

Watershed Coordinator Development Program Final Report 2023

Texas Water Resources Institute TR-548
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The Texas Watershed Planning Short Course is hosted and coordinated by the Texas Water Resources Institute, part of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, and the College of Agriculture and Life Sciences at Texas A&M University.

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Cover photo: Medina River, provided by the Texas Water Resources Institute.



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Project Summary

Watershed planning remains a high priority to address the 981 assessment units that are impaired across Texas, according to the 2022 Texas Water Quality Inventory and 303(d) List. To address these impairments and improve water quality across the state, a well-coordinated watershed planning approach implemented by trained water resource professionals is needed to provide the framework for focusing public and private sector efforts. To ensure that watershed protection efforts are adequately planned, coordinated, and implemented, proper training of watershed coordinators and water professionals is necessary. The Delivery of a Watershed Coordinator Development Program or Texas Watershed Planning Short Course (WPSC) project provides this training and is funded by the U.S. Environmental Protection Agency (EPA) through the Texas State Soil and Water Conservation Board (TSSWCB).

Through a coordinated effort led by the Texas Water Resources Institute (TWRI), the WPSC project brought together many partners to develop and conduct the project tasks and deliverables. Project partners included the Texas A&M AgriLife Extension Service, Texas A&M AgriLife Research, TSSWCB, Texas Commission on Environmental Quality (TCEQ), EPA, United States Department of Agriculture Agricultural Research Service (USDA ARS), Texas A&M AgriLife Center at Dallas, Texas A&M University Spatial Sciences Lab (SSL), Tarrant Regional Water District, EPR, Practical Stats, and USDA Natural Resources Conservation Service (NRCS).

The project supports the Texas Nonpoint Source Management Program's goal of protecting and restoring water quality. It provides training to water professionals and supports the goal of data collection and assessment and implementation by providing these water and natural resource professionals with knowledge and tools to conduct studies to determine sources of pollution and to develop and implement strategies to address pollution in impaired water bodies.

The WPSC, the main course of the project, provides guidance on stakeholder coordination, education, and outreach; meeting EPA's nine key elements of a watershed protection plan; data collection and analysis; and tools available for plan development. Watershed professionals use these tools to work with stakeholders for successful watershed planning efforts. The WPSC was conducted from September 27 to 30, 2021 for 21 attendees and from August 29 to Sept 1, 2022 for 27 attendees in Bandera, Texas.

Along with the WPSC, water professionals are invited to attend biannual Texas Watershed Coordinator Roundtables that cover a variety of topics and issues at each one. TWRI also continued its efforts in watershed training programs by developing and conducting six additional courses: Introduction to Modeling; Agricultural Best Management Practices (BMPs); Urban BMPs; Implementation of Watershed Based Plans; Social Marketing for Natural Resources Professionals; and Fundamentals of Developing a Water Quality Monitoring Plan.

Besides the training courses, the project maintains the Texas Watershed Planning website and the Watershed Coordinators Listserv, with 343 subscribers receiving training updates and announcements (as of May 20, 2023). The listserv and the roundtables provide a forum for maintaining dialogue between watershed coordinators, facilitating interactive solutions to common watershed issues, and adding to the fundamental knowledge conveyed at the WPSC. The website was updated and created in a new system.

This project educates participants on the EPA's nine key elements for developing successful watershed based plans. It has educated many water professionals, ensuring watershed protection efforts are adequately implemented and improving water quality restoration efforts are improving statewide.

Introduction

Watershed coordinators come from different backgrounds, and in the role of watershed coordinator, they must be able to manage the project at a multi-disciplinary level. Watershed coordinators need to have a basic understanding of all the aspects of the nine elements, including: outreach and education, marketing, stakeholder facilitation, water quality monitoring, modeling and assessment techniques, and grants. The program seeks to ensure the proper training, provide needed tools, and encourage network development among watershed coordinators and water resource professionals by continuing the delivery of the WPSC and other relevant trainings and the coordination of the semiannual Texas Watershed Coordinator Roundtables. These activities have led to significant improvements in planning and implementation efforts in Texas and are continually needed to ensure that new watershed planning efforts are adequately planned, coordinated, and implemented and that the results are properly assessed and reported.

Project Description

TWRI has assembled and will continue to coordinate closely with a project team made up of university, TSSWCB, TCEQ, and EPA personnel. This project team guided the development of the WPSC under the previous project and continues to guide the delivery of the WPSC to water resource professionals throughout Texas. This project team meets and will continue to meet at least annually to review planned and ongoing project activities and provide recommendations and guidance. This project team has continued to be involved in the delivery of the weeklong WPSC. This course was developed to train watershed planners on how to develop each of the nine key elements of a watershed protection plan (WPP). Two WPSCs were offered during the project for a total of 48 attendees. Our goal is to educate additional water resource professionals in Texas and the surrounding region about watershed planning. Experts from around the nation were brought in to discuss such topics as obtaining stakeholder involvement, developing each section of the WPP, identifying appropriate BMPs, designing a monitoring program, and implementing a WPP. Additionally, stakeholder involvement through such state programs as the Texas Watershed Steward Program, Texas Well Owner Network, Texas Riparian and Stream Ecosystem Education, Urban Stream Processes and Restoration and Texas Stream Team were highlighted.

TWRI and Texas A&M University worked with TSSWCB, TCEQ, and EPA to continue to facilitate semiannual Texas Watershed Coordinator Roundtables. In order to build upon the fundamental knowledge conveyed through the WPSC, there is an evident need to continue dialogue between watershed coordinators in order to facilitate interactive solutions to common issues faced by watershed coordinators statewide. A total of six roundtables were held throughout the project. In addition to the WPSC and roundtables, TWRI hosted and maintained the Texas Watershed Planning Website as well as, 9 additional training opportunities for watershed plan development and implementation. Trainings include: Introduction to Modeling, two social marketing trainings, and two Stakeholder Facilitation Training, and our three newer courses - Implementing Watershed Based Plans, Urban BMPs, and Agricultural BMPs, to be offered one to two times each depending on the need. Based on guidance provided by TSSWCB and interest in these courses, the trainings offered will be adjusted to best meet the needs of the State and the watershed coordinators. TWRI worked closely with TSSWCB and the project team to ensure that the most appropriate and needed trainings were offered. This collaborative project between TWRI, TSSWCB, EPA, USDA ARS, USDA NRCS, Texas A&M AgriLife Center at Dallas, TAMU SSL, Tarrant Regional Water District, Practical Stats, and EPR will support development of WPPs, TMDLs, and TMDL-implementation plans, and will promote sustainable, proactive approaches to managing water quality at the state level.

Project Administration

TWRI worked to administer, coordinate, and monitor all work performed under this project including technical and financial supervision and preparation of status reports. TWRI also maintained web-based watershed planning resources for Texas watershed coordinators.

This collaborative effort started when the contract was signed, and the project period went from November 1, 2019 through March 31, 2023. This included a six month no cost extension due to the pandemic limiting gatherings and delaying many trainings. Also during this time frame many project partners and instructors changed their positions and retired. All past instructors with TIAER and TCEQ for the Developing a Water Quality Monitoring Plan have retired or left.

