National Water Quality Initiative Program Assessment and Recommendation Report

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Table of Contents

Appendix E – 2019 NWQI Conservation Staff Questionnaire
Appendix F – 2019 NWQI State Water Quality Agency Questionnaire
Appendix G – Conservation Staff and State Water Quality Agency Survey Descriptive Results
Appendix H – Practitioner Guide – NRCS Partnership Development
Appendix I – Practitioner Guide - Sucessful Watershed Management

Tables

Figures

Acronyms

BMP	Best Management Practice
CD	Conservation District
CP	Consensus Priority
CTIC	Conservation Technology Information Center
DP	Distinguishing Priority
ECY	Washington Department of Ecology
EPA	Environmental Protection Agency
HUC	Hydrologic Unit Code
IEPA	Illinois Environmental Protection Agency
NCDEQ	North Carolina Department of Environmental Quality
NRCS	Natural Resources Conservation Service
NRSS	Natural Resources Social Science
NWQI	National Water Quality Initiative
OCC	Oklahoma Conservation Commission
PN	Priority Number
PV	Priority Value
SWCD	Soil and Water Conservation District
SWQA	State Water Quality Agency
TCWP	Tenmile Clean Water Project
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
VTDEQ	Vermont Department of Environmental Quality

Executive Summary

In 2017, the Conservation Technology Information Center (CTIC) contracted Purdue University's Natural Resources Social Science (NRSS) team to provide actionable recommendations to the United State Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) regarding improvements to the National Water Quality Improvement (NWQI) Program and other NRCS supported watershed improvement efforts. This project was designed to support effective communication on watershed project design, marketing, delivery, and implementation for agricultural conservation efforts. Project activities fell into two phases: data collection and dissemination. The data collection phase identified success factors and challenges for partners and stakeholders to collaborate with USDA-NRCS staff and programs. Dissemination, through reports and practitioner guides, focused on USDA-NRCS partnership development and key elements of successful watershed management.

Established in 2012, the NWQI is the USDA's premiere water quality program. "NWQI provides a way to accelerate voluntary, on-farm conservation investments and focused water quality monitoring and assessment resources to improve water quality where they can deliver the greatest benefits for clean water" (USDA-NRCS, n.d.). In collaboration with the Environmental Protection Agency (EPA), state water quality agencies (SWQAs), and local partners, the NWQI seeks to improve water quality while maintaining agricultural productivity. This partnership-based initiative pools public and private resources to deliver on-farm investments to targeted agricultural watersheds.

Activities

A total of six activities were conducted (Figure Executive Summary-1). Data collection for the first three activities occurred in five NWQI watersheds identified by USDA-NRCS. These five watersheds were located in five different states and included: Roaring River watershed, Wilkes County, NC; Tenmile Creek, Whatcom County, WA; Lake Bloomington/Money Creek, McLean County, IL; East Creek, Addison County, VT; and Little Beaver Creek, Stephens County, OK. Activities conducted by CTIC and the NRSS team included:

Data collection

1. *NWQI watershed forums* – One forum was conducted with local stakeholders in each of the selected NWQI watersheds between January and May 2018. Facilitators lead participants in a discussion to identify:
    - Priorities – Participants ranked, then discussed priorities for successful watershed management. Distinct priority perspectives from individual forums were identified through factor analysis. Priority narratives for distinct perspectives were developed from group discussions (recorded and transcribed) to share participant's priority decision rationale. Data from individual forums were combined for a collective analysis of the five watershed forums.
    - Resource needs – Participants identified resources needed for successful watershed management, organized needs into broad categories, then discussed rationale (recorded and transcribed). Emergent themes were identified inductively for each forum. Reoccurring themes across the five forums were identified and discussed in this report.
    - Outreach and education strategies – Participants discussed strategies for outreach and education related to recipients, content, and delivery of watershed-related outreach and education (recorded and transcribed). Emergent themes related to the three topics were identified inductively for each forum. Reoccurring themes across the five forums were identified and discussed in this report.
2. *Interagency partner interviews* – EPA (N=6) and SWQA (N=5) representatives from each targeted watershed were interviewed between January and April 2018 by phone or in-person (recorded and transcribed, or notes taken). Interviews gathered interagency perspective on agency partner roles, challenges associated with the NWQI, and needs for successful watershed management. Emergent themes were identified inductively and summarized.
3. *Watershed stakeholder feedback* – Results and recommendations were presented at three of the watersheds (NC, WA, VT) in March and April of 2019 (recorded). Each presentation shared findings, and gave forum stakeholders and community member an opportunity to provide feedback on forum results and validate information gathered from their watershed forum.
4. *NWQI national survey* – Online survey of USDA-NRCS's points of contact for NWQI watersheds, NWQI watershed partners, and SWQA representatives from states and territories participating in NWQI was conducted in May and June of 2019. This survey evaluated perspectives of NWQI from USDA-NRCS staff as well as watershed and agency partners at a national level regarding watershed project design, marketing,

delivery, and implementation of the NWQI and other USDA-NRCS supported watershed improvement efforts.

Data dissemination

5. *Practitioner guides* – Two practitioner guides, informed by all data collection activities, were generated to disseminate information.
    - USDA-NRCS partnership development: This guide provides general information on USDA-NRCS and the NWQI, in addition to information on USDA-NRCS' contribution to watershed management and opportunities for partners to leverage resources and maximize impacts of watershed projects.
    - Key elements of successful watershed management: This guide describes five key elements to successful watershed management including: partnership development, relationship building, constructive leadership, community engagement, and effective communication.
6. *Synthesis and Recommended Strategies* – This report integrates all data collection activities to provide an overarching synthesis of data gathered to inform and provide recommendations on watershed project design, marketing, delivery, and implementation of the NWQI and other USDA-NRCS supported watershed improvement efforts.

Results

NWQI watershed forums

- Participants indicated successful watershed management required prioritizing: (1) stakeholder concerns and outreach in the agricultural community, (2) water quality improvement through planning and stakeholder education, and (3) outreach to incorporate local knowledge including diverse stakeholders as well as local, state and federal partners.
- Participants identified four major resources needed for successful watershed management: (1) funding for technical and financial needs of the project, (2) staff and local community leadership, (3) monitoring and evaluation of water quality and project success, and (4) outreach and engagement to broad audiences.
- For outreach and education strategies, participants identified effective strategies for recipients, content, and delivery. Recipients included the agricultural community, the non-agricultural community along with decision makers and public influencers. Content included consistent yet tailored messages to address specific needs of diverse stakeholder groups, focus on success stories, emphasize on-farm benefits, highlight agriculture and watershed health values, and provide progress updates. Delivery methods should be tailored to recipient needs and should use personal interactions (e.g., existing working relationships, peer networks, private sector partners) to deliver information.

Interagency partner interviews

- Agency partners indicated their role is to participate in collaborative efforts to support water quality improvements in NWQI watersheds and to provide technical, financial, and organizational resources to USDA-NRCS as needed.
- Agency partners suggested increasing interagency coordination, transparency, and USDA-NRCS staff resources in targeted watersheds.
- Agency partners emphasized the need for effective watershed planning, technical and financial assistance, community outreach and buy-in for successful watershed management.

Watershed stakeholder feedback

- Roaring River, NC – Roaring River stakeholders validated results and believed the report accurately represented the needs of their watershed. SWCD staff articulated the need for additional financial assistance for specific practices and shared challenges related to communication with SWQA and participant recruitment.
- Tenmile Creek, WA – Tenmile Creek stakeholders believed that the results accurately represented the needs of their watershed, but felt the report did not adequately document challenges associated with their SWQA. Tenmile Creek conservation staff emphasized the importance of incentivizing voluntary behavioral change, and requested additional guidance and feedback for the Watershed Assessment in addition to funding that addresses outreach and education needs in the watershed.
- East Creek, VT – East Creek stakeholders believed the report accurately represented the needs of their watershed. They emphasized the importance of collaboration at the local, state, and federal level and shared examples of how effective collaborations benefit watershed projects in Vermont. Related to staffing needs, some participants agreed with the recommendation to increase staff to manage additional work load of the

NWQI, while other participants suggested reducing staff reporting requirements in NWQI watersheds as an alternative to hiring additional staff.

NWQI National Survey

With a total response rate of 34.1% of the NWQI points of contact, 28.2% of SWQA representatives, and 24 responses from watershed partners, results from the NWQI national survey indicated a need for increased staff resources in NWQI watersheds, increased interagency coordination, and highlighted the importance of watershed planning and Watershed Assessment resources for successful watershed management.

- Conservation staff (NWQI points of contact and watershed partners) and SWQA staff agreed that watershed plans as well as Watershed Assessments and Outreach Plans developed for NWQI watersheds are important for successful watershed management.
- Conservation and SWQA staff agreed that producers, agri-business professionals, and local community leaders are the most important recipients of watershed-related outreach and education.
- Conservation and SWQA staff agreed that increasing staff in targeted watersheds, allocating time towards outreach in the agricultural community, and providing on-farm assistance are important staff responsibilities.

Recommendations

Through a synthesis of data gathered at the watershed forums, interagency partner interviews, and the NWQI National Survey, the NRSS team developed agency-level recommendations for USDA-NRCS and watershed-level recommendations for NWQI watersheds.

Agency-level

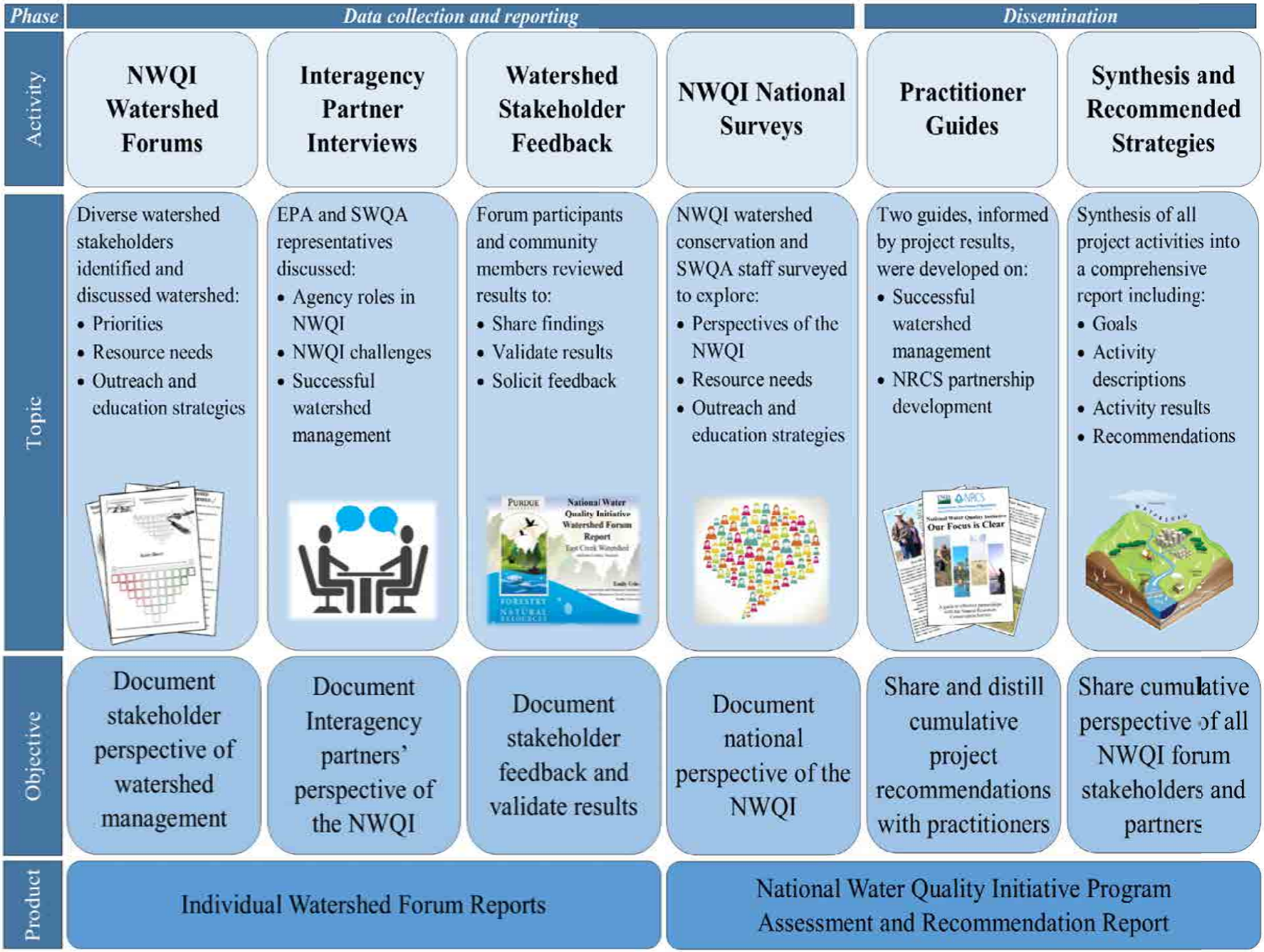
The following recommendations are intended for USDA-NRCS staff use at the state and federal level. Informed by the four data collection objectives, these agency-level recommendations aim to improve USDA-NRCS's ability to design, market, deliver, and implement watershed improvement efforts across the US.

1. ***Increase interagency coordination and partnerships to improve NWQI watershed selection and enable water quality monitoring***
   Increase coordination with SWQAs and other watershed partners in the selection of NWQI watersheds and agree upon an appropriate scale to share best management practice (BMP) location data that can maintain participant confidentiality and inform water quality monitoring needs of partners.
2. ***Increase staff resources in NWQI watersheds***
   Increase staff resources in NWQI watersheds to maintain local working relationships, manage additional work loads, and support technical assistance needs of the NWQI.

Watershed-level

The following recommendations are intended for watersheds enrolled in the NWQI or other USDA-NRCS supported watershed improvement efforts. Informed by the four data collection activities, these watershed-level recommendations aim to improve local conservation staff's ability to design, market, deliver, and implement watershed improvement efforts in their USDA-NRCS supported watersheds.

1. ***Promote on-farm benefits of BMP adoption***
   Promote on-farm and economic benefits of BMP adoption to producers and landowners in NWQI watersheds.
2. ***Develop tailored and consistent outreach material***
   Develop tailored outreach material with consistent messaging for diverse groups of people in the watershed.
3. ***Promote success within the agricultural community***
   Share relatable watershed success stories with the agricultural community to show that voluntary adoption of BMPs can achieve both on-farm and watershed scale goals.
4. ***Promote value of agriculture and watershed health to decision makers and non-agricultural communities.***
   Promote the value of agriculture and public benefits of watershed health to local leaders and the non-agricultural community.



Executive Summary Figure 1. Project summary including activities, topics, objectives and products of each project phase

1 Introduction

1.1 Project Overview

1.1.1 Project Goals

In 2017, the Conservation Technology Information Center (CTIC) contracted Purdue University's Natural Resources Social Science (NRSS) team to provide actionable recommendations to the United Stated Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) regarding improving the National Water Quality Improvement (NWQI) Program and other USDA-NRCS supported watershed improvement efforts. Improving national water quality is an increasingly high-profile priority for stakeholders and entities at local, state, and federal levels. Small watershed projects, such as the NWQI and other USDA-NRCS supported watershed improvement projects work to achieve meaningful water quality results in a reasonable time-frame. This project was designed to support effective communication on watershed project design, marketing, delivery, and implementation for agricultural conservation efforts.

1.1.2 Project Summary

Project activities fell into two phases: data collection and dissemination. The data collection phase, identified success factors and challenges for partners and stakeholders to collaborate with USDA-NRCS staff and programs. The dissemination phase, through reports and practitioner guides, focused on effective partnerships with USDA-NRCS and key elements for successful watershed projects.

A total of six activities were conducted to address data collection and dissemination goals; four data collection activities and two dissemination activities. Data collection activities included: NWQI watershed forums (Appendix A, Appendix B, Appendix C), interagency partner interviews (Appendix D), watershed stakeholder feedback, and an NWQI national survey (Appendix E, Appendix F, and Appendix G). All activities sought to address watershed project design, marketing, delivery, and implementation of NWQI watersheds across the nation.

Watershed forums were conducted with local stakeholders in five NWQI watersheds across the US from January – May 2018. Forums gathered information from diverse stakeholders regarding priorities, resource needs, and outreach and education strategies for successful watershed management. The results of each forum were synthesized individually (Usher et al. 2019a; Usher et al. 2019b; Usher et al. 2019c; Usher et al. 2019d; Usher et al. 2019e) and together (this report).

Interviews were conducted with state water quality agencies (SWQAs) and the Environmental Protection Agency (EPA) representatives from January – April 2018. Interviews investigated strengths and challenges associated with interagency partnerships and USDA-NRCS supported watershed improvement projects. These interviews provided interagency partner's perspective on the NWQI and USDA-NRCS. Interview results were synthesized individually (Usher et al. 2019a; Usher et al. 2019b; Usher et al. 2019c; Usher et al. 2019d; Usher et al. 2019e) and together (this report).

Watershed stakeholder feedback meetings were conducted in three forum watersheds in March and April 2019. Each meeting included a presentation to share findings, followed by a group discussion with forum participants and community members. The stakeholder feedback meetings allowed forum participants and community members an opportunity to validate results and provide feedback as well as project updates before finalizing their watershed forum report.

Finally, an NWQI national survey was administered to NWQI points of contact along with watershed and agency partners from May – June 2019. The surveys evaluated national perspectives of watershed project design, marketing, delivery, and implementation of the NWQI and other USDA-NRCS supported watershed improvement efforts. Additionally, the survey ensured generalizability of watershed forums and interagency partner interview results.

Dissemination activities included practitioner guide development and synthesis. The NRSS team and the CTIC developed two practitioner guides to disseminate information gathered from the data collection activities. The practitioner guides focused on USDA-NRCS partnership development (Appendix H) and key elements of successful watershed management (Appendix I). This final report synthesizes information gathered from data collection activities, identifies success factors and challenges to successful watershed management, and provides recommendations related to project design, marketing, delivery, and implementation of the NWQI and other USDA-NRCS supported watershed projects.

This report provides detailed methods and results for all activities performed during this project as well as the synthesis conducted to develop the recommendations including the following information:

- NWQI overview
- Project targeted watersheds description
- Data collection activity methods and results:
    - NWQI watershed forums
    - Interagency partner interviews
    - Watershed stakeholder feedback
    - NWQI national survey
- Agency and watershed-level recommendations for the NWQI and other USDA-NRCS supported watershed projects

1.2 Background

1.2.1 National Water Quality Initiative

The USDA-NRCS established the NWQI in 2012 to identify impaired watersheds and address water quality issues in those watersheds. The NWQI provides Watershed Assessment resources in addition to technical and financial assistance to accelerate voluntary adoption of best management practices (BMPs). To accomplish this, the NWQI promotes a collaborative approach to watershed management that works with local resource managers, SWQAs, EPA, and other partners to improve watershed health while maintaining agricultural production.

NWQI watersheds are selected by USDA-NRCS in consultation with state and federal agency partners. Watershed selections are based on shared priorities of USDA-NRCS and agency partners, and must be documented as an impaired, threatened or critical watershed by a SWQA. Selected watersheds must also demonstrate technical capacity to achieve project goals, an established network of partners working towards project goals, and sufficient interest from producers willing to participate in the program. Once selected for the NWQI, the watershed enters the Readiness Phase. The Readiness Phase provides one year of funding to develop a Watershed Assessment that describes resource concerns, identifies goals, and establishes metrics to track project progress. The Readiness Phase also includes funding to expand on-farm planning and outreach along with increased support for conservation staff. In the Implementation Phase, USDA-NRCS provides on-farm conservation planning in addition to technical and financial assistance for producers to implement BMPs addressing resource concerns identified in the Watershed Assessment. Further information on the NWQI can be found at nrcs.usda.gov.

1.2.2 Description of Forum Watersheds

Five NWQI watersheds were identified by USDA-NRCS for inclusion in this project. Each of the watersheds were in the Readiness Phase of the NWQI.

1.2.2.1 East and Middle Prong of Roaring River

The East and Middle Prong of the Roaring River are part of the Yadkin-Pee Dee River Basin and are currently on the 303(d) list of impaired waterways due to elevated levels of fecal coliform. Located in Wilkes County, North Carolina, the Roaring River's East (HUC [hydrologic unit code]-030401010405) and Middle (HUC - 030401010404) Prong watersheds include a drainage area of 64,034 acres. These adjacent watersheds include a state park (Stone Mountain State Park), state-owned game land (Thurmond Chatham Game Land), and a mix of agriculture, forest, and residential land use scattered between the communities of Traphill and Roaring River, NC. USDA-NRCS partners with the Wilkes County Soil and Water Conservation District (SWCD) to manage the NWQI program and receives additional support from the North Carolina Foundation for Soil and Water Conservation (Wilkes Soil and Water Conservation District, 2018).

1.2.2.2 Lake Bloomington/Money Creek

The Lake Bloomington watershed includes the Money Creek sub-watershed and is listed on the 303(d) list of impaired waterways due to elevated levels of nitrates and phosphorus. Located in McLean County, Illinois, the Lake Bloomington watershed (HUC - 071300040202) is part of the Mackinaw River Basin. The watershed encompasses 43,100 acres and the towns of Towanda and Merna, IL. The City of Bloomington, IL, located approximately 15 miles south of the watershed, uses Lake Bloomington as their municipal water supply. In addition to municipal use, Lake Bloomington also supports residential development and recreational activities. Major land uses in the Lake Bloomington watershed include row crop production (83%), as well as rural grassland, urban, and surface water, each covering <10% of the total watershed surface area. In Lake Bloomington watershed, USDA-NRCS partners with McLean County SWCD and the City of Bloomington, IL to manage the NWQI program (Lake Bloomington Watershed Planning Committee, 2008).

1.2.2.3 Tenmile Creek

The Tenmile Creek watershed (HUC – 171100040504), located in Whatcom County, Washington, includes 22,732 acres, covers 35.4 square miles of drainage, and is part of the larger Nooksack River watershed. Currently, two of the four sub-watersheds included in the Tenmile watershed are on the 303(d) list of impaired waterways due to elevated levels of fecal coliform, ammonia, low dissolved oxygen, and temperature. Due to this watershed's proximity to two rural communities (Ferndale and Everson, WA) and an urban area (Bellingham, WA), the watershed contains diverse land uses including crop land (50.3%), developed (24.8%), natural space (20.8%) and farmsteads (4.1%). The Tenmile watershed has been identified as a contributor of bacterial contamination that resulted in the conditional closure of approximately 800 acres of shellfish beds at the Nooksack's deposition point in Portage Bay, WA. This closure directly impacted the Lummi Indian Nation, who use shellfish for ceremony, subsistence, commercial, and recreational harvest. In partnership with the Whatcom Conservation District (CD), USDA-NRCS manages the NWQI program for the Tenmile watershed (Whatcom Conservation District, 2017).

1.2.2.4 East Creek

The East Creek watershed (HUC – 041504080301) is located in Addison County, Vermont. The East Creek flows directly into the southern portion of Lake Champlain and is included in the Lake Champlain's phosphorus Total Maximum Daily Load (TMDL). USDA-NRCS has targeted the East Creek watershed to aid the State of Vermont in meeting the phosphorus TMDL for Lake Champlain. East Creek includes 20,553 acres and supports multiple dairies with 46% of acres in agricultural production. USDA-NRCS partners with Vermont Association of Conservation Districts and the University of Vermont Extension to manage the NWQI in the East Creek watershed (Vermont NRCS, 2018).

1.2.2.5 Little Beaver Creek

The Little Beaver Creek watershed, located in Stephens County, Oklahoma includes six HUC-12 watersheds that encompass 100,480 acres and flow into Waurika Lake, the municipal water supply for seven communities in southwest Oklahoma. Pasture and rangeland are the primary land use in the watershed (63%). Four of the six sub-watersheds included in Little Beaver Creek have been NWQI priority watersheds since 2015, while the headwaters of Little Beaver Creek (HUC – 111302080101) and Lower Little Beaver Creek (HUC – 111302080106) were identified as an NWQI priority watershed in 2018. Currently, Little Beaver Creek has a TMDL for bacteria, while Waurika Lake has a TMDL for nutrient loading that identifies the Little Beaver Creek watershed as a major contributor of nutrients and bacteria to the lake. In partnership with Stephens County CD, USDA-NRCS staff currently manage the NWQI program for the Little Beaver Creek watershed (Glasgow, personal communication, 2017).

2 Methods

This section provides brief methods for all data collection activities including the NWQI watershed forums, interagency partner interviews, watershed stakeholder feedback, and the NWQI national survey. All data collection activities were conducted by the NRSS team and approved by Purdue University Institutional Review Board (protocol # 1711019902).

2.1 NWQI Watershed Forums

2.1.1 Development

The NRSS team worked with conservation staff from each watershed to gain a contextual understanding of the watershed and develop a list of diverse stakeholders to invite to the forum. Conservation staff mailed or emailed invitations approximately one month before the forum. Depending on the watershed, the NRSS team or conservation staff sent a reminder to invited participants two weeks before the forum. The reminder included information about the forum along with a brief survey developed by the NRSS team. The forum pre-survey gathered insights on respondents' stakeholder type (e.g., producer, landowner, community member, CD staff) as well as their awareness of and involvement in local watershed management. Forum pre-survey recipients were also asked to describe their priorities for successful watershed management and identify resources needed for a successful watershed management project in two open-ended questions. Additional information on the forum pre-survey development, methods, and analysis are included in Appendix A.

Each watershed forum followed the same format (Table 1). Forums were conducted on the following dates and locations:
Roaring River watershed: Wilkesboro, NC: January 30, 2018 from 10:00 am to 3:00 pm
Tenmile Creek watershed: Lynden, WA: March 1, 2018 from 10:00 am to 3:00 pm
Lake Bloomington/Money Creek watershed: Hudson, IL: March 6, 2018 from 10:00 am to 3:00 pm
East Creek watershed: Middlebury, VT: April 10, 2018 from 11:00 am to 3:00 pm
Little Beaver Creek watershed: Duncan, OK: May 10, 2018 from 10:00 am to 3:00 pm

Table 1. Forum activities and objectives

Activity	Objective
Introduction	An NRSS team facilitator oriented participants to the project team, project objectives, forum goals, and the forum's agenda.
Identify watershed priorities	Participants ranked priority statements for watershed management then discussed the rationale for their ranking.
Lunch	Participants were provided food and an opportunity to network with fellow participants.
Identify resource needs	Participants listed resource needs for watershed management then organized them into broad categories.
Identify outreach and education strategies	Participants discussed strategies for successful outreach and education in their watershed.
Conclusion	An NRSS team facilitator thanked participants for their attendance.

2.1.2 Data Collection

The following section describes the methods for forum activities where data were collected.

Introduction

The NRSS team facilitator introduced forum participants to project objectives and the project team. The project team included staff from the NRSS, CTIC, WaterComm, and USDA-NRCS. The facilitator then provided an overview of the forum agenda along with a broad summary of the NWQI and watershed management. Participant contact information including, name, email/mailing address were collected but not used for any analysis.

Identify Priorities

Forum participants engaged in a ranking exercise based on Q-Methodology (Brown 1993) to identify individual watershed priorities from 36 predetermined priority statements (Appendix B, Table B-1). The 36 statements were developed to represent a wide range of watershed priorities. Facilitators instructed participants to record the order of their watershed priorities from most disagree (-5) to most agree (5) on a provided datasheet (Appendix B, Figure B-3). Participants also reported demographic information, including their primary role in the watershed (i.e., stakeholder type), conservation practices currently in use on their property, years of experience with watershed management, years lived in the forum watershed as well as their birth year and gender. The datasheets were collected by the project team at the end of the forum and input into PQMethod software (v. 2.35) at a later date.

After recording the order of their watershed priorities, the facilitator engaged participants in an open discussion lasting approximately 15 minutes and asked volunteers to share their rationale for selecting their top watershed priorities. Participants were then assigned to three small groups. The NRSS team assigned the groups to integrate different stakeholder types within each group. In the small groups, participants shared their highest and lowest watershed priorities and their ranking rationale. Members of the CTIC and the NRSS team facilitated the small group discussions while WaterComm staff took notes on the discussion. Large and small group discussions were noted and recorded. An online audio transcription service (TranscribeMe.com) was used to transcribe audio recordings.

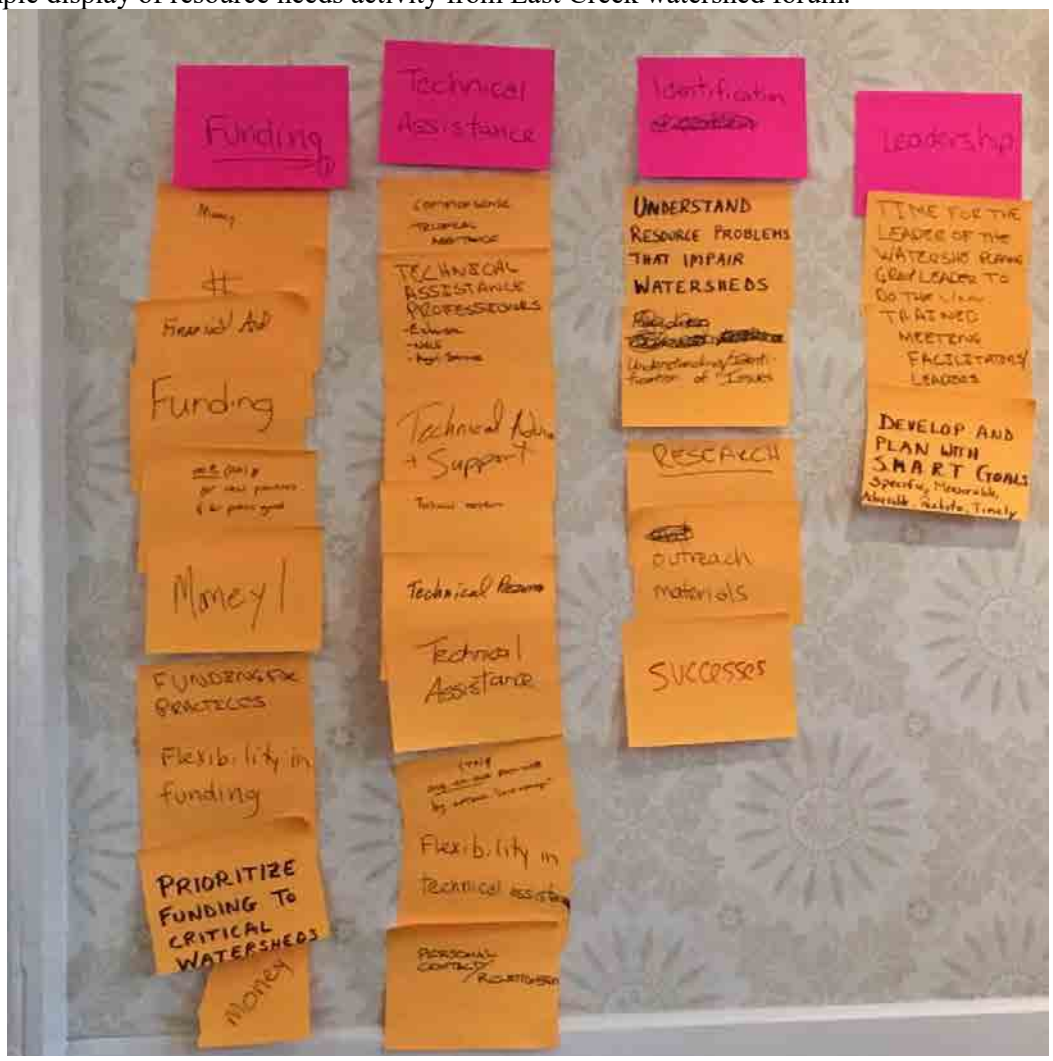
Identify Resource Needs

Forum participants listed resources needed to achieve successful watershed management. The project team provided each group with examples of resource needs derived from the forum pre-survey responses (Appendix A). Participants wrote additional resources needed for successful watershed management on 5x7 inch sticky notes then displayed each written resource need (including needs derived from the forum pre-survey) in front of their small group. The small group facilitator prompted participants (see Appendix C for forum facilitator guide) to explain their rationale for the contributed resource needs, then the group collectively assembled resource needs into broad categories. The facilitator then documented the broad categories and displayed them on a different colored sticky note (Figure 1). After the forum, the NRSS team collected the 5-inch x 7-inch sticky notes from each group. Group discussions were noted and recorded. Audio recordings were transcribed by an online audio transcription service (TranscribeMe.com).

Identify Outreach and Education Strategies

In the same small groups, participants engaged in a facilitated discussion of strategies for effective outreach and education. Small group facilitators provided each group examples of strategies for watershed outreach and education derived from forum pre-survey responses (Appendix A) then documented the discussion on a flip chart. Facilitators guided (Appendix C) participants to gather strategies related to recipients, content, and delivery of watershed outreach and education. The discussions were noted and recorded. Audio recordings were transcribed using an online audio transcription service (TranscribeMe.com).

Figure 1. Example display of resource needs activity from East Creek watershed forum.



2.1.3 Analysis

The following section describes the analysis methods for the forum activities where data were collected. Prior to this report, each forum was analyzed and reported on independently (Usher et al. 2019a; Usher et al. 2019b; Usher et al. 2019c; Usher et al. 2019d; Usher et al. 2019e). For this final report, data from all five watershed forums were combined for a collective analysis of the five watershed forums.

Identify Priorities

This activity used both quantitative and qualitative analyses, as described below.

Quantitative

A factor analysis was conducted using principal component method with varimax rotation on forum participants' ranked priorities via the PQMethod software (v. 2.35). The software aggregated participants by similarly ranked priorities and identified the following:

- Priority family: participants with similar priority rankings.
- Priority framework: output that provided priority values (PV), distinguishing priorities (DP), and consensus priorities (CP) for each priority family.
    - Priority value (PV): Value assigned to each watershed priority based on priority rankings within each priority family. These values reflect family attitudes toward each priority. PVs range from -5 (low priority) to 5 (high priority).
    - Distinguishing priorities (DP): Uniquely ranked priorities from each priority framework. These priorities highlight distinct viewpoints that differentiate priority families from each other.
    - Consensus priorities (CP): Similarly ranked priorities across all priority frameworks. These priorities highlight broad agreement across all priority families.

Qualitative analysis

An NRSS team member then developed a priority narrative to describe priorities and compare differences and similarities for each priority family. Narratives were created by organizing participants' rationale from the discussion transcripts by priority and priority rank (MS Excel) as well as the priority framework, provided by PQMethod (v. 2.35). Participants' comments were not identified on the transcription relative to their datasheet; therefore, comments could not be attributed to a specific priority family. Finally, the team member developed a descriptive name for each narrative based on high-ranked priorities (see Appendix B, Table B-1 for additional detail).

Identify Resource Needs

Data from each watershed forum were analyzed independently. For individual watersheds, broad categories and resource needs identified by participants were used as codes and sub-codes, respectively. An NRSS team member reviewed all transcriptions and assigned codes in NVivo (v. 12). Then, for each discussion group, the NRSS team member developed a conceptual diagram (i.e., mind map) of the resources needed (i.e., codes and sub-codes) for successful watershed management based on the transcribed discussion. The mind maps were then synthesized inductively by identifying emergent themes across all discussion groups. The combined list of overall resource needs was developed by identifying and describing similar emergent themes across the five forums.

Identify Outreach and Education Strategies

For individual watersheds, an NRSS team member developed codes in NVivo (v. 12) based on emergent themes in each of the facilitated discussion topics: recipients, content, and delivery methods. The combined list of recipients, content, and delivery methods was developed by identifying and describing similar emergent themes across the five forums.

2.2 Interagency Partner Interviews

The following section describes data collection and analysis methods used to investigate the perspective of federal and state partners from each forum watershed state.

2.2.1 Data Collection

The NRSS team interviewed SWQA and EPA representatives from each watershed forum state regarding their role in the NWQI, the strengths and challenges associated with the NWQI, and needs for successful watershed management and outreach. Interviewees were identified through a conversation with an EPA employee who provided contacts for appropriate representatives. A request to participate was emailed to potential interviewees. Interviews were conducted over telephone or in-person. Ten interviews were recorded and transcribed using an online audio transcription service (TranscribeMe.com); one interviewee requested that the conversation was not recorded. Interview notes were taken and validated by the unrecorded interviewee. Interview summaries included in individual reports were shared with and approved by each interviewee. The interview guide developed for these interviews can be found in Appendix D.

2.2.2 Analysis

Transcripts and notes from each interview were used to identify emergent themes inductively. Themes were summarized into key topics including, agency role in the NWQI, NWQI challenges, and needs for successful watershed management.

2.3 Watershed Stakeholder Feedback

The following section describes data collection and analysis methods used to share findings, validate forum results, and solicit feedback from watershed forum participants and community members.

2.3.1 Data Collection

The NRSS team emailed a draft of the watershed forum report to conservation staff from each watershed. To validate results and solicit feedback on the forum report, the NRSS team offered to return to the watershed and present findings to stakeholders. These presentations aimed to give local conservation staff and stakeholders an opportunity to provide further input and gain insight from data collected at the watershed forums. At the watershed, the NRSS team member provided background and context for the watershed forums, shared results from the local watershed forum, then shared synthesized results from all five watershed forums. After the presentation, stakeholders discussed results and shared additional successes and challenges related to project design, marketing, delivery, and implementation of the NWQI and other USDA-NRCS supported watershed improvement projects. The NRSS team member took notes of key topics and discussions were recorded.

2.3.2 Analysis

Notes and recorded discussions were used to identify emergent themes inductively. Themes were summarized into key topics discussed at each watershed.

2.4 NWQI National Survey

The following section describes survey development, data collection, and analysis methods for the NWQI National Survey.

2.4.1 Survey Development

The NRSS team developed two survey instruments to evaluate national perspective of the NWQI and to ensure generalizability of information gathered from watershed forums and interagency partner interviews. One questionnaire was administered to the NWQI points of contact and partners in NWQI watersheds (i.e., conservation staff). The other was sent to two SWQA representatives from US states and territories participating in the NWQI.

The conservation staff and SWQA staff questionnaires had 10 (Table 2) and eight (Table 3) sections, respectively. Questions for each section were informed by forum results and interagency partner interviews to confirm generalizability of results beyond the five forum watersheds.

Table 2. Conservation staff NWQI National Survey description

Objective	Section	Topic	Description
Role	I	Role and organizational affiliation	Role in the NWQI watershed project planning/management, organization affiliation, and information on current role
Implementation	II	Previously enrolled watersheds	Reason(s) or circumstance(s) that led their watershed to no longer participate in the NWQI
Implementation	III	Staff needs	Staff needs and responsibilities in NWQI watersheds
Implementation	IV	Watershed partnerships	Partnership development and success in their NWQI watershed
Watershed project design	V	Watershed planning and the NWQI Watershed Assessment	Watershed planning as well as development and implementation of the NWQI Watershed Assessment
Watershed project design	VI	Outreach Plan	NWQI watershed Outreach Plan development and implementation
Marketing and delivery	VII	Outreach and education	Important recipients of watershed-related outreach and education
Implementation	VIII	Interagency coordination	Impacts of the NWQI on working relationship with agency partners.
Marketing and delivery	IX	Communication and technical assistance	Communication about conservation practices with producers in their watershed
Demographics	X	Demographics	Age and gender

Table 3. SWQA staff NWQI National Survey description

Objective	Section	Topic	Description
Role	I	Agency role	Respondent's agency role in the NWQI
Implementation	II	Interagency coordination	Working relationship with USDA-NRCS, related to the NWQI
Implementation	III	Water quality monitoring	Water quality monitoring in NWQI watersheds
Watershed project design	IV	Watershed planning and the NWQI Watershed Assessment	Watershed planning and agency role in development of the NWQI Watershed Assessment
Watershed project design	V	Outreach Plan	Involvement in development and importance of the NWQI Outreach Plan
Implementation	VI	Staff needs	Staffing needs and responsibilities in NWQI watersheds
Marketing and delivery	VII	Outreach and education	Important recipients of watershed-related outreach and education
Demographics	VIII	Demographics	Age and gender

2.4.2 *Data Collection*

From May to June 2019, the NRSS team conducted an online survey using a modified tailored design method (Dillman, 2014) in Qualtrics, an online survey software (Provo, UT) to the NWQI points of contact, watershed partners, and SWQA representatives from US states and territories participating in the NWQI (Table 4). Email addresses for the NWQI watershed points of contact and SWQA representatives were provided by USDA-NRCS. USDA-NRCS State Conservationists were notified of the survey by USDA-NRCS headquarters in May 2019. Respondents were asked to identify their state, then were provided a list of NWQI watersheds in their state. Respondents were then instructed to select the watershed they were most familiar with and answer the survey questions related to that NWQI watershed. If an individual was listed as a point of contact for multiple watersheds, they were sent one survey email and instructed to select the watershed they were most familiar with. To capture the perspective of other NWQI partners, snowball sampling (Patton, 1990) was employed; the NWQI watershed points of contact were asked to forward an identical survey using a separate survey link to NWQI watershed partners. Email addresses provided by USDA-NRCS and identified by Qualtrics as undeliverable were removed. Alternative contacts were used when available. Questionnaire responses were collected in Qualtrics. After the survey was closed, data were cleaned to ensure accuracy of data type, and to remove blank survey entries.

Table 4. Distribution date and item by survey contacts

Contacts	Item Delivered	Date Mailed
Conservation staff		
Initial	Initial Survey	5/31/2019
Alternate	Initial survey	6/5/2019
Initial	Reminder and survey	6/11/2019
Alternate	Reminder and survey	6/14/2019
Initial	Final Reminder and survey	6/24/2019
Alternate	Final Reminder and survey	6/27/2019
SWQA staff		
Initial	Initial Survey	5/31/2019
Alternate	Initial survey	6/5/2019
Initial	Final Reminder and survey	6/11/2019
Alternate	Final Reminder and survey	6/14/2019

2.4.3 *Analysis*

To calculate the response rate, total completed surveys was divided by the amount of eligible addresses (total surveys sent minus bad addresses) and then that number was multiplied by 100. A survey was considered "complete" if at least one question was answered. The number of responses for each question varied due to skip patterns incorporated into the survey and respondents not answering all questions. The NWQI watershed partners who received the survey were part of a snowball sample, so no response rate could be calculated. The NWQI points of contact and the watershed partners that received the same survey but with different distribution methods were analyzed together. The SWQA staff survey was analyzed separately since the questions varied.

