yes
Joel Corona	OW-WEC	Partners/Customers, Contributor	Yes
Kurt Wolfe	OLEM-OPM-IMDQS	Contributor	Yes
David Smith	AO-AAOP-NCEE-BAMDD	Contributor	Yes
Julie Hewitt	OW-WEC	Contributor, Partners/Customers	Yes
Todd Doley	OW-WEC	Partners/Customers, Contributor	Yes

Deron Smith	ORD-CEMM-EPD-LASMB	Contributor	Yes
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Related Outputs

ID	Title	Relationship	Output Start Date
SSWR.401.3	Water Quality Benefits and Modeling	Output SSWR.401.3 is the Primary Output for Product SSWR.401.3.1	10/01/2022

Output Description:

Federal, state, tribe, and local management actions can affect waterbodies and water quality differently. These differences affect various human activities, leading to a broad range of benefits for communities, populations, and individuals. Analyses, both internal and external to EPA, conclude that important categories of benefits are incomplete or missing. Decision-makers lack information about the spatial distribution of water quality benefits as it relates to surface water (e.g., waterbody use, types of water pollution assessed, water pollution and impairment, source water areas). Water quality data and measures that support economic analyses are inconsistent and can be limited spatially and temporally.

The research in this output will focus on addressing missing or incomplete categories of water quality benefits and help to expand the capacity of current economic valuation models (e.g., BenSPLASH). The categories may include Office of Water priorities such as coastal beach water quality, human health, and source water protection benefits related to Effluent Limitation Guidelines, Water Quality Standards, the Clean Water Act, and the Safe Drinking Water Act. The work will also help to improve the links between water quality measures and economic endpoints. ORD will help to improve the usefulness of water quality modeling and observational data to assess the impacts of federal, state, tribe, and local decisions necessary to achieve water quality goals. This will include making the observational data and modeling results more consistent across the US.

Research conducted in support of this output will refine and/or develop models, methods, and approaches to improve water quality and watershed and aquifer management for both regulatory and non-regulatory needs of federal, state, tribe, and local stakeholders. Such research may require economic valuation of changes in water quality, quantity, stream condition, and/or related ecosystem services. The use of standard economic valuation methods such as revealed preference approaches like recreational demand estimation and hedonic analysis will be utilized to address the research gaps. Developing methods that use big data sources (e.g., cell phone data, property sales, and remote sensing) and/or survey efforts will be assessed for water quality valuation. To best support the Office of Water, studies will use a variety of spatial and temporal scales and, where appropriate, a multidisciplinary approach. Results will help build capacity for supporting decision-making as it relates to water pollution or water policy in coastal waters. Water quality modeling research will support economic analysis, water quality valuation, water quality index or other associated metrics development, and national policy or regulations. Synthesizing or updating water quality metrics for use in economic analyses, such as research on water quality indices, measures of biological condition, or ecological production functions, will help to improve the integration of water quality models and economic analyses.

Additional Relationship Information:

(none entered)

Related Products

ID	Title	Relationship	Product Start Date	Current Product Planned Delivery Date FY/Quarter
SSWR.403.1.2	Development and implementation of human health risk and water quality predictive modeling tools to support recreational water quality criteria	Product SSWR.401.3.1 is Necessary to Produce Product SSWR.403.1.2	10/03/2022	FY26 Q4

Additional Relationship Information:

Economics support in this product supports SSWR.403.1.2

Research Area and Output Information

Research Area Title: Watershed Assessment

Research Area ID: SSWR.401

Output Title: Water Quality Benefits and Modeling

Output Lead: Ryan Hill (ORD-CPHEA-PESD-FEB)

Research Area Coordinator: Brenda Rashleigh (ORD)

Matrix Interface (of the Product Contact's Organization): (none entered)

Sub-Products

Sub Product Title: Office of Research and Development (ORD) Water Quality Benefits Research

RAPID Sub-Product ID Number: SSWR.401.3.1.7

STICS Tracking Number: ORD-051607

Sub-Product Type: Presentations and Technical Summaries

Sub-Product Subtype: Presentation

Sub-Product Relationship to Primary Product: Sub-Product is Optional

Category / Type of Notification Completed: Not HISA or ISI - No Advance Notification

Status: Completed

External Peer Review Type: No external peer review

Sub-Product Keywords: Economics, benefits, economic value, water quality

Citation: Heberling, M. Office of Research and Development (ORD) Water Quality Benefits Research. Presented at A Special Economics Seminar sponsored by Office of Policy Analysis, U.S. Department of the Interior, Virtual, OH, USA, 11/29/2022 - 11/29/2022.

Link to Published Sub-Product: https://www.doi.gov/ppa/seminar_series

Link to Public Science Inventory Record: http://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryID=356380

Sub Product Title: Addressing 6PPD-Quinone Pollution in Puget Sound
RAPID Sub-Product ID Number: SSWR.401.3.1.23
STICS Tracking Number: ORD-060408
Sub-Product Type: Presentations and Technical Summaries
Sub-Product Subtype: Presentation
Sub-Product Relationship to Primary Product: Sub-Product is Required
Category / Type of Notification Completed: Not HISA or ISI - No Advance Notification
Status: Completed
External Peer Review Type: EPA-managed letter review
Sub-Product Keywords: household survey, public perceptions, salmon and orca conservation, stormwater runoff
Citation: Papenfus, M., and R. Labiosa. Addressing 6PPD-Quinone Pollution in Puget Sound. Presented at American Fisheries Society, Honolulu, HI, USA, 09/15/2024 - 09/19/2024.
Link to Published Sub-Product: (none entered)
Link to Public Science Inventory Record: http://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryID=362797