The contract kickoff meeting was held online on November 23, 2019 to discuss roles and responsibilities, major tasks, contract terms and conditions, scope of work, and schedule of deliverables of the project. TWRI provided technical and fiscal oversight of the staff and subcontractors to ensure tasks and deliverables were completed and within the budget.

TWRI will host and maintain a website for information sharing and use by watershed coordinators (<http://watershedplanning.tamu.edu/>). Information presented through the website includes:

- WPSC, workshop, and roundtable agendas and participant lists
- Roundtable presentations generated and roundtable agendas
- Schedule of upcoming programs
- Resources for watershed planning and implementation
- Links to other training opportunities
- Links to EPA tools for watershed planning

TWRI continues to make sure they are keeping up with the times and technology and created a WordPress website at the end of 2022. TWRI has ensured the appropriate information and resources are available for use by watershed coordinators at the new site (<https://texaswpp.twri.tamu.edu>). Training information on the old website is still readily available under the workshop schedule section of the new website under archive.

Quarterly Progress Reports (QPRs)

TWRI prepared electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs documented all activities performed within a quarter and were submitted by the 1st of January, April, July, and October each year.

Planning Team Coordination

TWRI hosted coordination meetings or conference calls, at least biannually, with the planning team to discuss project activities, project schedule, communication needs, deliverables, and other requirements. The planning team discussed and assisted in the planning of timing and location as well as agendas for trainings throughout the project. TWRI developed lists of action items needed following each project coordination meeting. TSSWCB reviewed and approved all agendas, registration forms, and news releases for trainings throughout the contract prior to their release and use in advertising.

Professional Trainings, Roundtables, and Watershed Planning Short Course Coordination

TWRI provided training, coordination, and professional development for watershed planners and coordinators throughout Texas and across the nation to ensure consistent, high quality WPPs are developed and implemented, and water quality improvements are achieved and sustained.

TWRI coordinated with Texas A&M University faculty and others to provide professional development and training for water resource professionals and watershed coordinators in Texas. Over the project duration, TWRI was able to offer 9 professional training programs on watershed modeling, BMPs, watershed outreach, and other tools for watershed plan development and implementation (i.e. three to four trainings per year). It was expected that each course would provide training for at least 15–20 water resource professionals. At the end of the project, over 275 water and natural resource professionals attended the trainings. The roundtable attendance averaged 59 and up to 86 attendees per meeting with a total of 352 altogether.

The following professional training programs were delivered:

- Introduction to Modeling – 1 online event (92 attendees)
- Implementing Watershed Based Plans – 1 event (12 attendees)
- Overview of Agricultural BMPs – 1 event (13 attendees)
- Overview of Urban BMPs – 1 event (30 attendees)
- Social Marketing Training – 2 events (49 attendees)
- Stakeholder Facilitation – 2 events (43 attendees)
- Applied Environmental Statistics – 1 event (36 attendees)

During FY 2020, the program successfully delivered three educational events. In December 2019, the weeklong “Applied Environmental Statistics” course, which focuses on statistical methods tailored to the environmental sciences, was conducted in College Station. This event had 36 attendees with 87 percent rating the course as good to excellent. In April 2020, the program held an “Introduction to Watershed Modeling” course and a Texas Watershed Coordinator Roundtable were held online (via ZOOM) in response to the COVID-19 public health concern. The daylong “Introduction to Watershed Modeling” course, which provided tools in-depth information about the models used for watershed protection planning, had 92 attendees. These attendees provided a 97 percent rating of mostly or completely in their overall satisfaction with the “Introduction to Watershed Modeling” course.

The Watershed Coordinator Roundtable had 86 attendees, which focused on providing an agency update regarding the impacts the COVID-19 health concern would have on watershed planning activities. Roundtable attendees provided a 91 percent rating their overall satisfaction of this event as good to excellent.

TWRI worked closely with TSSWCB and the project team to ensure that the most appropriate and needed trainings were offered to best meet the needs of the State and the watershed coordinators. TWRI coordinated with TSSWCB, TCEQ, and EPA to organize and facilitate a total of six semiannual Texas Watershed Coordinator Roundtables. These face-to-face roundtables build upon the fundamental knowledge conveyed through the WPSC and establish a continuing dialogue between watershed coordinators in order to facilitate interactive solutions to common issues faced by watershed coordinators statewide. These were typically held in January and July at various locations around the state.

TWRI coordinated and offered two WPSCs. TWRI, with assistance from the project team, identified key speakers for the course, made arrangements for facilities, advertised the WPSC, conducted registration, and facilitated the delivery of a minimum of one WPSC to water resource professionals in Texas, as well

as other states. The WPSA agenda and speakers were modified to better meet the needs of watershed coordinators based on past course evaluation results.

TWRI has developed and administered training evaluations after each program to gauge the knowledge gained and how effective the program was for each participant and to get input on future programs.

Watershed Training Webpage

TWRI hosts and maintains a website for information sharing and use by watershed coordinators. As mentioned earlier, TWRI migrated to a new WordPress website in 2022. TWRI has ensured the appropriate information and resources are available for use by watershed coordinators at the new site (<https://texaswpp.twri.tamu.edu>). Training information on the old website is still readily available under the workshop schedule section of the new website under archive.

Watershed coordinators are supported through the website, listserv, and professional development opportunities to equip them in all aspects of watershed planning. The website has event information and schedules for all of the trainings. TWRI maintains, manages, and sends watershed-related information as well as advertises trainings on the Watershed Coordinators Listserv, which has 343 subscribers.



- Home
- What is a WPP?
- Resources
- Sustainability
- About Workshops
- Workshop Schedule
- Contact

Texas Watershed Planning

Comprehensive watershed protection plans that outline ways to preserve or restore watersheds are a voluntary and accepted approach to protecting Texas surface waters. Using a watershed approach to restore impaired water bodies addresses the problems in a holistic manner, and stakeholders in the watershed are actively involved in developing the management strategies and plans.



Implementing Watershed Plan Training

Proper training of watershed coordinators and water professionals is needed to ensure that watershed protection efforts are adequately planned, coordinated and implemented and results are properly assessed and reported.

The **Texas Watershed Planning** project provides the needed training and promotes sustainable proactive approaches to managing water quality throughout the state. This weeklong course provides participants with guidance on stakeholder coordination, education and outreach; meeting the U.S. Environmental Protection Agency's (EPA) nine key elements of a watershed protection plan; data collection and analysis; and the tools available for plan development. This information is presented through lectures and case studies.

Subscribe to receive Texas Watershed Planning updates.

Subscribe



Past Courses, Roundtables, and Trainings: Online Schedule New Site



Applied Environmental Statistics

8:00 AM to 12:00 PM / College Station, TX

The Applied Environmental Statistics Course is set for Dec. 9-13, 2019 from 8 a.m.-5 p.m. Monday-Thursday and 8 a.m.-noon on Friday. The course will be held at the Thomas G. Hildebrand DVM '56 Equine Complex Andras A Classroom, 3240 F&B Road, College Station, TX, 77843.

[Agenda](#) [Register](#) [Details](#)



Texas Watershed Coordinators Roundtable

9:30 AM to 3:30 PM / Texas A&M AgriLife Center, Dallas, TX

Water and natural resource professionals are invited to the next Texas Watershed Coordinator Roundtable August 6 in Dallas.