The surveys contained five types of questions: closed single response, closed multiple response, Likert (i.e., bipolar), open numeric, and open text. The following analyses were conducted and presented for each question type:

- Closed single response: Calculated percentage of respondents that selected each category.
- Closed multiple response: Calculated percentage of respondents that selected each category. This resulted in a total percentage greater than 100% across categories.
- Likert: Calculated percentage of respondents that selected each category. Means and standard deviation (sd) based on the bipolar scale (e.g., Strongly disagree = 1, Disagree = 2, Neither agree nor disagree = 3, Agree = 4, Strongly agree = 5) were calculated, excluding any non-bipolar options (e.g., "Don't know").
- Open numeric: Mean, sd, median and range were calculated.
- Open text: Text listed in a table.

All data were analyzed in SPSS (v. 24) or MS Excel.

3 Results

3.1 NWQI Watershed Forums

3.1.1 Demographics

A total of 99 stakeholders participated in the five watershed forums. Producers/landowners (31.3%), USDA-NRCS staff (23.9%), and SWCD staff (17.2%) represented over two-thirds of the participants (Table 5). The majority of participants were male (71%, female 25.3%, no answer 3.0%; N=99) and had a mean age of 52 ± 13.06 sd (N=92) years. Less than half (43.1%; N=95) of forum participants lived in the watershed and the mean years living in the watershed was 34.2 ± 20.87 sd years.

Table 5. Stakeholder types

Stakeholder Type*	Frequency (%; N=99)
Producer/Landowner	31.3
USDA-NRCS staff	23.2
SWCD staff	17.2
Community member	5.1
Local government staff	4.0
State agency staff	7.1
Non-governmental organization (NGO) staff	3.0
Researcher	2.0
Other**	10.1

**Participants identified as more than one stakeholder type. Both responses were included. Percentage will total to greater than 100 since calculated using total number of respondents.*

***Other responses included: "agricultural retailer", "agri-business owner", "Extension", "Farm Bureau", "private consultant", and "state forest service."*

3.1.2 Priorities

A total of 84 participants' ranked priorities were considered complete for analysis (Appendix B). Of those 84 participants, 18 did not factor into any priority family because their ranked priorities were dissimilar to the three priority families and to each other; therefore, they were not considered their own priority family. The remaining 66 participants' ranked priorities are presented in the following three narratives:

1) Priority Family 1: Stakeholder Concerns and Outreach (19 participants)
2) Priority Family 2: Planning and Education (25 participants)
3) Priority Family 3: Outreach and Inclusion (22 participants)

Some priorities were not considered high or low by any priority family; additionally, some priorities were considered to be high by one family, but low by another (Table 6). Priority family narratives are described below by the priorities with high and low PVs, and DPs. CPs identified as high or low priorities are discussed. Each of the 36 priorities were assigned numbers (Appendix B, Table B-1). The priority numbers (PNs) are included in the following section for reference in parentheses, for example "(PN4)" refers to priority number 4, "A watershed plan is necessary."

Table 6. PVs compared across priority families

PN	Priority	Priority Family (PVs)		
		1	2	3
1	Landowners/producers should know what best management practices are and why they should be used.	2	5 D	0
2	Addressing concerns of local watershed stakeholders should be the highest priority for resource managers.	2	-4 D	2
3	Technical and/or financial assistance for those who qualify is necessary.	5D	2	-1
4	A watershed plan is necessary.	3	4	0 D
5	Land and water should have species diversity.	0	0	-2
6	Management should be done at a small geographic scale.	-1	-3	-3
7	Students (elementary through college) should understand the importance of soil and water conservation.	-1	0	-1
8	Conservation practices should be adopted on more acres.	0	1	-1
9	Only local organizations should be involved.	-4C	-4C	-3C
10	No stakeholders' livelihoods should be jeopardized due to watershed management activities.	4D	-3D	1
11	Watershed managers should actively engage with the community.	0	0	2
12	The public needs to understand how a healthy and balanced watershed can benefit them.	0	1	1
13	Funding should be budgeted specifically for outreach and communication.	-2	-1	-2
14	Watershed information should be communicated using diverse methods and reach a broad public audience.	-2	-2	-1
15	A strong working relationship between producers/landowners and watershed managers is important.	4C	3C	5C
16	One-on-one interactions between resource managers and producers/landowners is necessary.	3D	0	2
17	Watershed stakeholders need to understand the sources of water resource issues.	0	3	1
18	The watershed planning process should include diverse groups of people working towards a common goal.	-1	-1	4 D
19	A management plan should support activities that include recreation, economic and environmental benefits.	-3D	0	2
20	Communicating about soil health is more effective than communicating about water quality.	-1	-3	-3
21	Water monitoring is necessary.	1	3	0
22	Achievable water quality goals and targets should be set to show water quality improvements.	1	2	0
23	The public should be aware of the range of resource issues associated with their watershed.	0	-1	0
24	A clear plan for public involvement/engagement should be included in a watershed management plan.	-1	0	1
25	Watershed managers should seek out and respect local knowledge, perspective, and experience.	3	1	4
26	There should be a flexible plan that allows for changes in management over time.	2	1	3
27	Negative effects of watershed management on downstream stakeholders should be minimized.	1	-1	0
28	Resources and information between local, regional, state, and federal agencies should be coordinated.	1	2	3
29	Watershed managers should focus on water quality issues over water quantity issues.	-3	-2	-4
30	The watershed should have a user-friendly website that contains watershed information.	-3	-2	-2
31	Watershed management should benefit my community and communities downstream of my watershed.	1	2	3
32	Watershed management should include an evaluation of the impact of climate change on future quality and quantity in my watershed.	-2	-2	-2
33	Community members should take an active role in watershed management.	-2 D	1	1
34	Measurably cleaner water should be an outcome.	2	4	-1
35	Producers/landowners/businesses should be required to adopt best management practices.	-4	-1 D	-5
36	The watershed needs to be in an impaired or degraded state.	-5C	-5C	-4C

D=Distinguishing priority
C=Consensus priority
PN=Priority number
PV=Priority value
Priority Family 1: Stakeholder Concern and Outreach
Priority Family 2: Planning and Education
Priority Family 3: Outreach and Inclusion

PV Color Key

5	
4	
3	
-3	
-4	
-5	

Priority Family 1: Stakeholder Concerns and Outreach

This priority family included 19 participants from all five watersheds (Table 7) who identified primarily as a Producer/Landowner (47.4%, N=19) (Table 8). This family highlighted the need to address stakeholder concerns (PN3, PN10) and focused on outreach (PN16, PN25) and watershed planning (PN4) as key components for successful watershed management (Table 9).

Table 7. Priority Family 1 watershed affiliation

Watershed Affiliation	Frequency (%; N=19)
Oklahoma	26.3
Vermont	26.3
North Carolina	21.1
Washington	15.8
Illinois	10.5

Table 8. Priority Family 1 stakeholder type

Stakeholder Type*	Frequency (%; N=19)
Producer/Landowner	47.4
USDA-NRCS staff	15.8
SWCD staff	15.8
Community member	15.8
State Agency staff	5.3
Other**	15.8

**Participants identified as more than one stakeholder type. Both responses were included. Percentage will total to greater than 100 since calculated using total number of respondents*
***Other included: "Farm Bureau," and "Extension"*

Table 9. Priority Family 1 Framework: Stakeholder Concerns and Outreach

PN	Priority	PV	DP	CP
High				
3	Technical and/or financial assistance for those who qualify is necessary.	5	x	
15	A strong working relationship between producers/landowners and watershed managers is important.	4		x
10	No stakeholders' livelihoods should be jeopardized due to watershed management activities.	4	x	
16	One-on-one interactions between resource managers and producers/landowners is necessary.	3	x	
25	Watershed managers should seek out and respect local knowledge, perspective and experience.	3		
4	A watershed plan is necessary.	3		
Low				
30	The watershed should have a user-friendly website that contains watershed information.	-3		
19	A management plan should support activities that include recreation, economic and environmental benefits.	-3	x	
29	Watershed managers should focus on water quality issues over water quantity issues.	-3		
9	Only local organizations should be involved.	-4		x
35	Producers/landowners/businesses should be required to adopt best management practices.	-4		
36	The watershed needs to be in an impaired or degraded state.	-5		x
Additional DPs				
33	Community members should take an active role in watershed management.	-2	x	

Notes: Priorities are ordered by PV. The priority categories are provided in Appendix B Table B-1. The "x" indicates the DP and CPs identified by the PQMethod software.
PN=Priority number
PV=Priority value
DP=Distinguishing priority
CP=Consensus priority

Stakeholder Concerns

This family highlighted the need to address stakeholder concerns in their watershed. Specifically, participants underscored the importance to provide technical and financial assistance (PN3), preserve livelihoods (PN10), and ensure BMP adoption remains voluntary (PN35). Participants believed financial assistance can mitigate economic risks associated with changing management practices, while technical assistance is critical to implementing new practices. One participant shared a concern that could be addressed with technical and financial assistance:

> *"A lot of people would buy into doing water things if they know they can financially make it happen. I know we've got all these [resources available], but I wouldn't know how to go out and [do them.] That falls under technical assistance, I know this is what the NRCS is for…I want to do it, but am I going to be able to do it without help?*

Heck no. Not until I get the farm paid for or the cattle paid for and this and that. But at the same time, if it gets done, it'll help me pay for that stuff faster. So it's kind of a catch-22."

Focused on the importance of preserving livelihoods in the watershed, participants emphasized the need to protect financial interests of producers and landowners who depend on their operation's profits. Participants expressed concerns with BMPs impacts on profit margins of their farm operations and reiterated that their financial security is contingent on a profitable farm operation.

"We live off the land. I don't work anywhere but the farm - that's what pays the bills. So you got to be able to make money at it. If you're losing money, you got to go do something else."

Outreach

This family acknowledged the need for outreach in the agricultural community and focused on one-on-one interactions between producers and conservation staff (PN16). They believed these interactions can increase adoption and provide opportunities to incorporate local knowledge and experience into watershed projects (PN25). Participants suggested one-on-one interactions can raise awareness of water quality concerns and promote USDA-NRCS resources that address them.

"It's important to get the importance of the watershed out there to the producers. You're not going to see water quality change unless you can change management practices out in the farms. If [SWCD] comes out and says, 'Hey, we got this program going on. This may be a good fit for you'…If [SWCD] makes that personal touch and follows up with a postcard, [the producer] may be more likely to be curious."

Participants explained that one-on-one interactions between conservation staff and producers builds trust and enables local knowledge to be incorporated into watershed management plans.

"I look to my producers because they know the potential impacts of a change in management. There's a reason they've made decisions on the land. The [producers] have a history with their soil, vegetation, and the way water moves across the land - they are really the experts on the landscape."

Where regulation is a large factor, such as the dairy industry, participants believed these one-on-one interactions improve relationships, ease perceptions of regulatory threat, and increase buy-in from producers.

"In a regulatory environment, you have to rebuild the trust that you just spent ages building. When regulation comes in, it freaks everybody out…then you have to build that trust all over again."

Although this family agreed that outreach in the agricultural community is important, they believed caution is needed when communicating to the non-agricultural public (PN33). Participants raised concern with the public's lack of understanding of watershed-related issues and believed it to cause conflict between the two communities.

"I think you have to be very careful about how you involve the public, because the public [can] turn on the landowners [and producers]. I do believe we, as landowners, should definitely take an active role, but as far as involving the entire community, you've got to be selective on how you present it to the public because it can create a scare."

Regarding methods of effective outreach, this family placed a low priority on providing online resources with watershed-related information (PN30). Although participants shared that online communication is not an effective outreach tool, potentially due to an older population, they do believe this method could be effective for general public outreach.

"By and large, our dairy farmer community doesn't really search for much on the websites, so it's more of a general community kind of audience for us."

"In rural America, most producers are not the youngest. We've had some meetings that we've tried to organize using just solely web-based ways of getting it out. Those weren't very successful for us. We didn't reach as many numbers as we [wanted]."

Other Priorities

While this family recognized the importance of a watershed plan to addresses both water quality and water quantity issues (PN4, PN29), they believed planning for multi-use activities, such as recreation, is a low priority (PN19).

Priority Family 2: Planning and Education

This priority family included a total of 25 participants from all five watersheds (Table 10). Almost two-thirds of participants were either Producer/Landowners (32.0%; N=25), USDA-NRCS staff (28.0%; N=25), or SWCD staff (12%; N=25) (Table 11). This family highlighted the need for watershed planning (PN4, PN21, PN34) and education (PN1, PN17) for successful watershed management (Table 12).

Table 10. Priority Family 2 watershed affiliation

Watershed Affiliation	Frequency (%; N=25)
Vermont	32.0
Washington	28.0
North Carolina	16.0
Oklahoma	16.0
Illinois	8.0

Table 11. Priority Family 2 stakeholder type

Stakeholder Type*	Frequency (%; N=25)
Producer/Landowner	32.0
USDA-NRCS staff	28.0
SWCD staff	12.0
Community member	8.0
Local government staff	8.0
State agency staff	8.0
Researcher	16.0
Other**	32.0

**Participants identified as more than one stakeholder type. Both responses were included. Percentage will total to greater than 100 since calculated using total number of respondents*
***Other included: "consultant," "private company," and "local citizen organization."*

Table 12. Priority Family 2 Framework: Planning and Education

PN	Priority	PV	DP	CP
High				
1	Landowners/producers should know what best management practices are and why they should be used.	5	x	
34	Measurably cleaner water should be an outcome.	4		
4	A watershed plan is necessary.	4	x	
15	A strong working relationship between producers/landowners and watershed managers is important.	3		x
17	Watershed stakeholders need to understand the sources of water resource issues.	3		
21	Water monitoring is necessary.	3		
Low				
6	Management should be done at a small geographic scale.	-3		
20	Communicating about soil health is more effective than communicating about water quality.	-3		
10	No stakeholders' livelihoods should be jeopardized due to watershed management activities.	-3	x	
2	Addressing concerns of local watershed stakeholders should be the highest priority for resource managers.	-4	x	
9	Only local organizations should be involved.	-4		x
36	The watershed needs to be in an impaired or degraded state.	-5		x
Additional DPs				
35	Producers/landowners/businesses should be required to adopt best management practices.	-1	x	

Notes: Priorities are ordered by PV. The priority categories are provided in Appendix B Table B-1. The "x" indicates the DP and CPs identified by the PQMethod software.
PN=Priority number
PV=Priority value
DP=Distinguishing priority
CP=Consensus priority

Planning

Developing a watershed plan that incorporates water quality monitoring and results in measurably cleaner water was a high priority for this family (PN4, PN21, PN34). One participant suggested watershed plans help organizations working towards a common goal direct limited resources to targeted watershed projects.

> *"Without a plan, we have a shotgun approach to things. You guys are doing this, and you're doing that, and everybody is [doing] random acts of conversation. If we have an organized plan with the limited funds, time and landowner energy we have available to put in to this, having a plan makes sense."*

This family agreed watershed plans are important for organizing resources and establishing partnerships. They also highlighted the importance to include measurable goals and metrics of success to evaluate project progress.

> *"If you're not getting a measurable improvement in water quality, your plan isn't working. And that's something that's really important to stay on, have as a focus and check on routinely."*

Regarding an appropriate scale when developing a watershed plan, this family believed it should be conducted on a larger scale and use an incremental approach (PN6). For example, a participant described a systematic approach to watershed management that focused on improving small segments and resulted in regional water quality improvements.

> *"Start with the Roaring River watershed. As you are successful or gain some access in that area, look at the Mitchell River watersheds, then look at Moravian Creek. You move on down and then you look at where the quality of the water after they have come together in the Yadkin River and then you go on downstream. Just follow the natural progression until you have cleaned up the whole system. I mean, that should be the ultimate goal."*

Education

This family emphasized the need for producers and landowners to understand sources of water quality concerns and benefits BMPs can provide to both farm operations and watershed health (PN1, PN17). Participants recognized the importance of BMPs and suggested an increased understanding of how they are implemented and why they are important will increase adoption.

> *"[First], you need to know what you're supposed to do. Second, why you're doing it so people will continue to do it. You can plan everything and you can get community buy-in, but if it's not being implemented and used on the farm, or on the agriculture lands, it really is all for naught."*

Another participant suggested that understanding the function and benefits of BMPs can help producers incorporate BMPs into their existing operation.

> *"We know every best management practice doesn't fit every person. But if somebody knows what it is, they can work towards it themselves or adapt to what works for them."*

In addition to producers and landowners, participants in watersheds experiencing increased urban or suburban populations recommended targeting non-agricultural landowners for watershed-related education and outreach. Participants highlighted the importance for non-agricultural landowners to be aware of watershed concerns and actions they can take to reduce impacts to watershed health.

> *"It's not just the farmer anymore. There's a guy that has five acres who's also in the watershed. He has no cows and he's dumping his trash in the creek. I'm right next door to him building fences and manure-ponds, but it doesn't matter if he's dumping his oil cans in the creek. You have to inform [non-agricultural landowners] in a manner that they can make the right decision."*

Related to framing education and outreach, this family believed effective messaging depends on the recipient and framing education and outreach around soil health is no more effective than focusing on water quality (PN20). For example, a participant explained that a message focused on soil health could be more effective for producers, and believed a water quality message is more appropriate for the general public.

> *"As far as the general public, it should be all about water quality. But when you're talking to farmers, talk about soil health, how your crops are going to grow and all the wonderful things that are going to happen to the soil because that's impactful to a farmer. When you're talking to the general public who like fish and swim, they want to hear about water quality. They don't really care how tall your alfalfa is."*

Stakeholder Concerns

In contrast to the Stakeholder Concerns and Outreach Priority Family, these participants believed local stakeholder concerns are not top priority and accepted that some livelihoods may be impacted by efforts to improve water quality (PN2, PN10). Citing the interconnected nature of the watershed's ecosystem, a participant suggested the need to balance priorities of multiple watershed dependent communities.

> *"Well, this watershed, it's not entirely isolated. It's part of a larger system, which is part of an even larger, regional ecosystem. So there's always going to be a balance with other stakeholders' communities as well as this one."*

Along similar lines, another participant highlighted that there are stakeholders with various watershed goals and objectives at the local, regional, and state levels who have a vested interest in improving water quality.

> *"There are a lot of stakeholders. There are stakeholders at the local level, more at the regional level, then you get the state level. So to focus on just one set of stakeholder interests didn't seem, to me, to be the most appropriate way to look at it."*

Although this family did not support enforcing mandatory adoption of BMPs (PN35), they were more open to the idea than the other two families and believe collective action is needed to improve water quality.

> *"You always kind of prickle a little bit at the required piece of it. But you definitely feel like, unless everybody's kind of all pulling on the rope together, you're only as strong as your weakest link, so. You got to have conformity in order to get the objectives that you want."*

Other participants in this family recognized that some agricultural industries, such as the dairy industry, are more accustomed to regulations and currently operate in a regulatory environment.

> *"We have to remember that dairy farmers operate under the Dairy Nutrient Management Act, which encompasses a lot of BMPs and this stuff. There's that group of people within the watershed group who are very familiar with [regulations] and then there's another group that is not familiar with it. You're dealing with very different groups of people. We're already being forced and inspected. That's already happening because it's part of dairy farming."*

Priority Family 3: Outreach and Inclusion

This priority family included a total of 22 participants from all five watersheds (Table 13). Over half of the participants identified as USDA-NRCS (31.8%; N=22) or SWCD staff (27.3%; N=22) (Table 14). This family highlighted stakeholder outreach (PN25), inclusion (PN18, PN28, PN31) and flexibility (PN26) for successful watershed management (Table 15).

Table 13. Priority Family 3 watershed affiliation

Watershed Affiliation	Frequency (%; N=22)
Washington	40.9
North Carolina	22.7
Oklahoma	18.2
Illinois	13.6
Vermont	4.5

Table 14. Priority Family 3 stakeholder type

Stakeholder Type*	Frequency (%; N=22)
USDA-NRCS staff	31.8
SWCD staff	27.3
Local government staff	9.1
NGO staff	9.1
State Government staff	9.1
Producer/Landowner	4.5
Community member	4.5
Researcher	4.5

**Participants identified as more than one stakeholder type. Both responses were included. Percentage will total to greater than 100 since calculated using total number of respondents*

Table 15. Priority Family 3 Framework: Outreach and Inclusion

PN	Priority	PV	DP	CP
High				
15	A strong working relationship between producers/landowners and watershed managers is important.	5		x
25	Watershed managers should seek out and respect local knowledge, perspective and experience.	4		
18	The watershed planning process should include diverse groups of people working towards a common goal.	4	x	
28	Resources and information between local, regional, state and federal agencies should be coordinated.	3		
31	Watershed management should benefit my community and communities downstream of my watershed.	3		
26	There should be a flexible plan that allows for changes in management over time.	3		
Low				
6	Management should be done at a small geographic scale.	-3		
20	Communicating about soil health is more effective than communicating about water quality.	-3		
9	Only local organizations should be involved.	-3		x
36	The watershed needs to be in an impaired or degraded state.	-4		x
29	Watershed managers should focus on water quality issues over water quantity issues.	-4		
35	Producers/landowners/businesses should be required to adopt best management practices.	-5		
Additional DPs				
4	A watershed plan is necessary.	0	x	

Notes: Priorities are ordered by PV. The priority categories are provided in Appendix B Table B-1. The "x" indicates the DP and CPs identified by the PQMethod software.
PN=Priority number
PV=Priority value
DP=Distinguishing priority
CP=Consensus priority

Outreach

Including local knowledge and experience in watershed management was a top priority for this family (PN25). Participants believed using local knowledge to inform watershed management shows respect for producers' understanding of their operation, promotes peer-to-peer information sharing, and can be a catalyst for collective action.

> *"Part of my role is to take information I learn from one participant and move it through the community to other people, then that person - after finding some information out - goes and talks to the other person that actually did it. Then you start to have collective change and movement of information better."*

Another participant suggested local knowledge can account for physical variations, such as soil types, across the watershed and even within individual operations.

> *"This is on the top because of the word 'local.' Even in our watershed or even our operation, we have varying soil types. Some practices are going to be just great on and other ones are not going to work well. Just that close, that local soil type a farmer farms. You have to have an overall plan, but there has to be some local and specific management, even within the watershed."*

Inclusion

This family placed a high priority on ensuring relevant stakeholders are involved in the watershed planning process (PN18), and also believed the watershed plan should benefit the local watershed community along with communities up and downstream the targeted watershed (PN31). Participants believed that if a watershed project includes diverse stakeholders, beyond the agricultural sector, the project will be more credible and garner additional support from the agricultural and non-agricultural community.

> *"A lot of times agriculture is picked on, but agriculture is not the only source of erosion problems – If you're doing a project you've got to include something that's non-ag, some non-point source you're addressing so the ag community doesn't feel like they're getting picked on. You've got more credibility if you have a broader program. I think the more diverse a project is, then the more credibility you have and the more participation you'll have."*

This family believed a successful watershed project needs to benefit both ecological and human communities who depend on the watershed. This holistic approach to watershed management accounts for both upstream and downstream communities.

> *"It's talking about [benefiting] our community. You can think about it as an ecological community as well as the human communities involved, and it brings the human element to it. If water quality improvements aren't actually benefiting the community, then inherently we're not focusing on the right issues. If a community is failing or is having issues, then that needs to also be worked on as part of the plan. It just seemed kind of fundamental."*

Participants emphasized the importance coordinating local, state and regional resources with partners who have similar goals and objectives for the watershed (PN28). These partnerships can provide access to additional resources essential to the success of watershed projects that a single partner cannot provide alone.

> *"Involvement from agencies, from local all the way up to federal, all coming together. If you have these issues in the watershed, maybe [an agency] can bring a little small part, I could bring a little small part, you could bring a little small part. Maybe you can bring funding and bigger ideas to the table to get stuff done. If it's just NRCS, there's a lot of stuff that needs to be done that they can't deal with. So bringing more people together, I think, helps out a lot."*

Regulation

This family believed BMP adoption needs to remain voluntary, and that watershed plans should be flexible enough to accommodate change over time and address both water quality and water quantity issues (PN35, PN26, PN29). Participants acknowledged the importance of working in cooperation with producers and believed increased regulation would not achieve watershed objectives, but rather cause conflict and negative impacts to established working relationships.

> *"I don't think [regulation]is an option. I mean, it's not going to work. They're going to dig their heels in no matter what. There's a way to do this. We have to meet in the middle and we have to work together."*

Another important point made by participants in this family is that voluntary conservation has a proven record of accomplishing the goals it sets out to achieve and effective regulation is a hard talk to monitor.

> *"The conservation model works very well. Voluntary incentive-based conservation has proven it to be a very successful model here in the state. We have some improvements to make but the landowners care about what they're doing."*

Finally, participants shared their opinion that regulation reduces flexibility, another key component for successful watershed management.

> *"Regulatory, to me, also implies that it's inflexible. If you lose the flexibility on what a BMP is, then it's some canned thing that it's supposed to work on this field, but maybe it doesn't actually work there, or the producer's just*

unwilling to do it because it doesn't match his overall goals for his management, or maybe it works in wet years but not dry years, or it's good in dry years but not when you're getting ten inches of rain in an afternoon."

Planning

This family's neutral attitude towards the watershed planning is lower than the other two priority families (PN4). Participants shared their belief that watershed planning is a good conversation starter but can be onerous to write and often results in a document with little value to the producers.

"So if our partners are hearing from the landowners, 'Let's work on this versus this,' or, 'Let's spend the money here rather than there,' then it's valuable. But you're talking about practical people and you start piling the paper up like this, you're going to lose some of us practical people pretty fast."

Citing the importance of open conversations to identify sources of water impairments and goal setting to address watershed concerns, this family believed there is more value in the watershed planning process than the document itself.

"I find that the planning process is what's valuable and that interaction, opposed to an actual plan, or piece of paper. It's good to set those goals and those target reductions and water-quality monitoring activities and be able to make it explicit. I think less people pay attention to [the plan] and look around at what's happening on the ground. That's where efforts are being made to help achieve some of those goals and objectives."

This family believed watershed-related communication should focus on both soil health and water quality (PN20). Although they indicated that small scale watershed management is a lower priority, they acknowledged that it could be an effective way to work on smaller segments of a larger impaired waterbody (PN6).

"[With a larger plan], you're going to reach more stakeholders…It's got to be a balance between the two. You have to have a bigger picture with an ultimate goal, but utilize smaller watershed plans to work on the tributaries of the larger watersheds…is not a bad idea."

Consensus priorities

Producer Outreach

All three priority families agreed that a strong working relationship between producers, landowners and conservation staff is important for successful watershed management (PN15). Participants emphasized the need for conservation staff to be perceived as a resource for information as well as technical and financial assistance, opposed to an authority figure.

> *"Being able to speak to NRCS or the state out on the farm and not feel like you're going to be penalized for it. Just being open and honest…I think you'll get a lot more people involved if they don't feel like they'll get a crack of the whip every time somebody comes out."*

Participants also believed strong working relationships are essential for building trust with producers and partnerships within the local community.

> *"That strong working relationship locally is essential from top to bottom in terms of watershed management. You've got to have that local person working that has relationships built and that [producers] trust. I don't think you can use the word local enough and get that one prioritized enough."*

Participants believed strong working relationships and producer engagement facilitates increased practice adoption and buy-in from the agricultural community.

> *"The most powerful change happens when those two folks [producers and conservation staff] are on the same page and working together. The landowners are the ones that are going to have to do the stuff on the ground in the watershed. So it's really important to involve them from the get-go in the management planning process, but also obviously as practices are implemented."*

Agency Collaboration

The importance of collaboration between local, state, and federal agencies (PN9) was also discussed as a key component for successful watershed management. Participants acknowledged the different levels of government (local, state, and federal) have unique strengths, weaknesses, and abilities to provide essential resources to watershed improvement projects.

> *"Federal partners are very strong, but they can only go so far down the road because they're very much more restricted. The state is a little less. The glory of it is at the local level where you can be more creative and flexible as long as your county commissioners are educated into the importance of it and you've got that political support. There's a lot of value in that and the local people need to understand that they have that as a strength."*

Participants emphasized the importance for watershed management to be locally led, but supported by state and federal agencies. They suggested that state and federal agency involvement is important because it provides agency staff with additional understanding of challenges and impacts producers are facing on the ground.

> *"You need to have state and federal organizations be part of this so they understand what's going on. So they're not sitting at a desk somewhere saying, 'Oh, you can have a 200-foot buffer. Farmers don't need that much land.' They need to hear from us. They need to be part of the solution. So if we don't want things coming down over our heads, we need to make sure they understand."*

Biological Integrity

Citing economic and environmental limitations, participants acknowledged that a watershed should not need to be degraded to be eligible for technical and financial assistance (PN36).

> *"If you wait to the point where it's impure and degraded, you're too late. Implementation is going to be either so expensive or so hard to do that… Conservation is a preemptive strike, not during and not post…an ounce of prevention's worth a pound of cure. It takes way more resources to bring something back from the dead than it does to keep it from dying, so to speak."*

Providing an anecdotal example, one participant expressed frustration with a water quality improvement project that achieved its goals, but was not able to maintain water quality standards over time.

> *"The local example is the Portage Bay shellfish beds. They were closed in the nineties, re-opened in the early [2000s], then they closed again. We took our eye off the ball. How do we keep our eye on the ball? It's easier to maintain than to re-start."*

3.1.3 Resource Needs

The following section details resource needs identified by participants in the five NWQI watershed forums. Participants identified four overall resource needs for successful watershed management, including funding, leadership, monitoring and evaluation, and outreach and engagement. The four overall resource needs discussed were informed by reoccurring emergent themes identified by participants in individual watershed forums (Table 16).

Table 16. Recurring emergent themes from individual watershed forums informing overall resource needs

Theme	Watershed state(s)
Funding	
Funding	NC, WA, OK
Policy/Legislation	NC
Flexible Regulations, Local Solutions	WA
Flexible Funding	VT
Financial Assistance	VT
Technical Assistance	VT
Producer Assistance	OK
Leadership	
Personnel	NC
Coordination and Leadership	WA
Leadership	IL
Collaborative Leadership	VT
Monitoring and Evaluation	
Monitoring and Evaluation	NC, WA
Identification and Measurement	VT
Measurement	OK
Outreach and Engagement	
Community Engagement	NC
Local Ownership and Engagement	WA
Outreach	IL
Strategic Plan Development	VT
Public Interest	OK

Funding

Participants emphasized the need for consistent, coordinated, and long-term funding to address both personnel and project needs of a watershed management project. Although working with multiple funding sources can benefit watershed projects, participants felt as though funding is often disjointed and inconsistent over time.

> *"So often we get a grant for a specific thing and just we piecemeal it… [we need] enough to have something that's consistent year after year."*

Participants reported the need for funding to support additional permanent, full-time personnel with both technical expertise and established relationships with producers in the watershed. Participants in all five forums reported a lack of staff resources in their state and believed it to have a negative impact on BMP adoption and their overall ability to achieve watershed improvement goals.

> *"To put it into perspective…there's supposed to be [a soil conservationist] in every county from here to Kansas - there's five of us in our central zone stretching from Kansas to Texas. That's pretty thin."*

Participants suggested increasing current staff time and funding dedicated to providing technical assistance, follow-up management with enrolled producers, and developing relationships with the agricultural and non-agricultural community. They believed dedicating funding towards outreach and education can improve conservation staff relationship with the community and help achieve watershed goals.

> *"We need additional funding for outreach, community building…You need money for thinking, organizing and planning how you're going to do this all. There's no money for that."*

Another major need identified by participants was financial assistance. Participants believed financial assistance to be key to increasing adoption of BMPs. Furthermore, participants suggested proving alternative funding options, such as equipment financing, low-interest loans, and grants to alleviate financial risks associated with BMP adoption. While it is important for funding to be consistent, coordinated, and long-term, participants also recognized the importance of diversified funding and the benefits of leveraged funding from multiple sources, such as state, federal, corporate, non-profit and community-based partners.

> *"Try to think outside of who typically comes to the table when you're looking for money. It may not always be from a government authority or non-profits. It might actually be from manufacturing business. Maybe have them come to the table."*

With limited staff time and financial resources, participants highlighted the need to provide funding to targeted watersheds and establish a transparent process to prioritize resource concerns within a farm operation. For example, if an operation has multiple resource concerns, participants believed conservation staff should have flexibility to address the most severe concerns in the operation, opposed to addressing all resource concerns of the operation.

> *"We need the flexibility in leadership to prioritize the problems on an individual farm basis…The concept of having to fix all problems in a farmstead versus fixing the most egregious problem and letting the other ones kind of be there for a while, and being okay with that, and then come back around and deal with it later."*

Participants also emphasized the need for flexible funding that can incorporate local concerns into project goals and support project adaptations as needed.

> *"There ought to be something in there about the dynamics of needing to have the flexibility to adjust over time with your plan. As things change, as you make improvements, as you learn more about what your needs might be, and they adjust and whatnot… as we're crafting the local solutions, we may not get it right the first time."*

Leadership

Participants identified two major types of leadership necessary for successful watershed management: staff and community. For staff leadership, participants identified the need for a long-term, paid position that fills a "watershed coordinator" role. Ideally, this full-time position should be supported with a competitive salary and time budgeted to manage the development, implementation, and maintenance associated with a successful watershed project. In addition to technical expertise, a watershed coordinator should have established relationships with the agricultural and non-agricultural community, be able to facilitate relationships within the watershed, and understand the importance of a collaborative mindset.

> *"We have a tendency to make [the watershed coordinator] an overly technocratic position, but it doesn't have to be. What's more important is someone who gets out and goes around listening."*

This type of leadership should also be able to work with the watershed community to develop an adaptable plan that reflects the needs of multiple stakeholders.

> *"Establish a watershed planning group and invite groups of stakeholders together and express the purpose of the group. [Develop a] process for getting input so everybody is heard and is part of developing the plan. Leadership takes time and energy, and whoever is given that position, whether it's a farmer or someone from extension or NRCS, they need to be granted the time and resources to be able to devote their energy to it."*

Another important watershed leadership position comes from the watershed community and fills the role of a "watershed champion." While participants believed that staff leadership should be a funded position for a single person, they described a watershed champion as a community liaison who represents different groups of stakeholders in the watershed community. This community liaison role helps increase buy-in from diverse groups within the watershed and helps raise awareness of watershed-related issues relevant to their specific community.

> *"I think the [champion] would bring more people to [the Conservation District]. When you have a small farms events, [the champion] would know which people in our watershed should go and have the experience and relationship with them to say, 'Hey, the Conservation District is doing this. Let's carpool, I'll pick you all up and we'll go'…The technical people have so many things that you're already doing, they don't always have time to go out and talk with somebody, and that's what you need to connect [with people]."*

Participants believe these two types of leadership positions can work in tandem and leverage the skills, relationships, and strengths of the other.

> *"I think the coordinator is a paid position, the one who's making sure [progress is] happening. But [the watershed champion is] a voluntary person who tries to bring their community together because they're passionate about it, and they want to see it happen. You have to hire someone to coordinate the entire watershed effort…to make sure [watershed champions'] efforts are not for nothing."*

Monitoring and Evaluation

Monitoring and evaluation was also identified as an important component for successful watershed management. Participants believed long-term water quality monitoring is needed to document sources of resource concerns, progress of watershed improvement, and impacts of BMPs on watershed health. In addition to water quality monitoring, participants also suggested documenting the on-farm economic impacts of BMPs.

> *"Quantification of problems and solutions. It's measurement of the problem, measurement of the solution, and measurement of where we're at on getting there."*

> *"[You have to consider] the economics of it all…Understand the impacts on farm economics when you're talking about what conservation practices to install."*

Participants believed interagency coordination and technical expertise is needed to measure water quality responses to BMPs, but emphasized the importance of confidentiality when measuring impacts of BMPs on specific operations.

Finally, it is important to share results of water quality monitoring so conservation staff, producer, landowners, and the non-agricultural community are aware of the impacts their actions have on watershed health. Although measurable change in water quality can take years to document, participants emphasized the importance of the agricultural and non-agricultural community to understand what progress has been made in their watershed, related to watershed health.

Outreach and Engagement

Participants emphasized the importance of outreach and education and suggested an "all-in" approach for effective outreach and education. This approach includes the agricultural community (producers, landowners, retailors, and agricultural partners), non-agricultural community (general public, industry, up/downstream communities, water users), along with decision makers and public influences (state and local elected officials, community leaders).

> *"Definitely the farmer. I think that that's one branch. Then I think we got to outreach to the general public, to legislators."*

Participants highlighted the need for tailored information and public events that focus on the public value of agriculture and demonstrate successful watershed management to those included in the "all-in" approach. Participants also emphasized the need to customize information and delivery methods to reflect the interests and objectives of recipients.

> *"[Its important to] define the different audiences and understand where people are getting their sources of information [from], both in terms of media type and trusted messengers. From there, you can build more targeted messaging [that address] specific things about that audience that might be different than other audiences."*

Related to staffing concerns, participants also felt as though follow-up with participants is another important component for effective outreach and engagement.

> *"I remember when we had time to do follow-up. We would go out and meet with producers on land uses and things we had actually worked on two and three years before. [We'd] follow-up with them to see how that was working for them and see how it was better. That was part of our job, now we don't have time hardly to get out one time much less go back and follow-up."*

Participants also described the need to coordinate outreach and education with partners to ensure they are not promoting conflicting information or overly burdening producers.

> *"The thing I hate the idea of most is NRCS goes and asks the farm some questions, then [another] agency goes, not knowing [NRCS] has gone…It just kind of tends to waste the time of the landowner or the operator."*

Summary
The four overall resource needs identified by participants include funding, leadership, monitoring and evaluation, and outreach and education.

Participants agreed that funding allocated to watersheds should be consistent, coordinated, and long-term. Funding should also address personnel and project needs. Personnel needs included staff to provide technical assistance and dedicated time towards relationship building in the watershed. Project needs included a diverse funding sources, financial assistance, and flexible watershed planning resources.

The second resource need identified by participants was leadership from conservation staff and the local community. A staff leader (i.e., watershed coordinator) should have technical expertise, established relationships with the local community and a collaborative mindset. Community leaders (i.e., watershed champions) can serve as liaisons between conservation staff and their community. These leaders can help increase buy-in from producers, landowners, and other diverse stakeholder groups within the watershed.

Participants highlighted the need for coordinated monitoring and evaluation in their watershed to document watershed impairments and measure the success of watershed improvement projects. Participants suggested sharing watershed-level results with the agricultural and non-agricultural communities, but stressed the importance of ensuring field-specific data remain confidential.

Finally, participants believed outreach and engagement to be another important resource needed for successful watershed management. Effective engagement requires targeted outreach to diverse stakeholders impacted by watershed health, including the agricultural and non-agricultural communities as well as decision makers and public influencers. Participants also indicated a need for coordinated outreach and engagement paired with follow-up interactions to reduce conflicting messages.

3.1.4 Strategies for Outreach and Education

The following section describes recipients, content, and delivery methods for watershed-related information identified by participants in the five watershed forums. Table 17 describes individual watershed forum themes that informed themes discussed in this section. Recipients include individuals or groups who participants believe can make or influence on-farm decisions impacting water quality and BMP adoption. Content includes messaging strategies identified by participants that they believe to effectively communicate watershed-related information to appropriate recipients. Delivery includes methods recognized by participants as effective techniques used to disseminate watershed-related information to recipients.

Table 17. Recurring emergent themes from individual watershed forums informing strategies for successful outreach and education.

Topic	Theme	Individual Forum Theme	Watershed state(s)
Recipients	***Agricultural Community***	Producers, Non-Operating Landowners, and Homeowners	IL
		Landowners and Producers	NC
		Potential Practice Adopters	OK
		Producers	VT
	Non-agricultural Community	Producers, Non-Operating Landowners, and Homeowners	IL
		General Public	IL
		Students	IL
		Water Users and Decision Makers	NC, OK, VT
	Decision Makers and Public Influencers	Community Partners and Legislators	IL
		Elected Official and Community Leaders	NC
		Legislative Engagement	OK
		Legislative Leaders	OK
		Water Users and Decision Makers	VT
Content	***Tailored and Consistent***	Consistency	NC
		Programmatic Awareness	NC
		Sector Specific Impacts and BMP Awareness	OK
		Success Stories	OK
		Targeted Outreach	WA
		Tailored Messaging	WA
		Where to find available resources	IL
	Successes	Economic and On-Farm Impacts	IL
		Promote Success Stories	IL, NC
		Public Awareness and Success Stories	OK
		Regulatory Threat and Voluntary Options	VT
	On-Farm Benefits	On-Farm Benefits	IL, OK
	Agriculture and Watershed Health Value	Highlight Importance of Agriculture and Watershed Health	NC
		Progress Updates	OK
		Promote Agricultural Benefits to the Broad Community	VT
		Promote Value of a Healthy Watershed	WA
	Progress Updates	Public Awareness and Success Stories	WA
Delivery	***One-on-One***	Additional Staff Resources	NC
		One-on-One	OK
		Personal Interactions	VT, WA
		Private Sector and Commodity Groups	IL
	Peer-to-Peer	Peer-to-Peer	IL, OK, VT
	Hands-On	BMP Farm Tours	NC
		Connect to the General Public	NC
		Hands-On	OK
		Informational Events	VT
		Integrate Conservation Programming into Existing Curriculum	VT
		Public Connections	WA
	Social Media	Social Media Engagement	NC

Recipients

Participants identified three stakeholder groups as important recipients for watershed-related outreach and education: (1) agricultural community, (2) non-agricultural community, and (3) decision makers and public influencers. This approach includes agricultural and non-agricultural communities and depends on collaboration between public and private partners. One participant shared the benefits of targeting a diverse audience since it can leverage resources as well as public and private partnerships.

> *"Extension does demonstrations and research and shows cover crops, then NRCS put a focus on it, then a farmer organization was started, who talked [to farmers] about putting focus on it. Industry came in and supported the idea, and all of a sudden it just all joined together. That's why it blossomed."*

Agricultural Community

Participants described the agricultural community as individuals who currently have the potential to adopt BMPs (e.g., producers/landowners), those who own farmland and have potential to influence management decisions (e.g., on-operating landowners), and private sector partners who can impact decisions in their industry or agricultural sector (e.g., commodity groups, agricultural industries).

Due to the voluntary nature of watershed improvement projects, participants emphasized the importance of targeting current and potential BMP adopters along with groups or individuals who influence land management decisions. This group is an important recipient of watershed-related outreach and education because their decisions have direct impacts on water quality. While continued engagement with current adopters is important, participants acknowledged the need to engage with potential adopters to achieve desired results.

> *"We have a group of farmers who engage. They're trying to figure this stuff out. They're huge partners but I think the ones we really need to reach are the ones who aren't engaged, and that's a hard one."*

> *"Say you have 100 producers. If two do right, and the other 98 don't do anything, you still got the same problem. You just have two guys thinking, 'Okay, I'm doing good,' but the rest of the watershed is not benefiting."*

In areas with large amounts of rented agricultural land, non-operating landowners are another key recipient of outreach and education. Participants believed non-operating landowners influence on-farm decisions and can benefit from a better understanding of impacts of their operation and actions they can take to improve their operation and watershed health.

> *"If the landowners don't understand, most of the time the producers don't get to do it… We're trying to combat [water quality issues] by informing landowners that water quality is affected by how they manage their land. We need to correct these problems right now with those landowners."*

Increased outreach and education to agricultural industry and commodity groups was also suggested by participants due to the influence these groups have on on-farm decisions and industrial supply chains.

> *"Industry has to get behind us. It's a lot easier for them to say [to their contractors or buyers], 'You need to go to this meeting.' They'll go to the meeting because they're afraid they'll get cut out [if they don't go]. Or, the guy down the road is going to know something they don't."*

Non-agricultural Community

The non-agricultural community includes the general public, residential landowners, students, educators, and others who impact or benefit from improved watershed health. Participants expressed concern with the public's lack of awareness related to watershed issues and highlighted the importance of communicating information across urban and rural landscape. Participants emphasized the importance of public support and believed it to be necessary for successful watershed management.

> *"I would say that it's community [ownership and engagement] that is most important because, without it, you won't get anything [done]...it relates to the political will which relates to funding… [It's] a precursor to the money… it'll make or break the whole thing."*

Acknowledging the importance of educating the next generation of producers, landowners, decision makers, and the general public, participants suggested working with educators to develop curricula that promote watershed health.

"The teachers need to know what to tell their students. We could even have classes drawn up to where students have to participate and realize what needs to be done in the county to keep our soil and our water safe."

"Rather than kids going home and telling their dad to change his [operation], when the kid takes over the farm 30 years from now he's probably going to remember the things that he learned [in college], and he'll change it. There's a long payment for involving the kids, but I think it's there."

Recognizing the impacts of non-agricultural lands, participants acknowledged that urban and suburban homeowners can impact water quality. Regardless of the size of the parcel, everyone's actions can impact water quality.

"Those folks that own their 750 square yards in town, and take enough of those folks together and they have an acre or 10 acres and then 20 acres. They are [residential] landowners and users just like [those of us] who operate 1500 acres at a time."

Decision Makers and Public Influencers

Participants believed local and state decision makers are another important recipient of watershed-related outreach and education. Support from local decision makers as well as public influencers, (i.e., county commissioners, school superintendents, elected or appointed officials) is important due to the influence they have in the community. Participants highlighted the importance of informing local governments, municipal water managers, and decision makers of watershed-related information. This is especially important when the target watershed is the source of municipal water.

"The City of Bloomington needs their decision makers to be informed and help the public works to do their job. Start with city council members and the mayor, those types of people."

Other participants suggested regional policy makers could benefit from increased awareness of watershed-related issues and additional information on challenges associated with improving water quality. Increased awareness of this group can help influence public policy and increase political and financial support for improving watershed health.

"You've got to affect the policy people today or else it will be all gone…I sat in on the [state] Senate Ag and the chairman asked [the farmers] if there was anything they wanted to say. I said, 'No, what do you want to ask me? I've been doing this for 43 years. Been modestly successful. Here you've got a real, live farmer. What do you want to ask me?'…they had no clue what to ask."

Content

Participants identified five content themes for watershed-related outreach and education: (1) tailored and consistent, (2) successes, (3) on-farm benefits, (4) agriculture and watershed health value, and (5) progress updates. The tailored and consistent theme describes participants' belief that watershed-related outreach and education should be tailored to reach specific audiences and consistent to avoid conflicting messages. The additional four themes discuss specific content important for recipients of watershed-related outreach and education, including promoting success stories to agricultural and non-agricultural communities, focusing on on-farm benefits of BMP adoption, communicating the value of agricultural and watershed health, and providing updates on watershed improvement progress.

Tailored and Consistent

Participants emphasized the importance of tailoring watershed-related information to different stakeholder groups depending on their specific interest and role in the watershed. Because watershed-related information should be communicated to diverse stakeholder groups, participants believed a tailored message would be most effective. Participants also stressed the need for a consistent message and warned against causing confusion between stakeholder groups with inconsistent or conflicting messages.

"We have a lot of different groups who are putting information out. You want to make sure it's all the same, that one group isn't saying something different than another and so on because the second that counters itself, you've completely just alienated somebody and/or screwed someone's hard work up. So really making sure it's the same, coordinated, consistent message [is important]."

Successes

While participants stressed the importance of public awareness of watershed-related issues, they cautioned against using an accusatory tone towards the agricultural community. To avoid pointing fingers at specific groups, participants suggested promoting solutions to watershed-related issues. While it is important to be aware of existing problems, it is equally important to communicate solutions. Participants believed sharing success stories with the general public, legislative leaders, and BMP adopters can increase both public support and BMP adoption.

> *"I think one of the solutions to this problem is going to be found by what we're doing in these small watershed efforts where we're focusing in on technical and financial assistance in small areas. We can show the results and say 'if we do this, we can have a success.' As we make that public we can replicate it and get the momentum that's needed to move it forward throughout the [larger] watershed."*

Participants also believed outreach and education can promote successful watershed projects to combat negative attitudes towards agriculture in the media. Participants stressed the need to focus on achievements, rather than impairments.

> *"When people Google 'water quality in Vermont' they get just as many good articles as negative ones. The success story has to be the first one that pops up when you Google 'water quality Vermont'…There's a lot of information out there about what's going on that impairs water quality, but there's not near as much information that's put out there about some of the successes that could be improved on. I think it challenges the community."*

More specific to potential BMP adopters, participants emphasized the need to increase public awareness of available resources that can facilitate project success (e.g., cost-share programs, technical assistance). They suggested emphasizing that voluntary actions promoted through these watershed improvement projects have positive impacts on water quality and accomplish both on-farm and watershed wide objectives.

> *"The message should be that we've got goals that can be accomplished. We have opportunities to improve our resources now, and we have assistance from the federal level and state level."*

On-Farm Benefits

It is important to highlight on-farm impacts and specific benefits producers receive from implementing BMPs. Participants believed focusing on on-farm impacts can mitigate economic concerns associated with BMP adoption.

> *"Most people want to do the right thing but they have to weigh economics with conservation. So, showing that you don't have to give up one to have the other, you can meld conservation [and economics] while still meeting a bottom line that's acceptable."*

Although watershed improvement projects have landscape-scale objectives, participants recognized the need to communicate that incremental on-farm improvements can provide on-farm benefits while contributing to landscape-scale changes in the watershed.

> *"To get the big picture, you got to go with the little pictures first, and the little pictures is educating and making [farmers] understand how beneficial it is to them… [Big picture], we're looking at Waurika Lake, and then we take it down the next step and we're looking at Little Beaver Creek because it's an impaired stream. Then we're going to take it down to field scale and say, 'If you lose ten foot off that bank every year, look at how it's advancing across your property.' Little things like that…We can promote soil health and all the systems around it, then tie it to economics and cost savings."*

Agriculture and Watershed Health Value

Participants reiterated the importance for the public to support agriculture and suggested highlighting public benefits of agriculture and watershed health to the non-agricultural community, decision makers, and influencers. They described a disconnect between the agricultural and non-agricultural community and believed this disconnect stems from a lack of information on agriculture's value to their community. Participants believed increasing public understanding of agriculture's social and economic benefits would increase public support of agriculture.

> *"A lot of today's public probably did not grow up on a farm. The Agency of Agriculture put out a brochure that captured all the different pieces of life that are impacted by farming. It talked about hunting land, snowmobile grounds, access to fishing…I think that makes more sense to the public. They may not care about milk and cows, but they do want that field to snow-shoe across or that spot to hunt. They want their fishing access, you know, so more in their terms."*

Specific to decision makers and legislative leaders, participants highlighted the importance of communicating that their support is valuable to both water quality and the agricultural community.

> *"Legislators and agencies [need to know] that the dollars are extremely important. There's got to be something in the budget for it…They have an opportunity to help everybody in their district as a representative with some funding."*

Progress Updates

Participants believed sharing project progress is not only important to establish transparency, but also maintains public interest and provides an opportunity to acknowledge improvements and identify project adaptations to encourage further improvements.

> *"Are we actually seeing a change? You want to have milestones so that wherever you hit them, you can [say you've accomplished something] …And if we miss, why do we miss? How do we change course? [We need to communicate] that we're adjusting to get back on track."*

Delivery

Participants identified four methods of delivery for watershed-related outreach and education including (1) one-on-one, (2) peer-to-peer, (3) hands-on, and (4) social media. Participants highlight the importance of one-on-one interactions between producers and conservation staff, private sector partners, and commodity groups. Participants also highlighted the influence that peer-to-peer interactions have and the importance of hands-on learning for all recipients. Although participants do not believe social media is an effective method of delivery for all recipients, they identified it as an effective tool to communicate with more technologically skilled recipients.

One-on-One

Participants emphasized the need for one-on-one interactions between conservation staff and producers as well as private sector partners and producers. One-on-one interactions between conservation staff and producers are important to develop a trusted working relationship and are believed to increase buy-in and participation in watershed improvement projects.

> *"One avenue that we've used here is just personal contact with people we've known in the watershed for years. We know all the things they need on their farms, and it gives us an opportunity to get out there and get them their cost-share. We give them a phone call or a visit and just ask them what they need on their farms. They'll open up to us because we have that relationship with them, have had for years. A lot of folks won't go to a meeting, they won't go to a community function, and some of them are skeptical of the government. Those many, many years of personal contact and farm visits do a whole lot for us."*

Partnering with the private sector (i.e., crop advisors, agri-businesses, commodity groups) was suggested to help deliver information and promote the success of BMP implementation in the watersheds. Acknowledging the influential role of private sector partners, participants believed one-on-one interactions between private sector partners and producers can play a key role in spreading information throughout the agricultural community.

> *"There are [private sector] people who sit down with [farmers] every day, really most of those clients don't even come in NRCS's office. So then that [private sector] person is dealing with them and trying to [get farmers to] come to the NRCS office. That was exciting for us. It's a unique way to get the farmers from the private sector."*

Peer-to-Peer

Participants indicated that producers who worked with conservation staff in the past can be an important resource to other producers in their watershed. Participants believed practices endorsed by producers who have had positive experiences is an effective method to promote practices and can increase adoption along with buy-in across the watershed.

> *"The best people are the ones that have done work with you before that go tell their buddies. Word of mouth is really the best. Years ago, when no-till started, we'd have no-till meetings, and we'd have a panel. Four or five guys who had been doing no-till for five years, twenty years, whatever. That's who everybody wanted to hear from. Didn't necessarily want to hear from the PhDs, and all the charts – it was good information, but they wanted to hear from other producers."*

Hands-on

Participants underscored the importance of having hands-on events for different stakeholder groups. They suggested tailoring these events to focus on the diverse stakeholder groups' specific interests.

> *"Get the producers out there to see BMPs in action, so they're not scared of them. Get the [public] out there so they can do an 'ask-the-farmer' kind of day, so they feel more comfortable about where their food comes from. Then get your legislators, leadership out there, they're the ones that will eventually write the checks."*

Social Media

Although participants agree that social media is not an effective method of communication for all stakeholder groups, they acknowledged that it can be an effective tool to promote watershed-related information to a broad audience, new generations of producers who are more technologically skilled, and first-generation producers who may be looking for additional resources.

> *"A lot of the reason I'm involved with some of the younger farmers in this county is Facebook. They'll get in some kind of group like there's one about regenerative farming. You've got someone who really cares about regenerative farming and they need information because they may be first-generation farmers."*

3.2 Interagency Partner Interviews

From January to April 2018, representatives from regional EPA offices and SWQAs from each watershed forum were interviewed regarding their agency's role in the NWQI, USDA-NRCS's role as a local partner in watershed management, and resources needed for successful watershed management (Appendix D). While each agency had a unique working relationship with USDA-NRCS, they fulfill similar roles and responsibilities related to the NWQI. The following sections summarize recurring themes through interviews with the SWQA and the EPA representatives (Table 18). For more information on specific states, refer to the individual state forum reports.

Table 18. EPA region and corresponding SWQA for each watershed forum location.

State	Watershed	EPA Region	SWQA
IL	Lake Bloomington	5	Illinois Environmental Protection Agency (IEPA)
NC	Roaring River	4	North Carolina Department of Environmental Quality (NCDEQ)
OK	Little Beaver Creek	6	Oklahoma Conservation Commission (OCC)
VT	East Creek	1	Vermont Department of Environmental Conservation (VTDEC)
WA	Tenmile Creek	10	Washington State Department of Ecology (ECY)

3.2.1 Agency Roles

The EPA staff reported the EPA's role in the NWQI is to allocate federal funds to SWQAs to support reduction of water quality impairments and document water quality improvements resulting from the NWQI. EPA staff indicated they facilitate coordination between the SWQAs and USDA-NRCS, and provide programmatic, technical, and administrative assistance as needed. The SWQA staff's reported roles are to partner with the USDA-NRCS in priority watershed selection, lead water quality monitoring efforts, facilitate access to federal funds, and assist in development of watershed plans and Watershed Assessments for NWQI watersheds.

3.2.2 NWQI Challenges

The EPA and SWQA staff acknowledged the importance of the NWQI's targeted watershed approach. They believed efforts to leverage state and federal funds contribute to water quality improvement and identified challenges associated with the NWQI. Reported challenges included lack of transparency in the watershed selection, lack of information to guide water quality monitoring, and reduced staff resources in NWQI watersheds. Although both EPA and SWQA representatives agreed that the NWQI provides a framework to focus agency resources and increases discussion at the state and regional level, some representatives indicated the NWQI fails to provide infrastructure for effective coordination at the watershed level.

SWQAs are directed to recommend priority watersheds to the USDA-NRCS based on their available resource contributions. Although some SWQA staff (OCC and VTDEC) reported their recommendations were selected as priority watersheds, others expressed frustration that theirs were not. SWQA staff reported this lack of coordination limits their resource contributions to the NWQI and suggested increasing transparency and consistency of priority watershed selection criteria to better guide their recommendations.

Most states also reported the lack of information exchange between the USDA-NRCS and SWQAs limited their ability to monitor water quality in NWQI watersheds. While this issue was not reported by OCC, other SWQA staff emphasized the need to increase specificity of BMP location data to inform water quality monitoring in NWQI watersheds. The EPA and SWQA staff acknowledged the sensitive nature of sharing BMP location data but stressed the importance of this information to measure impacts and document water quality improvements in NWQI watersheds.

Representatives from both agencies believed USDA-NRCS's strength is their ability to develop relationships with local communities and establish community support for watershed improvement projects. Representatives felt that reduced USDA-NRCS staff resources in NWQI watersheds have negative impacts on their relationship with local communities and diminishes potential success of the NWQI and other USDA-NRCS supported watershed improvement programs.

3.2.3 Needs for Successful Watershed Management

The EPA and SWQA representatives agreed that successful watershed management requires a detailed watershed plan that identifies impairments and their source, includes objectives supported by the local community, and relies on water quality monitoring to document success. They stressed the need for a flexible plan to enable landowner enrollment and to support BMP implementation in diverse operations of targeted watersheds.

Representatives emphasized the importance of effective outreach and education. They also acknowledged the importance of working through trusted social networks and using face-to-face communication to deliver watershed-related information to targeted audiences. Funded BMP implementation and a coordinated effort with dedicated partners, diverse funding, and community buy-in were also recognized as important components for successful watershed management.

3.3 Watershed Stakeholder Feedback

In February 2019, the NRSS team shared drafts of their individual forum reports with conservation staff from each watershed forum. The NRSS team offered to return to each watershed to share findings, validate results, and solicit feedback on their report. Conservation staff in NC, WA, and VT accepted the offer, while IL and OK declined. In March and April 2019, a member of the NRSS team returned to NC, WA, and VT to present forum results. The section below describes stakeholder feedback received from each watershed and outlines three emergent themes discussed in the three watersheds: project needs, collaboration, and outreach and education.

3.3.1 Watershed stakeholder feedback summary

In NC, a NRSS team member met with Wilkes County SWCD staff to discuss project updates then shared forum results at a public meeting organized by the SWCD. Both SWCD staff and meeting attendees felt the results accurately represented the needs of their watershed, shared challenges associated with producer participation and interagency collaboration, then emphasized the benefits of leveraged resources from their local community.

In WA, an NRSS team member met with conservation staff (Whatcom County CD and local USDA-NRCS), then met with a member of the Tenmile Clean Water Project (TCWP), a citizen-lead watershed group, to discuss the forum results and share project updates. Attendees at both meetings agreed that the forum report captured the needs of the watershed, but did not document challenges associated with the regulatory environment in their state. Attendees described challenges associated with interagency coordination and regulatory uncertainty, suggested improvements to the NWQI Watershed Assessment, highlighted the need to fund watershed-related outreach and education programs, and emphasized the importance of incentivizing behavioral change.

In VT, an NRSS team member met with staff from Otter Creek Natural Resource Conservation District, local USDA-NRCS, and University of Vermont Extension, and a representative from the Champlain Valley Farmer Coalition (a farmer-led organization) to discuss the forum report and share project updates. Attendees believed the report documented the needs of their community and discussed positive impacts of public and private partnerships, described distinctions between regulatory and non-regulatory agency partners, then shared potential solutions to staffing needs for the NWQI and other USDA-NRCS supported watersheds.

3.3.2 Project Needs

NC - Increased cost-share

Wilkes County SWCD staff indicated the need to increase cost-share for streambank restoration to 90% for all NWQI eligible producers in the Roaring River watershed. This increased cost-share can mitigate out-of-pocket expenses and address water quality concerns identified in the Roaring River NWQI Watershed Assessment.

WA - Incentives, maintenance, and Watershed Assessment needs

Both conservation staff (Whatcom County CD and local USDA-NRCS) and TCWP meeting attendees reiterated the importance of incentivizing behavioral change to increase practice adoption. They suggested incentives beyond traditional cost-share programs, such as tax breaks and funding to alleviate maintenance costs of structural BMPs. Related to the Watershed Assessment, conservation staff requested additional guidance and feedback in its development and believed "lessons learned" or "best practices" guidance would aid the development of a more effective Watershed Assessment.

Another suggested improvement was to include a feasibility component to the Watershed Assessment. Due to many parcels in the Tenmile Creek watershed deemed ineligible for enrollment in the NWQI, conservation staff raised concerns with spending allocated funds in the Implementation Phase. To avoid this challenge, conservation staff suggested the Watershed Assessment informs funding allocated to targeted watersheds.

VT - Staff needs and producer enrollment
Participants agreed that administrative requirements of the NWQI are a barrier to producer enrollment and presents challenges to conservation staff. Some participants suggested increasing in-office staff to manage administrative tasks and allow existing staff more time to provide on-farm technical assistance. Other participants suggested maintaining current staff levels and reducing administrative requirements in NWQI watersheds. They believed reduced administrative burden would increase both staff efficiency and producer enrollment.

3.3.3 Collaboration

NC - Interagency Coordination, Leveraged Resources
Wilkes County SWCD staff highlighted the importance of working with state and federal partners. Although relationships with state and federal partners have been beneficial in the past, staff turnover with both state-level USDA-NRCS and NCDEQ has reportedly limited agency coordination and the potential success of the NWQI in the Roaring River watershed. Related to leveraging resources with local and regional partners, Wilkes County SWCD has secured funding through their county for a watershed coordinator position and works with student interns from a regional university. Both positions are key components for successful watershed management in the Roaring River and are the result of effective partnerships.

WA - Interagency Coordination and Regulatory Uncertainty
At both meetings (conservation staff and TCWP), attendees described a challenging relationship with ECY and believed it hindered the success of their watershed project. Attendees believe ECY's water quality standards are unclear and subject to change, depending on interpretation. This regulatory ambiguity increases uncertainty, causes confusion, and results in reduced producer enrollment. In this, at times, contentious environment, USDA-NRCS and Whatcom County CD works with existing partners, such as TCWP, to accomplish water quality monitoring tasks traditionally delegated to SWQAs.

VT - Collaboration
East Creek meeting attendees reiterated the importance of partnering with public and private entities and believed these partnerships are an important component for successful watershed management. They emphasized the need for formal agreements with diverse partners and the importance of working with producer-led organizations. Although attendees reported a good relationship with their SWQA, they stressed the importance of maintaining confidentiality of personally identifiable information and believed the data currently provided to their SWQA adequately informs their water quality monitoring needs.

3.3.4 Outreach and Education

NC - Producer participation
Wilkes County SWCD emphasized the importance of relationship building and believed it was the key to producer enrollment. Although the SWCD has increased outreach in the watershed through increased advertising and partnering with foresters to promote available resources, they shared frustration that their increased efforts have not resulted in increased enrollment. With continued participation from previously enrolled producers, SWCD is hopeful enrolled producers can promote available resources through their peer networks.

WA - Funding for outreach and education
Whatcom County CD shared challenges associated with lack of outreach and education resources to promote targeted funding opportunities in their watershed. They underscored the importance of outreach and education and suggested adding a separate pool of targeted funding to address outreach and education needs, and promote targeted funding opportunities in NWQI watersheds.

3.4 NWQI National Survey

The following section summarizes the results of a national survey administered to NWQI points of contact, watershed partners, and SWQA staff. The full descriptive report of the NWQI National Survey is included in Appendix G. Results are presented for watershed project design, marketing and delivery, then implementation.

3.4.1 Response Rate

The response rate for the NWQI points of contact was 34.1% (completed questionnaires = 109; eligible addresses = 319). A total of 24 NWQI watershed partners responded to the survey. Response rate cannot be calculated for these recipients since snowball sampling method was used. One or more NWQI points of contact or watershed partners responded from a total of 42 states. The overall response rate for the SWQA contacts was 28.2% (completed questionnaires = 28; eligible addresses = 99). One or more SWQA contacts responded from a total of 26 states.

3.4.2 Watershed Project Design

Conservation Staff
A majority (55.9%, N=118; Table G-12) of conservation staff believed watershed plans were very to extremely important for successful watershed management. Similarly, a majority (53.4%, N=118; Table G-13) of respondents indicated the NWQI Watershed Assessment was very to extremely important for successful watershed management. Over two-thirds (67.8%, N=59; Table G-25) of conservation staff indicated the NWQI Outreach Plan was very to extremely important for successful delivery of watershed-related information.

SWQA Staff
A majority (53.8%, N=26; Table G-51) of SWQA respondents believed watershed plans were very to extremely important for successful watershed management. Similarly, a majority (61.6%, N=13; Table G-53) believed the NWQI Watershed Assessment were very to extremely important for successful watershed management. Half (50.0%; N=26; Table G-52) of the respondents indicated their agency was involved in the development of Watershed Assessments. A majority of respondents (61.5%, N=13; Table G-55) believed the Watershed Plan included enough information to facilitate successful watershed management. Of the 26.9% of respondents who indicated their agency was involved in development of the Outreach Plan (N=26; Table G-58), 71.5% (N=7; Table G-59) of respondents felt the Outreach Plan was very to extremely important for successful watershed management.

3.4.3 Marketing and Delivery

Conservation Staff
A total of 42.0% of conservation staff (N=103; Figure G-3) believed producers were the most important recipient of watershed-related outreach and education and indicated producer participation is needed to achieve watershed goals (N=21; Table G-28). A total of 21.0% of conservation staff (N=103; Figure G-3) believed agri-business professionals were the most important recipient of watershed-related outreach and education, while 17.0% of conservation staff believed local community leaders were the most important recipient of watershed-related information (N=103; Figure G-3). Respondents highlighted the importance for the general public to understand agricultural contributions to improve water quality and believed buy-in from community leaders can increase funding and support (N=21; Table G-28).

SWQA Staff
A total of 39.0% of SWQA staff (N=23; Figure G-6) believed producers to be the most important recipient of watershed-related outreach and education because project success depends on producers implementing BMPs into their operation (N=8; Table G-62). A total of 26.0% of SWQA respondents believed agri-business professionals to be the most important recipient of watershed-related outreach and education because of the influence and direct interaction they have with producers (N=23; Figure G-6). A total of 22.0% of SWQA respondents (N=23; Figure G-6) believed local community leaders are the most important recipient of watershed-related information. Similar to agri-business professionals, respondents highlighted the influence local community leaders have with producers and believed their support can lead to increased producer participation (N=8; Table G-62).

3.4.4 Implementation

Conservation Staff

A total of 46.0% of conservation staff (N=111; Figure G-1) believed the most important staff needs for successful watershed management is additional staff to manage targeted watershed initiatives. Just over a quarter (26.0%; N=111; Figure G-1) of conservation staff believed allocating time to outreach in the agricultural community is most important. Just under a quarter (24.0%; N=111; Figure G-1) of conservation staff believed allocating additional time towards providing on-farm technical assistance is most important.

Over two-thirds (67.0%) of conservation staff believed their relationship with their SWQA to be good to very good (N=112; Table G-29). A majority (59.9%) also indicated that the NWQI has had a somewhat or extremely positive impact on the working relationship between USDA-NRCS and their SWQA (N=112; Table G-30). Although responses indicated a largely positive attitude towards the working relationship with SWQAs, some respondents shared frustration with the lack of communication between USDA-NRCS and SWQAs (N=29; Table G-31).

SWQA Staff

A total of 41.0% of SWQA staff believed the most important staff need for successful watershed management is additional staff to manage targeted watershed initiatives (N=22 Figure G-4). Just over a third (36.0%) of SWQA staff indicated allocating time to outreach in the agricultural community is most important (N=22 Figure G-4). A total of 18.0% of SWQA respondents believed allocating additional time towards providing on-farm technical assistance is most important (N=22 Figure G-4).

Almost half (44.4% and 46.2%, respectively) of SWQA respondents reported their working relationship with state-level USDA-NRCS to be good to very good (N=27; Table G-45) and reported their relationship with district-level USDA-NRCS to be good to very good (N=26; Table G-45). A total of 46.1% of SWQA respondents reported the NWQI has had a somewhat to extremely positive impact on their working relationship with state-level USDA-NRCS (N=26; Table G-46) and 50.0% indicated the NWQI has had a somewhat to extremely positive impact on their working relationship with district-level USDA-NRCS (N=24; Table G-46). Although SWQA respondents reported an overall positive working relationship with state and local USDA-NRCS, some SWQA respondents shared frustration related to their role in the selection of NWQI watersheds, USDA-NRCS staff resource concerns, and lack of communication (N=18; Table G-47).

4 Recommendations

The NRSS team developed the following recommendations to inform project design, marketing, delivery, and implementation of the NWQI and other USDA-NRCS supported watershed projects. This section provides agency-level recommendations for USDA-NRCS as well as watershed-level recommendations for NWQI watersheds informed by all of the project data collection activities.

4.1.1 Agency-level

The following recommendations are intended for USDA-NRCS staff use at the state and federal level. Informed by the four data collection activities, these agency-level recommendations aim to improve USDA-NRCS's ability to design, market, deliver, and implement watershed improvement efforts across the US.

1. **Increase interagency coordination and partnerships to improve NWQI watershed selection and enable water quality monitoring.**
   To inform both project design and implementation objectives of the NWQI and other USDA-NRCS supported watershed projects, we recommend USDA-NRCS increase coordination and transparency with SWQAs and other watershed partners. Specifically, increase coordination in NWQI watershed selection and agree upon an appropriate scale to share BMP location data that can maintain participant confidentiality while informing water quality monitoring needs of partners.

   A collaborative work environment is important to achieve water quality improvement goals. While the NWQI provides a framework to increase coordination through leveraged resources, some suggest the NWQI has fallen short of that objective. Increased transparency of watershed selection criteria and consideration of SWQA recommendations ensures NWQI watersheds are eligible to receive leveraged funding and support from partners. Additionally, increased specificity of BMP location data is important to direct water quality monitoring efforts in NWQI watersheds. While participant confidentiality is a priority, information sharing between USDA-NRCS and partners is needed to accomplish water quality monitoring objectives.

2. **Increase staff resources in NWQI watersheds**
   To address implementation needs of the NWQI and other USDA-NRCS supported watershed projects, we recommend USDA-NRCS increase staff resources in NWQI watersheds to maintain local working relationships, manage additional work load, and support technical assistance needs of the NWQI.

   Trusted working relationships between conservation staff and producers is important to the success of a watershed improvement project. Many believe USDA-NRCS's strength is their ability to develop local relationships and provide technical assistance to producers. The lack of staff resources discussed is believed to have resulted in reduced technical expertise, strained working relationships, and ultimately decreased likelihood of a successful watershed improvement project. Increased staff resources in NWQI watersheds allow staff more time to provide technical assistance, develop relationships with current and potential adopters, and understand the unique needs of the watershed community.

4.1.2 Watershed-level

The following recommendations are intended for watersheds enrolled in the NWQI or other USDA-NRCS supported watershed improvement efforts and inform marketing and delivery objectives of the NWQI and other USDA-NRCS supported watershed projects. Informed by the four data collection activities, these watershed-level recommendations aim to improve local conservation staff's ability to design, market, deliver and implement watershed improvement efforts in their USDA-NRCS supported watersheds.

1. **Promote on-farm benefits of BMP adoption**
   We recommend NWQI watersheds promote on-farm and economic benefits of BMP adoption to producers and landowners.

   It is important to promote on-farm and economic benefits of BMP adoption to current and potential BMP adopters. Communicating this information can alleviate economic concerns related to BMP adoption and further incentivize participation in watershed improvement projects. While intrinsic environmental or downstream benefits of watershed management is an effective message for some, it is important for current and potential adopters to understand direct benefits they receive from enrollment in watershed projects such as the NWQI.

2. **Develop tailored and consistent outreach material**
   We recommend NWQI watersheds develop tailored outreach material with consistent messaging for the diverse groups of stakeholders within watersheds.

   Consistent, yet tailored outreach materials are needed for diverse stakeholders in the agricultural and non-agricultural community who impact, and are impacted by watershed-related issues. Tailored outreach materials should raise awareness of watershed-related issues, focus on specific stakeholder interests, and highlight ways they can contribute to improved watershed health. In addition to tailored outreach material, a tailored approach to content delivery that identifies appropriate messengers of watershed-related information can increase impacts of watershed-related outreach and education.

3. **Promote success within the agricultural community**
   We recommend NWQI watersheds promote watershed successes to the agricultural community.

   Due to the NWQI's dependence on voluntary adoption of BMPs, it is important to promote relatable success stories to potential adopters and emphasize that voluntary actions can achieve both on-farm objectives as well as watershed-wide goals. Promoting local successes, through peer networks and one-on-one interactions with conservation staff, private sector partners, and commodity groups can raise awareness of available resources and increase BMP adoption.

4. **Promote value of agriculture and watershed health to decision makers and non-agricultural communities**.
   We recommend NWQI watersheds promote the value of agriculture and public benefits of watershed health to local leaders and the non-agricultural community.

   Political and community support of watershed management at the local level is important for successful watershed management. To reduce anti-agriculture sentiments held by the non-agricultural community, promoting agricultural contribution to watershed health can alleviate tensions between the communities and increase public support for watershed improvement projects. Promoting agricultural contributions to watershed health and society can increase understanding of the economic, health, and recreational benefits a healthy watershed can bring to the agricultural and non-agricultural community.

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Appendix A: Forum Pre-Survey – Pre-Survey Methods

This appendix describes the development, data collection, analysis, and results of the pre-survey sent to local stakeholders invited to the NWQI forum in the five locations.

Development

The NRSS team developed a pre-survey to identify stakeholder priorities, suggestions for successful watershed management, and elements of successful watershed outreach and education (Figure A-1). The pre-survey was designed to incorporate stakeholder responses into the priority, resource needs and outreach and education forum activities.

Data Collection

Local conservation staff from each forum watershed invited stakeholders via email, mail, or in-person to participate in the watershed forum. Approximately two weeks before the forum the conservation staff or NRSS team sent pre-surveys to invited participants. No pre-survey reminders were sent. Respondents who were sent a hardcopy of the pre-survey were also were provided a link to take the online version of the pre-survey. Online version of the pre-survey was administered by Qualtrics, an online survey software (Qualtrics, Provo, UT).

Additional information collected from the pre-survey included 1) involvement in watershed planning, 2) sources of watershed-related information, and 3) preferred method(s) to receive watershed-related information. Additional information gathered from the pre-survey was not used in the forum activities and therefore not included in this report.

Analysis

Survey response rate was calculated by dividing the total number of completed pre-survey responses by the total number of pre-surveys sent. Bad address data is not available. Survey questions incorporated into the forum included four open-ended questions (Table A-1). An NRSS team member analyzed pre-survey responses by identifying emerging themes in MS Excel (2019).

Table A-1. Survey questions used in forum activities

Survey Question (Q#)	Survey Question (text)
Q4	In your opinion, what does successful watershed management look like?
Q5	In your opinion, what resources are needed for successful watershed management implementation?
Q6	In your opinion, what are key elements of successful watershed outreach and communication?"
Q7	In your opinion, what resources are necessary for successful watershed outreach and communication?

Results

Survey response rate varied by watershed and ranged from 16.2% in NC, to 68.4% in WA (Table A-2)

Table A-2. Response rate by state

State	Completed (n)	Sent (N)	Response Rate (%)
WA	13	19	68.4
IL	9	16	56.3
VT	12	32	37.5
OK	5	15	33.3
NC	7	43	16.2
Total:	**46**	**125**	**36.8**

Priorities

Pre-survey responses to four open ended questions (Q4, Q5, Q6, and Q7) from the first watershed forum (NC) were incorporated into the forum priority activity as individual priorities. Only NC pre-survey responses were used to enable comparisons between watersheds. Derived from the emergent themes of Q4, Q5, Q6, and Q7, five priorities were incorporated into the forum priority activity (priority numbers 1, 5, 7, 14 and 30 [Appendix B, Table B-1]).

Resource needs

Pre-survey response to two open ended questions (Q4, Q5) were incorporated into the resource needs activity for each watershed (Table A-3) as examples. Resource need examples were displayed on 5x7 sticky note for each small group.

Table A-3. Forum pre-survey responses included in resource needs activity by state.

NC	WA	IL	VT	OK
• Documentaries • Funding • Incentive grants • Informed residents • Monitoring • People • Printed material • Rangers and wildlife officials • Subsidies for streamside management zones • Volunteer organizations	• Adaptive regulatory system • Address needs in stream and out of stream • Community ownership and engagement • Drainage management and improvements • Flexible funding • Funding to repair and replace septic systems • Identify managers/decision makers • Manage water for multiple uses • Prioritize solutions to meet needs • Sources tracking and water monitoring	• Cooperation of parties • Financial incentives • Funding for transition and implementation • Impacts of BMP to yield potential • Limited regulation • Reduce fertilizer and soil runoff • Safe water supply and wildlife habitats • Understand how BMPs effect producers	• Community driven plan to address all resource concerns • Develop materials and activities for farmer and landowner outreach • Develop S.M.A.R.T goals • Flexible resources farmers and landowner engagement • Prioritize funding to critical watersheds • Shared goals • Strong partnerships with “all-in” approach • Understand watershed impairments	• Financial assistance • Invasive species management • Proper fencing • Runoff control • Technical assistance

Outreach and education strategies

Pre-survey responses to two open ended questions (Q6, Q7) were incorporated into the outreach and education strategy activity for each watershed (Table A-4) as examples. Examples of outreach and education strategies were displayed on a pre-populated flip chart for each small group.

Table A-4. Forum pre-survey responses included in strategies for outreach and education activity.

NC	WA	IL	VT	OK
• Watershed signage • Videos • Soil and water conservation education • Listen and work with responsible parties • Show extremes of watershed management (good and bad) • User friendly website • Educate school children and college students	• Hydrology, biology and flooding education • Pilot projects and demonstrations to show practice effectiveness • Building community and trust around the watershed • Adaptable funding • Deep understanding of the area • Inclusive communication and listening	• Central hub agency • Regular updates • Capitol to cover financial loss in transition periods • Direct contacts • Work with community leaders • Show BMPs use to production systems	• Explain complicated funding mechanism • Outreach budget • Show how farm fits into larger picture • Short, straight to the point letters and emails • Before and after display of implementation and explain how farmers benefit from practice • Show impacts of proposed conservation practices • Cooperative approach (farm, community, government) • Highlight success stories • Updates and reports	• Deadline and requirements notification • Funding for communication personnel • Show the big picture • Personal communication • Provide updates

Conclusion

Survey information gathered from recipients and incorporated into the forum included 1) priorities for successful watershed management (Q4), 2) resource needs for successful watershed management (Q5), 3) outreach and education strategies (Q6), and 4) resources needed for successful watershed outreach and communication (Q7).

The following open-ended pre-survey questions were incorporated in the watershed forum activities:

Activity	Survey question(s)	Format in forum
Identify Resource Needs	Q4, Q5	Resource need on 5x7 sticky note
Identify Elements of Successful Watershed Outreach and Education	Q6, Q7	Examples on a pre-populated flip chart

Figure A-1. Example forum pre-survey

Watershed Management Forum

Your Views on Watershed Management and Communication

Thank you again for helping us understand your perspective on watershed management and your opinions on how NRCS can be an effective local partner. The information you provide will help inform future watershed work as well as funding and technical assistance for local conservation efforts in North Carolina and across the US.

General Information

1. Please indicate your primary role in the Roaring River watershed (check one):

- ☐ Community member
- ☐ Local government staff
- ☐ Natural Resources Conservation Service staff (NRCS)
- ☐ Non-governmental organization staff
- ☐ Producer
- ☐ Research scientist
- ☐ Soil and Water Conservation District staff (SWCD)
- ☐ Other:_____

2. Are you aware of watershed planning in the Roaring River watershed?

- ☐ No, I am not aware of watershed planning in the Roaring River watershed.
- ☐ Yes, I am aware of watershed planning in the Roaring River watershed, but *I am not* currently involved.
- ☐ Yes, I am aware of watershed planning in the Roaring River watershed, and *I am* currently involved.

3. If you are involved in watershed planning in the Roaring River watershed, how are you involved?

Watershed Management

4. In your opinion, what does successful watershed management look like?

5. In your opinion, what resources are needed for successful watershed management implementation?

Watershed Communication

6. In your opinion, what are *key elements* of successful watershed outreach and communication?

7. In your opinion, what *resources* are necessary for successful watershed outreach and communication?

8. From whom do you receive information about watershed management in the Roaring River watershed? (check all that apply)

- ☐ Extension agent
- ☐ NC Department of Environmental Quality
- ☐ NRCS (Natural Resources Conservation Service)
- ☐ Social media (Facebook, Twitter...)
- ☐ Wilkes SWCD (Soil and Water Conservation District)
- ☐ Your crop advisor
- ☐ Your peers
- ☐ Other: _____

9. Please indicate how you prefer to receive information about watershed management in the Roaring River watershed (check all that apply):

- ☐ Email
- ☐ Letter
- ☐ Newspaper
- ☐ Personal conversation
- ☐ Phone call
- ☐ Public meeting
- ☐ Website
- ☐ Other: _____

Please feel free to let us know any other thoughts or comments you may have about watershed planning, management or communication below.

If you have any questions or concerns regarding this survey or the upcoming forum, please contact Linda Prokopy at (765) 496-0260 or LProkopy@purdue.edu

Watershed Management Forum

Your Views on Watershed Management and Communication

Appendix B: Watershed Priorities - Detailed Methods

Development

The NRSS team developed 36 priority statements to represent a wide range of watershed priorities for the watershed priority activity. Statement development was informed by two data sources: 1) current literature about successful watershed management (Borisova, Racevskis & Kipp, 2012; Church & Prokopy, 2017; Druschke & Hychka, 2015; Focht, 2002; Osmond et al., 2012; Schall et al., 2018; Steelman & Maguire, 1999) and 2) input from stakeholders from the NC watershed forum collected via the forum pre-survey. Only NC forum pre-survey responses were used for statement development as it was the first forum conducted and statements needed to be consistent across forums to compare results.

Researchers reviewed content from data sources that addressed project design, marketing, delivery, and implementation of watershed-related information. To gather information from watershed stakeholders, researchers incorporated stakeholder responses from the NC forum by adapting pre-survey responses to the question, "What does successful watershed management look like?". Each statement was assigned a priority number (PN) and one of 11 priority categories, based on the subject of the priority (Table B-1).