[Agenda](#) [Register](#) [Details](#)



Implementing Watershed Plans Training

10:00 AM to 4:00 PM / Austin, Tx / watershed planning

Water and natural resource professionals are invited to the Implementing Watershed Plans Training set for June 4, 2019 from 10 AM - 4:00 PM at TCEQ Headquarters in Austin.

[Register](#) [Details](#)



Ag BMPs for Watershed Planning Training

9:00 AM to 4:00 PM / Riesel, TX

Archive

2019

[January](#)

[February](#)

[April](#)

[June](#)

[August](#)

[May](#)

[December](#)

[View All](#)

Watershed Planning Short Courses

TWRI coordinated and offered two WPSC multi-day trainings. TWRI, with assistance from the project team, identified key speakers for the course, made arrangements for facilities, advertised the WPSC, conducted registration, and facilitated the delivery of the WPSCs. Certificates were provided to participants upon completion of the course. TWRI worked closely with TSSWCB and the project team to assess the need for and timing of these courses that best meets the needs of the state. As needed, travel for speakers were paid for through project funds and registration fees.

The WPSC is the only watershed planning course of its kind in the nation, and as such there are usually attendees from out of state. The four-day course combines 35 oral presentations by thirteen state and national experts with discussions, an agency panel, case studies, and critical networking to provide a unique learning format. The agenda is routinely updated to deliver the latest information on new techniques based on evaluation comments from previous trainings. Watershed coordinators from ongoing Texas projects also provide examples of WPP development. Participants are supported with a website, listserv, and professional development opportunities to equip them in all aspects of watershed planning.

Since initiation of the course, WPPs and the stakeholder-driven watershed planning process instilled through the course have become the foundation for water quality improvement efforts in Texas. Practitioners developing both WPPs and TMDL Implementation Plans have participated in the course and are now using the techniques learned to address water quality issues statewide. The watershed planning efforts including TMDL Implementation plans have benefited from the watershed training program. Of the more than 350 participants for the 12 WPSCs, a majority are currently involved in watershed planning efforts statewide and elsewhere across the U.S.

Ultimately, the program's success was measured by the improvement of water quality in the state. Such improvements have been or are already being observed in watersheds across Texas by those participating in the course (i.e. Buck Creek, Attoyac Bayou, Leon and South Leon Rivers, Lower San Antonio River, Upper San Antonio River), and many more are expected. However, success was also measured in the knowledge gained by participants. Pre- and post-examinations given to WPSC participants have shown increases in knowledge ranging from 20%–93% and averaging 71% in knowledge increase, demonstrating the course's success. Participants leave the course very satisfied with their experience (92% mostly or completely satisfied rating) and ready to implement what they have learned.

Besides the multi-day WPSC, water professionals are provided professional development opportunities through other educational courses including: Social Marketing for Natural Resources Professionals, Applied Environmental Statistics, and Introduction to Modeling. Further, participants are provided a forum to discuss common watershed issues and solutions through Texas Watershed Coordinator Roundtables. Further exchange of information is facilitated through the Watershed Coordinators Listserv, which has 343 subscribers, and the Natural Resource Training Newsletter, which has 2,004 subscribers.

The training program coordinator contacted speakers regarding travel information, speaker biographies, and presentations and materials. Each participant was provided course binders with presentations, EPA Handbooks, and a USB thumb drive of course materials and additional resources. The 2021 WPSC was conducted on September 27-30, and had 21 attendees, and the 2022 WPSC was conducted on August 29–September 1, 2022 and had 27 attendees.

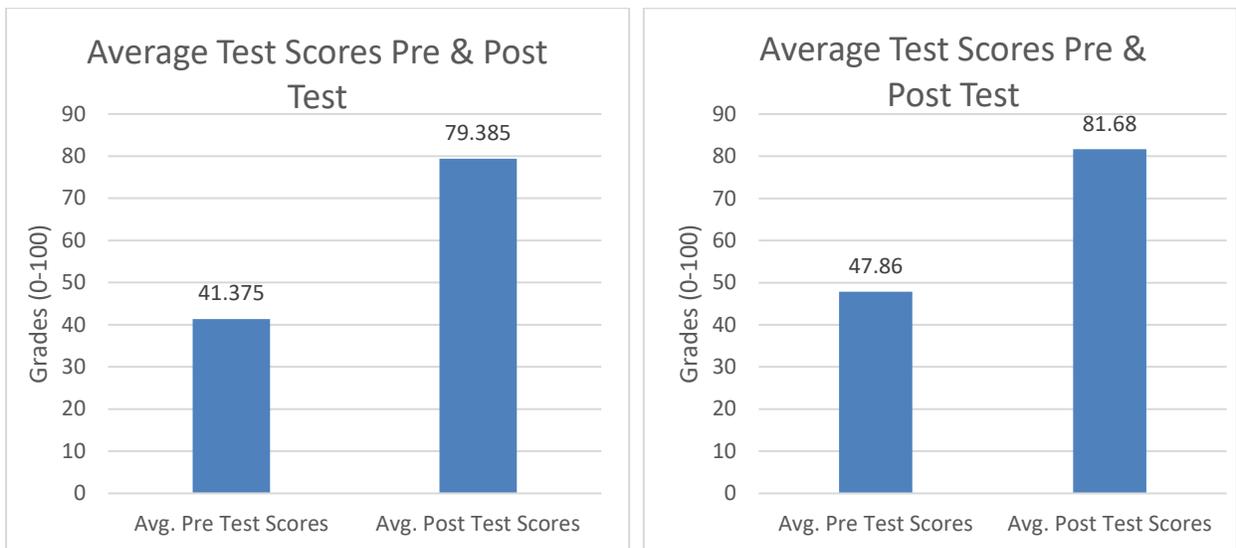
Administer Questionnaires and Evaluations

TWRI has administered questionnaires and evaluations to gauge the knowledge gained and how effective the course was for course participants. Results and comments are used to improve the next training.

During the current grant period from 2019 through 2023, two WPSC, 9 workshops and six roundtables have been delivered. Due to the Covid 19 pandemic many of these trainings were postponed and then delivered in an online format. Over the years, the planning team has continually improved each course and the website, added new trainings and tailored roundtables based on emerging issues and participant feedback. Questionnaires and evaluations were administered and collected for all courses. The results of each of these were submitted to TSSWCB with the course deliverables.

Success of these trainings is also measured in knowledge gained by participants. Pre- and post-examinations were given to WPSC participants. The average pre-test score from the 2021 WPSC was 41/100 points, while average post-test score from the 2021 WPSC was 79/100 points. These test scores indicated an average increase in knowledge of 92%. The average pre-test score from the 2022 WPSC was 47/100 points, while the average post-test score from the 2022 WPSC was 82/100 points. These test scores indicated an average increase in knowledge of 71%. This high increase in knowledge demonstrates the course’s success.

Average WPSC Pre/Post Test Scores 2021 and 2022



Participants leave the course extremely satisfied with their experience (92% mostly or completely satisfied from the two WPSCs), ready to implement what they have learned. Feedback from these evaluations are reviewed by the planning team and instructors and taken into consideration for improvements or adjustments for the next training.