Table B-1. Priority statements and associated categories

PN	Priority	Priority Category
1	Landowners/producers should know what best management practices are and why they should be used.	Knowledge/Education
2	Addressing concerns of local watershed stakeholders should be the highest priority for resource managers.	Stakeholder Concerns
3	Technical and/or financial assistance for those who qualify is necessary.	Assistance
4	A watershed plan is necessary.	Watershed Planning
5	Land and water should have species diversity.	Biological Integrity
6	Management should be done at a small geographic scale.	Geographic Scale
7	Students (elementary through college) should understand the importance of soil and water conservation.	Knowledge/Education
8	Conservation practices should be adopted on more acres.	Assistance
9	Only local organizations should be involved.	Agency Collaboration
10	No stakeholders' livelihoods should be jeopardized due to watershed management activities.	Stakeholder Concerns
11	Watershed managers should actively engage with the community.	Outreach
12	The public needs to understand how a healthy and balanced watershed can benefit them.	Knowledge/Education
13	Funding should be budgeted specifically for outreach and communication.	Outreach
14	Watershed information should be communicated using diverse methods and reach a broad public audience.	Communication
15	A strong working relationship between producers/landowners and watershed managers is important.	Outreach
16	One-on-one interactions between resource managers and producers/landowners is necessary.	Outreach
17	Watershed stakeholders need to understand the sources of water resource issues.	Knowledge/Education
18	The watershed planning process should include diverse groups of people working towards a common goal.	Inclusion
19	A management plan should support activities that include recreation, economic and environmental benefits.	Watershed Planning
20	Communicating about soil health is more effective than communicating about water quality.	Communication
21	Water monitoring is necessary.	Biological Integrity
22	Achievable water quality goals and targets should be set to show water quality improvements.	Biological Integrity
23	The public should be aware of the range of resource issues associated with their watershed.	Knowledge/Education
24	A clear plan for public involvement/engagement should be included in a watershed management plan.	Watershed Planning
25	Watershed managers should seek out and respect local knowledge, perspective, and experience.	Outreach
26	There should be a flexible plan that allows for changes in management over time.	Watershed Planning
27	Negative effects of watershed management on downstream stakeholders should be minimized.	Stakeholder Concerns
28	Resources and information between local, regional, state, and federal agencies should be coordinated.	Agency Collaboration
29	Watershed managers should focus on water quality issues over water quantity issues.	Biological Integrity
30	The watershed should have a user-friendly website that contains watershed information.	Communication
31	Watershed management should benefit my community and communities downstream of my watershed.	Stakeholder Concerns
32	Watershed management should include an evaluation of the impact of climate change on future quality and quantity in my watershed.	Watershed Planning
33	Community members should take an active role in watershed management.	Inclusion
34	Measurably cleaner water should be an outcome.	Biological Integrity
35	Producers/landowners/businesses should be required to adopt best management practices.	Regulation
36	The watershed needs to be in an impaired or degraded state.	Biological Integrity

Data Collection

Upon arrival to the forum, a NRSS team facilitator explained the watershed priority activity and provided participants with additional written instructions (Figure B-2), 36 priority statement cards, a datasheet (Figure B-3), and a list of all 36 priorities for reference. The activity included three stages: 1) ranking, 2) open discussion, and 3) group discussion. Each stage is described below:

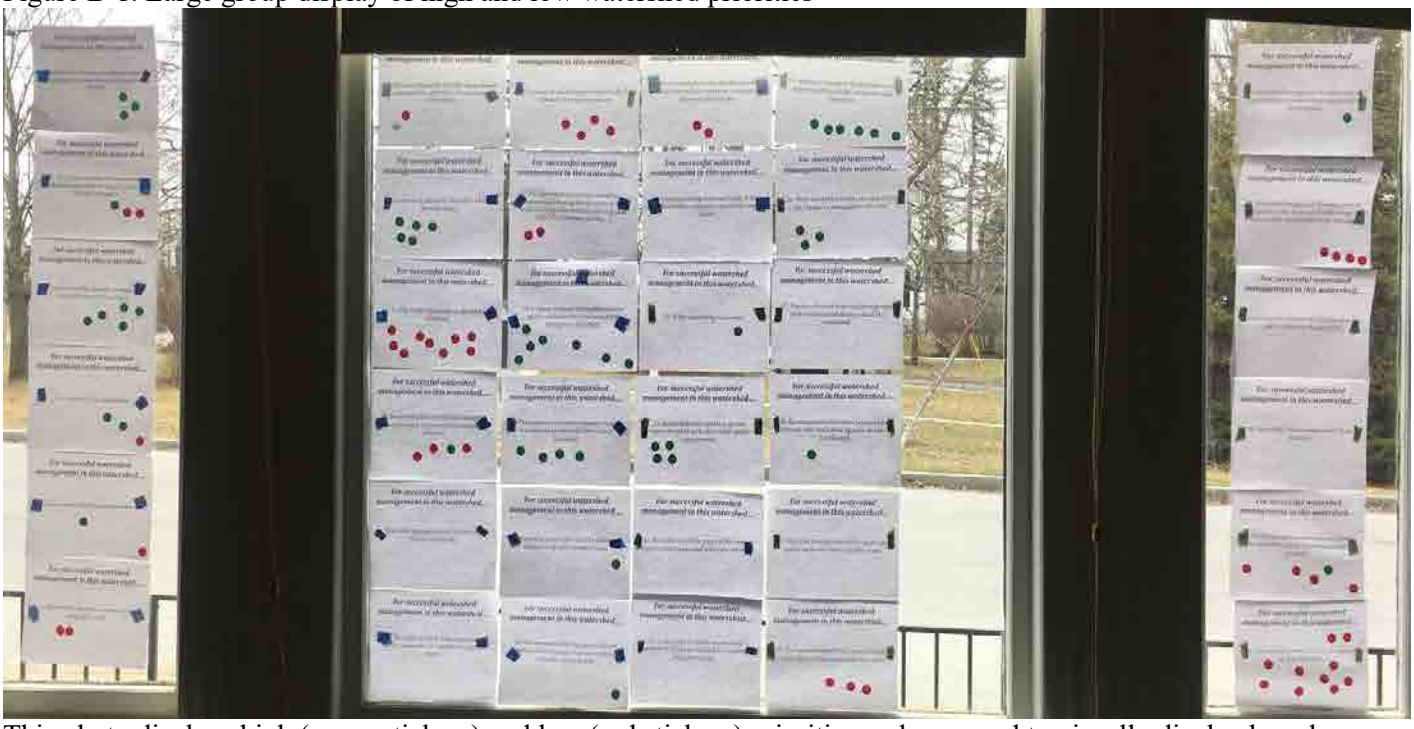
Stage 1: Priority ranking

Facilitators instructed participants to read and rank each priority according to how much they believed each statement was necessary for successful watershed management. Each priority statement included the phrase "For successful watershed management in this watershed…" and was then followed by one of the 36 priorities (e.g., "For successful watershed management in this watershed…a watershed plan is necessary"). Participants were given approximately 20 minutes to record their ranked priorities onto the datasheet. Participants ranked priorities on their data sheet by level of agreement with each priority (most disagree = -5 to most agree = 5). Facilitators were available to answer questions as needed.

Stage 2: Open discussion

Each of the 36 priorities were printed on an 8½ x 11 sheet of paper and displayed at the front of the room. After completing stage 1, participants were provided three green stickers and three red stickers then asked to place green stickers on their top three priorities and red stickers on their lowest three priorities. As participants placed green and red stickers on the large priorities, similarities and differences of stakeholders' ranked priorities were visually displayed (Figure B-1). To initiate the open group discussion, the lead NRSS team facilitator asked participants to share their top priority and explain their rationale to the group. After approximately 10 minutes of open discussion, participants moved into preassigned small groups.

Figure B-1. Large group display of high and low watershed priorities



This photo displays high (green stickers) and low (red stickers) priorities and was used to visually display broad agreement and disagreement amongst forum participants and facilitated the open group discussion

Stage 3: Small group discussion

Small groups were predetermined by the research team to ensure diversity of stakeholder types in each group. Each group included seven to nine forum participants, a group facilitator (NRSS or CTIC), and a note taker (WaterComm). For approximately 45 minutes, participants shared their high and low ranked priorities, then discussed rationale for their priority rankings.

At the conclusion of the small group discussion, the NRSS team collected datasheets from each participant and input them into PQMethod software (v. 2.35) at a later date. Large and small group discussions were recorded and transcribed an audio transcription service (TranscribeMe).

Analysis

Only completed priority ranking datasheets were included in analysis. Completed datasheets were defined as sheets with all 36 priorities ranked and only ranked once.

Family Selection

The NRSS team conducted a factor analysis using principal component method with Varimax rotation in the PQMethod software (v. 2.35) to identify similarities between participants' priority rankings. The NRSS team used the following criteria to identify priority families (i.e., factor groups):

- Eigenvalue >1 (according to the Kaiser criterion) and
- Participants in each family ≥ 3.

The PQMethod software then created a priority framework for each factor selected by the NRSS team. Each priority framework included the following:

- Priority value (PV): Value assigned to each watershed priority based on priority rankings within each priority family. These values reflect the participants' attitude in that family toward each priority. PVs range from -5, indicating a low priority, to 5, indicating a high priority.
- Distinguishing priorities (DP): Uniquely ranked priorities from each priority framework. These priorities highlight distinct viewpoints that differentiate the priority families from each other.
- Consensus priorities (CP): Similarly ranked statements in all priority frameworks. These statements highlight broad agreement across all priority families.

Narrative Development

The NRSS team reviewed each priority framework and identified relevant DPs from each priority framework. If PQMethod identified a DP that was not a high (PV ≥3) or low priority (PV≤-3), the PV was compared across all priority families to decide if the DP should be incorporated into the priority narrative as an "additional DP". Additional DPs incorporated into priority narratives include:

- DPs identified in only one priority family,
- Only DPs with the highest and lowest PVs, if identified in all priority families,
- Only when the absolute value of PVs was ≥3 compared to other priority families.

Figure B-2. Example watershed priority instruction sheet

Little Beaver Creek Watershed Management Forum

Session One: What is Successful Watershed Management?

In this activity you will be asked to sort 36 cards in order of your agreement with each statement. Each card contains a statement from forum participants and current literature that describes necessary elements for successful watershed management. This activity should take approximately 30 minutes.

1. Read each of the 36 statement cards and consider to what extent you agree or disagree with the statement.

2. Organize the statement cards into 3 piles based on whether you agree, feel neutral or disagree with the statement.

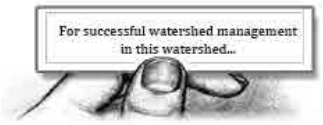
3. Examine the score sheet on the opposite page. Notice there are 36 boxes in 11 columns ranging from *Most Disagree* in column -5 to *Most Agree* in column 5. When complete, you will have sorted your statements into columns that exactly match those on the score sheet.

4. Re-read each statement in your "agree" pile and decide which 1 statement you most strongly agree with.

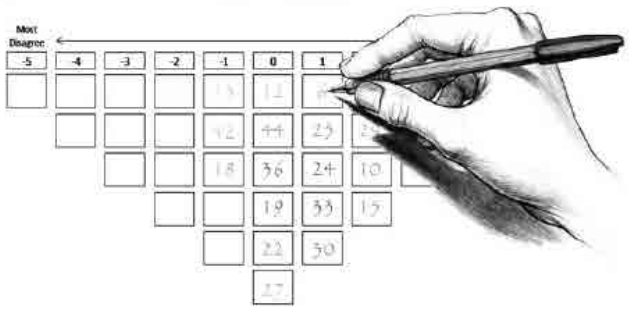
5. On the score sheet, write the number associated with your chosen statement in the furthest right column, labeled "Most Agree".

6. Continue ranking the remaining statements and transcribe the numbers on the score sheet.

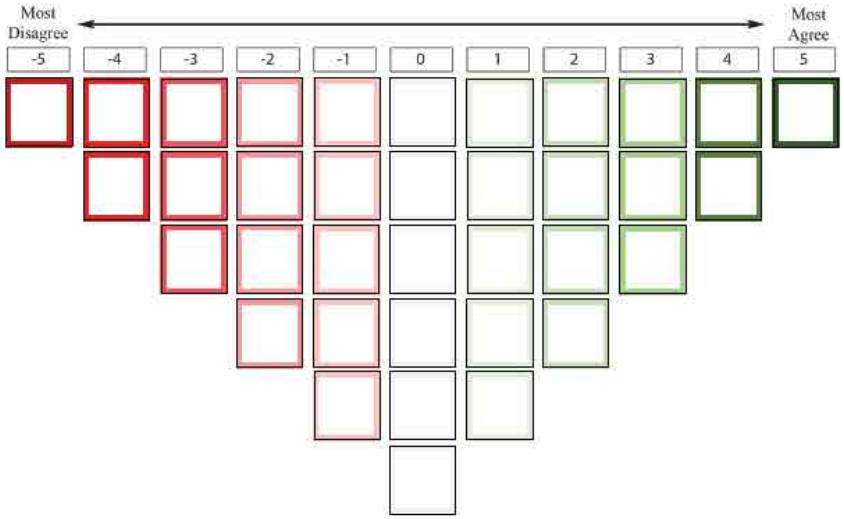
Figure B-3. Example watershed priority datasheet



The number on the statement card is the number you will write on the score sheet below.



Score Sheet



Once you have finalized your ranking, please fill out the questions on the back on the score sheet.

1. Please indicate your primary role in the Little Beaver Creek watershed (check one):

- ☐ Community member
- ☐ Conservation District staff
- ☐ Local government staff
- ☐ Natural Resources Conservation Service staff (NRCS)
- ☐ Non-governmental organization staff
- ☐ Producer or landowner
- ☐ Research scientist
- ☐ State Agency staff
- ☐ Other:_____

2. If applicable, please list any conservation practices you currently use on your property:

3. Years of experience with watershed management:.....

4. How many years have you lived in the Little Beaver Creek watershed? .....

5. In what year were you born? .....

6. What is your gender? .....

Thank you for your time and participation.
Please write down any additional comments below:

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Appendix C: Forum Facilitator Guide

Activity 1: Priorities

We will start with a full group activity and discussion. About half an hour before lunch, we will break in to small groups. Probing questions to ask in the small groups. Note: some of these may already have been discussed in the open group:

- What is the role of planning in watershed management? Specifically, what is the role of the plan in this watershed?
- What is the best role for USDA-NRCS in small watersheds?
- What is the ideal scale for watershed management? (HUC 12, bigger?)
- What is success in watershed management? How can this be measured?
- What elements of successful watershed management were missing from the statements you sorted?

Activity 2: Resource Needs

Lead facilitator will provide the directions for the activity.

- When people bring their post-it notes to your wall, ask them to arrange them with other similar post-its.
- Group the post-its and create labels for the categories.

Ask:

- Does everyone agree that these are necessary categories of resources?
- What resources are missing?
- Which resources are most important?

Activity 3: Strategies for Outreach and Education

Facilitate a small group discussion using the following questions:

- Who should deliver education and outreach? Who are trusted partners?
- What should education and outreach look like?
- When should it happen?
- What is the role for USDA-NRCS in this?

In last 10 minutes

Ask the group to select top 3 things they want to share with the entire group

Appendix D: Interagency Partner Interview Guide

1. What is your role in EPA/SWQA?
2. What role does EPA/SWQA play in the NWQI?
3. What role does EPA/SWQA play in NWQI watersheds?
4. What resources does EPA/SWQA contribute to the NWQI?
5. What resources does USDA-NRCS contribute?
    a. Is anything missing? If so, what additional resources would you like USDA-NRCS to contribute?
6. Does the NWQI impact interagency collaboration?
7. What is the biggest challenge working with the NWQI?
8. What makes the NWQI a unique program?
9. What is successful watershed management and what resources are needed to achieve it?
10. What are key elements to a successful watershed outreach/communication plan and what resources are needed to achieve it?

Appendix E – 2019 NWQI Conservation Staff Questionnaire

INTRO
You have been selected for this survey because of your involvement in a watershed that is/was enrolled in the United States Department of Agriculture – Natural Resources Conservation Service's (USDA-NRCS) National Water Quality Initiative (NWQI). Due to your expertise, we are asking for your help to identify elements of successful watershed management, including watershed priorities, resource needs, and education and outreach strategies.

The Natural Resources Social Science Lab at Purdue University, in partnership with USDA-NRCS and the Conservation Technology Information Center, conducted workshops with local stakeholders and conservation staff in five diverse watersheds enrolled in NWQI. Information gathered from the workshops focused on watershed priorities, resource needs, and strategies for outreach and education. To ensure generalizability of workshop results, this survey gathers similar information from resource managers who have experience working in NWQI watersheds across the county. Results from the workshops and surveys will be used to inform improvements to NRCS's implementation of small watershed projects and their effective communication of watershed-related information. Your input will also contribute to a guide intended to promote effective partnerships with NRCS as well a separate guide focused on successful watershed management.

Your participation in this survey is voluntary. Your answers will be kept confidential and will be released only as summaries where individual answers cannot be identified. The survey should take approximately 20-30 minutes to complete. We recommend responding to this survey on a computer rather than a mobile device. Please read each question carefully.

For questions, concerns or additional information, please contact lprokopy@purdue.edu or at (765-494-0825). Thank you in advance for your help.

Section I - Role and Organizational Affiliation

IN_Q1 What is/was your role in the planning and/or management of an NWQI watershed project? (select all that apply)

- ☐ Selection of NWQI watershed(s)
- ☐ Manage staff in NWQI watershed(s)
- ☐ Watershed Assessment development
- ☐ Watershed Assessment implementation
- ☐ Outreach Plan development
- ☐ Outreach Plan implementation
- ☐ Plan and/or conduct water quality monitoring
- ☐ Facilitate program enrollment
- ☐ Involved with outreach and education
- ☐ Provide technical assistance
- ☐ None
- ☐ Other (please specify):_____

IN_Q2 What organization/agency do you currently work for?

- ○ Natural Resources Conservation Service
- ○ Soil and Water Conservation District
- ○ State water quality agency
- ○ University of College
- ○ Other (please specify):_____

IN_Q3 What is your current job title?

- District Conservationist
- Soil Conservationist
- Natural Resource Specialist
- Watershed Coordinator
- Research Associate
- University Extension staff
- Other (please specify):_____

IN_Q4 Please indicate how many years you have been (enter number):

At your current organization/agency. _____

In your current role. _____

Watershed_1 Please select the state you currently work in and the NWQI watershed you are most familiar with in a professional capacity.
State
Watershed
Display: If respondent selected a watershed identified as "previously enrolled", PR_Q1 and PR_Q2 were displayed.
Display: If respondent selected "none of these" they were displayed "Additional response". The survey concluded after the response submitted.

Section II - Previously Enrolled Watersheds

PR_Q1 Our records indicate that the [watershed name] watershed is no longer participating in NWQI.

Please select which option(s) most accurately describes the reason(s) or circumstances(s) that led to the [watershed name] watershed to no longer participate in NWQI (check all that apply)

- ☐ Low producer participation
- ☐ Water quality goals were achieved
- ☐ Substantial progress on water quality goals were achieved
- ☐ Other (please specify): _____

PR_Q2 Please provide additional thoughts or comments on the reason(s) or circumstances(s) that led to the [watershed name] watershed no longer participating in NWQI.

Section III - Staff Needs

SN_INTRO Please answer the following questions regarding staffing needs for successful watershed management in the [watershed name] watershed.

SN_Q1 Please rank, in order of importance, the top three statements regarding staffing needs for successful watershed management in the [watershed name] watershed.
(1 indicates most important, 3 indicates least important)

Items	The three most important staffing needs for successful watershed management are:
Additional staff is needed to manage the increased workload associated with targeted watershed initiatives, such as NWQI	
Current staff time allocated to providing *on-farm technical assistances* should be increased.	
Current staff time allocated to *outreach in the agricultural community* should be increased	
Current staff time allocated to *outreach in the non-agricultural community* should be increased	

SN_Q2 Please rank, in order of importance, the top three most important responsibilities staff should undertake to contribute to successful watershed management in the [watershed name] watershed.
(1 indicates most important, 3 indicates least important)

Items	The three most important staff responsibilities that contribute to successful watershed management are:
…provide information on various NRCS programs available in the watershed.	
…provide assistance with program enrollment (e.g., paperwork, deadlines).	
…provide on-farm technical assistance to producers.	
…develop strong working relationships with producers in the watershed.	
…develop partnerships with the agricultural community.	
…develop partnerships with the non-agricultural community.	

SN_Q3 Please provide additional thoughts or comments on staffing needs for successful watershed management in the [watershed name] watershed.

Section IV – Watershed Partnerships

PS_INTRO Please answer the following questions regarding watershed-related partnerships in the [watershed name] watershed.

PS_Q1 Please indicate how frequently you partner with the following entities on watershed management related projects in the [watershed name] watershed.

	Never	Sometimes	Always
Producers who operate inside the watershed	O	O	O
Producers outside the watershed (e.g., upstream, downstream)	O	O	O
Industry partners (e.g., oil/gas, wind, forestry/logging, real estate)	O	O	O
Agri-businesses (e.g., agricultural advisors, retailers)	O	O	O
Federal agencies (e.g., EPA, FSA, BLM, NPS)	O	O	O
State agencies (e.g., state water quality agency, state dept. of agriculture)	O	O	O
University extension	O	O	O
University faculty/staff (non-extension)	O	O	O
Agricultural related organizations (e.g., Cattleman's Association, Corn Growers, Soybean Association, Farm Bureau)	O	O	O
Sportsperson related organizations (e.g., Pheasants Forever, Wild Turkey Federation, Ducks Unlimited)	O	O	O
Environmental related organizations (e.g., The Nature Conservancy, American Farmland Trust)	O	O	O
Local citizen organizations (e.g., watershed group)	O	O	O
Farmer coalitions	O	O	O
Youth organizations (e.g., K-12 schools, FFA, 4H)	O	O	O
Water utilities (e.g., drinking water, waste and storm water management, irrigation)	O	O	O
Other (please specify):_____	O	O	O

PS_Q2 Think of a successful partnership that has benefited the [watershed name] watershed. Please describe what helped make this partnership successful.

PS_Q3 Please provide additional thoughts or comments related to watershed partnerships in the [watershed name] watershed.

Section V - Watershed Planning and NWQI Watershed Assessment

WA_INTRO Please answer the following questions regarding Watershed Plans as well as the development and implementation of the NWQI Watershed Assessment created for the [watershed name] watershed.

WA_Q1 For the purpose of this survey, a Watershed Plan is defined as a strategy developed to address water resource concerns within a geographically defined watershed.

How important is/was a Watershed Plan for successful watershed management in the [watershed name] watershed?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
o	o	o	o	o

WA_Q2 In the readiness phase of NWQI, participating watersheds must complete an area-wide conservation assessment at the HUC12 watershed level. This document is termed a "Watershed Assessment" and includes the following information:

i. Background and purpose
ii. Watershed characterization
iii. Hydrologic and water quality characterization
iv. Resource analysis and source assessment
v. Summary and recommendations

How important is/was the NWQI Watershed Assessment for successful watershed management in the [watershed name] watershed?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
o	o	o	o	o

WA_Q3 What is the status of the NWQI Watershed Assessment for the [watershed name] watershed?

- Not developed and no plans for development
- Not developed but will be in development soon
- Currently in development
- Developed but not currently in use
- Developed and currently in use
- I do not know

Skip: If respondent selected "Not developed and no plans for development" or "I do not know" WA_Q4 - WA_Q16 were skipped.

WA_Q4 Did a Watershed Plan exist before the development of the NWQI Watershed Assessment for the [watershed name] watershed?

- Yes
- No
- I do not know

Skip: If respondent selected "No" or "I do not know" WA_Q5-WA_Q12 were skipped.

WA_Q5 The following section includes questions about the Watershed Plan that existed prior to the development of the NWQI Watershed Assessment for the [watershed name] watershed.

How old was the Watershed Plan for the [watershed name] watershed?

- Less than 5 years old
- 5-10 years old
- More than 10 years old
- I do not know

WA_Q6 At what scale was the Watershed Plan for the [watershed name] watershed?

- HUC 12
- HUC 10 (HUC 12 subwatersheds included)
- HUC 10 (HUC 12 subwatersheds NOT included)
- HUC 8 (HUC 12 subwatersheds included)
- HUC 8 (HUC 12 subwatersheds NOT included)
- Other (please specify):_____
- I do not know

WA_Q7 How much of the information from the existing Watershed Plan was used to develop the NWQI Watershed Assessment for the [watershed name] watershed?

- Most
- Some
- None
- I do not know

WA_Q8 Who led/is leading the development of the NWQI Watershed Assessment for the [watershed name] watershed?

- NRCS staff
- Soil and Water Conservation District staff
- State agency staff
- Independent contractor (please specify affiliation):_____
- Other (please specify):_____

WA_Q9 Were/are any of the following entities involved in the development of the Watershed Assessment for the [watershed name] watershed?

	Involved?		If yes, in what capacity?
	Yes	No	
Producers who operate inside the watershed			
Producers who operate outside the watershed (e.g., upstream, downstream)			
Industry partners (e.g., oil/gas, wind, forestry/logging, real estate)			
Agri-businesses (e.g., agricultural advisors, retailers)			
Federal agencies (e.g., EPA, FSA, BLM, NPS)			
State agencies (e.g., state water quality agency, state dept. of agriculture)			
University extension			
University faculty/staff (non-extension)			
Agricultural related organizations (e.g. Cattleman's Association, Corn Growers, Soybean Association, Farm Bureau)			
Sportsperson related organizations (e.g., Pheasants Forever, Wild Turkey Federation, Ducks Unlimited)			
Environmental related organizations (e.g., The Nature Conservancy, American Farmland Trust)			
Local citizen organizations (e.g., watershed group)			
Farmer coalitions			
Youth organizations (e.g., K-12 schools, FFA, 4H)			
Water utilities (e.g., drinking water, waste and storm water management, irrigation)			
Other (please specify):			

WA_Q10 Please indicate your level of disagreement or agreement with the following statements regarding the NWQI Watershed Assessment for the [watershed name] watershed. The NWQI Watershed Assessment developed for the [watershed name] watershed helped to…

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
...guide watershed management activities.	O	O	O	O	O
...identify water quality impairments.	O	O	O	O	O
...develop watershed improvement goals/metrics.	O	O	O	O	O
...develop a suite of practices to address water quality impairments.	O	O	O	O	O
...establish interim metrics to track progress of BMP implementation on targeted acres.	O	O	O	O	O
...establish interim metrics to track impacts of BMP implementation on water quality.	O	O	O	O	O

WA_Q11 Did the NWQI Watershed Assessment include all of the information needed to facilitate successful watershed management in the [watershed name] watershed?

- O Yes
- O No

Skip: If respondent selected "Yes", WA_Q12- WA_Q15

WA_Q12 To facilitate successful watershed management, what, if any, additional information should be required in NWQI Watershed Assessments?

WA_Q13 Has/will the NWQI Watershed Assessment been/be used to leverage additional funding from [watershed name] watershed partners?

- O Yes, I have leveraged additional funding from partners using the Watershed Assessment.
- O Yes, I plan to leverage additional funding from partners using the Watershed Assessment.
- O No, I don't plan to leverage additional funding from partners using the Watershed Assessment.
- O I have not thought about leveraging additional funds from partners using the Watershed Assessment.

WA_Q14 Please indicate your level of disagreement or agreement with the following statements regarding development of the NWQI Watershed Assessment for the [watershed name] watershed.

When developing the NWQI Watershed Assessment for the [watershed name] watershed…

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
NRCS provided adequate *guidance*.	O	O	O	O	O
NRCS provided adequate *feedback*.	O	O	O	O	O

WA_Q15 Will/has the NWQI Watershed Assessment be/been used to develop or update a Watershed Plan for the [watershed name] watershed?

- O Yes
- O No
- O I do not know

WA_Q16 Please provide additional thoughts or comments on Watershed Plans and/or the NWQI Watershed Assessment in the [watershed name] watershed.

Section VI - Outreach Plan

OP_INTRO In the readiness phase of NWQI, participants must also develop a strategy to promote watershed-related outreach and information to their watershed. This document is termed an Outreach Plan.

Please answer the following questions regarding the NWQI Outreach Plan developed for the [watershed name] watershed.

OP_Q1 What is the status of the NWQI Outreach Plan for the [watershed name] watershed?

- O Not developed and no plans for development
- O Not developed but will be in development soon
- O Currently in development
- O Developed but not currently in use
- O Developed and currently in use
- O I do not know

Skip: If respondent selected "Not develop and no plans for development" or "I do not know" skipped OP_Q2-OP_Q7

OP_Q2 How much of the information from the existing Outreach Plan was used to develop the NWQI Outreach Plan for the [watershed name] watershed?

- Most
- Some
- None
- I do not know

OP_Q3 Who led/is leading the development of the Outreach Plan for the [watershed name] watershed?

- NRCS staff
- Soil and Water Conservation District staff
- State agency staff
- Independent contractor (please specify affiliation):_____
- Other (please specify):_____

OP_Q4 Were/are any of the following entities involved in the development of the Outreach Plan for the [watershed name] watershed?

	Involved?		If yes, in what capacity?
	Yes	No	
Producers who operate inside the watershed	○	○	
Producers who operate outside the watershed (e.g., upstream, downstream)	○	○	
Industry partners (e.g., oil/gas, wind, forestry/logging, real estate)	○	○	
Agri-businesses (e.g., agricultural advisors, retailers)	○	○	
Federal agencies (e.g., EPA, FSA, BLM, NPS)	○	○	
State agencies (e.g., state water quality agency, state dept. of agriculture)	○	○	
University extension	○	○	
University faculty/staff (non-extension)	○	○	
Agricultural related organizations (e.g. Cattleman's Association, Corn Growers, Soybean Association, Farm Bureau)	○	○	
Sportsperson related organizations (e.g., Pheasants Forever, Wild Turkey Federation, Ducks Unlimited)	○	○	
Environmental related organizations (e.g., The Nature Conservancy, American Farmland Trust)	○	○	
Local citizen organizations (e.g., watershed group)	○	○	
Farmer coalitions	○	○	
Youth organizations (e.g., K-12 schools, FFA, 4H)	○	○	
Water utilities (e.g., drinking water, waste and storm water management, irrigation)	○	○	
Other (please specify): _____	○	○	

OP_Q5 How important is the NWQI Outreach Plan to the delivery of watershed-related information in the [watershed name] watershed?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
o	o	o	o	o

OP_Q6 Please indicate your level of disagreement or agreement with the following statements regarding development of the NWQI Outreach Plan.

When developing the NWQI Outreach Plan for the [watershed name] watershed…

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
…NRCS provided adequate *guidance.*	o	o	o	o	o
…NRCS provided adequate *feedback.*	o	o	o	o	o

OP_Q7 Please provide additional thoughts or comments on the NWQI Outreach Plan created for the [watershed name] watershed.

Section VII - Outreach and Education

OE_INTRO Please answer the following questions regarding the outreach and education in the [watershed name] watershed.

OE_Q1 Please rank the top three most important recipients of watershed-related outreach and education material to achieve successful watershed management in the [watershed name] watershed. (1 indicates most important, 3 indicates least important.)

Items	The three most important recipients of watershed-related outreach and education materials are:
Producers	
Agri-business professionals (e.g., crop advisers, retailers)	
Local community leaders (e.g., county commissioners, local elected officials)	
State legislative leaders (e.g., state representatives)	
Youth organizations (e.g., FFA, 4H)	
Non-agriculture communities in my watershed (general public)	
Communities downstream of my watershed (ag and non-ag)	
Non-agricultural water users (e.g., municipal and recreational users)	

OE_Q2 Please provide additional thoughts or comments about watershed-related outreach and education in the [watershed name] watershed.

Section VIII - Interagency Coordination

IC_INTRO Please answer the following questions regarding inter-agency coordination in the [watershed name] watershed.

IC_Q1 How would you describe the working relationship with your state's water quality agency and NRCS? (choose one)

Very poor	Poor	Acceptable	Good	Very Good
O	O	O	O	O

IC_Q2 How negative or positive was the NWQI process on the working relationship between NRCS and your state's water quality agency? (choose one)

Extremely negative	Somewhat negative	Neither positive nor negative	Somewhat positive	Extremely positive
O	O	O	O	O

IC_Q3 Please provide additional thoughts or comments related to inter-agency coordination.

IC_Q4 Did/does water quality monitoring occur in the [watershed name] watershed?

- O Yes
- O No
- O I do not know

Display: If respondent selected "Yes", IC_Q5-IC_Q6 were displayed.

IC_Q5 What type of water quality monitoring is/was occurring in the [watershed name] watershed?

	Yes	No	I do not know
Water quality trend monitoring	O	O	O
BMP effectiveness monitoring	O	O	O
Other (please specify):_____	O	O	O

IC_Q6 Who is/was conducting water quality monitoring in the [watershed name] watershed?

- O State water quality agency
- O Watershed group
- O Volunteer monitoring
- O Other (please specify):_____

Section IX - Communication and Technical Assistance

CT_INTRO The next block of questions focuses on how conservation staff communicate information to producers. These questions are not specifically related to NWQI.

CT_Q1 Do you work directly with producers in the watershed(s) you manage?

- ○ Yes
- ○ No

Skip: If respondent selected "no" skipped CT_Q2-CT_Q4.

CT_Q2 Please indicate your level of disagreement or agreement with the following statements regarding providing technical assistance to producers.

When providing technical assistance to producers...

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
... I tend to discuss all kinds of possible consequences for each farm management decision.	○	○	○	○	○
...I aim to help them accurately predict how successful their farming operation will be.	○	○	○	○	○
..I always look at the interconnections and mutual influences between all decisions that go into their farm management.	○	○	○	○	○
...I discuss a suite of practices rather than one single practice.	○	○	○	○	○

CT_Q3 Please indicate your level of disagreement or agreement with the following statements regarding providing technical assistance to producers.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
When a producer has a problem on their farm, it is usually because of something out of their control.	○	○	○	○	○
I think continuously about how to improve the farm operations of producers I work with.	○	○	○	○	○

CT_Q4 Please indicate your level of disagreement or agreement with the following statements regarding cover crops.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
In a corn and soybean rotation, cover crops work well when combined with no-till.	O	O	O	O	O
In a corn and soybean rotation, cover crops work well when combined with a livestock operation.	O	O	O	O	O
Cover crops can reduce the need for pesticides.	O	O	O	O	O
Cover crops can reduce weeds.	O	O	O	O	O

Section X - Demographics

AY_Q1 What year were you born? _____
AY_Q2 What is your gender? _____

Additional_Response - Thank you for completing the survey.
Please provide additional thoughts or comments related to the survey, NWQI, or watershed management.

Appendix F – 2019 NWQI State Water Quality Agency Questionnaire

INTRO
Due to your expertise, you have been selected to participate in this survey. We are asking for your perspective on the U. S. Department of Agriculture - Natural Resources Conservation Service's (USDA-NRCS) National Water Quality Initiative (NWQI). Your input will contribute to a guide intended to promote effective partnerships with NRCS as well as a separate guide focused on general successful watershed management.

The Natural Resources Social Science Lab at Purdue University, in partnership with USDA-NRCS and the Conservation Technology Information Center, conducted workshops with local stakeholders and conservation staff in five diverse NWQI watersheds. Information gathered from the workshops focused on watershed priorities, resource needs, and strategies for outreach and education. In addition to workshops, interviews were conducted with state water quality agency representatives from each watershed to document the state agency's perspective of and role in NWQI. To ensure generalizability of state agency interviews, we developed a survey that gathers similar information from state agency staff who have experience working with NWQI. Workshops, interview, and survey results will be used to inform improvements to NRCS's implementation of small watershed projects and their effective communication of watershed-related information.

Your participation in this survey is voluntary. Your answers will be kept confidential and will be released only as summaries where individual answers cannot be identified. The survey should take approximately 15-20 minutes to complete. We recommend responding to this survey on a computer rather than a mobile device. Please read each question carefully.

For questions, concerns or additional information, please contact lprokopy@purdue.edu or at (765-494-0825). Thank you in advance for your help.

Section I - Agency and Respondent's Role

IN_Q1 What is/was your agency's role in the planning and/or management of NWQI watersheds? (select all that apply)

- ☐ Selection of NWQI watersheds
- ☐ Water quality monitoring in NWQI watersheds
- ☐ Watershed Assessment development
- ☐ Outreach Plan development
- ☐ Involved in outreach and education
- ☐ None
- ☐ Other (please specify): _____
- ☐ I do not know

IN_Q2 Please indicate how many years you have been:

- At your current organization/agency. _____
- In your current role. _____

IN_Q3 Please provide additional thoughts or comments on your agency's role in NWQI.

Section II - Interagency Coordination

IC_INTRO Please answer the following questions regarding inter-agency coordination with NRCS.

IC_Q1 How would you describe the working relationship between your agency and national, state, and district-level NRCS?

	Very poor	Poor	Acceptable	Good	Very good
National-level NRCS	O	O	O	O	O
State-level NRCS	O	O	O	O	O
District-level NRCS	O	O	O	O	O

IC_Q2 How negative or positive is/was the NWQI process on the working relationship between your agency and national, state and district-level NRCS?

	Extremely negative	Somewhat negative	Neither positive nor negative	Somewhat positive	Extremely positive
National-level NRCS	O	O	O	O	O
State-level NRCS	O	O	O	O	O
District-level NRCS	O	O	O	O	O

IC_Q3 Please provide additional thoughts or comments related to inter-agency coordination.

Section III - Water Quality Monitoring

WQ_INTRO Please answer the following questions regarding your agency's role in water quality monitoring of NWQI watersheds in your state.

WQ_Q1 Did/does your agency conduct water quality monitoring in any NWQI watersheds in your state?

- O Yes
- O No
- O I do not know

Display: If respondent selected "Yes", WQ_Q2 was displayed

WQ_Q2 What type of water quality monitoring is/was occurring in NWQI watersheds in your state?

	Yes	No	I do not know
Water quality trend monitoring	O	O	O
BMP effectiveness monitoring	O	O	O
Other (please specify):_____	O	O	O

WQ_Q3 Please provide additional thoughts or comments related to water quality monitoring of NWQI watersheds in your state.

Section IV - Watershed Plan and NWQI Watershed Assessment

WA_INTRO Please answer the following questions regarding Watershed Plans as well as the development and implementation of the Watershed Assessment created for NWQI watersheds in your state.

WA_Q1 For the purpose of this survey, a Watershed Plan is defined as a strategy developed to address water resource concerns within a geographically defined watershed.

How important are/were Watershed Plans for successful watershed management of NWQI watersheds in your state?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
○	○	○	○	○

WA_Q2 In the readiness phase of NWQI, participating watersheds are required to develop an area-wide conservation assessment at the HUC12 watershed level. This document is termed a Watershed Assessment and includes the following information:
i. Background and purpose
ii. Watershed characterization
iii. Hydrologic and water quality characterization
iv. Resource analysis and source assessment
v. Summary and recommendations

Is/was your agency involved in the development of Watershed Assessments for NWQI watersheds in your state?

- ○ Yes
- ○ No
- ○ I do not know

Skip: If respondent selected "No" or "I do not know", WA_Q3-WA_Q6 was skipped.

WA_Q3 How important are/were Watershed Assessments for successful watershed management of NWQI watersheds in your state?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
○	○	○	○	○

WA_Q4 Please indicate your level of disagreement or agreement with the following statements regarding Watershed Assessments for NWQI watersheds in your state.

Watershed Assessments developed for NWQI watersheds in my state help to…

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
...guide watershed management activities.	O	O	O	O	O
...identify water quality impairments.	O	O	O	O	O
...develop watershed improvement goals/metrics.	O	O	O	O	O
...develop a suite of practices to address water quality impairments.	O	O	O	O	O
...establish interim metrics to track ***progress*** of BMP implementation on targeted acres.	O	O	O	O	O
...establish interim metrics to track ***impacts*** of BMP implementation on water quality.	O	O	O	O	O

WA_Q5 Do/did Watershed Assessments include all of the information needed to facilitate successful watershed management of NWQI watersheds in your state?

- O Yes
- O No

Display: If respondent selected "No", WA_Q6 was displayed.

WA_Q6 To facilitate successful watershed management, what, if any, additional information should be required in NWQI Watershed Assessments?

WA_Q7 Please provide additional thoughts or comments on Watershed Plans and/or the Watershed Assessments for NWQI watersheds in your state.

Section V - Outreach Plan

OP_INTRO Please answer the following questions regarding Outreach Plans developed for NWQI watersheds in your state.

OP_Q1 In the readiness phase of NWQI, participating watersheds are required to develop a strategy to promote watershed-related outreach and information to their watershed. This document is termed an Outreach Plan.

Is/was your agency involved in the development of Outreach Plans for NWQI watersheds in your state?

- Yes
- No
- I do not know

Skip: If respondent selected "No" or "I do not know", OP_Q2 and OP_Q3 were skipped.

OP_Q2 How important are/were the NWQI Outreach Plans to the delivery of watershed-related information in NWQI watersheds in your state?

Not at all important	Slightly important	Moderately important	Very important	Extremely important
○	○	○	○	○

OP_Q3 Please provide additional thoughts or comments on the Outreach Plan created for NWQI watersheds in your state.

Section VI - Staff Needs

SN_INTRO Please answer the following questions regarding staffing needs for successful watershed management of NWQI watersheds.

SN_Q1 Please rank, in order of importance, the top three statements regarding staffing needs for successful watershed management of NWQI watersheds in your state. (1 indicates most important, 3 indicates least important.)

Items	The three most important staffing needs for successful watershed management are:
Additional staff is needed to manage the increased workload associated with targeted watershed initiatives, such as NWQI	
Current staff time allocated to providing *on-farm technical assistances* should be increased.	
Current staff time allocated to *outreach in the agricultural community* should be increased	
Current staff time allocated to *outreach in the non-agricultural community* should be increased	

SN_Q2 Please ***rank***, in order of importance, the top three most important responsibilities staff should undertake to contribute to successful watershed management of NWQI watersheds in your state.**
(1 indicates most important, 3 indicates least important.)

Items	The three most important staff responsibilities that contribute to successful watershed management are:
…provide information on various NRCS programs available in the watershed.	
…provide assistance with program enrollment (e.g., paperwork, deadlines).	
…provide on-farm technical assistance to producers.	
…develop strong working relationships with producers in the watershed.	
…develop partnerships with the agricultural community.	
…develop partnerships with the non-agricultural community.	

SN_Q3 Please provide additional thoughts or comments on staffing needs for successful watershed management of NWQI watersheds in your state.

Section VII - Outreach and Education

OE_INTRO Please answer the following questions regarding the outreach and education in NWQI watersheds.

OE_Q1 Please *rank* the top three most important recipients of watershed-related outreach and education material to achieve successful watershed management of NWQI watersheds in your state.
(1 indicates most important, 3 indicates least important.)

Items	The three most important recipients of watershed-related outreach and education materials are:
Producers	
Agri-business professionals (e.g., crop advisers, retailers)	
Local community leaders (e.g., county commissioners, local elected officials)	
State legislative leaders (e.g., state representatives)	
Youth organizations (e.g., FFA, 4H)	
Non-agriculture communities in my watershed (general public)	
Communities downstream of my watershed (ag and non-ag)	
Non-agricultural water users (e.g., municipal and recreational users)	

OE_Q2 Please provide additional thoughts or comments about watershed-related outreach and education in NWQI watersheds in your state.