We asked many qualitative open-ended questions to get additional information about the course, topics, and needs. The most significant or valuable things they learned included: complexity and coordination that goes into these plans and the importance of stakeholder buy in, overview of sustainability ESG, using outreach to develop plans, how to calculate LDCs, learning the expectations for each of the elements for a successful plan, estimating load reductions, partnership building, outreach methods, and all of the resources. In general, most respondents did not feel like there were any sections that were “least valuable” to the course. However, they did suggest providing more hands-on and interactive activities, as a ton of information is covered in presentations.

Participants were overall very satisfied with the course, course materials, sequencing, and resources. Overall satisfaction with the location and facility was very high. Only a few responses were received on what could have been done better including: reducing the redundancy between the course presentations and providing more breaks.

We also had a question about what other tools, training, and capacity building they felt was needed in greater detail. The majority of the responses included: presenting more information or examples of adaptive management, training on proposal and grant writing, training on education and outreach, social media outreach, modules or videos on each of the 9 elements, and finding funding. Attendees were also asked about topics of interest that were not covered by the course; these included: more interactive presentations and group activities (ex: mock stakeholder meeting) and presentation(s) on “lessons learned” from WPP/BMP implementation.

Questionnaires and evaluations were administered and collected at the WPSC. For the September 2021 course, participants providing input on the course that showed that they were very satisfied with the course. On a scale of 1–5 with 5 being the most satisfied, the overall course was rated a 4.4, and the ratings for individual presentations ranged from 3.6–4.9. For the August 2022 course, participants providing input on the course that showed that they were very satisfied with the course as well. On a scale of 1–5, the overall course rated a 4.6, and the ratings for individual presentations ranged from 3.9–5.0.

Provide Professional Development Training

Introduction to Watershed Modeling Training

A one-day course developed by TWRI and Texas A&M University System personnel was delivered to provide watershed coordinators with an introduction to watershed modeling. Due to the Covid 19 Pandemic and limitations on meeting in groups the course was delivered online and had 92 attendees. Topics of the course included (1) how modeling fits into Watershed Planning, (2) models overview: purposes and limitations, (3) using simple tools or non-model tools (4) Quality Assurance Project Plans (QAPPs), (5) factors to consider when modeling: time & money, (5) HAWQs Model demonstration and (6) stakeholder communications and modeling.

The TWRI Program Coordinator met with Dr. R. Srinivasan regarding setting up a planning meeting for the introduction to watershed modeling training. Advertising materials were placed on the website about the training, and the registration was opened for the training online. The fee was changed to be free for the one-day training. The training was conducted online with 92 participants.

To advertise the training, a news article was developed and shared and course information and registration was sent out on the Natural Resource Training newsletter and sent out to both the Watershed Planning and Texas Riparian Listservs. It was also included in TWRI’s other online communications and calendars.

Agricultural Best Management Practices (BMPs)

Watershed coordinators identified agricultural BMPs as a training needed in Texas. This course covered establishing and working with agricultural work groups and producers in developing and implementing WPPs, typical management measures included in WPPs to address agricultural non-point source pollution, top BMPs for addressing typical water quality issues, cost share programs for assisting implementation, educational programs available, and other topics.

TWRI coordinated with Kyle Wright with USDA NRCS, and Brian Koch with the TSSWCB, and Audrey McCrary with TWRI, for the development of course presentations and location selection. The team selected Thrall, Texas as the location of the workshop because TWRI was able to collaborate with Ryan Collett the Stiles Farm Manager. Working with the farm manager allowed for a tour of the farm to see and learn about on-the-ground agricultural BMPs for the afternoon portion of the training.

Advertising materials were placed on the website about the training, and registration was opened for the training. The registration fee was determined to be \$50 for the one-day training. To advertise the training, a news release was developed with AgriLife and it was sent out on both the Natural Resource Training

newsletter, and the Watershed Planning Trainings and Texas Riparian Listservs. The training was conducted on March 21, 2023 with 13 participants after being delayed due to the Covid 19 Pandemic until it was safe and allowed to have groups meet in person.

Urban Best Management Practices (BMPs)

This course covered establishing and working with urban NPS work groups, developers, and cities in developing and implementing WPPs. Topics covered were: typical management measures included in WPPs to address urban NPS, top BMPs for addressing typical water quality issues, funding programs and codes for encouraging implementation, educational programs available, and other topics. This course also covered typical urban management measures used in watershed planning, such as green infrastructure for stormwater and Low Impact Development (LID). LID refers to practices that manage stormwater in an urbanized setting in a way that minimizes impact to the environment while increasing cost effectiveness and sustainability. LID practices include bioretention, green roofs, rainwater harvesting, and permeable pavement. Instructors included city officials, AgriLife Extension, TWRI, and Construction EcoServices.

An Urban BMP training was conducted on November 10, 2022 in Dallas and included a tour of the LID and green infrastructure practices at the Texas A&M AgriLife Center in Dallas, Texas with 30 participants. Advertising materials were placed on the website, and the registration fee was determined to be \$50 for the one-day training.

Social Media Training: Content, Conversations, and Discoverability – Quality Outreach and the Internet for Natural Resource Professionals

TWRI coordinated with instructor Amy Hays, Noble Research Institute course instructor, to conduct two trainings titled: Content, Conversations, and Discoverability – Quality Outreach and the Internet for Natural Resource Professionals, targeted to natural resource and watershed professionals. Things have changed dramatically in design, writing standards, and search ability since the internet first came about. In addition, smart devices have outsold desktops significantly in recent years. This means that outreach and education strategies should continue to change and we must learn how to connect the consumer to the important information we provide. We need to understand how content is found, how conversations and learning networks start, how to be discovered, and what constitutes quality outreach. We have to know where to post, when to post, and what to build on our websites. Learning how to reach our traditional clients as well as new clients is imperative. This course covered many successful models that can be used and applied in natural resource outreach and education that can help us down the road of discoverability, whether via websites, Facebook, blogs, Twitter, or Instagram.

TWRI worked with Amy Hays to develop fliers, advertise, and conduct the two social media trainings. Both trainings were held online due to the pandemic on December 1–2, 2021 with 31 attendees and the second training was held in online on November 11-12, 2022 with 18 attendees. Participants were provided an evaluation at the end of both trainings.

Implementing Watershed Based Plans

Implementation strategies and moving from planning to implementation was identified by watershed coordinators as a training need in Texas. TWRI coordinated with instructors from Texas A&M AgriLife Extension, and others to refine and deliver this course covering topics including an overview WPP implementation, maintaining watershed groups through plan approval and implementation, implementing plans to protect drinking water in north Texas, tracking implementation, implementation costs and sources of funding, and other topics. A \$50 registration was charged for this training.

TWRI conducted the one-day Implementing Watershed Based Plans training in College Station at Texas A&M Forest Service on February 21, 2023 with 17 attendees. Participants were provided an evaluation at the end of this training, and were very satisfied with the course with 100% mostly or completely satisfied and an average overall course rating of a 4.7 out of 5. All of the presenters received an average 3.75 – 4,

out of a total of 4 or excellent ratings. Participants listed the most valuable aspects of the workshop as: lessons learned, comprehensive content, charts in implementation tracking, sources of grants, communicating with stakeholders, networking, tips on tracking WPP implementation, and historical examples of plan implementation.

Applied Environmental Statistics

TWRI coordinated with Practical Environmental Statistics instructor, Dr. Dennis Helcel, to bring their course to College Station, Texas for watershed coordinators and natural resource professionals on December 9–13, 2019. This training was held at the Hildebrand Equine Complex with 36 participants. This 4.5-day event covered applied statistical methods tailored to the environmental sciences. Exercises using R statistical software at the end of each lesson ensured that students can confidently perform each procedure when they return to their offices. The course doubles as an introduction to using the free R software. The full course outline can be found at <http://practicalstats.com>. Topics included:

- Trend analysis – is it getting better or worse?
- Confidence, prediction, and tolerance intervals
- How hypothesis tests work
- Parametric, nonparametric, and permutation tests – when to use which
- How to build a good regression equation
- Dealing with outliers
- Introduction to handling nondetect data
- How many samples do I need?

Promotion occurred for this workshop through the Watershed Coordinators Listserv and TWRI's Water Training Newsletter. Training materials were compiled and provided to attendees by email link prior to the course. Attendees brought their own devices with the free R software to work on through the training. Registration cost for the event was \$400.

Administer Questionnaires and Evaluations for Professional Trainings

TWRI oversaw the administration of questionnaires and evaluations to gauge the knowledge gained and the effectiveness of the course for each participant to identify areas needing adjustment.

Introduction to Watershed Modeling

Training evaluations were developed and conducted for the Introduction to Modeling workshop held on April 15, 2020. Evaluation results were submitted to TSSWCB with training deliverables. The summary of the evaluations included: the overall course rating, rating for the how helpful the course information was, and the percent of participants that rated the course and information as Good and Excellent. The evaluations also asked what the most valuable aspects and least valuable aspects of the training were. The most valuable aspects included: understanding the different types of models, techniques to communicate models effectively to your stakeholders, live demonstration of the HAWQs model, case studies, great tips and resources provided, limitations on models, and learning about available databases. The overall course had a 97% Good to Excellent rating. The items considered least valuable by participants were the QA presentation which didn't seem to connect with the participants, discussion on cost estimates because of wide variability, and many commented that the large group online made it difficult to have an interactive program. Each presentation at the training was evaluated on a 1–4 scale of Poor, Average, Good, or Excellent. The results are included on the table below.

The questionnaires were also used to gather information on the participants including: affiliation, why the training was important and what they hoped to gain, what their greatest challenges were, what tools or methods they were currently using, and what their greatest needs were in that area for feedback on future trainings. The greatest needs were modeling in terms of watershed planning, estimating needed pollutant

load reductions, and analyzing effectiveness of model applied. The tools that are currently being used to estimate loads and load reductions include LDCs and SELECT, STEPL, SWAT, HECRAQ, QUALZK, APEX, SWMM and HAWQs.

Introduction to Watershed Modeling		April 2020
Presentations		% Good Excellent
Overall Course (Scale of 1-5)		4.6 97
Introductions & Workshop Overview [L. Gregory, TWRI]		99
Models Overview [S. Srinivasan, SSL]		93
Using Simple Tools or Non-Model Tools [S. Srinivasan, SSL]		92
QA Project Plans [K. Rodibaugh, TCEQ]		96
Factors to Consider when Modeling [S. Srinivasan, SSL]		94
HAWQs Model Demonstration [S. Srinivasan, SSL]		97
Stakeholder Communications and Modeling [N. Glavy, TWRI]		99

Agricultural Best Management Practices (BMPs)

Training evaluations were developed and conducted for the Agricultural BMPs training held on March 21, 2023. Evaluation results were submitted to TSSWCB with training deliverables. The summary of the evaluations included: the overall course rating, rating for the how helpful the course information was, the percent that rated the course and information ranked as Good and Excellent. The evaluations also asked what the most valuable aspects and least valuable aspects of the training were. The most valuable aspects included the field tour viewing the on-the-ground practices at the Stiles Farm, learning about specific agriculture conservation practices and producers perspective, the innerworkings of NRCS and SWCD programs, and the knowledge of the course speakers. The overall course had a 100% Good to Excellent rating. Program attendees stated that no particular portion of the course was least valuable; however, one person mentioned that looking at the tractor was least valuable.

We also asked what other topics would they like more information on related to Ag BMPs. Comments included: lessons learned and success at cover cropping by producers, more information on erosion control structures, more information on cropland conservation, lessons learned on BMP implementation, water use and water conservation, BMP effectiveness comparison, and soil health.

Each presentation at the training was evaluated on a 1–4 scale of Poor, Average, Good, or Excellent, and the results are included on the table below.

Agricultural BMPs		March 2023	
Presentations		Rating (1-4)	% Good Excellent
Overall Course (Scale of 1-5)		4.8	100
Introductions & Workshop Overview [L. Gregory, TWRI]		3.9	100
Planning and Implementing BMPS for Water Quality [K. Wright, USDA NRCS]		3.9	100
Agricultural NPS Program [B. Koch, TSSWCB]		3.7	89
Tour of Stiles Farm [Collett, Stiles Farm]		4	100
Landowner Process for Securing Technical Assistance (McCrary – replaced by Leanne Wiley)		3.7	89

Urban Best Management Practices (BMPs)

Training evaluations were developed and conducted for the Urban BMPs training held on November 10, 2022 in Dallas. Evaluation results were submitted to TSSWCB with training deliverables. The summary of the evaluations included: the overall course satisfaction, overall satisfaction of material presented and instructors, participant understanding of several urban BMPs (ex: rain garden, green roofs, etc.) before and after the training, and the likeliness of participant adopting a BMP discussed during the training. The overall course satisfaction rating for the November 2022 training was 96 mostly or completely satisfied.

When examining participants' understanding of a particular urban BMP before and after the training, participants rated their understanding on a scale of 1–4. A score of 1 indicated little to no knowledge of the topic while a score of 4 indicated a sound understanding of and familiarity with the topic. See tables below for results from knowledge gained at the training. Average overall knowledge gained about urban BMP topics from the November 2022 training showed an increase of 42.3%.

Urban BMPs- November 2022 Training

Your Understanding of Topic:	Average Before Program (Scale 1-4)	Average After Program (Scale 1-4)	Knowledge Gained % Increase
Why is stormwater a concern	3.5	3.96	13.3
What is a rain garden	3	3.86	28.8
How does a rain garden work	2.7	3.73	38.2
How to design a residential rain garden	2.13	3.2	50
How to design a commercial rain garden	1.93	2.96	53.4
Performance of rain gardens with regards to water volume and quality	2.4	3.43	43
Maintenance of rain gardens	2.26	3.3	45.5
What are green roofs	2.76	3.66	32.5
Green roof performance	2.2	3.33	51.5
What is permeable pavement	2.7	3.8	40.7
Performance of permeable pavements	2.23	3.76	68.6

The training evaluations asked attendees about the likeliness of adopting a BMP for projects of their own. BMP choices included: residential rain garden, commercial rain garden, green roof, permeable pavement, bioswales, pet waste management, promoting LID, and other stormwater practices. BMP adoption likeliness choices included: definitely will not, probably will not, undecided, probably will, definitely will, already adopted, and not applicable. With this information, TWRI examined the number of attendees who selected “probably will” and “definitely will” from the training. It was discovered that 46.25% of attendees “probably will” or “definitely will” adopt a BMP that was discussed at the training. Additionally, 60% of program attendees expect that they or the entity they represent will benefit economically as a result of knowledge gained through this program.