Section VIII – Demographics

AY_Q1 What year were you born? _____
AY_Q2 What is your gender? _____

Additional_Response Thank you for completing the survey.
Please use the space below for any additional thoughts or comments related to the survey, NWQI, or watershed management.

Appendix G – NWQI National Conservation Staff and State Water Quality Agency Survey Descriptive Results

The corresponding survey questions are referenced respective to the NWQI Conservation Staff and State Water Quality Agency Questionnaire Surveys provided in Appendix E and F (e.g., the first question of the survey is referred to as "IN_Q1"). If a respondent included their watershed's name in an open-ended response, the watershed name was removed and replaced with "[watershed name]" to maintain respondent anonymity.

G.1 Conservation Staff

Section I – Role and Organizational Affiliation

Table G-1. Role in NWQI watershed

Corresponds to IN_Q1 What is/was your role in the planning and/or management of an NWQI watershed project? (select all that apply)

Role	Frequency (%; N=133)
a. Selection of NWQI watershed(s)	19.5
b. Manage staff in NWQI watershed(s)	54.1
c. Watershed Assessment development	20.3
d. Watershed Assessment implementation	17.3
e. Outreach Plan development	40.6
f. Outreach Plan implementation	37.6
g. Plan and/or conduct water quality monitoring	11.3
h. Facilitate program enrollment	59.4
i. Involved with outreach and education	69.2
j. Provide technical assistance	79.7
k. None	1.5
l. Other (please specify) *	5.3

Note: Respondents can choose multiple factors and the sum of frequency (%) is greater than 100%.

*Other responses included: *Conservation/water quality project implementation; Design and implement bmp's; Natural Resources Coordinator for the Watershed; Overall project management; Provide Financial Assistance (2); Watershed were discussed at State Technical Committee before selection*

Table G-2. Organization/agency affiliation
Corresponds to IN_Q2 "What organization/agency do you currently work for?"

Organization/agency	Frequency (%; N=133)
Natural Resources Conservation Service	69.2
Soil and Water Conservation District	24.1
State water quality agency	0.0
University or College	0.8
Other (please specify) *	6.0

*Other responses included: *Cooperating/partnering non-profit organization; County; County Land Conservation Department; Conservation District; Environmental NGO; Northumberland County Conservation District; Private consulting firm; State Dept. of Agriculture*

Table G-3. Job title
Corresponds to IN_Q3 **"**What is your current job title?"

Job title	Frequency (%; N=132)
District Conservationist	57.6
Soil Conservationist	5.3
Natural Resources Specialist	0.8
Watershed Coordinator	0.8
Research Associate	0.0
University Extension staff	.8
Other (please specify) *	34.8

*Other responses included: *Administrative Coordinator; Assistant State Conservationist for Programs; Business Tools Coordinator; Civil Engineer; Conservation District Secretary; Conservation Programs Manager; County Conservationist (2); Director; Director Community Development; Director of Applied Research; District Administrator; District Clerk (2); District Manager (9); District Secretary; District Specialist (3); Ecologist; Engineer; Manager; Natural Resources Coordinator; Outreach Coordinator; Program Administrator; Project Manager; Resource Conservationist (3); Resource Coordinator; Soil Conservation District Manager; Soil Conservation Technician; Supervisory Soil Conservationist; SWCD District Manager; Water Quality Specialist (2); Watershed Project Manager; Wildlife Biologist.*

Table G-4. Employment length
Corresponds to IN_Q4 **"**Please indicate how many years you have been (enter number)"

Employment	N	Range (years)	Mean (years)	Median (years)
At your current organization/agency	132	1-50	16.76	15
In your current role	130	.3-40	9.71	8

Table G-5. State Selection

Corresponds to Watershed_1 "Please select the state you currently work in and the NWQI watershed you are most familiar with in a professional capacity"

State/Territory	Point of Contact Response	Partner Response	Total Response
Alabama	1	0	1
Alaska	0	0	0
Arizona	1	1	2
Arkansas	2	1	3
California	0	0	0
Colorado	2	3	5
Connecticut	0	0	0
Delaware	0	0	0
Florida	0	0	0
Georgia	1	0	1
Hawaii	2	0	2
Idaho	1	0	1
Illinois	2	2	4
Indiana	1	0	1
Iowa	1	0	1
Kansas	1	0	1
Kentucky	3	1	4
Louisiana	2	0	2
Maine	3	0	3
Maryland	1	0	1
Massachusetts	1	0	1
Michigan	3	0	3
Minnesota	4	0	4
Mississippi	3	0	3
Missouri	5	0	5
Montana	1	2	3
Nebraska	3	0	3
Nevada	2	0	2
New Hampshire	3	0	3
New Jersey	1	1	2
New Mexico	0	0	0
New York	3	0	3
North Carolina	1	1	2
North Dakota	7	1	8
Ohio	4	0	4
Oklahoma	4	0	4
Oregon	2	0	2
Pennsylvania	2	3	5
Puerto Rico	0	0	0
Rhode Island	0	0	0
South Carolina	4	0	4
South Dakota	5	0	5
Tennessee	6	1	7
Texas	3	0	3
Utah	3	0	3
Vermont	3	1	4
Virginia	3	3	6
Washington	1	1	2
West Virginia	0	0	0
Wisconsin	7	2	9
Wyoming	1	0	1

Section II - Previously Enrolled Watersheds

Table G-6. Previously enrolled rationale

Corresponds to PR_Q1 **"**Our records indicate that the [watershed name] watershed is no longer participating in NWQI. Please select which option(s) most accurately describes the reason(s) or circumstances(s) that led to the [watershed name] watershed to no longer participate in NWQI (check all that apply)

Rationale	Frequency (% N=42)
Low producer participation	35.7
Water quality goals were achieved	21.4
Substantial progress on water quality goals were achieved	33.3
Other (please specify) *	45.2

*Other responses include: *3 year pilot program under EQIP (4); CWA Section 319 funding ended; Don't know (3); Increased flow & decreased temperature; multiple funding opportunities; NRCS allocated specific money to that watershed and it was spent; Outdated monitoring information; Politics; qualifications; rotated within state; State Office took it out; Unable to identify year to year funding availability made it hard for the outreach effort. Not enough funding for this HUC; Upper Maiden is part of current Maiden Creek NWQI involved in Sacony and Upper Maiden NWQIs. Maiden and Upper Maiden is subject of 2019- NWQI.*

Table G-7. Additional thoughts: Previously enrolled

Corresponds to PR_Q2 "Please provide additional thoughts or comments on the reason(s) or circumstances(s) that led to the [watershed name] watershed no longer participating in NWQI."

Response Number	Response
1	*I was not involved in the early stages of planning, outreach, and implementation of the* [watershed name] *NWQI project. However, it is my opinion that there was not significant local agricultural producer interest in improving water quality in that watershed. It is possible that a targeted education campaign could have increased interest in long-term changes in management which would have the potential to positively impact water quality.*
2	*I was told 3 years for the program life.*
3	*It was a successful NWQI but due to not knowing the amount of funding from year to year it was a hard program to manage with outreach and staff. Our other Conservation Implementation Strategy (CIS's) we knew exactly what we are getting every year and usually received additional if needed.*
4	*Job security for someone.*
5	*Lack of interest from producers.*
6	*Limited number of farms in the watershed; outdated monitoring information; bigger bang for conservation bucks in areas that were under more regulatory constraints (TMDL).*
7	*MO funds NWQI watersheds for a term of three years. Each of the three years we were able to utilize all of the funds allocated.*
8	*Money ran out to fund project and project met some of the goals.*
9	*Multiple years of concentrated funding provided most interested and eligible producers to participate in the water quality initiative.*
10	*NWQI funds were utilized for three years in the* [watershed name] *and landowners in that watershed, whose projects qualified, no longer needed the funds or were not able to match the funds due to the amount of projects they had implemented during the 3-year timeframe.*

11	*Over 50% of the private land received conservation treatment that led to Sediment being removed as an impairment from the TMDL. Additionally, 5 miles of the creek that historically went dry in July-August now flows all year due to irrigation efficiency improvements and changes sources used for irrigation.*
12	*Participation in the NWQI ended when local partners received a RCPP contract in the same watershed. State office opted to move NWQI watershed to an area of the state where no RCPP contracts were.*
13	*State Office said they were changing NWQI watersheds, and did not give me a reason. I had no input.*
14	*The* [watershed name] *is saturated with funding opportunities to address water quality concerns, so the NWQI funds were moved to another watershed.*
15	*The higher pay grade folks that have the power to decide wanted to move on. The* [watershed name] *was very successful with lots of applications and contracts. Good stakeholder/landowner interest and participation.*
16	*The* [watershed name] *including the* [watershed name]*and* [watershed name] *are in the current NWQI.* [watershed name]*and* [watershed name] *were included in previous NWQIs and also in the current RCPP.*
17	*The majority of resource concerns identified were addressed by landowners.*
18	*The project was largely driven by the CWA Sec 319 funding program. Although the funding for the headwaters section ran out, the middle and lower portions of the watershed are still receiving funds from Sec 319 and state sources. Support from NRCS personnel has been much more active in those subwatersheds.*
19	*There are not a lot of large producers in this watershed.*
20	*There is a rare and endangered plant (Ute Ladies Tresses) that has potential habitat along the Duchesne River which makes it difficult to implement practices.*
21	*There was an existing 319 Watershed project in that area. The 319 project allowed single practice contracts, higher cost-share, faster contract approval, and there was no ranking process. The producer chose 319 since it was a simpler process.*
22	*This project area had funding for projects for 2 rounds of NWQI as well as leveraging of state funds. The project area was very small and the projects that could be implemented were maximized.*
23	*This was our first NWQI watershed. Great success and the stream subsegment were removed from the impaired list. Success!*
24	*Utah State Division of Water Quality rotates the opportunity to have NWQI in their area every 3 years.*
25	*We felt like we had addressed the main contributors to the water quality problems and had spoken to others who were not interested in participating.*
26	*We had excellent participation in this program, but after 5 years of new contracting, the project area was pretty well saturated with NWQI contracts and other program contracts that addressed water quality.*
27	*We had three years with this project, timed out.*

Section III - Staff Needs

Figure G-1 Ranked staff needs

Corresponds to SN_Q1 "Please rank, in order of importance, the top three statements regarding staffing needs for successful watershed management in the [watershed name] watershed. (1 indicates most important, 3 indicates least important). The three most important staffing needs for successful watershed management are:" (N=111).

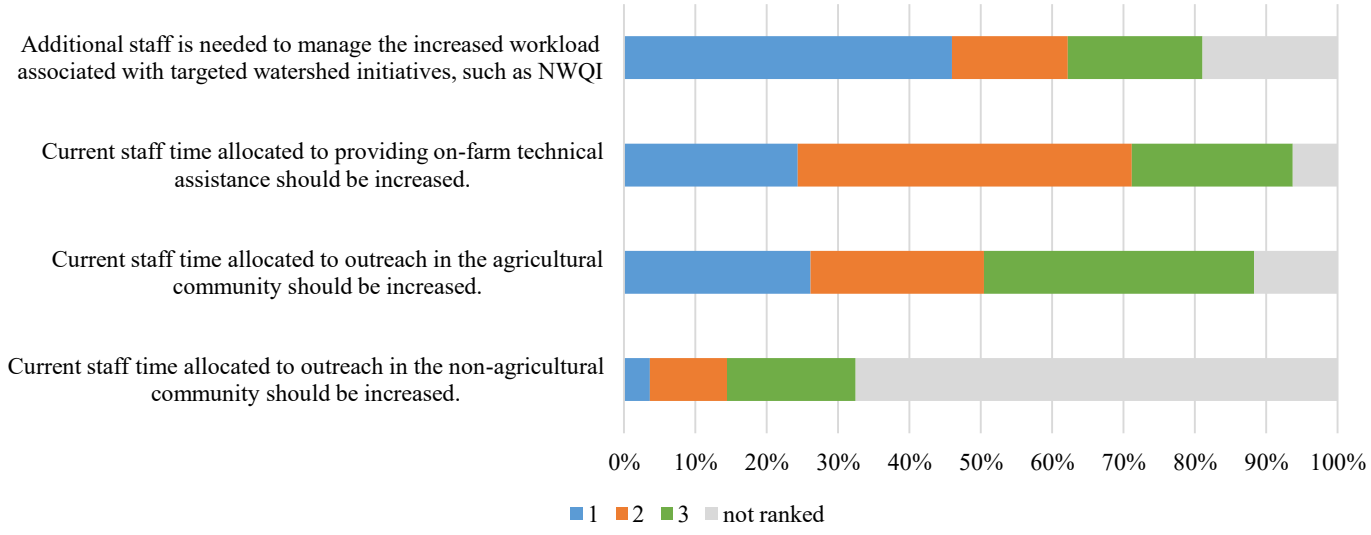


Figure G-2. Ranked staff responsibilities

Corresponds to SN_Q2 "Please rank, in order of importance, the top three most important responsibilities staff should undertake to contribute to successful watershed management in the [watershed name] watershed. (1 indicates most important, 3 indicates least important). The three most important staff responsibilities that contribute to successful watershed management are:" (N=113).

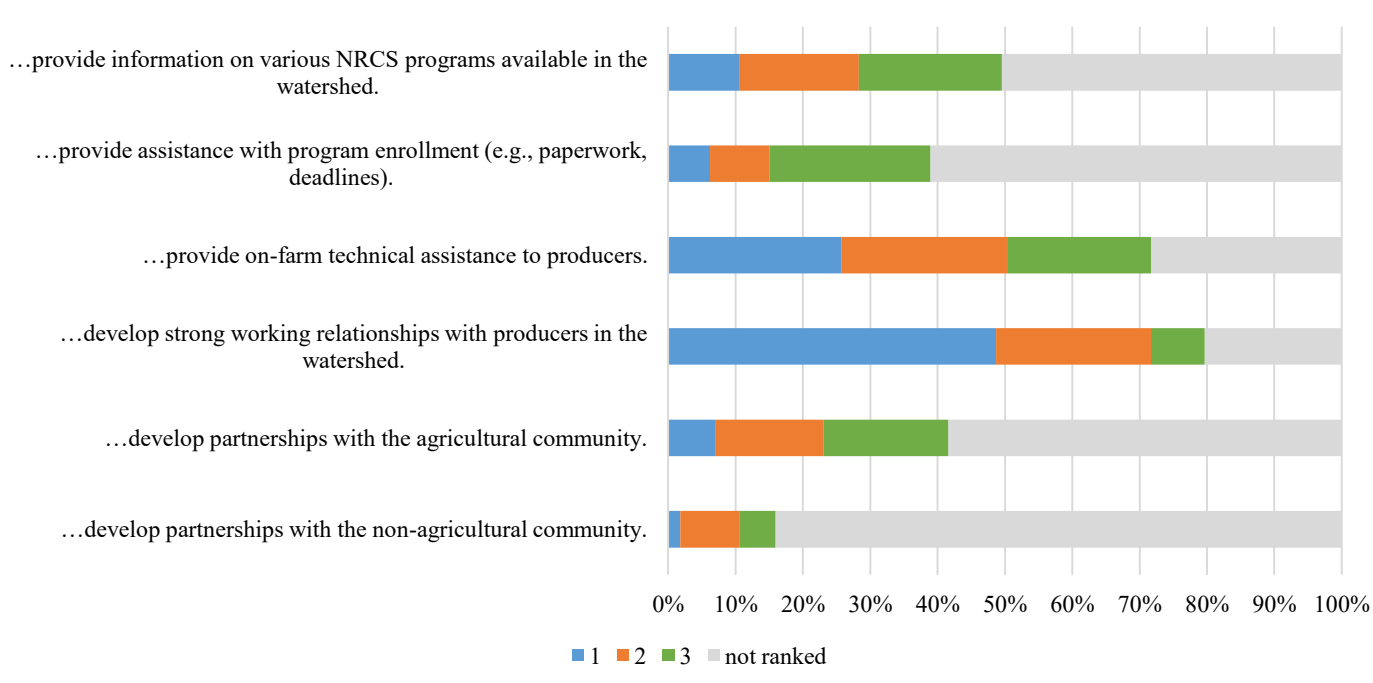


Table G-8. Additional thoughts: Staff needs

Corresponds to SN_Q3 "Please provide additional thoughts or comments on staffing needs for successful watershed management in the [watershed name] watershed"

Response Number	Response
1	*A good time to inventory soil erosion is in the spring prior to tillage, this is also a busy time of year for staff with other programs so can be difficult to get as much inventory completed as expected.*
2	*Accelerated EQIP funding at this level ($1 million +/annually) suffers both technically and administratively due to understaffing. I have one Soil Conservationist and one technician, but due to detail I have done much without my Soil Con. Partner agreements have save my life, but that only helps with the basic administrative duties.*
3	*Actual monitoring data to evaluate results/impacts of implementation.*
4	*Additional staffing is needed so legitimate water quality enhancing projects can be found to work on.*
5	*All of the above items are important even though we were only able to list the top three. There is also a need to develop partnerships with the entire community to enable the success of the watershed management process.*
6	*Anything that can help with staff retention will go a long way towards building strong working relationships with producers and increase opportunities to practice implementation.*
7	*Current* [watershed name] *coordinator needs to take more initiative to create a coordinated effort with all stakeholders (producers, communities, and agencies). Better communication needed in this liaison/coordinator position.*
8	*Current staff should be working with producers providing technical assistance and program information. Additional staff could be used to follow up on deadlines and processing of paperwork.*
9	*Currently there is a lack of NRCS staff in this watershed for the NWQI program to truly be successful. There is already a very high workload in the counties in my District Group and my staff is spread too thin to conduct the outreach needed to increase the workload in this NWQI watershed.*
10	*Currently this project has been successful because almost all of these contracts are being handled by a TSP. The TSP has time to provide technical service, as well as help get the projects on the ground with the various participants. NRCS alone would not have had to time to do this.*
11	*Developing working relationships with in a watershed are NUMBER 1. Any farm without a working relationship we visiting 3 times randomly before even talking about programs. Meet and greet first, visit and ask them to think about options. Second visit ask about options. Third visit, maybe a few suggestions. Don't talk programs until they have an idea. Gain trust and learn their operations.*
12	*Extra Outreach needed.*
13	*For this particular watershed, one of the other challenges from a participation standpoint, was a saturation of local, state and federal funding sources. The limited number of farms in the watershed had already been involved with conservation programs in the past.*
14	*I feel a technical leader focused on that sole watershed for the term of the funding is needed. This helps prioritize the watershed and is a focal point for the agency and community.*
15	*I feel that the working with partners such as the Soil and Water Conservation District, FSA and other agricultural partner's is critical to a successful NWQI.*
16	*If project is to be administered with current staff, the notice of application deadlines needs to be announced in a timely manner to give staff enough time to properly advertise or make producer contacts and planning before the deadlines. Program rules need to be developed prior to the announcement of the program with this information given to staff before a batching deadline is announced. Rules need remain consistent throughout the program timeline and not changed mid-way through the signup.*
17	*Important to have knowledgeable staff who are respected and can provide sound information and guidance.*
18	*Long-term funding guarantee for minimum of 4 years for stability in staff hires and reduction of time spent on agreement processing.*

19	*Many of the problems cannot be reached with program dollars and additional creativity and partners are needed to address these issues.*
20	*More consideration should have been given prior to selecting the watershed. There are only a few private lands in the area and the majority do not choose to work with NRCS.*
21	*More outreach initially.*
22	*More outreach is needed. NRCS doesn't have the ability to pay for amenities at outreach events which makes our ability to put on good outreach events somewhat limited.*
23	*More technical staff needed to implement engineering practices planned to improve soil and water quality in the watershed.*
24	*More time to assist with outreach.*
25	*More trained staff is needed in order to successfully implement programs in the special watersheds. Staff should be well versed in NRCS Programs and policy to be able to get conservation on the ground per policy while outreaching to producers in those areas.*
26	*My comments were based on the staffing needs of NRCS. It's important to factor in what roles the partnering organizations provide and can provide so that all the roles are covered by one of the partnering organizations.*
27	*Not enough staff to effectively provide outreach to both the ag and non-ag community about the NWQI program and technical services.*
28	*NRCS and Conservation District staff are overburdened and under-resourced in general, which makes the NWQI a lower priority for them.*
29	*NRCS has no capacity for outreach in their current staffing. This must change if they want landowners to participate.*
30	*NRCS needs help from the partners who have completed the watershed program to assist with program workload and promotion.*
31	*NRCS needs to realize that throwing cost share money at an impaired water will not fix the problem. You need to build community first and not give up.*
32	*One person is really needed whose sole responsibility is to manage the* [watershed name] *project, the meeting, partners, outreach...*
33	*One watershed coordinator is fine to conduct the business within a watershed, as long as that person is willing to work. Build a rapport with local producers and gain insight from other local entities. Partnerships with Soil Conservation Districts, State entities-Department of Health, and Private organizations-Ducks Unlimited, are also vital to build more conservation delivery onto places where it is needed most.*
34	*Our local Soil and Water Conservation District provides "turn-key" programs and services, meaning we can handle every aspect of the conservation best management practice installation along the way. Everything from marketing/outreach, enrollment, contract development, scheduling practices, practice layout, practice installation, monitoring, and operation and maintenance. Our strong working relations with producers provides them confidence that everything will go smoothly and that their practice/project will be installed correctly and in a professional manner.*
35	*Partners should have a more active role in outreach and success stories.*
36	*Pay raise incentive for staff in selected watersheds to compensate for additional workload.*
37	*Producers are not aware of NWQI programs in this area.*
38	*Program success for us was dependent upon one staff person dedicated to "targeted" outreach and one staff person dedicated to program assistance/construction inspection. DC and regional engineer planned all conservation practices due to experience/skillsets.*
39	[Our] *Field Office has the highest workload in Virginia. We complete a lot of work out of the three NWQI watersheds that we have. It would be great if we had adequate staffing levels to be able to complete the proper outreach and project recruitment in the three NWQI. The work is there to be completed but we need more staff to get the project properly implemented.*
40	*The last few years the EQIP general funds have been low for pasture projects, so the NWQI funds helped the office operate at a more "normal" funding level. No additional staff were needed to assist with the number of projects we had with the NWQI funds. If the funds were 2-3 times the amount, we would need additional staff to manage the program contracts generated.*
41	*The more producers that learn about and become more involved with the program the greater the*

	needs get. A couple more staff members would be awesome.
42	*The role of NRCS personnel is paramount. Where NRCS staff is active and aggressively promotes farm BMP adoption - and helps with paperwork and etc. - things go very well.*
43	*The staffing need that most needs to be addressed is the assistance NRCS is supposed to receive from partnering State entities on providing outreach and information and education. It is my opinion that the vast majority of outreach was achieved by NRCS, and that though State partnering entities talked a good game about outreach...the outreach by State partnering entities was deficient.*
44	*There is not a lot of watershed boundary in this county.*
45	*There is plenty of staff. Funding needed to implement via the District.*
46	*There should have been a concerted effort to contact each and every producer in the watershed.*
47	*This project has made a huge positive impact in this watershed. However, there is simply not enough staff be able to meet the demands of such a project therefore our success is hindered significantly. Which is very disappointing for myself and my staff, for some reason the amount of work that is involved in this project doesn't have a place in our agency's overall workload analysis.*
48	*This will be a large undertaking for the local staff. as there are approximately 43,000 acres in the watershed, along with a big percentage of* [a] *large community is within the city limits.*
49	*Updating field office equipment would help the office complete their duties with the reduced staff.*
50	*With the current funding levels of EQIP and CSP in non-designated watersheds, the amount of time needed to justify more additional funding for a specific watershed should involve more personnel in the offices. We're currently behind in completing the current contracts that we have for 2018 by 75%. The only way we can catch up is to finish what we have.*
51	*You talk about increasing staffing needs, but not funding for staff. It is the funding that is needed to actually reallocate staff and/or hire new staff to accomplish the desired tasks. Therefore, I would put "Acquire funding for technical assistance and outreach" as number one priority.*

Section IV – Watershed Partnerships

Table G-9. Watershed partners

Corresponds to PS_Q1 "Please indicate how frequently you partner with the following entities on watershed management related projects in the [watershed name] watershed."

Partner	N	Never (0)	Sometimes (1)	Always (2)	Mean *(sd)*
		Frequency (%)			
Producers who operate inside the watershed	120	1.7	30.8	67.5	1.66 *(.510)*
Producers outside the watershed (e.g., upstream, downstream)	120	11.7	48.3	40	1.28 *(.663)*
Industry partners (e.g., oil/gas, wind, forestry/logging, real estate)	120	54.2	45	0.8	0.47 *(.517)*
Agri-businesses (e.g., agricultural advisors, retailers)	118	24.6	63.6	11.9	0.87 *(.593)*
Federal agencies (e.g., EPA, FSA, BLM, NPS)	120	15.8	50	34.2	1.18 *(.686)*
State agencies (e.g., state water quality agency, state dept. of agriculture)	120	4.2	46.7	49.2	1.45 *(.578)*
University extension	119	10.1	68.9	21	1.11 *(.549)*
University faculty/staff (non-extension)	118	40.7	54.2	5.1	0.64 *(.578)*
Agricultural related organizations (e.g., Cattleman's Association, Corn Growers, Soybean Association, Farm Bureau)	119	33.6	57.1	9.2	0.76 *(.610)*
Sportsperson related organizations (e.g., Pheasants Forever, Wild Turkey Federation, Ducks Unlimited)	117	29.9	58.1	12	0.82 *(.624)*
Environmental related organizations (e.g., The Nature Conservancy, American Farmland Trust)	118	45.8	47.5	6.8	0.61 *(.614)*
Local citizen organizations (e.g., watershed group)	119	22.7	55.5	21.8	0.99 *(.670)*
Farmer coalitions	119	45.4	43.7	10.9	0.66 *(.669)*
Youth organizations (e.g., K-12 schools, FFA, 4H)	118	46.6	47.5	5.9	0.59 *(.603)*
Water utilities (e.g., drinking water, waste and storm water management, irrigation)	119	50.4	42.9	6.7	0.56 *(.619)*
Other*	22	40.9	31.8	27.3	0.86 *(.834)*

*Other responses included: *Berks County Department of Agriculture; City of Sioux Falls; Conservation District (2); County Drain Commissioner; County Land & Water Conservation Dept.; Drainage Districts; Local health department; Local Soil Conservation District; Mining; Native American Tribe (2); SCDs; Town Agricultural Committees; Town Boards*

Table G-10. Examples of successful watershed partnerships

Corresponds to PS_Q2 "Think of a successful partnership that has benefited the [watershed name] watershed. Please describe what helped make this partnership successful."

Response Number	Response
1	*A Farmer led watershed group was formed they have had peer to peer meetings and promote conservation.*
2	*Any good partnership requires excellent communication.*
3	*Arizona Department of Environmental Quality. ADEQ assisted one producer with additional funds so he could implement a conservation practice.*
4	*Arkansas Forestry Commission will help with all forestry related plans needed within the watershed to help us accomplish getting conservation on the ground in a largely wooded watershed.*
5	*At the beginning of the planning process, we asked the ND Department of Health to partner with us to aid with water quality sampling efforts and to better explain why we were implementing this watershed project. Just corresponding with the correct people to build that working relationship helped foster a partnership to better the watershed.*
6	*AZ Department of Environmental Quality (ADEQ) prioritized this watershed and had a grant program that helped fund projects within the watershed. Apache NRCD coordinated with ADEQ*

	and NRCS to fund different project components within the watershed.
7	*BMP monies*
8	*Boone County Conservation District provided additional staffing to assist with plan.*
9	*Both SWCD's in this watershed have a great working relationship with USEPA, allowing us to do water monitoring.*
10	*Building stronger working relationship with the local Soil & Water Conservation District. Often times NRCS staff would utilize information gathered by SWCD staff through the Agricultural Environmental Management (AEM) program to help initiate the planning process.*
11	*CBF assisted with providing staff for outreach and technical assistance.*
12	*Champlain Valley Farmer Coalition and UVM Extension partnership. Monthly meetings with Directors and producers where project is discussed repeatedly. These conversations are voluntary and include more participants than just farms located in the watershed.*
13	*City of Sioux Falls- was able to put money towards water quality outside city limits through a special fund with the state and in turn spend less money cleaning up drinking water coming into city. Education of partners such as this metro area is key in the success.*
14	*Constant communication and updates of projects within the watershed.*
15	*Cooperative partnerships that each can attack different pieces of the pie with dollars can complete the whole project from all angles. For example the cooperatives partnerships between NRCS, SASWCD, the local Tribe and Maine DEP have created a more wholesome attack on Nickerson lake through each partner bringing in grant money for the Lake (private landowners), agricultural fields, and tribal land.*
16	[watershed name] *Improvement District worked extensively to better the watershed.*
17	*Existing relationships already established through the conservation planning process.*
18	*Extension and SARE bringing a bus load of folks to a farm in the watershed to look at cover crop plots.*
19	*Extension, Drain Commissioner, and the local watershed group were strong partners because we had overlapping interests and were willing to work together.*
20	*Good participation from SWCD/OSU with outreach efforts with highly attended meetings for water quality improvement efforts.*
21	*Having a strong relationship with producers in the watershed. They spread the word to neighboring farmers regarding the conservation assistance they are receiving that is benefitting them, and their neighbors inquire for assistance.*
22	*Having district staff who can help work on the* [watershed name] *has been helpful. The fact that several of them were from the area or had worked with several of the producers prior, made it easier to connect with them.*
23	*I think the partnership between the farmers and the governmental agencies (NRCS, CD) was phenomenal here. We also had a lot of help from NGOs who were interested in outreach and education in the community. The community of farmers in the* [watershed name] *is predominantly Mennonite and a lot of trust had to be established before any conservation could begin.*
24	*I would say in every case that the willingness of the producer to be willing to work with me in the identification of and addressing the resource concerns, take part in the development of the conservation plan and implement the conservation plan has made all of my success stories possible. I have many!*
25	*Interacted with the local NRCS more often than in the past*
26	*James River Water Development District provides the conservation district with cost share funding for tree planting and has provided cost share for the purchase of grass drill. These allow the conservation district to provide more services.*
27	*Local Water Quality district; they helped with monitoring*
28	*Locally led, honest communication, years of building trust.*
29	*NRCS, CT River Conservancy and landowners working to remove dams to improve water quality and trout habitat*
30	*NRD and NRCS work fairly well together to provide information to constituents in the area. Inter-agency communication is key.*
31	*One on One with producers.*

32	*Our partnership with U of A Extension has been invaluable. We partner closely in Greene Co. AR. A willingness to help each other to accomplish shared goals has been a difference maker.*
33	*PA Fish and Boat Commission, Department of Environmental Protection, and Natural Resource Conservation Services have been the most successful partnerships within the watershed in the past and present, hopefully future as well. They have helped with technical assistance, installation of best management practices, and project design.*
34	*Partnered with the Local Soil and water conservation district with landowner recruitment. Partner with VADEQ to get water quality information.*
35	*Partnered with NRCS to hire a coordinator to concentrate in the* [watershed name]. *The Conservation District worked closely with the coordinator to identify and encourage relationships with landowners and producers.*
36	*Partnership with Connecticut River Conservancy we have similar goals and combine funding and technical resources to complete projects.*
37	*Partnership with lower* [watershed name] *promoted the programs and successes.*
38	*Partnership with Miller/Coors and Tarrant Regional Water District allowed us to acquire additional personnel through the SWCD's and also supplement practice cost through the SWCD's*
39	*Partnership with New Jersey Audubon has helped NRCS leverage our funds with funds that they have in the same watershed area.*
40	*Partnership with Trout Unlimited- State DNR-NRCS. TU help a lot with outreach and reaching non-ag participating landowners. The State Maryland brought in GIS data and stream monitoring date to help with targeting outreach efforts*
41	*Partnerships expanded more with the City of Sioux Falls and maybe more of their partners/contributors.*
42	*Private Landowners, Trout Unlimited, Dunn County Fish and Game, Dunn County Land and Water, NRCS, WI Department of Natural Resources (WDNR). Our best success in Wilson Creek was on Trout Stream Restoration, the WDNR acquired 6 public fishing easements. Two them are or will be restored by Trout Unlimited and Dunn County Fish & Game members cutting brush seeding and mulching, a combination of NRCS, TU, and WI Trout Stamp money supporting WDNR habitat crews repairing eroding banks and installing instream cold water fish habitat.*
43	*Producers participating in Farm Bill Programs*
44	*Schuylkill Action Network (SAN)- key word: ACTION. This partnership includes many of the organizations above including EPA, DEP, non-profits, multiple drinking water providers, multi-county conservation districts, and multi-county NRCS. The organizations work together to cover all the roles to successfully implement projects*
45	*Support for public meetings was provided*
46	*SWCD assisted during this time*
47	*The commitment of the partners to ensure the project functioned well.*
48	*The conservation district*
49	*The core need was to clean up the water for drinking water users downstream. That central message resonated with many groups and brought people on-board quickly. Having a strong, clear reason to participate gets people excited to join.*
50	*The DNR agreed to conduct water quality monitoring as part of our effort. Their results were included in the watershed assessment report and future sampling will continue to guide our efforts.*
51	*The Local Soil Conservation District was a successful partnership. The board members and staff are locals who the producers trust. Producers often are unsure of the rules and regulations of government programs. They look to the SCD for reassurance. Our area doesn't not have many other groups that are interested in conservation.*
52	*The opportunity that NWQI presented lead to a partnership with two County Soil Conservation Districts going together to share an additional employee. They both pay one quarter of the salary and NRCS through a contribution agreement pays the other 50%. This has led to increased participation of producers to implement water quality improving practices. Also it has increased both SCD and NRCS work capacity to be able to have an additional staff member helping with not only the watershed outreach, planning and implementation but also with SCD services etc.*
53	*The overall success of this project was the timing factor. This project started when we were in the*

	middle of a huge drought and water rationing etc. was occurring and people both ag related and not were more aware of the importance of water quality. And another huge factor was the commitment that my staff made as well as our Partners with OCC and the State Office to make it such a success.
54	*The partnership between the Conservation District and our local NRCS office. This partnership as allowed for more lenient, non-federal cost-share opportunities to fill in gaps in producer needs in order to provide a multi-pronged approach to installing BMPs in the priority areas (all 3 NWQI watersheds in our county).*
55	*The partnership between the local state conservation district office and the state water agency was very good. The local agency took the lead, and the state agency provided support.*
56	*The partnership with the local Soil and Water Conservation District has been critical to the success in this watershed.*
57	*The partnership with the SWCD has been critical. FSA has also been helpful. The State EPA was important in this watershed being selected. Agr. Credit has also been helpful. OSU Extension has also helped.*
58	*The partnership with the watershed landowner's have been successful. We are able to achieve our conservation goals and share our successes with the surrounding community.*
59	*The* [watershed name] *Clean Water Project is a citizen group that is working to lead positive water quality change is the watershed through community engagement and action. They are taking water quality assessments into consideration when working with landowners on education and assistance. They are a great partner to liaison with the community. The Watershed Improvement District is a direct communication with larger landowner and farmers on water quality information distribution and action.*
60	*The SWCD partnered with local farmer and others to develop a Drainage Water Management Project. The goal of the project was to demonstrate/minimize the environmental impacts of subsurface drainage while maintaining or improving agricultural productivity. The project demonstrates controlled drainage and saturated buffers as flood management practices as well as their water quality and quantity benefits. Extensive water quality monitoring has/is being done by the SWCD to support the benefits of agricultural best management practices. We have also hosted, with partners, dozens of field tours for farmers, natural resource partners, and other special interest groups to share and discuss what we have learned. The project is a compelling example of how education can be used to increase the acceptance and adoption of drainage water management practices in the Red River Valley. Project partners include: Local Farmers, Soil and Water Conservation District the* [watershed name] *District, Minnesota Department of Agriculture, University of Minnesota, USDA Natural Resources Conservation Service, Agri-Drain Corporation, Prinsco, Jemco Power Saver, ADS, and the Minnesota Corn Growers Association.*
61	*Three soil conservation districts in North Dakota developed a project for improving grasslands in the three districts, which included Oliver, Morton and Grant Counties. Funds were secured through the ND Outdoor Heritage Fund. The project, Oliver, Morton, Grant (OMG) Grasslands Improvement project brought $900,000.00 to the table to provide a 60% cost share for producers to implement practices to improve their grasslands. Practices included water pipelines, wells, tanks, fencing, pasture/hay land plantings, cover crops, and alternative power sources to promote better grassland management. These practices also promoted the improvement of water quality. Producers were able to select either program, NWQI or the OMG to best meet their needs.*
62	*Town Agricultural Committee; we presented there during their monthly meetings several times which was TV broadcast to local citizens. MACD had a staff person solely funded to work on Palmer Watershed projects. MACD also contracted with a local Ag-Advisor who worked closely with NRCS to target and outreach to producers.*
63	*TRWD and Miller-Coors partnership with NRCS/SWCD's. It was created before my time in this area but the funds provided helped to incentivize producers to implement practices.*
64	*USACOE*
65	*We are just starting with NWQI in this watershed. NRCS and the Conservation District have been a successful partnership. Will hopefully have more later as this continues.*
66	*We built the program from the bottom up including all members of the community.*

67	*We did have a close working relationship with the Conservation Districts of the project area, and additionally fostered a close relationship with the Delaware WRAPS organization.*
68	*We had a team of private citizens,* [a] *Lake Association, the sanitary district around the lake, the neighboring land conservation departments from* [two] *counties, the local private citizens conservation group, local municipalities, the Farm Bureau, USGS, Ripon College, the Nelson Institute, etc that would meet regular (every few months) to focus on projects being completed and how we can partner our efforts and relationships with landowners to do more outreach and get more projects completed.*
69	*We have had to work closer with the irrigation canal company to really understand how much water was getting delivered to properties. We have found that it is difficult to pin them down to an amount of water per property/head gate which makes it really hard to design structures and systems. I think the irrigation canal company has a better understanding of what NRCS is looking for, so hopefully future projects will go much smoother.*
70	*We have partnered with the Chesapeake Bay Foundation, Trout Unlimited, and the SWCD to work on a project to exclude livestock from Mountain Run and Smith Creek on the same property. All partners involved contributed financial and/or technical resources to the project. It worked well because each partner involved brought something to the table to make the project successful. The landowners were very pleased with how everything turned out. The project has been used as an example project for partner collaboration and has been used on tours for other local, state, and federal agencies, as well as non-profit organizations.*
71	*We organized water quality testing with Wisconsin DNR which will help with insight to current and future water quality in the watershed.*
72	*We partnered with UVM Extension and this works really well because of everybody's professionalism, extensions relationship with the farmers, meeting to get on the same page, spelled out action items in a MOU.*
73	*We successfully partner with the Soil and Water Conservation Districts and Missouri Department of Conservation to administer funds in that watershed.*
74	*WI Dept. of Natural Resources, Trout Unlimited, County Land and Water Conservation Division, and USDA-NRCS. The partnership between these entities helped to best leverage available funds and services to create a personalized, best-fit option for each landowner.*
75	*Working with landowners in the watershed that had successful projects. Producers are likely to show interest in initiatives if they here favorable results from the community.*
76	*Working with local Farmers Coop Irrigation Company and many other partners including Soil Conservation District,* [watershed name] *Council and many more to conduct outreach and implement RCPP project near* [watershed name]*, generating outreach and education to local farmers and ranchers for NRCS programs.*
77	*Working with the LBNRD we worked closely to get conservation on the ground.*
78	*Working with the local Cattleman's Association we had a meeting promoting clean drinking water from wells for livestock and fencing out streams and ponds.*

Table G-11. Additional thoughts or comments: watershed partnerships
Corresponds to PS_Q3 "Please provide additional thoughts or comments related to watershed partnerships in the [watershed name] watershed"

Response Number	Response
1	*Another important relationship was working in coordination with the Farm Service Agency to obtain address information for Tracts located within the watershed boundary. This allowed us to do targeted mailings within the watershed.*
2	*At the end of the one-year contract with the NWQI coordinator the program ended with no discussion or plans to continue. Many great contacts were made but then no follow up or discussion of future efforts.*
3	*Better coordination with Water Utility who owns the drinking water reservoir and much of the land in the watershed.*
4	*Constant outreach is important and It's important to hit people several times through several media types. Use focus groups to vet materials that result in people wanting to take action.*
5	*Currently the watershed does not have an active watershed group. Considering this NRCS Initiative is in its birth stages we hope to see a group formed, or at least interest in a formation, as time progresses.*
6	*Even though we had a close working relationship with the Delaware WRAPS organization, the State entity associated with the Delaware WRAPS, which was supposed to supply outreach efforts (both mass and one on one), failed in my opinion to successfully reach producers within this project area on a more personal level. This type of personal outreach was really put on the shoulders of local NRCS personnel to handle in addition to their already high workload activities not associated with this project area.*
7	*Having a staff person with the knowledge of how these partnerships can be beneficial to multiple partners in the watershed is key. Educating municipalities on the benefits they can gain from conservation in the watershed is crucial to future success stories. Also creating an environment where the farmer is the partner and not the cause of the problem is very important. Careful to point out a symbiotic relationship rather than assign blame to anyone entity.*
8	*Having the NRCS personnel take the lead in promoting improved watershed management, better water quality, and farm BMPs seems to be very important. They have the relationship with producers, the credibility, the resources, and the outside contacts needed for success.*
9	*I did not work for NRCS when it was in NWQI so I don't have great perspective on it.*
10	*In addition to the partnering entities, creating a partnership with landowners through bi-monthly meetings was important to keep momentum and continued progress moving forward on this project.*
11	*Initiative was going prior to me starting in my current position. It is possible other partnerships were used during the establishment of the initial NWQI.*
12	*Inviting organizations to contribute funds got other organizations wanting to participate. Getting a university to study the before and after effects assured these organizations that there would be data to use in the after-action report. Thus each would be able to report how their money assisted in the cause.*
13	*It takes a team to be successful. The outreach started strong within this watershed, but partner involvement in outreach has dwindled as their projects/goals have changed direction to their programs. Also, NWQI funding has also been reduced.*
14	*Local farmer word of mouth is important.*
15	*More information/outreach material outlining the purpose of the NWQI watersheds as well as their criteria for selection. Hearing it from someone other than the entities pushing the BMPs will show the producers that we are targeting that area for a legitimate conservation concern and might push some of the producers in the NWQI watershed to not only continue with the BMPs after cost-share dollars are gone, but also implement them on their own.*
16	*More staff is needed in order to be able to sell conservation efforts to producer by showing them how everyone benefits from putting conservation on the ground.*

17	*More staff is needed so that time can be spent working with partnerships. They are their just no time to work with them.*
18	*Most of these have been small projects with small amounts of water. For these projects to be successful to all user's off of the head gate some type of water share agreement needs to be developed between everyone off of that ditch. Some have this, some do not. About 1/2 have issues with their neighbors and argue that the other takes too much water. If they can't all get on board we can't proceed with funding, which turns into NRCS wasting a significant amount of time on a project that never goes through, and we aren't able to count it in our workload.*
19	*Most organization of partnerships specifically related to my NWQI project fall on me and a time commitment from my local field office. We are covered up so many times those partnerships fall through the cracks due to our focus on program implementation.*
20	*Need more outreach that is based on practices ag producers can implement and the benefits to their land rather than focusing on extremely scientific information. It's good to educate on the benefits to the whole watershed but most ag producers don't implement practices just because of that, they need to know how it's going to impact them and their bottom line.*
21	*Need to have partnerships more involved, willing to take lead role in outreach*
22	*Needed more interest from partners other than Conservation District, they were invited, but did not assist*
23	*One of the main things lacking was having partners helping on monitoring efforts for water quality. this seem to be the missing component for follow up.*
24	*Our area doesn't not have many other groups that are interested in conservation.*
25	*Our partnership with the OCC has been amazing, without them we would not have been able to complete this next phase of the* [watershed name] *project.*
26	*Partnerships are simply vital to any watershed effort, whether they are local, state, private, or federal. Outreach is also key, getting the word out about why the project is there and how you can help is essential.*
27	*Partnerships can cause lots of confusion and provide incorrect information. One on One work with farmers is the key to success.*
28	*Partnerships with the sportsman groups came easy. Partnerships with the Agricultural Community were slower to establish and were not a priority with NRCS. The goal seemed to be to get the money spent and not establish partnerships. There was also an unwillingness to share. In the early stages of the project we applied for a Fishers and Farmers Grant but state level NRCS made it clear that if we removed* [watershed name] *from the impaired list they did not want Fishers and Farmers to get any of the credit.*
29	*SAN started in 2003 with a partnership model and over time, the organizations worked out a cooperative approach. Highly important was the inclusion of drinking water providers as drinking water is the common denominator for members of any community/society*
30	*Similar to outside specific watershed.*
31	*Since NRCS does not have any local engineer, the county Land and Water Dept. has provided nearly all engineering (survey, design, construction) services for the project.*
32	*The Conservation District is a direct partner with NRCS to connect landowners to NRCS programs. They can leverage their connections and outreach to help connect landowners to the resources they need to implement practices. Peer to peer communication of landowners is important to pass along information, but very hard to track and document.*
33	*The coordinator for the South-Central Watershed Implementation Project has been very helpful to work with.*
34	*The main reason we had success in the development of this plan is that all parties came to the original planning meetings (participation dwindled after the first two), and that we had farmer bye in from the very beginning. We have a very active Farmer Coalition.*
35	*The majority of the resource concerns in the* [watershed name]*stem from producers feeding "slop" from the Jack Daniels Distillery. It is a century old practice that is part of the culture in both watersheds.*
36	*The most important step is finding your customers which we feel we did very well. As DC I facilitated meetings where using ArcGIS and Google Earth PRO we could examine the entire*

	watershed together with a projector. Customers were also identified through the Ag committee if we didn't know who they were and often the Town Ag Committee rep would introduce us to the producer. Ambassadors of the opportunity in their community were critical.
37	*The partnerships with state, federal, and some local non-profit groups are very strong.*
38	*The watershed is tough in this county- not only size wise, but large operators that aren't wanting to change, don't need to change their land management practices are what we are up against here in this area.*
39	*There is no partnership with non-farming people or businesses.*
40	*This watershed has a high number of dairy heifer operations. These dairy operations have unique qualities that sometimes do not lend themselves well to federal conservation practices. In order to be truly successful, we would need more time and outreach to those producers and some demonstrations on waste management systems that would work in those unique situations. That type of waste management can be expensive, so in order to implement those practices, more funding would be needed.*
41	*We have had a strong local partnership with landowners and resource partners for the past few decades. This has allowed us to undertake large scale restoration/watershed projects. Examples include: the installation of buffer strips along over 90% of our protected waters, the installation of water quality best management practices along county ditches. These BMPs include grade stabilization structures, berms, and buffer strips. Our strong partnership also provided us with the opportunity to be selected as one of three pilot watersheds in the United States for a new Agricultural Water Quality Certification Program. The program is an on-farm assessments tool that evaluates the effectiveness of water quality bmps that the producer is implementing. The tool helps farmers see where improvements can be made that will benefit water quality. Farmers who are doing a good job are recognized for their efforts and are exempt from new water quality regulations, in Minnesota, for a period of ten years. This has been a very popular program.*
42	*We have had several other projects in this particular sub-watershed of* [watershed name] *where partners have collaborated to make projects successful. This partnership collaboration has been essential to the success of the NWQI program in our field office since 2013.*
43	*We have worked with Clemson University researchers to find pastureland catch rain water runoff and study the amount of nutrients and chemicals in the runoff.*
44	*We need a leader that is focused on outreach, technical assistance, & monitoring for the specific watershed.*
45	*We partner well, but the programs for agricultural producers have unwelcome parts to them.*

Section V – Watershed Planning and NWQI Watershed Assessment

Table G-12. Watershed plan importance

Corresponds WA_Q1 "How important is/was a Watershed Plan for successful watershed management in the [watershed name] watershed?"

Importance	Frequency (%; N=118)
Not at all important	5.1
Slightly important	7.6
Moderately important	31.4
Very important	33.9
Extremely important	22.0

Table G-13. Watershed Assessment importance

Corresponds to WA_Q2: "How important is/was the NWQI Watershed Assessment for successful watershed management in the [watershed name] watershed?"

Importance	Frequency (%; N=118)
Not at all important	3.4
Slightly important	13.6
Moderately important	29.7
Very important	33.9
Extremely important	19.5

Table G-14. Watershed plan status

Corresponds to WA_Q3 "What is the status of the NWQI Watershed Assessment for the [watershed name] watershed?

Status	Frequency (%; N=119)
Not developed and no plans for development	5.9
Not developed but will be in development soon	0.8
Currently in development	13.4
Developed but not currently in use	5.9
Developed and currently in use	37.0
I do not know	37.0

Table G-15. Watershed plan existence

Corresponds to WA_Q4 "Did a Watershed Plan exist before the development of the NWQI Watershed Assessment for the [watershed name] watershed"

Exist	Frequency (%; N=67)
Yes	44.8
No	31.3
I do not know	23.9

Table G-16. Watershed plan age
Corresponds to WA_Q5 **"**How old was the Watershed Plan for the [watershed name] watershed?"

Age	Frequency (%; N=29)
Less than 5 years old	44.8
5-10 years old	34.5
More than 10 years old	13.8
I do not know	6.9

Table G-17. Watershed plan scale
Corresponds WA_Q6 "At what scale was the watershed plan for the [watershed name] watershed?"

Scale	Frequency (%; N=29)
HUC 12	48.3
HUC 10 (HUC 12 subwatersheds included)	27.6
HUC 10 (HUC 12 subwatersheds NOT included)	3.4
HUC 8 (HUC 12 subwatersheds included)	3.4
HUC 8 (HUC 12 subwatersheds NOT included)	0.0
Other (please specify)	0.0
I do not know	17.2

Table G-18. Watershed Assessment development
Corresponds to WA_Q7 "How much of the information from the existing Watershed Plan was used to develop the NWQI Watershed Assessment for the [watershed name] watershed"

Information used	Frequency (%; N=29)
Most	48.3
Some	37.9
None	0.0
I do not know	13.8

Due to an incorrect skip pattern, results from questions WA_Q8 – WA_Q14 are not included in this report

Table G-19. Watershed plan update
Corresponds to WA_Q15 "Will/has the NWQI Watershed Assessment be/been used to develop or update a Watershed Plan for the [watershed name] watershed?"

Update watershed plan	Frequency (%; N=66)
Yes	21.2
No	37.9
I do not know	40.9

Table G-20. Watershed plan and assessment additional thoughts

Corresponds to WA_Q16 Please provide additional thoughts or comments on Watershed Plans and/or the NWQI Watershed Assessment in the [watershed name] watershed.

Response Number	Response
1	*At this point they are in the process of development.*
2	*Current staffing levels and due to a very heavy workload NRCS staff dedicates time in writing focused area plans or (Watershed Plans), which in Oregon are called Conservation Implementation Strategies (CIS's). Local Work Groups help to identify the priority resource concerns in a priority area (watershed) which and are then locally support to address priority resource concerns. This allows NRCS to write watershed plans/CIS's to give financial assistance to address priority resource concerns. This allows NRCS staff to sufficiently give technical assistance justice where it is most needed.*
3	*In my opinion, more time needed to be sent with information, education, and outreach before even a penny was obligated towards project implementation. Essentially the local NRCS personal found out a NWQI project was being approved literally a couple months before NWQI applications were being accepted and approved. For this, or any other NWQI project, to have a chance at overall success, there needs to be a coordinated outreach and education efforts well in advance (at least a year) of the initial signup period. Like most programs, this one was rushed out, and we (and everyone else) was expected to play catch up to not only provide outreach, but to develop plans, applications, and contracts on an almost immediate and drop everything else basis. I believe more time and effort needed to be on outreach prior to implementation, more commitment from State entities, and more monitoring during after the project period to determine project success...even though we developed contracts over a 5 year period...some of these contracts applied water quality practices over a 5-8 year period. Overall I consider the implementation of the NWQI project a success...there were things that could have been to make it more successful...and these suggestions of needs were provided to both NRCS and State entity leadership during the implementation of this project...but suggest improvements to the implementation this project were not implemented primarily due to staffing and time restraints.*
4	*Involve the public more - many are aware of the problems (nitrates, etc), but I feel we need to find ways to better engage the public to get their input.*
5	*More thought needs to be put in to how to implement the project successfully before bringing in financial dollars.*
6	*Needs to have all participants involved up front.*
7	*Overall the project success has been good, still have work in regards to fecal coliform. It takes cooperation from producers, partners, agencies to make this a success.*
8	*There are parts of the watershed assessment that are very valuable - defining land use, outreach plans, developing a list of practices, identify hot spots for further targeting. The other sections are just trying to match the Watershed Implementation Plans required by EPA and DEQ in each state and very little impact or correlation on success or failure of watershed project.*
9	*The assessment brought to light a number of resource concerns that NRCS really cannot help to fix. The number of head cuts in the forested areas was amazing.*
10	*The planning process for us really seemed a little backwards we were told what the problem was and by what % reduction goal we should reach for (EPA) and all we had to come up with is how (with what practices) and how do we measure the success.*
11	*The information for the Assessment was taken from the information organized into the extensive watershed plan that had been developed. The assessment was just a repeat of the information already gathered.*
12	*The requirements for P load reductions in the Lake are greater than there is P in the watershed. It would be great to get our hands around that.*
13	*The two -year time frame is too short for both the assessment/planning phase and then the implementation phase. Again a 4-year time frame would be more appropriate to see effective planning, outreach and farmer changes implemented and documented.*
14	*The County Conservation District, along with the Watershed Steering Committee developed a*

	watershed plan before NWQI was available and was current when the application for the [watershed name] *grant was applied for. CCD did not conduct a NWQI Watershed assessment as there was no need as our existing watershed plan was what was used and already had all of the components of the NWQI Watershed assessment.*
15	*The watershed assessment was an extremely important part of the process, but NRCS should have provided more guidance on how to help facilitate a watershed in using it to develop a watershed management plan to take action. They also should have provided follow up funding to update the assessment as changes in the watershed are made and new objectives are created.*
16	*The watershed plan was created for the whole* [watershed name] *in 2009. The plan includes all four sub-watersheds. While extensive data exists to create individual watershed assessments for the 4 subwatersheds, actual watershed assessments have not been completed. Virginia NRCS is working with partners to get these assessments completed. These assessments will help to guide the future implementation of the NWQI in the* [watershed name] *subwatersheds in the future.*
17	*The Watershed Plans and the NWQI Watershed assessments allowed me to receive funding to address resource concerns that would not have been possible otherwise.*
18	*This was primarily done by our state water quality specialist; local field office had little to do with it.*
19	*Watershed plans are fine, but partners are critical.*
20	*Watershed restoration plan was developed outside of the NRCS, the assessment was completed in house, however no field staff participated which was entirely my fault.*

Section VI – Outreach Plan

Table G-21. Outreach Plan status

Corresponds to OP_Q1 "What is the status of the NWQI Outreach Plan for the [watershed name] watershed?"

Status	**Frequency (%; N=116)**
Not developed and no plans for development	12.1
Not developed but will be in development soon	2.6
Currently in development	12.1
Developed but not currently in use	7.8
Developed and currently in use	30.2
I do not know	35.3

Table G-22. Outreach Plan information

Corresponds to OP_Q2 How much of the information from the existing Outreach Plan was used to develop the NWQI Outreach Plan for the [watershed name] watershed?

Information used	**Frequency (%; N=60)**
Most	23.3
Some	41.7
None	10.0
I do not know	25.0

Table G-23. Outreach Plan development

Corresponds to OP_Q3 Who led/is leading the development of the NWQI Outreach Plan for the [watershed name] watershed?

Developer	Frequency (%; N=60)
NRCS staff	56.7
Soil and Water Conservation District staff	21.7
State agency staff	6.7
Independent contractor (please specify) *	6.7
Other **	8.3

*Please specify included: *Rathbun Regional Water Assoc.; Swan Creek Solutions (vendor); James Madison University-Graduate Level Stakeholder Engagement Course*

**Other responses included: *Buffalo Red River Watershed District and Houston Engineering Inc.; County Staff; Departee Creek Watershed District; Environmental NGO; Local NRCS and Extension*

Table G-24. Outreach Plan development partners

Corresponds to OP_Q4 "Were/are any of the following entities involved in the development of the Outreach Plan for the [watershed name] watershed?"

Partner	N	No Frequency (%)	Yes Frequency (%)	Please specify (*direct quotes*)
1. Producers operating inside the watershed	58	43.1	56.9	• *Because of great working relationships, we worked together with producers to develop core practices to treat water quality based on NRCS CPPE data.* • *Development* • *Development of action items to carried out and by whom* • *Had a kick off meeting with a survey that producers filled out* • *Input on thoughts and ideas on developing written materials for outreach* • *Meetings* • *Participant* • *Participation is requested - need to find a better way to engage a wider variety of producers.* • *Producers participated* • *Provide feedback* • *Social indicator surveys* • *There are already a few producers who are giving pointers to the most important topics that should be covered within an educational outreach event* • *Those serving on the Rathbun Land and Water Alliance Board* • *We developed a working group of locals to assist in the outreach and implementation phase*
2. Producers operating outside the targeted watershed (e.g., upstream, downstream)	57	77.2	22.8	• *Development* • *Participant* • *Producers participated* • *Those who responded to survey of water users in Rathbun Service Area*
3. Industry partners (e.g., oil/gas, wind, forestry/logging, real estate)	56	89.3	10.7	• *Local citizens participated.* • *Invited but did not participate.*
4. Agri-businesses (e.g., agricultural advisors, retailers)	56	73.2	26.8	• *Ag advisors are very active here.* • *Connection to farmers and delivery of outreach information.* • *Invited but did not participate.*

5.	Federal agencies (e.g., EPA, FSA, BLM, NPS)	55	43.6	56.4	• *FSA agreed to share information with their farmer clients.* • *FSA lets us put out flyers, etc.* • *Local water quality partners* • *Not sure.* • *NRCS is actively involved with participation and guidance* • *NRCS reviewed the outreach language before it was published or mailed out to landowners* • *NRCS sends out postcards promoting the project to producers in the watershed.* • *Provided input* • *Provided Outreach ideas/suggestions to Board* • *Review* • *Shareholder/shared ideas on outreach during brainstorm sessions.*
6.	State agencies (e.g., state water quality agency, state dept. of agriculture)	58	29.3	70.7	• *Assisted in presenting at informational meetings* • *Conservation District will advertise and promote by holding meeting and website* • *DEC helped with the initial items that should go into an outreach plan* • *DEP is currently helping. We are hoping to gain assistance from PA Fish and Boat Commission and/or PA Trout Unlimited* • *Development of plan* • *Encouraged the selection of the watershed* • *Local water quality partners* • *Partner* • *Provided input on data and staff to assist with outreach* • *Regulators are very active here.* • *Review* • *Shareholder/shared ideas on outreach during brainstorm sessions.* • *State staff provided technical assistance to outreach coordinator* • *TDEC*
7.	University extension	57	47.4	52.6	• *Asked for input.* • *Assisted in laying out a schedule of education activities.* • *Extension has been involved in outreach meetings.* • *Extension is very active here.* • *presented at informational meetings* • *Provided Outreach ideas/suggestions to Board* • *Review* • *Shareholder/shared ideas on outreach during brainstorm sessions.* • *UVM has been involved every step of the way and has a vital role in carrying out the outreach plan, deliverables in their MOU with NRCS*
8.	University faculty/staff (non-extension)	56	78.6	21.4	• *JMU Staff and Graduate Students put together a very comprehensive multifaceted outreach plan for implementing the* [watershed name] *Project including the NWQI.* • *Local professors in Ag have been involved in outreach meetings.* • *Provided Outreach ideas/suggestions to Board* • *Sociology and summer Research Experience for Undergraduates contributed valuable research on farmer social networks that was used in the development of the plan.*

9. Agricultural related organizations (e.g., Cattleman's Association, Corn Growers, Soybean Association, Farm Bureau)	56	76.8	23.2	• *Farm Bureau is not as active here.* • *Focus groups on successful outreach activities and formats.* • *Possible grange, no till group, and farm bureau participation* • *Provided Outreach ideas/suggestions to Board* • *Provided thoughts and ideas* • *Social Indicator Surveys*
10. Sportsperson related organizations (e.g., Pheasants Forever, Wild Turkey Federation, Ducks Unlimited)	55	87.3	12.7	• *Input on thoughts and ideas on developing written materials for outreach* • *Pheasants Forever is an active partner* • *Share information with their constituents*
11. Environmental related organizations (e.g., The Nature Conservancy, American Farmland Trust)	56	75.0	25.0	• *Chesapeake Bay Foundation and Valley Conservation Council provided input.* • *Development of plan, technical assistance, funding source.* • *Lake association agreed to assist with outreach via social media and newsletter* • *Participant* • *Shareholder/shared ideas on outreach during brainstorm sessions.*
12. Local citizen organizations (e.g., watershed group)	57	56.1	43.9	• *Watershed District* • *A group was formed to assist in the entire process of the watershed plan and implementation* • *Development and implementation* • *Focus groups on successful outreach activities and formats.* • *Friends of the North Fork of the Shenandoah provided input.* • *Give the information to tell people on the progress "* • *Local watershed group comprised of watershed ag and non-ag Landowners contributed to development the outreach plan.* • *Meeting* • *Participant* • *Land and Water Alliance Board are the primary decision makers for all outreach activities* • *Shareholder/shared ideas on outreach during brainstorm sessions.*
13. Farmer coalitions	56	83.9	16.1	• *Focus groups on successful outreach activities and formats.* • *Meetings* • *Social Indicator Surveys* • *There was not enough interest to start a farmer-led coalition in this watershed.* • *Were active in the development phase and again very active in the last meeting because of the lack of "measuring" of success and spreading the word of Farmers successes and educating the legislators.*
14. Youth organizations (e.g., K-12 schools, FFA, 4H)	56	92.9	7.1	• *Local School District is very active with opportunities*
15. Water utilities (e.g., drinking water, waste and storm water management, irrigation)	57	77.2	22.8	• *Development and review* • *Municipal water* • *Participant* • *Provides funds for outreach coordinator position* • *The city of Menomonie was looking for WQ trades in this watershed and agreed to help with outreach in this capacity.* • *Towns were represented during the process.*

16. Other*	27	77.8	22.2	• *Advertise in district newsletter when application deadlines are announced.* • *Assisted in the development.* • *Input on thoughts and ideas on developing written materials for outreach, staff to assist with outreach.* • *This has not been developed yet, unsure of who all will contribute.*

* Other responses included: *Conservation District; County Land & Water Conservation Dept.; Soil Conservation District (2); SWCD, State Agencies, NGOs, others.*

Table G-25. Outreach Plan importance
Corresponds to OP_Q5 "How important is the NWQI Outreach Plan to the delivery of watershed-related information in the [watershed name] watershed?"

Importance	Frequency (%; N=59)
Not at all important	0.0
Slightly important	8.5
Moderately important	23.7
Very important	37.3
Extremely important	30.5

Table G-26. Outreach Plan guidance
Corresponds to OP_Q6 "Please indicate your level of disagreement or agreement with the following statements regarding development of the NWQI Outreach Plan for the [watershed name] watershed. When developing the NWQI Outreach Plan for the [watershed name] watershed…"

Objective	N	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	Mean *(sd)*
		Frequency (%)					
NRCS provided adequate guidance	60	5.0	10.0	18.3	36.7	30.0	3.77 *(1.14)*
NRCS provided adequate feedback	60	6.7	8.3	16.7	40.0	28.3	3.75 *(1.16)*

Table G-27. Outreach Plan additional thoughts or comments

Corresponds to OP_Q7 "Please provide additional thoughts or comments on the NWQI Outreach Plan created for the watershed name] watershed."

Response Number	Response
1	*Again, confusion due to past and present NWQIs. The planning process in the past was good; the current 2019 planning process is better and inclusive and communicated well*
2	*All of my answers pertain to both East and West Fork Mulberry Creek Watersheds.*
3	*Effectively communicating to landowners/farmers is essential in delivering and implementing conservation in the watershed. We have started with several landowner input meetings so that we better understand what is important to them. Once we have an understanding of landowner needs and their resource concerns we can help connect them to resources/programs to best meet their needs.*
4	*More time could have been allowed to promote the project before the deadline.*
5	*Need more outreach that is effective in reaching a wider variety of stakeholders.*
6	*Needs to be updated.*
7	*Outreach is a critical part of having a successful watershed project. Effectively reaching out to producers provides challenging opportunities to deliver an easy to understand message on the who, what, when, and why.*
8	*Plan was left up to the DC and that was best as DC knew what was best.*
9	*State water quality specialist really helped by creating a mailing list that included 100% of operators and landowners.*
10	*The only outreach plan was an ad in the local newspaper and a direct mailing postcard.*
11	*The outreach plan helped guide a more locally driven set of activities and actions in the watershed.*
12	*The outreach plan is more than just for the NWQI and includes outreach plans for reaching the general public, farmers, agency partners, etc.*
13	*The outreach plan to implement the NWQI project has been solely developed in house at the field office level with the District Conservationist and SCD staff. The actual outreach was a simple producer meeting before and during the first year and annual follow-up to explain opportunities and progress.*
14	*The targeted outreach plan is the most important document developed. This is the process that insures all producers in the watershed are reached in multiple attempts to reach a tipping point of producer involvement.*
15	*We already had a strong outreach to producers with local NRCS staff and UVM Extension staff working with local farmers. We had a previous watershed project just North in McKenzie Brook and had already included some extensive discussions with farmer coalition members and neighbor farms that included East Creek producers.*
16	*We are still wrestling with 1619 rules and data sharing and which tool to enter data in... so all this makes it hard to enact the outreach plan successfully.*
17	*We developed the outreach plan, however it has been minimally successful at bringing potential applicants to the office to fill out applications.*
18	*We have a very small portion of this area within [the] County.*
19	*We have discussed what topics we could cover and the audience we seek, however there is no plan currently in development at this time; that I am aware of.*
20	*We held dinners for the community to get input in the beginning and then informational meetings to encourage participation, then a dinner to show the community the results of the work that had been done and how they were successful in helping clean up the water.*
21	*We've had very little guidance or clarity on this.*

Section VII – Outreach and Education

Figure G-3 Recipients of watershed-related outreach and education

Corresponds to OE_Q1 **"**Please rank the top three most important recipients of watershed-related outreach and education material to achieve successful watershed management in the [watershed name] watershed. (1 indicates most important, 3 indicates least important.)" (N=103)

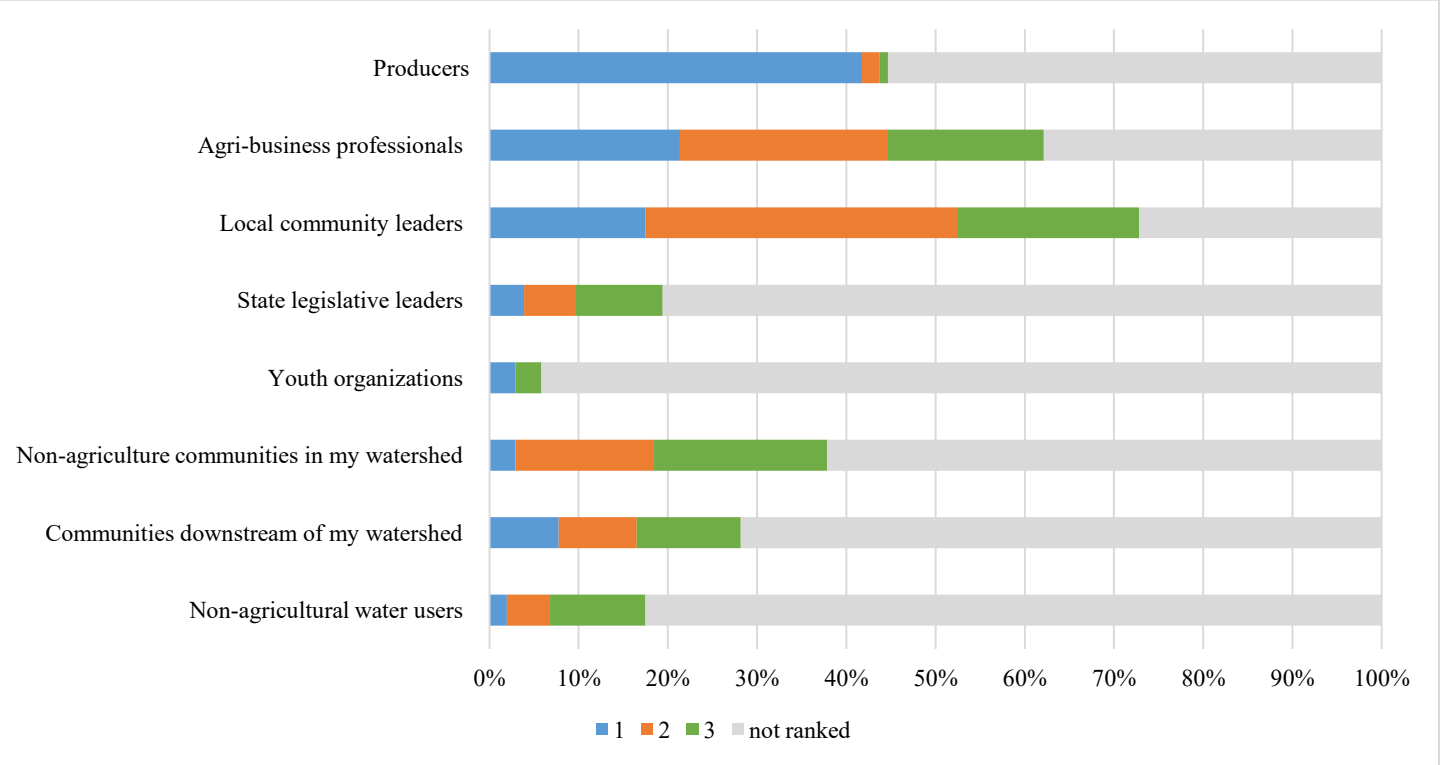


Table G-28. Outreach and Education additional thoughts

Corresponds to OE_Q2 "Please provide additional thoughts or comments about watershed-related outreach and education in the [watershed name] watershed."

Response Number	Response
1	*1) Non-ag (general public) 2) Agri-business prof 3) Non-ag water users*
2	*A large amount of the producers within the Warrior Run Watershed are plain sec community. Additional assistance/training on how to approach their Bishop(s) and receive their participation would be greatly appreciated.*
3	*Catered outreach meetings always draw a good crowd.*
4	*Current staffing level and other watershed areas CIS's in [the] County are now being worked on with high participation. Keeping in touch with the watershed council for future work within this watershed will always be reviewed as we work throughout the County.*
5	*Efforts to improve water quality etc. in any watershed must have a strong locally led group of dedicated individuals! No amount of local, state or federal funding can overcome a lack of community interest and dedication to water quality.*
6	*Farmers and land managers in the watershed are important to provide outreach too as well!*
7	*I used local "Town Hall" meetings and mail out notices to inform landowners about the NWQI. Had great response.*
8	*It seems that producers are generally aware of their role and available support programs. Having others in the community be more aware of the role producers play to improve the watershed would help create additional funding and support.*
9	*Lack of outreach to other land owners and non-farm public.*
10	*Needed more outreach prior to NWQI.*
11	*No outreach has occurred to the landowners. I think we are still in the assessment phase of the project??? Not too sure, not much communication has occurred between the State Office and the Field Office.*
12	*No specific plan was developed. However, press releases, social media, e-mails, and targeted mailings were utilized to inform the agricultural and non-agricultural community about the conservation funding opportunities.*
13	*None of the above are the most important...the most important are the actually landowners/producers within the project area.*
14	*People who are in the watershed should be made aware of different effects and activities and practices available in the watershed.*
15	*Reaching as many different segments as possible is important to public to know about their food and water and the interconnectedness.*
16	*Reaching those producers that don't want government involvement is going to be the biggest challenge.*
17	*Since the producers are the ones investing the time and money to make improvements, they are the primary focus of outreach. In all of the counties I manage we provide a grazing school to producers who want to receive funds to improve their grazing management. It helps immensely if they have invested the time to learn WHY the practices are important and work, then they manage the livestock and utilize the cost shared items (fence and alternative water typically) to the greatest benefit. In* [watershed name]*, I could see a waste management school to teach producers about the practice PRIOR to them enrolling in a program to build the waste management systems that are then improperly or underutilized.*
18	*The people most benefited from the watershed were the producers who voluntarily participated and invited NRCS/SCD staff to spend time on their land explaining the soil health principals and range mgmt. principals.*
19	*The people targeted most (ag producers) where the most resistant to receiving outreach.*
20	*We have come to understand that the most successful conservation programs are locally led. Top down programs are not embraced by local landowners, local leaders, and/or local conservation staff. We are committed to meeting with and listening to landowner/farmer concerns so we can clearly understand how we can best serve them. This approach has built trust between landowners*

	and local leaders. We have taken their concerns seriously and developed and implemented meaningful programs that work for them.
21	*Where water quality issues are a hot topic, it is helpful to discuss them with producers privately, before things get aired out publicly. So, they're not blindsided, and so they have a chance to assess what they can do to improve water quality before public concern escalates.*

Section VIII – Interagency Coordination

Table G-29. State water quality agency relationship

Corresponds to IC_Q1 "How would you describe the working relationship with your state's water quality agency and NRCS? (choose one)"

Relationship quality	Frequency (%; N=112)
Very poor	3.6
Poor	4.5
Acceptable	25.0
Good	37.5
Very good	29.5

Table G-30. NWQI impact on interagency coordination

Corresponds to IC_Q2 "How negative or positive was the NWQI process on the working relationship between NRCS and your state's water quality agency? (choose one)"

Impact	Frequency (%; N=112)
Extremely negative	0.0
Somewhat negative	0.9
Neither positive or negative	39.3
Somewhat positive	30.4
Extremely positive	29.5

Table G-31. Interagency coordination additional thoughts

Corresponds to IC_Q3 "Please provide additional thoughts or comments related to inter-agency coordination"

Response Number	Response
1	*Field staff communicated with the State NRCS leadership that there would be limited participation in NWQI due to small number of farms in the watershed and past participation in programs. Leadership, in coordination with partners, decided to move forward anyway.*
2	*I do not have any knowledge specific to the relationship between NRCS and TDEC during the planning and implementation phases of the NWQI project.*
3	*I don't even know who my local contact is. No one ever reached out to the local NRCS office to get us involved in this process from the beginning. We are just on the back side of implementing the projects because funding came through. I have been in this position for over 4 years now and have never been contacted by anyone working on this project from the state.*
4	*I had no contact with State agency.*
5	*I have worked with Wisconsin DNR since 2002 starting on a EQIP priority watershed. This is the fourth watershed project we have worked on together. I call DNR directly when it is time to choose a watershed and we review current situations in each of my 17 303d watersheds. In 2012 I requested the first NWQI here including* [watershed name] *and* [watershed name] *303d's. Their knowledge of these watersheds and our working relationship focus choices to watersheds that can be delisted.*
6	*I honestly have no idea what the relationship between NRCS and Kentucky Division of Water. I am not aware of any interaction regarding NWQI.*
7	*I worked with WDNR to send a letter to landowners explain the program and the monitoring that would be done on the stream that meandered through their property even though WDNR could do the monitoring within the bed and banks of the stream and did not need permission. Very good feedback.*
8	*I'm not aware of the status of the relationship. hard to answer that 2nd question.*
9	*In the watershed there seemed to be little outside support for NWQI from the state's water quality agency (WI Dept of Natural Resources) other than the local Sanitary District applying for and implementing Lake Protection Grants (received from the DNR due to the Lake Management Plan in place) in conjunction with some NWQI projects.*
10	*It is important to continue a good working relationship with our states water quality agency.*
11	*It seemed like the most assistance needed from the state's water quality agency was their lack of funding to complete the needed water quality monitoring to show upward trend for the work completed.*
12	*Keep up the good work.*
13	*Local partners have not pulled their weight in getting NRCS program interest.*
14	*Need to be better inter agency coordination with local governments (County and City). Just enough NRCS staff facilitate the coordination.*
15	*NRCS and WI DNR have differing methods of how to reach WQ goals, particularly when it came to trout habitat restoration. Although the end goal of improved water quality was the same, there have been times where it was difficult to agree on the strategy to achieve those goals and funds were left on the table/rejected because the agencies couldn't find a way to align their strategy.*
16	*NRCS provided the much-needed financial assistance to aid in producers implementing best management practices address the streams impairments.*
17	*NRCS was involved very little with the* [watershed name] *project in one county. In the other 2 counties, NRCS was very much involved. The state agency was involved and helpful in all 3 counties.*
18	*Our local office voiced concerns about the ability to spend the second round of funds but that seemed to go unheard. Both the local NRCS and SWCD staff were on the same page but the second round of funds was sent anyway.*
19	*Our state health dept/environmental division is extremely helpful in coordinating water quality monitoring data and assisting in overall watershed analysis.*
20	*Seldom inter-agency coordination and communication. Effects from the NWQI process on the*

	working relationship between NRCS and our state's water quality agency is unknown.
21	*State water quality and local NRCS relationship was perfect. Where the NWQI program falls short is the NRCS state. Local NRCS offices are not notified of changes or updates to the NWQI program enough ahead of time. This causes issues with deadlines of the NWQI program application, does not allow time for contacting supporting documents for the application or watershed plans, and most importantly, the water monitoring component does not make sense for the timing of gathering water quality data during the recreational season and to develop credible data. The water quality monitoring component should not be directed by NRCS at the national or the state level. It should only be coordinated through the Wyoming DEQ and in working with conservation districts. A baseline of data must be collected years prior to initiation of any NWQI focus or there is no way of knowing if there are any trends. In addition, trends when it comes to E.coli, need at least 10 years to show up due to the nature of what causes spikes....which is an unknown at this point in time!*
22	*The coordination primarily goes on at the state level. Since I manage at a county level, I am not directly involved with agency coordination.*
23	*The Mississippi River Basin Initiative started building the relationship but NWQI helped solidify it because of the funding for sampling and the support of EPA.*
24	*The State could/should have taken a more active role in outreach.*
25	*There wasn't much evidence that these groups worked closely together.*
26	*This helped to initiate funding from state water quality agency to support a two-year water quality sampling project in the watershed. Provided some connection between their watershed planning process and watershed project participants including NRCS, Extension and Farmers.*
27	*This relationship is key to success and needs to be improved. However, both sides need to be willing to work on improving it.*
28	*We have a great relationship with the state's Division of Water Quality. This brought our local NRCS office into more positive contact with their staff.*
29	*Working with Virginia DEQ has been great!*

Table G-32. Water quality monitoring

Corresponds to IC_Q4 "Did/does water quality monitoring occur in the [watershed name] watershed?"

Water quality monitoring	**Frequency (%; N=113)**
Yes	56.6
No	7.1
I do not know	36.3

Table G-33. Monitoring type

Corresponds to IC_Q5 "What type of water quality monitoring is/was occurring in the [watershed name] watershed?"

Monitoring type	**N**	**No**	**Yes**	**I do not know**
		Frequency (%)		
Water quality trend monitoring	63	3.2	84.1	12.7
BMP effectiveness monitoring	58	43.1	36.2	20.7
Other *	13	7.7	38.5	53.8

*Other responses included: *Biology, habitat, hydromodification surveys etc.; Flow Monitoring; Routine water quality sampling for bacteria; Stressed Stream analysis or Segment Analysis; tile drain*

Table G-34. Entity conducting water quality monitoring
Corresponds to IC_Q6 "Who is/was conducting water quality monitoring in the [watershed name] watershed?"

Entity	Frequency (n; N=64)
State water quality monitoring agency	37.5
Watershed group	10.9
Volunteer monitoring	7.8
Other *	43.8

*Other responses included: *Boone County Conservation District, SD1; Broadwater Conservation District; Clemson University; Conservation District (2); Conservation district and UVM; Conservation District through state program and Stroud and Academy of Naturals Sciences as part of DRWI; County, City, and State Governments; East Dakota Water Development District; Funded by DNR, conducted by county LCD; Local Soil & Water Conservation District in coordination with SUNY Brockport; Local water quality group; County, State; local water quality district and MT dept of environmental quality; Myself on behalf of the SWCD; National Park Service; not sure, but I know it is; NRD; Oklahoma Conservation Commission; Soil Conservation District; State Agency and UVM Extension; State, Watershed, and SWCD are all partnering on this; SWCD; The is mainly completed by USGS and paid for by the local Sanitary District and the Green Lake Association; USGS and VA DEQ; Volunteers do the sampling and WDN tests the samples for Phosphorus; Washakie County Conservation District; Whatcom County*

Section IX – Communication and Technical assistance

Table G-35. Interact with producers
Corresponds to CT_Q1 "Do you work directly with producers in the watershed(s) you manage"

Interaction	Frequency (%; N=113)
Yes	93.8
No	6.2

Table G-36. Technical assistance communication
Corresponds to CT_Q2 "Please indicate your level of disagreement or agreement with the following statements regarding providing technical assistance to producers. When providing technical assistance to producers…"

Statement	N	Strongly disagree (1)	Disagree(2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	Mean *(sd)*
		Frequency (%)					
…I tend to discuss all kinds of possible consequences for each farm management decision.	106	1.9	2.8	12.3	45.3	37.7	4.14 *(.878)*
…I aim to help them accurately predict how successful their farming operation will be.	106	5.7	9.4	29.2	34.0	21.7	3.57 *(1.104)*
…I always look at the interconnections and mutual influences between all decisions that go into their farm management.	106	0.9	1.9	8.5	46.2	42.5	4.27 *(.775)*
…I discuss a suite of practices rather than one single practice.	106	1.9	0.0	3.8	28.3	66.0	4.57 *(.743)*

Table G-37. Technical assistance communication
Corresponds to CT_Q3 Please indicate your level of disagreement or agreement with the following statements regarding providing technical assistance to producers.

Statement	N	Strongly disagree (1)	Disagree(2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	Mean *(sd)*
		Frequency (%)					
When a producer has a problem on their farm, it is usually because of something out of their control.	106	12.3	36.8	33.0	17.0	0.9	2.58 *(.946)*
I think continuously about how to improve the farm operations of producers I work with.	106	0.9	0.9	8.5	33.0	56.6	4.43 *(.769)*

Table G-38. Cover Crop Communication
Corresponds to CT_Q4 **"**Please indicate your level of disagreement or agreement with the following statements regarding cover crops."

Statement	N	Strongly disagree (1)	Disagree(2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	Mean *(sd)*
		Frequency (%)					
In a corn and soybean rotation, cover crops work well when combined with no-till.	104	1.0	6.7	11.5	28.8	51.9	4.24 *(.970)*
In a corn and soybean rotation, cover crops work well when combined with a livestock operation.	104	1.0	5.8	12.5	36.5	44.2	4.17 *(.929)*
Cover crops can reduce the need for pesticides.	104	1.0	6.7	12.5	38.5	41.3	4.13 *(.942)*
Cover crops can reduce weeds.	104	0	1.9	9.6	35.6	52.9	4.39 *(.743)*

Section X - Demographics

Table G-39. Age
Corresponds to AY_Q1 "What year were you born?"

Age	Years (N=109)
Mean *(sd)*	46.12 *(10.352)*
Range	24-75
Median	45

Table G-40. Gender
Corresponds to AY_Q2 "What is your gender?"

Gender	Frequency (%; N=106)
Male	61.3
Female	38.7

Table G-41. Additional thoughts or comments

Corresponds to Additional_Response "Please provide additional thoughts or comments related to the survey, NWQI or watershed management."