Social Media Training: Content, Conversations, and Discoverability - Quality Outreach and the Internet for Natural Resource Professionals

Training evaluations were developed and conducted for the two Social Marketing trainings conducted virtually on December 1–2, 2020 and November 11–12, 2021. Evaluation results were submitted to TSSWCB with training deliverables. The summary of the evaluations included: the overall training expectation rating (scale 1–5), the most and least valuable aspects of the trainings, and an open-ended question to provide any additional comments.

The evaluations also asked what the most valuable aspects and least valuable aspects of the training were. The most valuable aspects included: learning how to create a strategic plan for social media, learning about the different platforms, different generations and conservation ethos, small group feedback, the three why's exercise, outlined processes to connect mission and goals, types of education, strategies of creating effective content, all the resources provided, how the various tools are intended to be utilized versus how most use them, lessons learned, best practices, tips and tools in creating future content, handouts and exercises. Program attendees felt no particular part of the trainings was least valuable, but there were comments that they were not sold the usefulness of Pinterest for their organizations and that the introductions on the first day was quite lengthy. Attendees did suggest more breaks on day one and that they needed more time in the valuable breakout sessions. Several commented that this was the most valuable training they have attended, how timely and inspiring it was, and one commented 10 out of 10 stars. The overall course satisfaction rating for the December 2020 training was a 4.9 and 100% mostly or completely satisfied, and the overall course satisfaction rating for the November 2021 training was 4.43 and 100% mostly or completely satisfied.

Implementing Watershed Based Plans

Training evaluations were developed and conducted for the Implementing Watershed Based Plans training held on February 21, 2023 in College Station. Evaluation results were submitted to TSSWCB with training deliverables. The summary of the evaluations included: the overall course rating for meeting attendees' expectations (scale 1-5), the most and least valuable aspects of the training, and an overall satisfaction rating of each presentation. Each presentation at the training was evaluated on a 1–4 scale of Poor, Average, Good, or Excellent, and the results are included on the table below.

The overall training received a rating of 4.7/5 when participants were asked their overall satisfaction rating for meeting their expectations; 100% of participants gave a rating of 4 or 5 rating when describing if the training met their expectations. The most valuable aspects included: current information on watershed protection activities, lessons learned, networking, hearing real experiences, tracking projects, communicating with stakeholders, sources of funding, practices for more efficient planning, interactive presentations. Program attendees stated that no particular portion of the course was least valuable; however, one attendee suggested that the grant information was not relevant.

Implementation Training		February 2023	
Presentations	Rating (1-4)	% Good Excellent	
Overall Satisfaction (Scale of 1-5)	4.7	100	
Introductions & Workshop Overview [L. Gregory, TWRI]	3.9	100	
Completed Plan Now What? [N. Dictson, Contractor]	3.8	100	
Implementing WPP: Alligator & Geronimo Creek [W. Ling, TWRI]	3.9	100	
Implementing Watershed Plans to Protect Drinking Water in North TX [A. Hoff, Tarrant Regional Water District]	4	100	
Tracking WPP Implementation [N. Dictson, Contractor]	3.8	100	
Implementing Costs & Funding Sources [L. Gregory, TWRI]	3.8	100	

Program attendees were also asked an open-ended question about other topics they would like more information on from this training. Comments included: more information on funding opportunities, lessons learned from recent WPPs, how to initiate a WPP, involving decision makers, and additional examples in urban contexts.

Practical Applied Environmental Statistics Course

Training evaluations were developed and conducted for the Practical Applied Environmental Statistics Course training held on December 9–13, 2019 in College Station. The summary of the evaluations included: the overall course rating for meeting attendees' expectations (scale 1–5), the most and least valuable aspects of the training, and an overall satisfaction rating of each presentation. Each presentation at the training was evaluated on a 1–4 scale of Poor, Average, Good, or Excellent.

The overall course satisfaction was 4.23/5, with 87% of participants giving the course a Good to Excellent rating (4 or 5). The most valuable aspects of the training were repeated by many attendees including: multiple regression and trend analysis, learning R statistical software, access to books/scripts/tutorials, the relevant examples, the applied nature of the class overall, and the professionalism and knowledge the course instructor had. The least valuable aspects of the course were very few, but some suggested that they would like time to practice in class, others commented there was not enough time and they felt rushed. Further, some attendees mentioned the large amount of information provided was too much for a 4.5-day course.

Regarding the presentations presented throughout the course, the average satisfaction rating received was 86%. The comments were all great except for a few sections where participants thought the instructor went a little fast. Participants were also asked an open-ended question to provide any additional comments on the course. Several mentioned the course was the most applicable stats course they have ever taken, while another said it was one of the best courses they have taken.

Texas Watershed Coordinator Roundtables

Facilitate Texas Watershed Coordinator Roundtables

TWRI coordinated with the TSSWCB, TCEQ, and EPA to organize and facilitate a total of six semiannual Texas Watershed Coordinator Roundtables. These roundtables build upon the fundamental knowledge conveyed through the WPSC and establish a continuing dialogue between watershed coordinators in order to facilitate interactive solutions to common issues faced by watershed coordinators statewide. Periodically, TWRI, in conjunction with the project team, reviewed the continued need for semiannual roundtables as well as their specific timing. As such, these roundtables were held around April and December with 4 of them being held online during the pandemic and even hybrid instead of face to face meetings around the state. Overall, there was a positive reaction to the roundtable meetings, and many of those surveyed did not find anything in need of changing.

Administer Evaluations

TWRI administered evaluations to gauge the knowledge gained and the effectiveness of the roundtable for each participant. Evaluations were administered at the end of each roundtable to determine future topics of discussion. Training evaluations were developed and conducted for the Texas Watershed Coordinator Roundtables conducted on April 23, 2020, October 21, 2020, April 22, 2021, December 13, 2021, May 24, 2022 and December 13, 2022.

Virtual April 2020 Roundtable

No evaluations were completed for this first virtual roundtable. Feedback received from attendees was positive though and they requested to continue virtual roundtables until in-person meetings could resume.

Virtual October 2020 Roundtable:

We received 31 evaluations from 73 participants, for a 42% response rate. The most valuable topics discussed were the agency panel, Master Gardener and Master Naturalists discussion, water quality monitoring to document effects of BMP implementation, Waters Science and Jr. Texas Master Gardener

programs, Texas Water Specialist information, volunteer resources, community engagement, NPS program updates and engaging these volunteer groups. There were no topics that attendees thought should have been addressed more thoroughly. Suggestions for topics of future roundtables included cleanup events, groundbreaking water research being done in Texas, how drought is affecting water quality, coordination with flood funding/planning for impacted watersheds, and potential funding sources.

Virtual April 2021 Roundtable

We received 26 evaluations from the 65 participants, for a 40% response rate. The most valuable topics included . Respondents stated that they would like the following topics to be addressed more in depth: source water protection through natural infrastructure, tips for public trainings, outreach efforts during the Covid-19 pandemic, agency updates, breakout sessions, innovative partnerships, successful virtual presentation tools, and stakeholder engagement. Suggestions for future roundtables included: sourcewater protection, community wide cleanups, breakout groups, environmental justice, climate change, small scale BMPs, funding for illegal dumping and litter projects.