Response Number	Response
1	*A good positive experience working with NRCS and producers. This NWQI project has strengthened my Extension Agronomy Team program in this region.*
2	*As a partner, I don't feel that I was truly knowledgeable on all of the details related to the Outreach Plan, watershed assessment, etc. for the watershed and therefore didn't feel comfortable with all the answers that I provided to those questions. A scaled back, more general survey for partners would have been ideal, so as not to provide a false or skewed perspective on the project.*
3	*As mentioned, the process is good; drinking water focus is good; partnership focus is good (successful program cannot operate without partnerships); SAN is good; grateful for attention to our County and the agricultural community which needs the USDA's, the local communities', and the region's support.*
4	*Comments about corn/soybeans are irrelevant here. We are potatoes/oats operations. widen your question parameters.*
5	*I reiterate the importance of active NRCS leadership in promoting and supporting watershed and water quality programs.*
6	*Need more assistance with outreach. NRCS does not have the staffing or means to do effective targeted outreach. Watershed need to be able to be expanded. May of the NRCS practices that are need to complete a complete conservation system are missing from the NWQI practices list.*
7	*None of our producers are farmers, they are all ranchers, most of the watershed is public land.*
8	*NRCS needs to provide time and funding for the relationship building, not just cost share money for technical practices and over a much longer period of time.*
9	*NRCS on the national and state level need to do a better job of relying on the expertise of the state water quality agency for discussions of water monitoring. What has been discussed with NRCS by the state water quality agency is not what is being addressed or implemented...at least in Wyoming. Also, the timing of notification of the NWQI program in relation to when proposals are due and when the funds are approved does not give conservation districts time to develop watershed plans ahead of time or gather needed supporting documentation. The NRCS state does a poor job of communication with the local NRCS offices.*
10	*NWQI has provided an avenue to assist landowners and educate the community regarding resource concerns. There is a great need for NWQI related to the watersheds that feed Lake Okeechobee and the Caloosahatchee River.*
11	*NWQI was a 3-year pilot program in the* [watershed name]. *During this time there was NRCS staff turnover.*
12	*Once you have the basic items covered. Is the watershed impaired by ag, then you have a plan, fully develop an outreach plan the single most important factor that is not usually considered is the willingness and excitement level of the NRCS field office staff to deliver a water quality project. Producers do not come in asking for help with water quality, it requires the staff to work, develop relationships and sale the need for water quality practices year after year for 3 to 4 years. You must have the staff willingness to take on this extra effort. There is way too much emphasis on Watershed Implementation Plans. You must have the people to deliver.*
13	*Overall this has been a frustrating experience. Getting the partners up and running was a challenge in itself. Farmers in the watershed have been exhausted by two recent major hurricane events and don't see this program as a priority. Attendance at listening sessions has been dismal. NRCS county staff are also still dealing with storm recovery efforts and have very little time to participate.*
14	*The availability of trained and trusted field staff who are able to provide one-on-one technical assistance to producers is critical for the successful implementation NPS BMPs. Any additional funding for initiatives like NWQI need to include funding for staff to help with the workload.*
15	*The* [watershed name] *NWQI started in 2012 and finished in 2018, so we had 7 years of funding. I believe we had great successes throughout that time. I don't believe that formal watershed*

	assessments and outreach plans were put together for the [watershed name]*, however we did have assessments tools and outreach activities implemented. Some of the main partners (NRCS, Sanitary District, Lake Association) were asked and did give a presentation about our watershed success at the International SWCS conference in Madison Wisconsin in 2017.*
16	*The last 3 NWQI watersheds I have worked on had a very simple process for request. An extremely long detailed GIS assessment, detailed outreach assessment, and detailed watershed plan were not done. Documents were between 4 and 8 pages in length and covered the basic plan to move from 303d to delisting. NRCS staff went out to the watersheds and built working relationships with producers negatively impacting water quality. Upon building working relationships NRCS worked with producers to implement real changes positively benefiting the water quality of the 303d watersheds. Two of the 3 watersheds have been recommended for delisting. I was planning to request another NWQI watershed in 2018 and I was given an example 128 page plan to follow for my new NWQI request. I chose not to write the fancy watershed plan for a new NWQI due to the overwhelming amount of planning. My staff and I began selling in the proposed watershed without NWQI specific funds and in the past year we have contracted 15 projects for about $800,000 in general EQIP and CSP. The value of building the one on one relationships with the producers cannot be overstated. Conservationists need to go out and work with producers. Then they will see the needs of the 303d watersheds and be able to work with the producers to address them.*
17	*The NWQI was been a great tool (funding source) to implement many conservation practices in the three sub watersheds of the* [watershed name] *that are applicable to the program. Due to a lack of general EQIP funding in Virginia and our current EQIP ranking and screening process, many of the projects in these watersheds may not have been funded and implemented if it were not for the NWQI funding. Long Term, the NWQI is essential to help improve the water quality in the* [watershed name]*, the North Fork of the Shenandoah River, the Shenandoah River, the Potomac River, and the Chesapeake Bay. We are currently trying to get the fourth sub-watershed of the* [watershed name] *enrolled into the NWQI for FY2020. USGS data suggests that this highly Karst watershed is influencing groundwater and surface water quality in the other watersheds.*
18	*There are many watersheds under increased regulatory scrutiny. Seems like these watersheds/waterbodies should be priority for NWQI funding. There should also be an evaluation of available data prior to making a decision of a particular watershed/waterbody. In the case of* [watershed name]*, data from 1997-2002 was used to justify adding it as a NWQI watershed. The data was at least 10 years old without any updates in water quality monitoring information, as the local SWCD no longer has a water quality monitoring program. If additional analysis was completed by another party, it was not shared with Field Office staff. States should also look at available field staff to carry out the program. The Orleans County field office has had a significant amount of turnover and most of the time has had only 1 person covering the field office. There were other challenges that included quick application/planning turnaround times and lack of assistance from state public relations staff.*
19	[watershed name] *watershed work was done in 2012/2013 I think. The first year we had 20 some contracts and utilized over $300,000 in funds. I think second year we only had 5 contracts and less money and 3rd year they moved on. I remember going to grocery store where one landowner worked and personally sold water quality practices to him. Otherwise we made some phone calls, newspaper add and word of mouth. I participated some in* [watershed name]*which devoted literally hundreds of staff hours from many specialists, and high paychecks GS-13's. Hundreds of hours of planning, hundreds of hours devoted to meetings etc. I understand you need good planning but a need to accurately assess the interest of landowners is in my opinion the most important. The perfect plan if never implemented is a loser.*
20	*We are currently preparing to have additional watershed-based projects in this county due to increased source water protection funds becoming available in the new farm bill. I am advocating for an additional staff to be put in place at least one year prior to the funds becoming available to prepare the producers to best utilize the funds that become available.*
21	*We only have a limited amount of funding and partners are critical for the success to addressing any resource concerns identified. I've only seen partnership grow stronger through the years and hopefully this trend will always improve.*

22	*We were successful in this watershed because of the direct involvement by the Utah Department of Agriculture and Food staff and especially by the involvement of the local Soil and Water Conservation District. The District lead a lot of meetings, became the liaison between the community and the government agencies. They funneled funds through their bank accounts and provided the opportunity to use non-federal funds in assisting with on-the-ground practices. They were critical to the success of the watershed plan. NWQI was a funding instrument in getting the desired success.*
23	*Your cover crop rotation example needs to be phrased differently. We don't have soybeans in Western CO. I think I understood what you were looking for but you should say in a crop rotation and use corn/soy bean as an example.*

G.2 State Water Quality Agency

Section I – Agency and Respondent's Role

Table G-42. Agency Role

Corresponds to IN_Q1 "What is/was your agency's role in the planning and/or management of an NWQI watershed project? (select all that apply)"

Role	Frequency (%; N=27)
a. Selection of NWQI watershed(s)	74.1
b. Water quality monitoring in NWQI watersheds	85.2
c. Watershed Assessment development	44.4
d. Outreach Plan development	11.1
e. Involved with outreach and education	22.2
f. None	3.7
g. Other (please specify) *	18.5
h. I do not know	0

Note: Respondents can choose multiple roles so the sum of frequency (%) is greater than 100%

*Other responses included: *Funding of projects within NWQI watersheds; Grant management and project oversight; Manage public land in a NWQI watershed; Providing subawards to projects in NWQI watersheds; We developed a nine-element plan prior to NWQI; That plan included assessment and outreach development. Also, we have funded outreach and education as part of our effort to implement the nine-element plan.*

Table G-43. Length of employment

Corresponds to IN_Q2 **"**Please indicate how many years you have been (enter number)"

Employment	N	Mean (years)	Range (years)	Median (years)
At your current organization/agency	27	15.48	1-33	15
In your current role	27	7.8	1-28	6

Table G-44. Additional thoughts: Staff needs
Corresponds to IN_Q3 "Please provide additional thoughts or comments on your agency's role in NWQI"

Response Number	Response
1	*DEQ provided input to NRCS on NWQI watershed selection; however, NRCS ultimately chose to select watersheds through a Call for Proposals process. DEQ was part of the ad hoc committee that reviewed proposals and made recommendations, but other agencies were involved as well. I think were advantages to this process, but also disadvantages. While it helped ensure a watershed was selected where there was interest in projects, I don't think it resulted in the best watersheds selected for water quality improvement and monitoring. Conversations about watershed selection have been, in my opinion, somewhat difficult; I don't feel it has resulted in a true partnership between the agencies. Conversations about monitoring have also been difficult, especially during the initial roll out of the monitoring requirements. It was unclear why monitoring was being required, and local sponsors were frustrated by requirements changing after they'd accepted the funding. Ultimately, local conservation districts assumed responsibility. for completing monitoring activities, with some help from DEQ. I do not feel that the state NRCS office understood or valued the monitoring component, which put the DEQ in an awkward position. While the NRCS has been willing to work with us, I overall feel that the DEQ has been involved enough to meet requirements, but don't feel that we've developed a partnership for targeted water quality improvement.*
2	*Each opportunity we have to partner with NRCS helps us better understand their programs, strengths, weaknesses, assets, and limitations so that our programs can be an asset to them rather than duplicative or competitive. Specifically, the NWQI pilot program approach is truly allowing us an opportunity to plan ahead of the effort, bringing necessary partners including local offices to the table to better design an implementable program to holistically address the primary resource concern on a watershed basis in a targeted manner, rather than addressing resource concerns individually.*
3	*For NWQI, we felt it was very important to select watersheds with completed 9-element watershed plans, so that the plans had already identified priority areas for BMP implementation that would address the water quality impairment, not be program that randomly implemented BMPs (aka "random acts of conservation"). We also felt it was important that NWQI watersheds be selected that already had watershed project coordinators in place to help sell BMPs in the priority areas identified in the watershed plan.*
4	*I am the primary person who has worked on NWQI for the state in New Mexico. However, only a small percentage of my effort has gone towards NWQI.*
5	*I work for the State Water Resources Control Board, which is not involved in the specific activities in the NWQI watershed. The Regional Water Quality Control Board would be more involved with monitoring, assessment, and outreach in the NWQI watersheds.*
6	*Initially, NRCS came to us and asked us to help them choose NWQI watersheds, with a very short window of time to do so. The State Technical Committee chose to add an additional watershed, which the state water quality agency also had experience with, in the NWQI and became the "monitoring" watershed. We were concerned that the watershed was already saturated with cost-share funding and we would see few (if any) additional EQIP contracts signed in the watershed. That is, indeed, what happened. Yet, we are still monitoring in that watershed and it has been celebrated at the state and national level as an exemplary partnership project, which it is. It is not, however, addressing the purpose of NWQI, which is a bit frustrating. All of the other NWQI watersheds have been dropped in our state, with none particularly showing accelerated water quality improvement. In our state, at least, I don't see NWQI as a successful or worthwhile venture. We partner with NRCS fine without being forced to do so by the federal agencies.*
7	*Montana DEQ serves as the state water quality agency partnering with NRCS and EPA. NWQI watersheds align with DEQs Nonpoint Source priority watershed designation.*
8	*More coordination and planning needs to be invested in gauging producer interest and determining specific water quality impairments and management needs to help ensure the NWQI watershed is successful. Based on this pre-planning effort, financial and technical assistance needs*

	to be targeted toward landowners/producers managing the acres determined to be high priority pollutant sources. Low priority acres and practices that are not core practices for addressing the water quality issue must be ranked low for assistance.
9	*Our state agency implements the U.S. EPA's nonpoint source grant program (CWA s. 319(h)).*
10	*Our state is not interested in NWQI and we've had very little interaction with them. We did successfully advocate for additional NWQI watersheds to be added when most of the NWQI fund were being returned unspent. In addition, we developed a nine-element plan for the 8-digit HUC watershed that includes our NWQI watersheds. We've used 319 and state funds to implement the plan and that includes implementing BMPs and outreach activities. NRCS has not been key stakeholders in the development or implementation of the plan and NWQI has not been a factor.*
11	*Prioritize projects in these areas.*
12	*Provide NRCS with expertise in monitoring and some local knowledge.*
13	*Reporting to EPA semi-annually. Awarding grants associated with the selected WBPs and project proposals and all duties associated with grant management.*
14	*We also provide funding for implementation of BMPs within the NWQI watersheds (both agricultural and urban).*
15	*We are not heavily involved in watershed selection or analysis. We provide monitoring support for some pollutants, but not others. It would be good for us to have increased communication with NRCS.*

Section II - Interagency Coordination

Table G-45. Working relationship with NRCS

Corresponds to IC_Q1 "How would you describe the working relationship between your agency and national, state, and district-level NRCS?"

Statement	N	Very poor (1)	Poor (2)	Acceptable (3)	Good (4)	Very good (5)	Mean *(sd)*
		Frequency (%)					
National-level NRCS	25	8	20	52	16	4	2.88 *(.927)*
State-level NRCS	27	7.4	18.5	29.6	14.8	29.6	3.41 *(1.31)*
District-level NRCS	26	7.7	3.8	42.3	30.8	15.4	3.42 *(1.07)*

Table G-46. NWQI impacts on interagency relationships

Corresponds to IC_Q2 "How negative or positive is/was the NWQI process on the working relationship between your agency and national, state and district-level NRCS?"

Statement	N	Extremely negative (1)	Somewhat negative (2)	Neither positive nor negative (3)	Somewhat positive (4)	Extremely positive (5)	Mean *(sd)*
		Frequency (%)					
National-level NRCS	24	0	12.5	70.8	0	16.7	3.21 *(.884)*
State-level NRCS	26	7.7	26.9	19.2	19.2	26.9	3.31 *(1.35)*
District-level NRCS	24	4.2	8.3	37.5	37.5	12.5	3.43 *(.977)*

Table G-47. Additional thoughts: Interagency coordination
Corresponds to IC_Q3 "Please provide additional thoughts or comments on your agency's role in NWQI"

Response Number	Response
1	*Most happened before I started at the agency.*
2	*Most of the coordination/communication was through the stakeholders implementing plans/projects, primarily the WV Conservation Agency and local conservation districts. Very little direct communication occurs with regional/state NRCS.*
3	*NWQI has fostered positive working relationships between DEQ and NRCS, particularly at the state level. These projects have prompted more frequent communication, joint planning, and has initiated conversations about data and information sharing. DEQ has experienced challenges with the timeliness of National-level NRCS-issued bulletins regarding the NWQI program.*
4	*NWQI has given us the opportunity to work with NRCS more. It has given us something specific to discuss and work on that has an origin in their agency, so they are typically more responsive than when we provide requests based solely on the state water quality program.*
5	*Our state found it very difficult to connect with state and sometimes local NRCS staff on a water quality level. The rigidity of EQIP forces NRCS staff to focus on field level resources concerns and not watershed/tributary issues.*
6	*Our state NRCS never gave money to our recommended NWQI watersheds in 2019. Or any NWQI Watersheds for that matter. It just skipped their mind.*
7	*Please see my previous comment regarding being involved enough to meet requirements, but not forming productive partnerships. I would add that I think limited staff resources and heavy workloads at NRCS are part of this--it's hard to add new initiatives when you're already overwhelmed by "normal" workloads.*
8	*Poorly worded questions here. NA answer options are needed.*
9	*See previous comment- the process has helped us better understand how NRCS functions so we can be a better partner.*
10	*The coordination at the State level is great. The most challenging part is finding willing producers.*
11	*The national and state NRCS worked with us very well in advising us of what our role at Iowa DNR would be, as the state water quality agency, in making recommendations to NRCS for selecting and retaining NWQI watersheds. At the NRCS district level, there was concern that the relatively late notice of NWQI program requirements, at least at the beginning of the program, did not allow enough time for local NRCS staff to contact producers and sell practices. Over time, as the program requirements remained relatively constant, this was less of a concern at the local level, except for districts that waited until after receiving notification of NWQI funding to sell practices. Also, there was concern at one district that requiring the use of the RSET tool for NWQI practices--which was announced and was being implemented--would be especially onerous and time-consuming for staff and would negatively affect participation by producers in the program. Eventually, the state NRCS staff were able to provide training to district staff on the RSET tool, and they reached a compromise that enabled the district to move forward with selling practices without being scared away by the RSET requirement.We worked to notify each of the NWQI districts that we would continue to recommend their continued eligibility in the program provided that they utilized the extra NWQI funds, so they could be more pro-active in selling practices.*
12	*The state-level NRCS is largely staffed by individuals from outside the state, and are slow or unwilling to work as partners with the relevant state agencies. The district-level NRCS is often plagued by high turnover.*
13	*Vermont enjoys an incredibly strong collaboration among our partners, and NRCS most strongly.*
14	*We have only dealt with state-level NRCS staff.*
15	*We interact primarily with the state-level NRCS. It's a very productive and successful partnership/relationship.*
16	*We would like to be more involved in the upfront decision making on the selection of the NWQI watersheds. As partners, we should have a joint, multi-year NWQI plan that includes two levels of priorities: 1) NWQI candidate watersheds scheduled for assessment to define water quality impairments, management needs and landowner/producer interest and 2) NWQI watersheds with*

	defined priority areas and practices with a schedule for implementation of those NWQI watershed projects. The SCDs and NRCS Field Office staff must also be directly involved in this planning process.
17	*We've had very little interaction of National level NRCS. The most frequent response we get from state-NRCS (especially in the early years of NWQI) is "we haven't received any guidance from HQ." They are clearly not interested.*
18	*While I don't work for NRCS, I understand that national headquarters tends to ask for information from the state offices within short windows of time, which was also our experience. Coupled with the fact that we didn't have a lot of information about EPA and NRCS-NHQ working together on the initiative until we were asked to choose watersheds left a bad taste in my mouth. The choosing of watersheds was a paper exercise, with not a lot of time to ground-truth, which did not give the District Conservationists a chance to weigh in on whether or not NWQI was likely to be successful in watersheds in their counties. And, I understand, there was a lot of pressure on them to sell the program in their counties, which did not improve relationships between the state water quality agency and the local NRCS representatives.*

Section III - Water Quality Monitoring

Table G-48. Water quality monitoring

Corresponds to WQ_Q1 "Did/does your agency conduct water quality monitoring in any NWQI watersheds in your state?"

Water quality monitoring	Frequency (%; N=26)
Yes	84.6
No	7.7
I do not know	7.7

Table G-49. Monitoring type

Corresponds to WQ_Q2 "What type of water quality monitoring is/was occurring in the [watershed name] watershed?"

Monitoring type	N	No	Yes	I do not know
		Frequency (%)		
Water quality trend monitoring	19	5.3	94.7	0
BMP effectiveness monitoring	16	31.3	62.5	6.3
Other *	6	n/a	n/a	n/a

*Other responses included: *Base line and project effectiveness monitoring; Biomonitoring; Evaluating pollutant sources to inform project selection; Fixed station macroinvertebrate community trend; Quasi BMP effectiveness; Watershed monitoring;*

Table G-50. Additional thoughts: Staff needs

Corresponds to WQ_Q3 "Please provide additional thoughts or comments related to water quality monitoring of NWQI watersheds in your state"

Response Number	Response
1	*BMP effectiveness monitoring applies only when there are state-funded BMPs in the area.*
2	*BMP effectiveness monitoring is somehow ineffective due to the privacy considerations of NRCS.*
3	*Due to turnover at the state NRCS level we have just begun the process of developing an NWQI watershed. NRCS is currently doing planning work and our agency might begin water quality monitoring sometime next federal fiscal year when the planning is completed.*
4	*Monitoring to track change over time requires long-term commitments among NWQI partners (e.g., at 5-year increments over multiple decades). Site-specific information about where and which type of BMPs are being implemented would enable more effective monitoring designs. This information sharing would require a data sharing agreement between DEQ, NRCS and possibly other partners. Montana DEQ and NRCS do not have one of these in place currently. Montana has had great success in establishing monitoring partnerships among DEQ, NRCS, local watershed groups, and county water quality districts. Adequate lead time to plan and prepare for monitoring is essential to successfully implement monitoring programs. For example, articulating clear objectives with foresight toward future data needs takes planning time. We found additional time was needed to properly train partners who were otherwise less familiar with monitoring, to align data management practices, to establish funding and lab arrangements, etc.*
5	*Our "watershed" monitoring project turned into a "BMP-effectiveness" monitoring project with the cooperation of a couple of local farmers in the watershed. It frustrates me a bit that NRCS is so focused on edge-of-field monitoring. We've known that BMPs were successful for years and the argument I've heard to continue the monitoring is that we don't know how well X practice performs in X soils. But since we cannot possibly monitor for all of the practice/soil combinations out there, this argument doesn't hold water with me. I also don't think it's NRCS's role to do that anyway - that's research that we rely on land-grant universities for. If academia believes that there are still questions to be answered, by all means, I support their work on it. However, the state's Section 319 funds should not be hijacked to do so.*
6	*Related to the previous comment, our early involvement would help to better determine monitoring needs and feasibility for the NWQI watersheds. We should also consider post-project monitoring rather than concurrent monitoring. In many cases the scheduled practices may take multiple years to implement and/or mature and reach full effectiveness (e.g., prescribed grazing, soil health management, etc.) Post-project monitoring would more effective at documenting those benefits. Cost can also be significant for some monitoring strategies. Consideration should also be given to providing financial compensation for the more elaborate monitoring approaches (e.g., edge-of-field, loading trends, etc.).*
7	*See first comment regarding monitoring activities and challenges. DEQ provided input on monitoring, but local conservation districts opted to take responsibility for monitoring activities. Limited support for monitoring and limited study designs have resulted in data that I anticipate will be mostly inconclusive. More recent conversations with NRCS have led to better discussion on the value of monitoring and selecting a watershed where we can set up a more successful monitoring program.*
8	*There was essentially no implementation under NWQI in our NWQI monitoring watershed. We do not currently have an NWQI monitoring watershed, but our 106 program collects data for assessment against water quality standards in NWQI watersheds for two consecutive years approximately every eight years.*
9	*We allocated EPA Section 319 funds to hire Iowa State University water monitoring specialists to set up and conduct the paired sub-watershed study. The study has been ongoing for about 5 years, and the results are showing that extra land treatment with BMPs is improving water quality. We intend to continue the long-term monitoring in order to track trends in water quality data.*
10	*We haven't initiated yet, but will when the next project gets off the ground.*
11	*We monitor for bacteria only. NRCS/USGS monitor for other pollutants, flow, etc.*

12	*We were compelled by EPA to develop and implement a monitoring strategy for an NWQI watershed as part of our 319 grant conditions. We're doing this effectiveness monitoring even though NRCS is not installing many new practices. We're half way through a 10-year monitoring study to measure the effectiveness of NWQI when few practices are being installed. Unsurprisingly, preliminary results after 5 years shows no changes at the test site. Early on, we tried to talk to NRCS about getting information regarding practices and locations so we could develop site specific effectiveness monitoring studies. We offered to develop a data sharing agreement to preserve the confidentiality of the data. However, the response we received from state-NRCS was "we haven't received any guidance from headquarters." We gave up trying when it became apparent that few (if any) NWQI funded practices were being installed so there was not be much opportunity to develop site specific monitoring strategies even if we had a data sharing agreement.*

Section IV - Watershed Plan and NWQI A

Table G-51. Watershed plan importance

Corresponds WA_Q1 "How important are/were Watershed Plans for successful watershed management of NWQI watersheds in your state?"

Importance	**Frequency (%; N=26)**
Not at all important	7.7
Slightly important	19.2
Moderately important	19.2
Very important	42.3
Extremely important	11.5

Table G-52. Agency involvement in Watershed Assessment development

Corresponds to WA_Q2 "Is/was your agency involved in the development of Watershed Assessments for NWQI watersheds in your state?"

Water quality monitoring	**Frequency (%; N=26)**
Yes	50
No	42.3
I do not know	7.7

Table G-53. Watershed Assessment importance

Corresponds WA_Q3 "How important are/were Watershed Assessments for successful watershed management of NWQI watersheds in your state?"

Importance	**Frequency (%; N=13)**
Not at all important	0
Slightly important	15.4
Moderately important	23.1
Very important	38.5
Extremely important	23.1

Table G-54. Watershed Assessment objectives

Corresponds to WA_Q4 "The NWQI Watershed Assessment developed for the [watershed name] watershed helped to…"

Objective	N	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	Mean *(sd)*
		Frequency (%; N=13)					
...guide watershed management activities	13	0	23.1	7.7	23.1	46.2	3.92 *(1.26)*
...identify water quality impairments	13	7.7	23.1	0	30.8	38.5	3.69 *(1.44)*
...develop watershed improvement goals/metrics	13	0	15.4	7.7	53.8	23.1	3.85 *(.987)*
...develop a suite of practices to address water quality impairments	13	7.7	7.7	0	38.5	46.2	4.08 *(1.26)*
...establish interim metrics to track progress of BMP implementation on targeted acres.	13	0	23.1	23.1	38.5	15.4	3.46 *(1.05)*
...establish interim metrics to track impacts of BMP implementation on water quality.	13	7.7	15.4	23.1	23.1	30.8	3.54 *(1.33)*

Table G-55. Watershed Assessment information

Corresponds to WA_Q5 "Do/did Watershed Assessments include all of the information needed to facilitate successful watershed management of NWQI watersheds in your state?"

Adequate information	Frequency (%; N=13)
Yes	61.5
No	38.5

Table G-56. Watershed Assessment requirements

Corresponds to WA_Q6 "To facilitate successful watershed management, what, if any, additional information should be required in NWQI Watershed Assessments?"

Response Number	Response
1	*Many of your questions should be directed to NRCS at the state and district level. NRCS is using the watershed assessments. We use EPA approved 9-element watershed-based plans.*
2	*More encouragement of local stakeholder involvement and improved communication.*
3	*TBD - We are currently developing the first Watershed assessments.*
4	*Watershed assessments are important in identifying geographic locations and needing treatment and in providing technical information quantifying the amount of pollutants originating from different locations. We divide the assessments into several types: land use (tillage and farming) assessments, gully assessments, and streambank assessments. We also add an urban land use assessment in watersheds with significant urban contributions to total pollutant loading in the watershed. The watershed plan that is developed should be based on identifying which areas in the watershed (farmland, gullies, streambanks, and/or urban areas) are contributing the most pollutants to the impairment of concern. We selected watersheds with phosphorus as the primary pollutant of concern to address the impairments, so BMPs that addressed sediment (which has phosphorus) and phosphorus were the primary types of BMPs used within the NWQI program. We felt it was important to focus specifically on the primary pollutants that affect the impairments. We continue to observe that other programs (non-NWQI) do not address specific impairments, but instead focus heavily on nitrogen-reducing BMPs because of the Iowa Nutrient Reduction Strategy and the former Des Moines Waterworks lawsuit against 3 counties in northwest Iowa. Unfortunately, most of the impaired waters in Iowa are not impaired because of excessive nitrogen. Therefore, we agree with the NWQI requirement to focus on the impairment.*

Table G-57. Additional thoughts: Watershed plans and/or Watershed Assessment for NWQI watersheds
Corresponds to WA_Q7 "Please provide additional thoughts or comments on Watershed Plans and/or the Watershed Assessments for NWQI watersheds in your state"

Response Number	Response
1	*As I mentioned, we are in the process of initiating and therefore have not fully executed a Watershed Plan, but we will. I answered in light of how important I think the Watershed Plan component is for my state.*
2	*As previously indicated, we would like to be more involved than we have been in the past, if the expectation is we will be providing monitoring support for the NWQI watersheds. That starts with the assessment phase (readiness phase) and needs to continue through the implementation phase and possibly into post-project monitoring. Again, a multi-year approach for the NWQI process is needed to ensure we (i.e., NRCS and partners) are collecting the necessary data and working with the appropriate state/local organizations to develop effective NWQI projects for the long term.*
3	*DEQ develops an implementation plan/watershed-based plan for impaired watersheds, including the selected watershed for NWQI. NRCS is developing the watershed assessment.*
4	*Even before NWQI existed, our state required watershed plans to be in place prior to implementation work taking place.*
5	*I don't know if a watershed plan was developed for our NWQI watersheds. A lot of watershed plans in are state are based strongly on TMDL implementation plans.*
6	*I would like to see greater synergy between EPA 9-element watershed plans & NRCS watershed assessments so that there is just one planning document.*
7	*If this is truly a pairing between NRCS and the 319 program, the states should already have 9 element watershed plans completed for watersheds that participate in NWQI, all watershed assessment information is included in that plan.*
8	*In Arkansas it is not economically feasible to do watershed management plans at a 12-digit level. We develop WMPs at an 8-digit level and prioritize the 12-digit HUCs within the 8 digit. In some instances, NRCS did not take into consideration the prioritization and in some cases if the watershed even had a WMP. Further, the majority of practices NRCS included for implementation were not water quality related but rather water quantity related and had no effect on water quality.*
9	*Montana DEQ has data and information that would likely supplement the information needed by those developing Watershed assessments (e.g., information from monitoring, 303(d) list, total maximum daily loads, watershed restoration plans or watershed-based plans, source identification). Montana DEQ highly recommends sharing copies of completed Watershed Plans and Watershed assessments with all partners involved.*
10	*NRCS should be willing to adopt approved EPA watershed-based plans instead of creating and/or requiring another very similar plan.*
11	*Our NWQI sites are 7-8 years old and they did not have a management plan in place at the time and selections were partially based on suggestions from the state. Our understanding is that the NRCS will use the management plan(s) when new watersheds are added. At this time we do not know if another assessment will be made or not. It may not be necessary to do another assessment due to the fact that management plan would have most, if not all of the assessment components in it.*
12	*Our NWQI watersheds have nine-element watershed-based plans that NRCS has taken little interest in, and that have had little effect on implementation choices. Soon, NRCS may develop watershed assessments for these watersheds. We have conference calls.*
13	*Planning is critical for success, but there are lots of plans developed that are not realistic to implement or don't have a mechanism to be implemented or for whatever reason are never really used. The difference with the watershed assessment in the NWQI process is that it provides a foundation for the NWQI program delivery. Its lays out a real and workable and designed to be used as a tool, rather than a box to check off to be eligible for further funding. It concentrates on asking the critical questions to understanding nonpoint source driven water quality problems and solutions in a watershed, rather than drafting ambiguous estimates and complicated watershed models.*

14	*Selected watersheds had a watershed plan (TMDL Implementation Plan). However, those plans were so broad that they very loosely guided any implementation. I'm not confident all implemented practices were selected based on improvement to water quality, particularly the pollutant causing the impairment. While I support planning and assessment, I'm also concerned the requirements associated with NWQI readiness are becoming very challenging given limited staff resources, both at NRCS and DEQ.*
15	*Vermont has its own methods for tracking and accounting for outcomes of plans, so this is less important within the NWQI plans.*
16	*Watershed assessments seem like a duplication of effort, if a watershed plan is already in place. Our constituents have been very reluctant to point fingers at particular properties/landowners and call them out as a problem in our watershed plans, but it seems to me that is the point of the "Watershed assessment." We are just starting one in our state, though, so it remains to be seen how local landowners perceive it.*
17	*Watershed Plans and Watershed assessment documents usually do not indicate whether there are skilled staff in place in a watershed who can sell practices to landowners and producers. We observe major differences in BMP implementation between watersheds with highly-skilled local staff vs. watersheds with less-skilled local staff. Having both highly-skilled watershed staff selling BMPs to landowners and producers and having identified priority areas for BMP implementation are the key to making progress in the watershed.*
18	*We developed and began implementing a nine-element plan before the NWQI program was initiated. The nine-element plan covers an 8-digit HUC watershed that covers the NWQI sub-watersheds. NRCS was not involved during the development of the nine-element plan (the local conservation district led planning efforts) and as near as we can tell, NRCS is not using the plan to implement NWQI. Several months ago, we learned from EPA about the new Watershed assessment requirements. However, we have not heard a word from state-NRCS. We intend to continue to support local stakeholder efforts to use our nine-element plan to implement practices. We've funded several implementation grants already and we're funding a new grant this year to address on-site septic and ag sources as recommended in the nine-element plan.*

Section V - Outreach Plan

Table G-58. Outreach Plan involvement

Corresponds to OP_Q1 "Is/was your agency involved in the development of Outreach Plans for NWQI watersheds in your state?"

Involvement	Frequency (%; N=26)
Yes	26.9
No	53.8
I do not know	19.2

Table G-59. Outreach Plan importance

Corresponds OP_Q2 "How important are/were Outreach Plans for successful watershed management of NWQI watersheds in your state?"

Importance	Frequency (%; N=7)
Not at all important	0
Slightly important	14.3
Moderately important	14.3
Very important	42.9
Extremely important	28.6

Table G-60. Additional thoughts: Outreach Plans for NWQI watersheds

Corresponds to OP_Q3 "Please provide additional thoughts or comments on the Outreach Plan created for NWQI watersheds in your state."

Response Number	Response
1	*Fortunate to have strong partners in the University of Vermont Extension System to assist.*
2	*The outreach plan helps the local office envision how they will accomplish the NWQI implementation goals they have set. Instead of additional money to obligate it helps them see how NWQI is an additional opportunity to make a difference for the producers and natural resources in their area. They already have an outreach program for traditional programs, but NWQI is limited in scope and area; in some ways those limitations are viewed as risks by the people who are responsible for delivering the program. So, the outreach plan helps them see that partners will bring an extra effort to help them bring people in and convince people to make management changes so that the program dollars and obligations can be delivered.*
3	*This question should be directed to NRCS the state or district level.*
4	*We developed and funded with EPA Section 319 funds a project carried out by Iowa State University Extension to help local watershed groups conduct a community assessment and use them to develop outreach plans. These outreach plans were helpful in the NWQI watershed with the less-experienced watershed staff. In the NWQI watersheds with experienced staff, we observed that they already had effective outreach strategies in place. NWQI simply provided them with additional resources to implement their targeted outreach and BMP implementation.*

Section VI - Staff Needs

Figure G-4 Staff needs

Corresponds to SN_Q1 "Please rank, in order of importance, the top three statements regarding staffing needs for successful watershed management of NWQI watersheds in your state. (1 indicates most important, 3 indicates least important.) The three most important staffing needs for successful watershed management are:" (N=22)

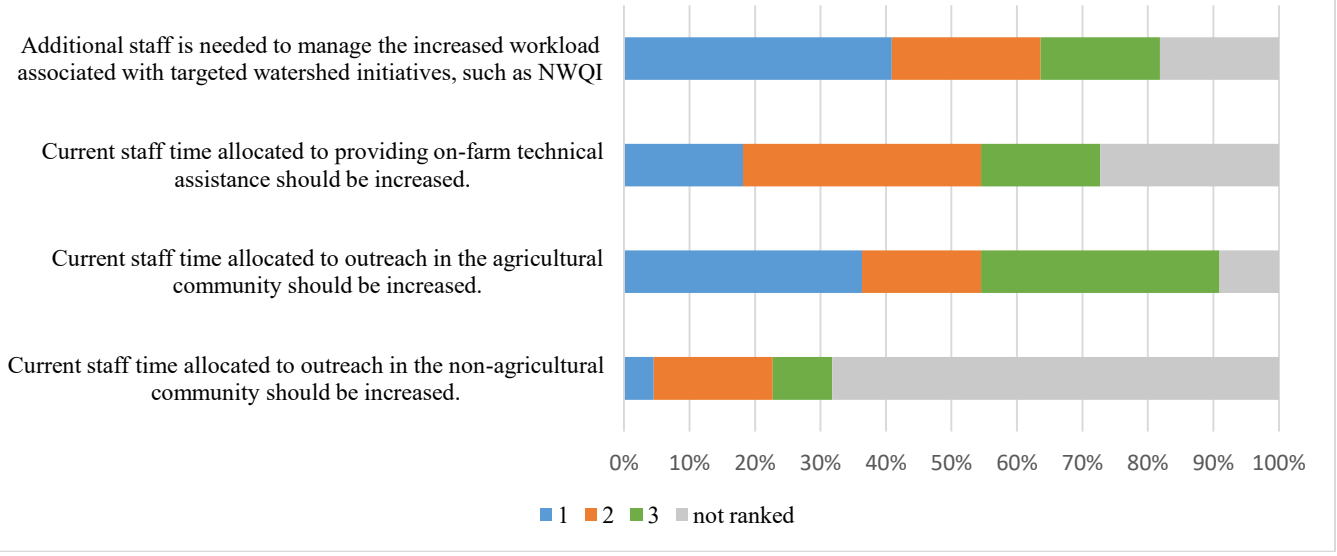


Figure G-5. Staff responsibilities

Corresponds to SN_Q2 "Please rank, in order of importance, the top three most important responsibilities staff should undertake to contribute to successful watershed management of NWQI watersheds in your state. (1 indicates most important, 3 indicates least important.) The three most important staff responsibilities that contribute to successful watershed management are:" (N==22)

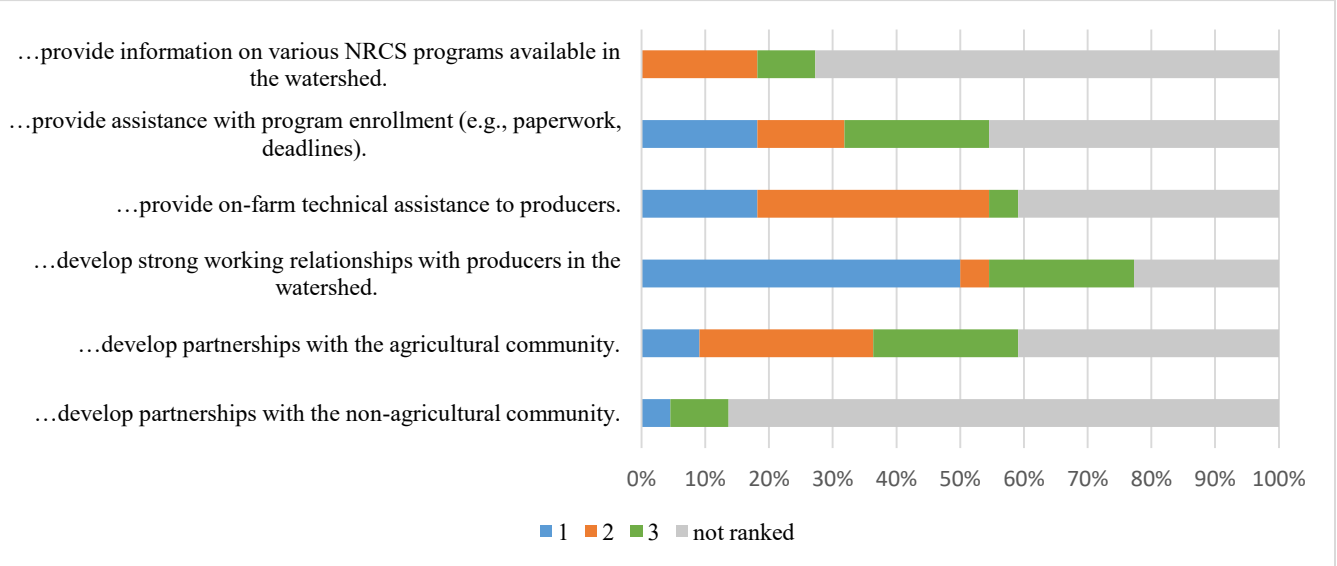


Table G-61. Additional thoughts: Staff needs
Corresponds to SN_Q3 "Please provide additional thoughts or comments on staffing needs for successful watershed management in the [watershed name] watershed"

Response Number	Response
1	*As with almost any government agency, staffing shortages and lack of resources are the largest hurdles. To explain above rankings, the NWQI watersheds in the state are primarily non-agricultural so partnerships & staff time will largely target non-ag community.*
2	*Cutbacks to local NRCS field office staff seem to significantly impact NRCS's ability to engage in readiness phase planning. Also, steady declines in federal nonpoint source funding have made it difficult for Montana DEQ to engage in activities such as NWQI to the extent that we'd like to.*
3	*DEQ is not involved in most of the on-the-ground efforts, so these answers represent our best guess as to how NRCS staff could best help meet DEQ's goals.*
4	*In Arkansas NRCS is significantly understaffed. More time is spent doing "paperwork" than in the field providing technical assistance to agricultural producers.*
5	*It looks like you're asking about NRCS staff rather than state water quality agency staff. My answers mainly apply to NRCS staff.*
6	*It will be difficult in my agency to find the time/resources to assist with more detailed watershed assessment.*
7	*NRCS staff need training in water quality! All they know how to do is stake out a terrace or plug some numbers into a spreadsheet to see if the practice meets T or not. There seems to be very little capacity to reason through a scenario that relates to water quality as related to a stream impairment or at the watershed scale, only on field level issues.*
8	*NWQI is additional work for the local and regional staff, as well as for partners, but it can offer an opportunity for everyone to see that things can be done slightly differently from the traditional program which opens the door that maybe changes might be possible for the traditional programs as well. However, the ability to successfully deliver NWQI largely relies on a local staff's ability to view it as an opportunity rather than a burden and for that to happen, they need to have the right people in place to help meet obligations. Every office has different strengths and weaknesses, depending on the people who work there. Some teams will be able to more easily and successfully deploy NWQI than others.*
9	*Our agency - the State Water Board - would not likely be involved with providing on-farm technical assistance, although the Regional Board staff might be involved with this, although also unlikely. I think for the State Board to allocate more funding to agricultural producers, helping producers with the paperwork and requirements for applying for funding would be beneficial.*
10	*Regarding question number 1, it seems to me that without strong outreach in the watershed, none of the other items matter. Unfortunately, there has historically been little USDA funding allocated to staff, which is a good role for Section 319 funds to fill. Regarding the second question, do they even have time to do this? It seems like staff cuts/additional program responsibilities require District Conservationists to do more and more with less.*
11	*System did not allow me to rank: for the first one: outreach would be the most important piece and then on-farm technical assistance. For the second one: development of strong working relationships with producers in the watershed and then provide assistance with program enrollment followed by develop partnership with the non-agricultural community.*
12	*Technical assistance needs to be provided face-to-face on the farm or ranch as much as possible. Planning from the office needs to be avoided. Staff need to understand the producer's objectives and be familiar with the land under their management. Programs and cost share should not be part of the conversation until staff fully understand the producer's management approach and challenges.*
13	*Having highly-skilled staff already in place is better than trying to hire staff to come in and implement NWQI programming, since producers tend to trust staff that they know compared to staff they don't know.*
14	*This question should be addressed to NRCS.*

Section VII - Outreach and Education

Figure G-6 Recipients of watershed-related outreach and education

Corresponds to OE_Q1 **"**Please rank the top three most important recipients of watershed-related outreach and education material to achieve successful watershed management in the [watershed name] watershed. (1 indicates most important, 3 indicates least important.)" (N=23)

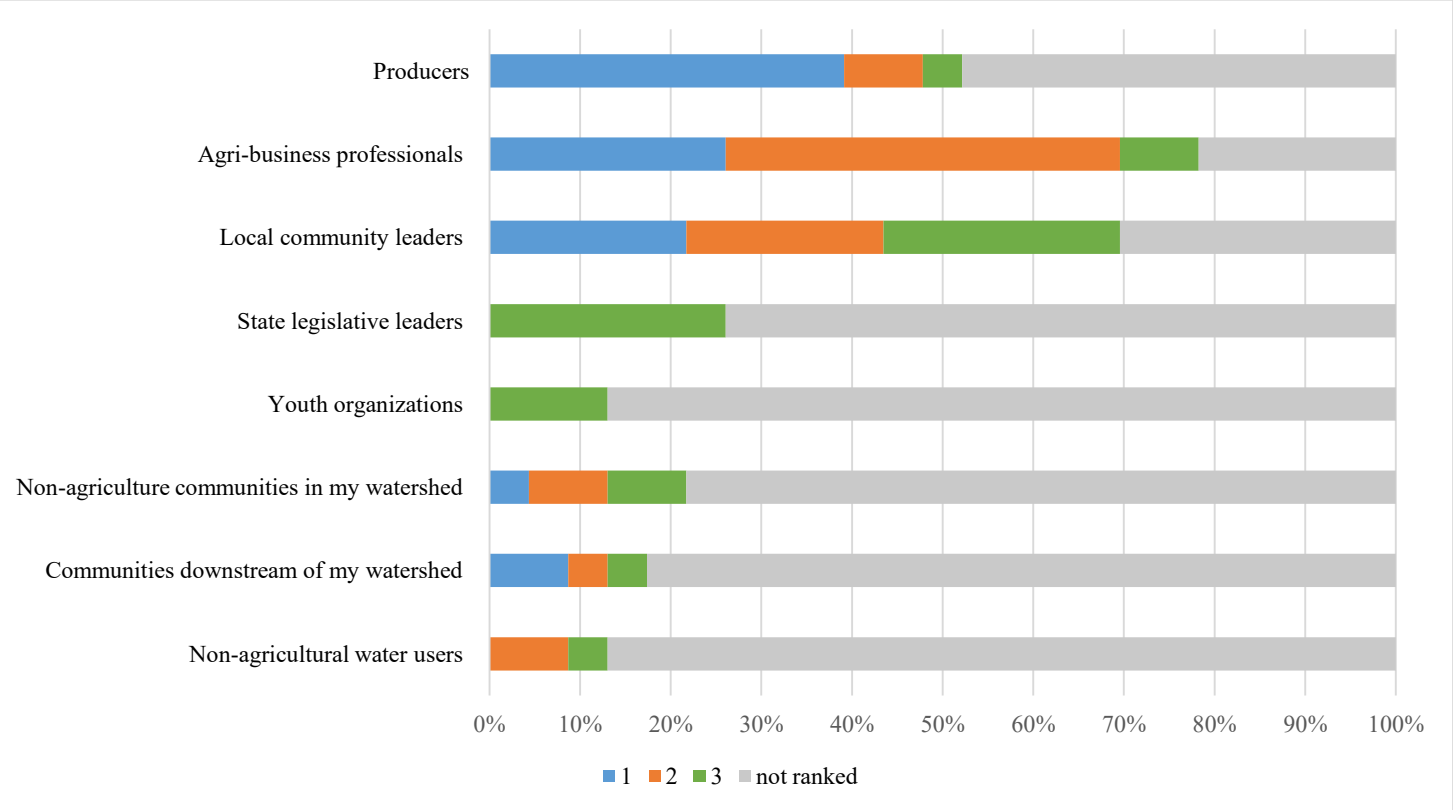


Table G-62. Outreach and Education additional thoughts
Corresponds to OE_Q2 "Please provide additional thoughts or comments about watershed-related outreach and education in the [watershed name] watershed."