Virtual December 2021 Roundtable

We received 22 evaluations from the 50 participants, for a response rate of 44%. The most valuable topics discussed at the roundtable were agency updates from TSSWCB, EPA, and TCEQ, working with local County Extension office, hybrid event technology logistics, TWS hybrid information, healthy lawns healthy waters, ability to share information about scheduling statewide water quality programing, status of WPPs and workplans while dealing with the pandemic, and connecting with watershed coordinators around the state. The topics that should have been addressed more in depth included techniques for inclusive stakeholder discussions, an introduction of the people as well as their backgrounds in the virtual room would be helpful for newcomers, and more on feral hog control status in Texas. Suggestions for the next roundtable included more examples on urban watersheds, keep providing agency updates, discuss engaging platforms for virtual/ hybrid meetings, and how can watershed projects align and enhance environmental justice.

Hybrid May 2022 Roundtable:

We received 25 evaluations from the 49 participants, for a response rate of 51%. The topics that attendees found most valuable were collaboration and implementation, agency updates, funding, monitoring, cost share programs for landowners, WPP challenges, stakeholder engagement, BMPs, and networking. Respondents thought the following topics should have been addressed more thoroughly at the roundtable; funding issues, urban implementation strategies, and program engagement. Suggestions for topics at future meetings included: case studies, emerging land use issues (rapid urbanization, utility scale solar, etc.). Additional comments said there was excellent discussion and participants really liked the Slido discussion.

December 2022 Roundtable:

We received 16 evaluations from the 29 participants, for a 55% response rate. The topics that attendees found most valuable were agency updates and hearing from local watershed coordinators about implementing their plans. Respondents thought diving deeper into funding for implementation should have been addressed more thoroughly at the roundtable. Suggestions for topics at future meetings included: more science based talks and implementation highlights.

Roundtable Feedback: April 2020–December 2022

Roundtables	Course Rating (Scale 1-4)	Course Good/Excellent	Info Help (Scale 1-4)	Information that will Help Good/Excellent
April 2020	N/A	N/A	N/A	N/A
Oct. 2020	3.6	97%	3.7	97%
April 2021	3.5	96%	3.5	96%
Dec. 2021	3.6	100%	3.5	91%
May 2022	3.7	100%	3.6	100%
Dec. 2022	3.7	97%	3.6	92%

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Appendix A: Watershed Training Schedule

Workshop	Instructor	Workshop Date	Location	Course Attendees
Short Course	multiple	Sept 27-30, 2021	Bandera	21
Short Course	multiple	Aug. 29 - Sept. 1, 2022	Bandera	27
Roundtable	multiple	4/23/2020	Virtual	86
Roundtable	multiple	10/21/2020	Virtual	73
Roundtable	multiple	4/22/2021	Virtual	65
Roundtable	multiple	12/13/2021	Virtual	50
Roundtable	multiple	5/24/2022	Hybrid College Station	49
Roundtable	multiple	12/13/2022	Round Rock	29
Applied Environmental Stats	Practical Stats	Dec. 9-13, 2019	College Station	36
Intro Modeling Training	Srinivasan	April 15, 2020	Virtual	92
Implementation	multiple	Feb. 21, 2023	College Station	12
Ag BMPs	multiple	March 21, 2023	Thrall	13
Urban BMPs	multiple	Nov. 10, 2022	Dallas	30
Social Marketing Training	Hays	Dec. 1-2, 2020	Virtual	31
Social Marketing Training	Hays	Nov. 11-12, 2021	Virtual	18
Stakeholder Facilitation	MacPherson	Nov. 9-10, 2020	Virtual	31
Stakeholder Facilitation	MacPherson	June 6-7, 2022	Dallas	12

Fundamentals of WQ Monitoring				Canceled

Texas Watershed Planning Short Course

Instructor Biographies: 2022

Michael R. Bira retired from the U.S. Environmental Protection Agency Region 6 in December 2020. Mike graduated from the University of Tampa with a BS degree in Marine Biology/Chemistry. He then earned his MS in Aquatic Biology/Limnology from Southwest Texas State University.

After college, Mike began his professional water career as an Aquatic Biologist/Field Investigator for the Texas Water Commission (now Texas Commission on Environmental Quality), performing inspections, sampling, and enforcement of domestic, municipal, industrial, and agricultural wastewater dischargers, investigating water quality complaints, and coordinating the Commission's North Central Texas surface water monitoring program.

Mike's tenure with USEPA as an Environmental Scientist started in 1988 at Region 6 in Dallas. As a Hazardous Waste Enforcement Coordinator, his duties included inspections of hazardous waste management facilities and coordination of Federal enforcement actions under the Resource Conservation and Recovery Act (RCRA). In 1990 Bira gladly moved to the Water Quality Protection Division to be the Clean Lakes Program Manager, and over the years worked in various programs including the Nonpoint Source Program, water quality standards, nutrient criteria development, and water quality outreach/education.

As Volunteer Water Monitoring Coordinator for the region, Mike has been actively involved with citizen science programs and assisting states and communities with addressing water quality problems through education and application of the watershed protection approach. He has helped conceptualize and develop citizen water quality monitoring programs in all EPA Region 6 states (TX, OK, LA, NM, and AR).

In his role as NPS Program Manager, duties included NPS Program development and management at federal, state, and regional levels, and assistance with federal financial support through state grants for watershed protection/management programs and projects, including citizen science.

Upon retirement, Mike moved to San Marcos, TX with his amazing wife, Kristi. He immensely enjoys fishing, hunting, and shooting, and fishing some more. He has always needed to be near or in water. When he was very young, his mom worried that he might grow gills. In his 30's he finally realized he could never actually be a fish, so he took up hunting. He eats a lot better now.

Thomas E. Davenport is presently an environmental consultant on projects in Vietnam and US. He worked for the U.S. Environmental Protection Agency 1984-2016 and was EPA's National NPS Expert since 1994. He administered the Section 319 National Nonpoint Source Monitoring Program and provided technical and program assistance to the watershed, urban storm water wetlands, lakes, and TMDL and NPS programs nationally.

Davenport received a Bachelor of Science in Forestry and Natural Resource Management from the University of Wisconsin-Stevens Point in 1977 and a Master of Science from the University of Washington in Forest Hydrology in 1981. In 1982, he received a Master of Public Administration from Sangamon State University.

Davenport led the Water Program for the Great Lakes/Baltic Seas Watershed Management Capacity Building Project and was technical manager on the Chile Free Trade Environmental Project, EPA's Alberta Lake Management Program, Venice Lagoons Assistance, and Panama Canal Expansion Training. He served as a resident faculty member and co-designer/manager of the Watershed Partnership Seminar for the Office of Personnel Management. He also worked with Canada on the implementation of the Great Lakes Water Quality Agreement's Annex 4 provisions and provided management and technical assistance to EPA Programs at the regional, national, and international levels.

While at the Illinois Environmental Protection Agency, Davenport assisted in the development and establishment of the State's Watershed, Clean Lakes and Nonpoint Source Programs. His responsibilities included the management of the USDA Rural Clean Water Program's Comprehensive Monitoring and Evaluation Project for Highland Silver Lake and the Blue Creek Special Water Quality Project.