Response Number	Response
1	*Agri-business pros; non-ag water users and general public.*
2	*For NWQI outreach to producers is by far the most important category of outreach. Our NWQI watersheds do have a variety of non-agricultural pollutant sources as well, so outreach to the general public and local officials in important as well (but less relevant to NWQI).*
3	*I ranked producers third on the list because other environmental studies have shown that it isn't the outreach you do to the individuals whose behavior you want changed that makes the difference - it's peer pressure. If leaders of their industry and communities are pushing for adoption of practices, perhaps it will motivate individual landowners to take up the charge? Clearly, maintaining the status quo is not getting us to improved water quality quickly - maybe it's time to try something else?*
4	*I think NRCS programs continue to be overwhelming to people. I think it's challenging for NRCS to keep producers updated on current initiatives without losing them in government language. However, I think NWQI lost the focus on being a targeted water quality improvement initiative and instead was seen as a "pivot program." While the initiative needs to be marketed to appeal to producers, local and state NRCS staff need to be clear on the purpose of the initiative when selecting practices.*
5	*Landowners and producers are the most important targets of outreach activities if the intent is to promote agricultural BMPs.*
6	*Producers and related ag professionals should be the most targeted because we will need them to participate in the program.*
7	*The other recipients are important to educate as well, so that they can attribute successes of the program to the program and not some other random factor, but the program won't be successful unless producers are convinced to adopt it and the ag-businesses and local community leaders they rely on are also bought into the process. Case in point- if you want producers to adopt precision farming they have to have equipment dealers who offer support and equipment. Or contract sprayers and applicators with the technology who are bought in.*
8	*We continually hear from producers that they are most influenced by agri-business representatives (e.g., equipment dealers, crop advisors). Outreach from the state office to the field offices to encourage readiness planning would help promote consistency across the state.*

Section VIII - Demographics

Table G-63. Age
Corresponds to AY_Q1 "What year were you born?"

Age	Years (N=22)
Mean *(sd)*	49.9 *(8.93)*
Range	28-63
Median	51

Table G-64. Gender
Corresponds to AY_Q2 "What is your gender?"

Gender	Frequency (%; N=22)
Male	54.5
Female	45.5

Table G-65. Additional thoughts or comments

Corresponds to Additional_Response "Please provide additional thoughts or comments related to the survey, NWQI or watershed management."

Response Number	Response
1	*From the perspective outside of NRCS, one of the biggest challenges for NWQI and other NRCS initiatives is the lack of time between the release of the funding and the deadline to have it contracted.*
2	*I think this survey missed the mark. I feel most of these questions should be directed to NRCS. Due the limited information that can be provided to state agencies regarding practices funded by NRCS on farms, state agencies have a limited role in tracking water quality improvements related to BMPs funded through the NWQI.*
3	*In general, NWQI is a flawed partnership. NRCS staff are poorly trained and limited by field level resource concerns. There seems to be very little understanding or training related to water quality impairments and/or impairment causes. For example, we have run into issues such as not being able to use requested practice types that could help improve the specific water quality concern due to NRCS rules. In a HUC 12 chosen for a sediment issue, farmers were lining up to implement cover crops and other soil heath practices, but were deemed ineligible through EQIP because their fields already met T. IF T were a reasonable amount of soil loss from a water quality perspective, we probably wouldn't have an impairment! We have also run into this issue as related nutrient reduction and the P index. As with the soil loss issue, in area where many producers were signed up for nutrient management planning they were disqualified because they had already completed a soil sample for nutrient testing on their ground and therefore already met the nutrient planning criteria and were ineligible for cost share. What!!??? These examples are only compounded by the fact that in general the eligible practices list can't be personalized to any one watershed. NRCS has spent millions and millions of dollars in NWQI identified watersheds on practice types that don't even come close to addressing the water quality concern. Our example is tile outlet terraces in bacteria impairment watersheds. I can only imagine this is happening elsewhere in the nation. So, bottom line is, if we can get past the huge, general practice list and are lucky enough to get the outreach and producers interested in the practice types we need to address the impairment, we are still unable to utilize the funds because of NRCS' narrow view of field level resource concerns, and program funding eligibility criteria that are too prescriptive and strict.*
4	*It seems to me that EPA and USDA are both trying to defend their roles as "the leader" in nonpoint source pollution abatement. I believe that both agencies have a role to play, I just wonder if we need to do more out-of-the-box thinking to make it work. Working within the traditional 319 and EQIP paradigms, whilst duplicating efforts on monitoring (still not a fan of edge-of-field) and planning, does not seem to be the optimal way to work together.*
5	*NWQI has been a great experience for us because our state office saw it as an opportunity rather than a burden. But we had a preceding relationship that made that possible. Unfortunately, personalities, responsibilities, and priorities in other states don't always make that possible and NWQI becomes yet another wedge between potential partners. But the goals and structure of the program, focusing program delivery on a watershed basis, in a targeted manner, specifically designed to address resource concerns that can be measured by downstream water quality, is a goal that most of our programs should be working towards.*
6	*NWQI is a great initiative that holds great promise. We encourage all program participants to engage to whatever extent is possible in data sharing, open communication, inclusive partnerships, and priority planning throughout all NWQI projects. We also encourage national NRCS to allocate adequate funding for readiness phase activities. Thank you for organizing this survey to solicit feedback from partners and participants.*

Appendix H
Practitioner Guide – NRCS Partnership Development

USDA NRCS

United States Department of Agriculture
Natural Resources Conservation Service

National Water Quality Initiative

Our Focus is Clear

A guide to effective partnerships with the Natural Resources Conservation Service

Natural Resources Conservation Service; Who We Are

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) recognizes that it takes healthy ecosystems to produce quality food and fiber from our agricultural lands. We at NRCS also recognize that water is an equally critical commodity produced from the land and believe the quality of this water directly relates to the health of the land upon which it falls. Our mission at NRCS is to help people help the land by applying conservation management systems that promote healthy ecosystems while maintaining agricultural productivity.

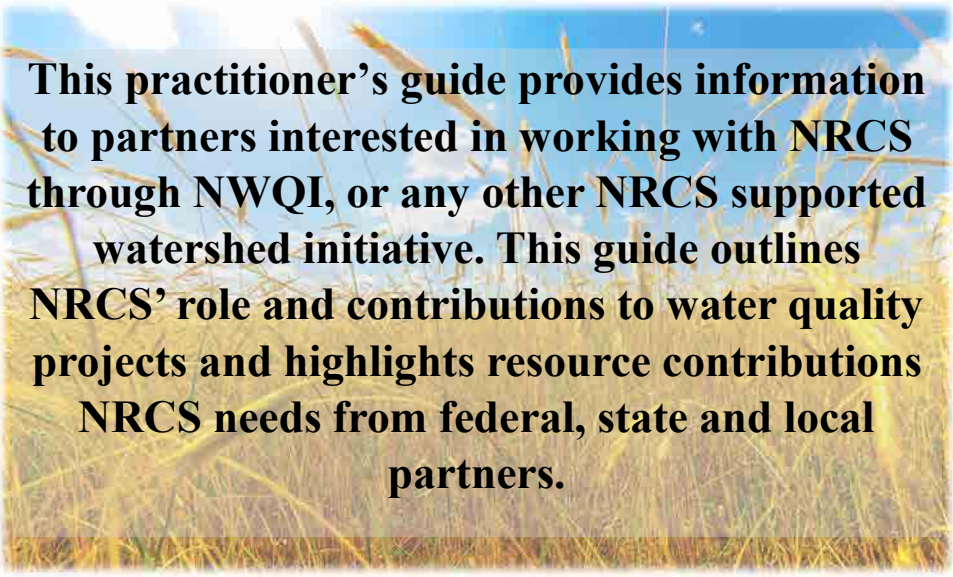
To support our mission, NRCS works hand-in-hand with landowners to protect and improve natural resources on private lands. NRCS provides planning assistance and outreach to all private landowners and land users through local Soil and Water Conservation Districts. With an office presence in nearly every county in the nation, we offer locally-led solutions and science-based research. NRCS works with diverse partners to promote land stewardship, accelerate voluntary adoption of conservation practices, and maintain agricultural productivity. Our guiding principles are service, partnership, and technical excellence.

National Water Quality Initiative
A Partnership for Progress

Stewardship of our natural resources is a collective effort. No one person or entity can do it alone. That's what makes partnerships so important, and is why the National Water Quality Initiative (NWQI) is so effective. The NWQI is a partnership between NRCS and other federal, state, and local partners focused on water quality improvement in targeted agricultural watersheds. This partnership-based initiative pools public and private resources to improve water quality and strengthens agricultural productivity. With targeted on-farm investments and watershed assessment resources, NWQI focuses resources on small watersheds that can deliver the greatest benefits for local, regional, and national water quality.

Since 2012, NRCS has worked in partnership with the Environmental Protection Agency (EPA), State Water Quality Agencies (SWQAs), local conservation districts, and other partners to provide over $165 million in technical and financial assistance and has treated over 825,000 acres in NWQI targeted watersheds across the U.S.

The combined leveraging of federal, state, local, and private resources maximize the impact of implementing conservation that will have a positive benefit to not only water quality, but the environment as a whole. This partnership is a mechanism for incentivizing the conservation and protection of watersheds, stream beds, and other private-land based water sources.



This practitioner's guide provides information to partners interested in working with NRCS through NWQI, or any other NRCS supported watershed initiative. This guide outlines NRCS' role and contributions to water quality projects and highlights resource contributions NRCS needs from federal, state and local partners.

Managing our Water Resources

When rain falls on the landscape it soaks into the ground or runs into small streams that flow into larger bodies of water. The area that drains to a common waterway, such as a stream, lake, estuary, wetland, aquifer or even the ocean is called a watershed. Everyone lives in a watershed, everyone benefits from a healthy watershed, and everyone can contribute to maintaining or improving watershed health.

Watersheds sustain life in more ways than one. The EPA estimates $450 billion in foods, fiber, manufactured goods, and tourism depend on clean, healthy watersheds. That is why proper watershed management is necessary for all. Where the raindrops fall in a watershed make a difference in how the rain is managed and has impacts on water near and far.

Working lands account for about half of our nation's land base and provide substantial economic, environmental, and recreational resources that benefit the entire nation. Effective management and conservation of natural resources in America's working lands is critical for our future water and food stability.

Meet a Program Participant

Gary and Sue Price are ranchers in Navarro County, Texas. The Price's ranch falls under the "working lands" category. They raise cattle that help feed America and also provide another crop: drinking water for the city of Fort Worth, TX. Their ranch lies in the Richland-Chambers Lake watershed, which is part of the Tarrant Regional Water District's (TRWD) system that provides water for over 1.8 million Fort Worth residents. Private farm and ranchland management in the Trinity River watershed impacts the quality and quantity of water that arrives at TRWD's municipal water treatment centers. In 2012, the Prices entered into a NWQI contract implementing fencing, grass seeding, and streambank stabilization conservation practices to help remove and trap sediment during rain events on their property. These practices benefit the Price's ranch and contribute to cleaner water for TRWD and Fort Worth, TX.

Private Land Conservation Efforts

NWQI promotes a suite of conservation practices that focus on soil health, reduced erosion, and optimal use of agricultural inputs. Landowners participating in these efforts are working with local NRCS staff and partners to develop management practices that maintain agricultural production while helping to keep our water clean and available. Some of those practices include:

- **Cover crops and no-till farming:** helps prevent soil erosion, sequesters carbon, and increases organic matter and moisture in the soil.
- **Restoring and protecting riparian areas:** reduces nutrient runoff to water by as much as 90%, in addition to improving wildlife habitat.
- **Improved range and pasture management:** makes grazing more sustainable, improves wildlife habitat, protects water quality, and sequesters additional carbon in the soil.
- **Other conservation practices:** help reduce soil erosion, improve water quality, and reduce non-point source pollution.

Over time, these conservation practices will produce healthy soil, improve productive lands, and also benefit wildlife through improved habitat – upland animals like deer, turkey, and quail, as well as wetland animals such as ducks, fish, and other aquatic species. This voluntary, incentive based program keeps agriculture as a cornerstone of our economy and also protects the health of our rivers, lakes, and streams.

NWQI Watershed Site Selection

In consultation with SWQA and other partners, NRCS selects new NWQI watersheds based on shared NRCS and state priorities as well as the following criteria:

A watershed must be documented as impaired, threatened, or critical. A 303(d) list documents impaired waterbodies in each state and grants access to funding from Section 319 of the Clean Water Act. A Total Maximum Daily Load (TMDL) is a document developed for waterbodies on 303(d) lists that identifies impairments and is a starting point for restoration.

Impaired watersheds: documented in a TMDL or on a 303(d) list.

Threatened watersheds: documented as impaired, but does not have a TMDL and are not on a 303(d) list.

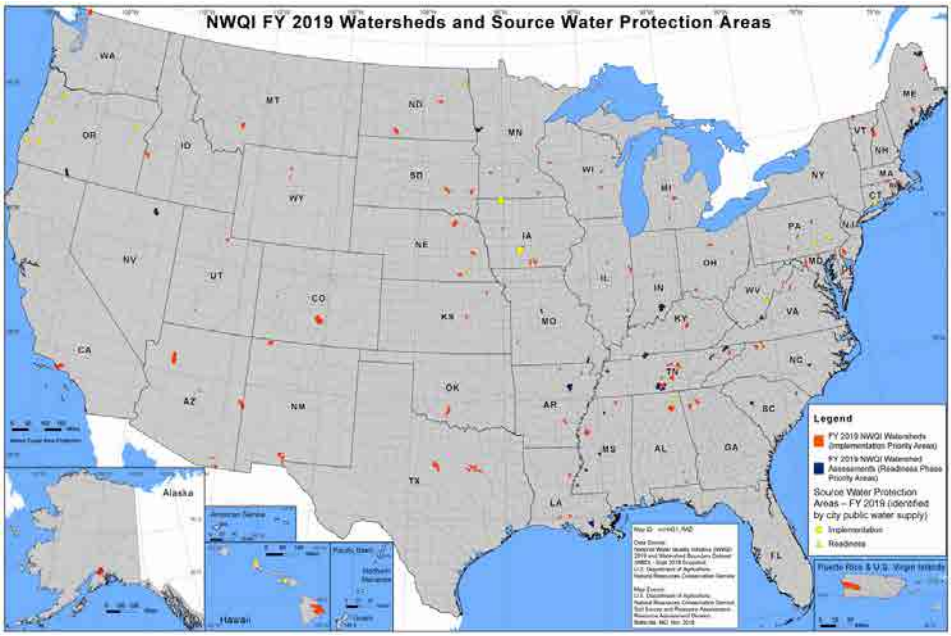
Critical watersheds: documented as a contributing source to downstream impairments.

A watershed must also demonstrate:

Technical capacity - The ability to achieve project goals with NRCS and/or watershed partners.

Partner network - An established network of partners working to meet project goals (i.e., technical assistance, monitoring, outreach).

Producer interest - Producers who show interest in participating in NWQI and contributing to project goals.



NWQI Phases

Once selected as a targeted watershed, NWQI includes two phases:

Readiness Phase: Prior to receiving targeted technical and financial assistance, the Readiness Phase provides funding for watersheds to develop a watershed assessment, expand on-farm planning and outreach, and increase support for local staff.

Implementation Phase: In the Implementation Phase, NRCS provides technical and financial assistance for producers to implement conservation practices that address resource concerns identified in the watershed assessment, developed in the Readiness Phase.

Each phase has separate objectives and requires support from both NRCS and other federal, state, and local partners.

NRCS Contributions

In the Readiness and Implementation Phases, NRCS provides the following resources to local resource managers, partners, and landowners in selected NWQI watersheds:

Watershed-level assessment and planning resources (Readiness Phase)

NRCS provides specialized funding to support staff time or partner agreements to develop a watershed assessment at the sub-watershed level. This assessment describes resource concerns, identifies goals, and establishes metrics to track project progress.

On-farm conservation planning (Implementation Phase)

NRCS provides one-on-one technical assistance to help landowners develop a conservation plan to address resource concerns on their property. This plan creates a roadmap to implement conservation practices that meet the landowner's goals for their property while addressing resource concerns identified in the watershed assessment.

Targeted funding for practice implementation (Implementation Phase)

NRCS provides technical and financial assistance to producers in NWQI watersheds. This targeted assistance is meant to accelerate voluntary adoption of conservation practices that address resource concerns identified in the watershed assessment, as well as on-farm resource concerns.

Partnership Opportunities

Partnerships are an important part of a successful watershed improvement project. Diverse partners bring unique experiences and skill sets to the project. This diversity of expertise benefits watershed projects and increases the likelihood of achieving partners' shared watershed goals.

Site Selection

To contribute resources in collaborative projects, it is important for partners to share goals and objectives for targeted watershed improvement efforts. The site selection phase is an opportunity for NRCS and potential partners to develop shared goals and identify watersheds that meet their shared site selection criteria. Potential partners are encouraged to get involved with the NWQI selection process at both the state and local levels.

Watershed Assessment and Outreach Strategies

Watersheds in the Readiness Phase focus on the development of a watershed assessment as well as outreach and education strategies in target watersheds. NRCS seeks partners to assist in the development of both watershed assessments and outreach plans.

Implementation Resources and Technical Expertise

Watersheds in the Implementation Phase focus on putting conservation practices on the ground, monitoring water quality to measure impacts of conservation practices, and evaluating project successes. Partners can contribute by providing in-stream water quality monitoring resources, technical assistance, other metrics for progress tracking as well as outreach and education on available resources to landowners in targeted watersheds.

Leveraging Resources to Maximize Impact

The combined leveraging of multi-stakeholder activities and resources can maximize the impact of implementing conservation. These collaborations have a positive benefit to not only water quality, but the environment as a whole. NRCS depends on federal, state, and local partners to accomplish shared watershed objectives.

EPA
The EPA helps facilitate partnerships between NRCS and SWQAs, supports state use of section 319 funds, and provides guidance to partners on in-stream monitoring and watershed planning efforts.

SWQA
SWQAs coordinate with NRCS on watershed site selection and conduct in-stream water quality monitoring of NWQI watersheds. They use Section 319 funds to support activities in targeted watersheds, such as supporting a watershed coordinator or using state funds for practice implementation.

Conservation Districts
Conservation districts are valuable local partners in watershed initiatives due to their established relationships with producers and landowners in targeted watersheds. Strong local partnerships increase producer participation and can establish additional community support.

Federal Agencies
Federal agency partners can provide financial support and guidance in the development of watershed assessments and in-stream water quality monitoring in NWQI watersheds.

State Agencies
State agencies beyond SWQAs can contribute various state funds, resources, and expertise to targeted watersheds.

Community Partners
Community partners, such as local water districts and county commissioners, can assist in outreach efforts to increase community-wide support of watershed improvement projects.

University Extension
University Extension staff can play an important role in outreach, education, and promoting available resources in targeted watersheds. Extension can also assist with innovative approaches and technologies for assessment and on-ground conservation.

Private Partners
Agricultural, environmental, and other private organizations can contribute technical expertise, financial resources, and play a key role in the outreach and education components of a watershed improvement project.

A Clear Picture of Success

Here are a few examples of how NWQI can contribute to ongoing conservation efforts. Both of these success stories had conservation efforts underway prior to their selection as an NWQI watershed. NWQI's targeted technical and financial assistance can accelerate adoption by providing extra resources to accomplish watershed improvement goals.

In 2000, 25 miles of Piscola Creek was added to the Clean Water Act section 303(d) list of impaired waters, due to low levels of dissolved oxygen.

NRCS partnered with EPA and Georgia Environmental Protection Division (GAEPD) in 2012 to designate Piscola Creek as an NWQI watershed. This designation provided technical and financial assistance to farmers, ranchers, and forest landowners for voluntarily adoption of conservation practices to improve water quality in Piscola Creek. Additionally, this partnership enabled GAEPD to collect in-stream water quality data to measure the impacts of conservation practices implemented in the Piscola Creek watershed.

After an NRCS contribution of $1.6 million in technical and financial assistance as well as in-stream water quality monitoring by GAEPD, 3-miles of Piscola Creek had increased levels of dissolved oxygen and exceeded water quality standards. This collaborative effort resulted in a GAEPD recommendation to remove the 13-mile segment of Piscola Creek from Georgia's 303(d) list of impaired waterbodies in 2016.

Due to excess sediment and habitat degradation, Montana Department of Environmental Quality (MDEQ) added Deep Creek to Montana's 303(d) list of impaired waterbodies in 1998. Between 1990 and 2003, multiple restoration projects focused on erosion reduction on public and private lands in the watershed.

After a damaging flood in 2011, partners developed the Deep Creek Watershed Restoration Plan that recommended restoration and focused on in-stream benefits as well as benefits to landowners and water uses. In 2014, Deep Creek was selected as an NWQI watershed and MDEQ granted the Broadwater Conservation District (BCD) a three year award to implement recommendations.

As a result of partnerships between private landowners, BCD, Montana Department of Fish, Wildlife and Parks, Montana Department of Natural Resource and Conservation, MDEQ, and NRCS the sediment impairment was removed from Deep Creek in 2016. Although other impairments remain, this restoration effort resulted in measurable improvements of in-stream flow and riparian habitat in the Deep Creek watershed.

Public Benefit

Improving water quality is an endeavor that benefits all members of society. Society benefits from higher quality food, fiber, and water as well as an overall improvement in the health of the land and wildlife habitat. Additional benefits include:

Reducing soil erosion to prevent sediment from building up in the bottom of lakes and reservoirs. This helps municipal water suppliers maintain their water system infrastructure and storage capacity for future generations.

Minimizing erosion into water systems reduces the need for costly removal of the sediment in reservoirs.

Municipal water treatment costs are reduced and consumer's bills are lowered when landowners upstream apply soil and water conservation measures that improve the quality of water that flows into rivers and aquifers.

Restoring native grasslands in critical watershed areas can increase the amount of rainfall that runs off into rivers or lakes and can recharge underground aquifers. This can make more water available for municipal water supplies, recreation, and environmental flows that benefit wildlife.

Reducing storm water runoff by planting natural vegetation in upland areas, stream banks and waterways can improve water quality as well as lessen erosion and reduce flooding and sedimentation in reservoirs.

Open space and agricultural lands managed in a conservation plan supports wildlife habitat and an over $400 billion outdoor recreation industry annually in the U.S.

This guide highlights the important role conservation partnerships play in positive environmental change through the success of watershed improvement projects. Although this guide is specific to NWQI, the opportunities for partnerships outlined in this document can be applied to other NRCS and USDA supported watershed improvement projects.





For more information on NRCS supported watershed improvement and soil health initiatives, please visit www.nrcs.usda.gov.

PURDUE UNIVERSITY

NRCS Natural Resources Conservation Service

CTIC Conservation Technology Information Center

This guide was developed in partnership by Purdue University, Conservation Technology Information Center and USDA-NRCS

Photos provided by the USDA Natural Resources Conservation Service

Appendix I
Practitioner Guide – Successful Watershed Management

PRACTITIONER'S GUIDE TO

SUCCESSFUL WATERSHED MANAGEMENT

This practitioner's guide was developed for groups and individuals working towards the common goal of improving the health of their watershed. These groups and individuals include private citizens, nonprofit groups, private industry, federal, state, or local agency staff and many more!

A WATERSHED IS A GEOGRAPHIC AREA ON THE LANDSCAPE THAT WATER FALLS ONTO AND RUNS INTO A COMMON BODY OF WATER, SUCH AS A STREAM, RIVER, LAKE, ESTUARY OR OCEAN.

It is important to understand that our land use and management practices within a watershed impacts the quality and quantity of our water resources. Effective management of natural resources in urban and agricultural lands makes a difference in local, regional, and national water quality as well as the quality of life of those living within the watershed.

The key components laid out in this guide include partnership development, relationship building, constructive leadership, community engagement, and effective communication. These building blocks for successful watershed management provide additional guidance on incorporating local-solutions, building community support and establishing effective partnerships for successful watershed improvement projects.

Partnership Development – Partnerships are an important component for successful watershed management. Partnering with diverse public and private organizations can maximize impacts of conservation efforts by providing opportunities to leverage funding and resources, access to diverse expertise, as well as access to diverse stakeholder groups in and outside of the watershed. While federal, state and local organizations often work together to support watershed improvement efforts, there are opportunities to develop additional partnerships with additional public and private organizations.

Leverage resources

Consistent, coordinated, and diverse technical and financial resources are a necessary component for successful watershed management. When working with partners towards a common goal, combining individual resource contributions can expand the reach and scope of watershed projects. Combined contributions can maximize impacts and work together to achieve watershed improvement goals. Leveraging resources can create a mutual success that each organization can contribute to and take ownership of. To address budget and staffing limitations, organizations can maximize the impact of their resources by leveraging funds to establish partnerships with other public and private groups.

"We leverage partners because that's how we're able to expand our dollars a little more. We can't hire anyone else, but we put money towards [Conservation Districts] or extension. It's a way we can leverage more without hiring more people, which NRCS can't do."

Diverse expertise

In successful partnerships, organizations contribute unique skillsets to a watershed project. Collectively, diverse partnerships can provide technical skills, financial support, and outreach expertise to a watershed project. Working with diverse groups of partners ensures the various needs of a watershed project can be addressed. Building on the idea of leveraged resources, it is important to recruit diverse project partners whose combined expertise can address the technical, financial and outreach components needed to achieve watershed project goals.

"Involvement from agencies- local all the way up to federal all coming together. If you have these issues in the watershed, someone can bring a little small part, I could bring a little small part, you could bring a little small part. If it's just NRCS, there's a lot of stuff that needs to be done that they can't deal with. Bringing more people together helps out a lot."

In addition to partner expertise, it is also important to consider the flexibility of watershed partners. Often public sector partners, such as federal or state agencies, have a constrained scope of work due to limitations within the agency's jurisdiction, while local agencies and private partners can have more flexibility. Flexibility is a valuable contribution to watershed projects and can be important to accomplishing watershed goals.

"At the local level you can be creative and flexible as long as you've got that political support and your county commissioners are educated to the importance of [watershed improvement] ...there's a lot of value in that and the local people need to understand that they have that as a strength."

Access to diverse stakeholders

Project support from producers, landowners and the local community is the foundation to a successful watershed project. Another benefit to working with diverse partners is increased access to diverse groups or individuals who can contribute to project success and grow public support for the project. It is important to deliver watershed related information through a trusted source. Watershed projects with diverse partners can use their existing networks to promote watershed health to a diverse public audience. When reaching out to new stakeholder groups, it is helpful to work with partners who have an established relationship with the group. For example, some watersheds have had success recruiting new producers through partnerships with private sector groups such as, crop advisors, seed or fertilizer retailers, and other agri-businesses.

"There are [private sector] people who sit down with farmers every day, really most of their clients don't even come in NRCS's office. That [private sector] person is dealing with them and trying to [get farmers to] come to the NRCS office. That was exciting for us. It's a unique way to get the farmers from the private sector."

Relationship Building – Strong working relationships are another key component to successful watershed projects. Conservation staff depend on strong working relationships between landowners and producers to increase voluntary adoption of conservation practices and achieve watershed improvement goals. Building relationships through established networks can promote flexible on-farm solutions and address local concerns while working towards collective watershed goals.

Establish strong working relationships

The strength of local organizations and partners, such as conservation districts, is their established working relationships with landowners and producers in their watershed. These relationships, built on trust and developed over time, influence a landowner or producer's decision to enroll in NRCS programs or adopt specific practices. Building these relationships requires conservation staff to dedicate time and energy towards one-on-one interactions. Understanding a producer's operation, on-farm resource concerns and how (or if) conservation practices fit within that operation is important information that can only be gathered through strong working relationships.

"THAT STRONG WORKING RELATIONSHIP LOCALLY IS ESSENTIAL FROM TOP TO BOTTOM IN TERMS OF WATERSHED MANAGEMENT. YOU'VE GOT TO HAVE THAT LOCAL PERSON WORKING THAT HAS RELATIONSHIPS BUILT AND THAT [PRODUCERS] TRUST. I DON'T THINK YOU CAN USE THE WORD LOCAL ENOUGH."

Acknowledge local concerns

It is important for conservation staff to respect a producer's knowledge of their operation. Producers understand nuances of their operation and have rationale behind the decisions they make. Acknowledging producer's expertise gives conservation staff an opportunity to incorporate producer's knowledge into management plans and work with them to address specific concerns in their operation. A watershed project with goals and objectives that reflects the needs and concerns of the local community will garner more support than a project that has little input from the local community.

"I look to my producers because they know the potential impacts of a change in management. There's a reason they've made decisions on the land. The [producers] have a history with their soil, vegetation, and the way water moves across the land - they are really the experts on the landscape."

Promote flexible, local solutions

Similar to the importance of including local concerns into watershed improvement projects, it is equally important to use producer's knowledge to develop local solutions that can be implemented in the watershed. Due to physical variation across the landscape and even within farm operations, flexibility and access to a suite of conservation practices that address both on-farm and off-farm concerns is important.

"If you lose the flexibility on what a BMP [best management practice] is, then it's some canned thing that it's supposed to work on this field, but maybe it doesn't actually work there, or the producer's just unwilling to do it because it doesn't match his overall goals for his management, or maybe it works in wet years but not dry years, or it's good in dry years but not when you're getting ten inches of rain in an afternoon."

Giving the community an opportunity to develop local solutions that address water quality impairments allows them to take ownership of the watershed project and can increase producer buy-in of the project. Maintaining voluntary adoption is another important component to building strong working relationships. Enabling locally derived solutions can be beneficial for producers and the watershed.

"We could embrace locally adopted solutions, opposed to those that are impressed upon us. That's what is limiting about [regulations]. When [regulatory agencies] decide what you have to do, opposed to when [the local community] identifies the solutions and takes the responsibility... there has to be some authority within the local body to move within the regulations."

Constructive Leadership – Watershed projects involve many moving parts and require a diverse skill set to address the financial, technical and social needs of the project. To manage these central components, strong leadership from agency staff as well as individuals within the watershed community is needed. It is important for staff and community leaders alike, to have a collaborative mindset that cultivates existing relationships and promotes partnership development at the federal, state, and local level.

Staff leadership (watershed coordinator)
Staff leaders can play the role of a "watershed coordinator." It is important for the person in this position to have technical expertise as well as a contextual understanding of physical and social components of the watershed. An effective watershed coordinator does not need to conduct all of the technical components of a watershed project, but should understand needs of the watershed and be able to manage or delegate key project components.

"Somebody that's there to make sure everything is implemented properly. A go-to person...Just somebody that knows the inside-out of everything. An expert."

An effective watershed coordinator should also understand the past, present, and future trajectory of their community related to watershed health. To establish this contextual understanding, it is beneficial for a watershed leader to be invested in the community and have established working relationships with producers and landowners.

"The watershed coordinator [doesn't have to be] an overly technocratic position. What's more important is someone who gets out and goes around listening."

Community leadership (watershed champion)
Community leaders who represent stakeholder groups inside and outside of the watershed can support watershed projects by being a liaison between their community and the watershed coordinator. These volunteer-based positions can work within their social networks to increase buy-in, support, and awareness in their specific communities.

"When you have a small farms event, [watershed champions] would know which people in our watershed should go and have the experience and relationship with them to say, 'Hey, the Conservation District is doing this. Let's carpool, I'll pick you all up and we'll go'...The technical people have so many things that you're already doing, they don't always have time to go out and talk with somebody, and that's what you need to connect [with people]."

Collaborative mindset
A collaborative mindset that promotes partnership development and relationship building is important to secure funding and support from broad audiences at the federal, state, and local level. This essential component to effective leadership in a watershed can help promote goals and objectives as well as develop creative partnerships and valuable collaborations to address watershed project needs.

"Establish a watershed planning group and invite groups of stakeholders together and express the purpose of the group. [Develop a] process for getting input so everybody is heard and is part of developing the plan.

Leadership takes time and energy, and whoever is given that position, whether it's a farmer or someone from extension or NRCS, they need to be granted the time and resources to be able to devote their energy to it."

"While I think it should be locally led...you need the support of broader federal and state level in order to be successful at this point. You have to have the bigger picture involved in other organizations...In addition to financial support, technical and informational assistance that comes from other places is always beneficial."

Community Engagement – Watershed related engagement is another key component for successful watershed management. Effective community engagement informs the public of important information about their watershed, ongoing efforts to improve watershed health and actions they can take to contribute to watershed health. Watershed health has widespread impacts across the landscape and it is important for watershed related engagement to be a consistent, yet tailored message to addresses specific needs of stakeholders and help diverse audiences understand their impacts to their watershed.

Tailored information and delivery

Tailored engagement messages and methods of delivery are important to fully address the needs of diverse stakeholders who impact watershed health. Depending on specific interests, roles in the watershed, sources of information and preference in delivery methods, watershed engagement should be tailored to address specific needs and interests of diverse stakeholders.

"[Its important to] define the different audiences and understand where people are getting their sources of information [from], both in terms of media type and trusted messengers. From there, you can build more targeted messaging [that address] specific things about that audience that might be different than other audiences."

Consistent messaging

While a tailored message is important, community engagement must also have a consistent overarching message. While partnering with diverse groups working towards common goals is beneficial, developing a consistent message is another critical component for effective community engagement. Inconsistent or conflicting messages can create confusion and hinder success of watershed projects.

"We have a lot of different groups putting information out. You want to make sure it's all the same, that one group isn't saying something different than another because the second that counters itself, you've completely alienated somebody and screwed up someone's hard work. Making sure it's the same, coordinated, consistent message is important."

Inclusive Audience

Promoting watershed related information to the broader non-agricultural public as well as the agricultural community is another important aspect of community engagement. A collective watershed improvement effort needs to include both agricultural and non-agricultural communities.

"A lot of times agriculture is picked on, but agriculture is not the only source of erosion problems – If you're doing a project you've got to include something that's non-ag, some non-point source you're addressing so the ag community doesn't feel like they're getting picked on. You've got more credibility if you have a broader program. I think the more diverse a project is, then the more credibility you have and the more participation you'll have."

Engaging with stakeholders outside of targeted watersheds can also contribute to a successful watershed project. Acknowledging that watershed management has impacts on upstream and downstream communities, these stakeholders are also critical for effective community engagement.

"It's another party out there that is going to be impacted by the decisions made in the watershed. They certainly are somebody that we need to stay in touch with and need to always communicate with. [Education and outreach] doesn't necessarily mean just to the people in the watershed. That could mean [outside the watershed] as well...Everything we do is going to impact them. So we certainly want them to be as branches to us."

Effective Communication – The final component for successful watershed management is effective communication. Similar to engagement, watershed related communication needs to be both consistent and tailored. Information should be delivered by trusted sources of information and targeted specific stakeholder groups. Focusing on on-farm benefits has proven to be an effective message for the agricultural community, while highlighting the public value and benefits of a healthy watershed resonates with the broader non-agricultural community.

On-farm benefits of BMP adoption

When communicating watershed related information to landowners and producers, it is important to highlight on-farm impacts and focus on specific benefits producers receive from implementing BMPs. Although many landowners and producers understand the importance of watershed health, their livelihoods depend on profits of their operation, and any change to their operation carries inherent risks and potential consequences. Focusing on the positive on-farm impacts of conservation practices can mitigate economic concerns landowners or producers may have.

"Most people want to do the right thing but they have to weigh economics with conservation. So showing that you don't have to give up one to have the other, you can meld conservation [and economics] while still meeting a bottom line that's acceptable."

Although watershed improvement projects have landscape-scale watershed objectives, it is important to communicate how incremental on-farm improvements can provide on-farm benefits while contributing to landscape-scale improvements in the watershed.

"Take it down to field scale and say, 'If you lose ten foot off that bank every year, look at how it's advancing across your property.' Little things like that...We can promote soil health and all the systems around it, then tie it to economics and cost savings."

Public value of agriculture and clean water

Public support for watershed projects is necessary for a successful watershed project. To increase public support, it is important for the public to understand benefits they receive from a healthy watershed and to understand the social, economic and environmental contributions of the agricultural community.

"A lot of today's public did not grow up on a farm. For the public, I think it makes more sense to highlight the different pieces of life that are impacted by farming. They may not care about milk and cows, but they do want that field to snow-shoe across or that spot to hunt. They want their fishing access, you know, so more in their terms."

Similarly, it is also important for local, state and federal decision makers to understand that their support of agriculture and watershed improvement projects has overarching impacts for constituents in their jurisdiction and watershed health across the nation.

"Legislators and agencies [need to know] that the dollars are extremely important. There's got to be something in the budget for it...They have an opportunity to help everybody in their district as a representative with some funding."

Goals are achievable through voluntary action

An important message for landowners, producers and the general public to understand is that watershed health is everyone's responsibility and that goals set for watershed improvement projects are achievable through voluntary actions. Sharing success of other watersheds shows that time, energy and resources put into watershed improvement projects can have positive impacts on their operation, in their community, and to local and regional watershed health.

"One of the solutions to this problem is found in what we're doing in these small watershed efforts where we're focusing in on technical and financial assistance in small areas. We can show the results and say 'if we do this, we can have a success.' As we make that public we can replicate it and get the momentum that's needed to move it forward throughout the [larger] watershed."

"The conservation model works very well. Voluntary incentive-based conservation has proven it to be a very successful model here in the state. The message should be that we've got goals that can be accomplished. We have opportunities to improve our resources now, and we have assistance from the federal level, state level, and all that."

This practitioner's guide was developed in partnership by Purdue University, Conservation Technology Information Center and USDA-National Resources Conservation Service. Information used to guide the development of this document was gathered through small and large group discussions with federal, state, and local conservation staff and watershed stakeholders from diverse watersheds across the US.

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