Davenport authored "The Watershed Project Management Guide" and coauthored the urban management measures chapter of the "Coastal Zone NPS Management Guidance". He authored the urban nonpoint source management chapter in the UNESCO publication, "Assessment and Control of Nonpoint Source Pollution of Aquatic Ecosystems/A Practical Guide." and "The Framework for Managing Lakes in the US" chapter in *The Lakes Handbook, Volume 2: Lake Restoration and Rehabilitation*

He previously served on the editorial board of EPA's Nonpoint Source News Notes newsletter and the Center for Watershed Protection's Watershed Protection Techniques Bulletin and was agency advisor to the Conservation Technology Information Center and an associate research editor of the *Journal of Soil and Water Conservation*, as well as editorial board member.

Nikki Dictson received her bachelor's, with a double major in Wildlife Science and Fisheries Science, at New Mexico State University in 1998 and a master's degree in Wildlife and Fisheries Science at Texas A&M University (TAMU) in 2000. Dictson was with Extension in Texas and Alabama for over 16 years, in multiple departments and Water Resources Institutes. Recently started a sole proprietorship in August 2019 and is continuing efforts with the TAMU Texas Water Resources Institute, New Mexico Water Resources Research Institute, as well as ASU Georgia Water Policy and Planning Center and Golden Triangle RC&D. While at Auburn University and the Alabama Water Resources Center, she helped develop a new statewide Alabama Watershed Steward Educational Program and was the coordinator for developing the Pepperell Branch Creek Watershed Management Plan. At TAMU with Texas AgriLife and TWRI, Dictson developed and coordinated the Texas Stream and Riparian Ecosystem Education Program, Urban Stream Restoration Program, and the Texas Watershed Planning Training programs, while also working on watershed planning and TMDL projects. Dictson assisted in coordinating a variety of professional and landowner trainings, as well as roundtables, and presentations across the state. In addition, she assisted with managing the programs websites, listservs, and outreach efforts.

In conjunction with being the president and of the Texas Riparian Association for many years, she helped coordinate many state conferences: Annual Texas Riparian Conferences, Urban Riparian Symposia, and Southwest US Stream Restoration Conferences. She previously spent seven years with TAMU's Soil and Crop Sciences Department, where she was the Coordinator for the Plum Creek Watershed Protection Plan, the first EPA approved plan in Texas, was the coordinator for the Texas Watershed Steward Educational Program and initiated the Geronimo and Alligator Creeks Watershed Protection Plan Project. She has developed rangeland educational publications and the Water for Texans Program, while with the Ecosystem Science and Management Extension Unit. Prior to working with TAMU Extension, she was a Natural Resource Consultant in Seattle, working on a variety of watershed issues with a focus on biological assessments and permitting of major construction projects for endangered species issues with local, state, and federal agencies.

Brian Fontenot currently works in the U.S. Environmental Protection Agency's Region 6 Water Quality Protection Division in Dallas, TX. Brian grew up in Southeast Texas and finished his Bachelor's degree in Wildlife and Fisheries Sciences from Texas A&M University in 2000. He earned a Master's degree in Biology at the University of Texas at Tyler in 2003 and a Ph.D. in Quantitative Biology from the University of Texas at Arlington in 2009. Brian is the Region 6 Nonpoint Source Regional Coordinator and regularly works with the Nonpoint Source Branch at EPA headquarters to participate in workgroups, conduct special research projects, and inform policy decisions for the national NPS program. Brian works with state environmental programs to provide technical assistance, grant program guidance, and watershed-based planning experience to address environmental issues such as excessive sediment, nutrients, and bacteria in our waters with the goal of restoring waters to meet national water quality standards.

Lucas Gregory currently serves as an Associate Director for the Texas Water Resources Institute. He joined the Institute in 2006 and focuses his work on understanding the drivers of changing surface water quality and restoring impaired waters. In this role, he develops effective and efficient research projects and provides stakeholder leadership for developing local plans to restore water quality. He has led planning and restoration efforts in 12 watersheds covering parts of 46 counties resulting in three restoration successes to date. Additionally, he supervises and trains Aggie students working for TWRI and trains volunteers in water quality monitoring techniques for the Texas Stream Team.

Before beginning work at TWRI, Lucas earned his master's degree in water management and hydrological science from Texas A&M University and his bachelor's degree in agricultural systems management. While at Texas A&M, he was also a proud member of the Fighting Texas Aggie Corps of Cadets and an Aggie Bus driver. Lucas earned his doctoral degree in water management and hydrological science from Texas A&M University while working at TWRI. He is currently a member of the American Society of Agricultural and Biological Engineers and is on the Board of Directors for the Universities Council on Water Resources.

Lucas married his wife Meghan in 2006, and they are now raising their three children. He is also an active member of Christ United Methodist Church in College Station and is a member of the Men's Ministry Leadership Team. He is an avid outdoorsman, carpenter, and full-time dad.

Faith Hambleton is the Nonpoint Source Program Team Leader at the Texas Commission on Environmental Quality. She has over 20 years of experience in water resources and managing projects that restore water quality. She received her Master's in Aquatic Biology from the University of North Texas. She is currently the Team Leader for the 319 Nonpoint Source Program, and coordinates grant funding with state partners such as universities, municipalities, non-profits, and government agencies wanting to develop projects that restore and protect waterbodies from pollution.

TJ Helton currently serves as Program Administrator for the Texas State Soil and Water Conservation Board's (TSSWCB) Nonpoint Source Management Program. He has over 15 years of experience in watershed assessment and planning, project implementation, and program management. Established in 1939, TSSWCB administers Texas' soil and water conservation law and delivers coordinated natural resource conservation programs through the State's 216 soil and water conservation districts. TSSWCB is the lead agency for planning, implementing, and managing programs for preventing and abating agricultural and silvicultural nonpoint sources of water pollution. TSSWCB also works to ensure that the State's network of 2,000 flood control dams are protecting lives and property by providing operation, maintenance, and structural repair grants to local government sponsors.

Before beginning work at TSSWCB, TJ earned his master's degree in soil science and his bachelor's degree in agronomy from Texas A&M University.

Tina Hendon has a Bachelor's degree in Biology from Tarleton State University, and over 30 years of experience in water and natural resource protection at the local, regional, and federal levels.

In addition to stints in the private sector, her past positions include Watershed Program Manager with Tarrant Regional Water District, Coordinator in the R6 EPA Water Quality Standards and Nonpoint Source Programs, and Research Associate with the Texas Institute for Applied Environmental Research.

Currently she holds the position of Natural Resources Manager with Ecosystem Planning & Restoration, a small consulting firm based in the Houston area. She is Vice-Chair of the National Watershed Coalition, a member of the USDA-NRCS State Technical Advisory Committee, and a Board member of the Texas Riparian Association.

Brian Koch received his Bachelor of Science Degree in Range and Wildlife Management from Texas A&M University Kingsville in 2003. After a short stint in the commercial nursery business, Brian joined the Texas State Soil and Water Conservation Board in 2005 as the Regional Watershed Coordinator serving TSSWCBs Wharton Regional Office service area covering 47 counties in Southeast and South-Central Texas. As Regional Watershed Coordinator, Brian has aided in the development and implementation of several WPPs and TMDL I-plans, including Plum Creek, Geronimo Creek, Mill Creek, Cedar Bayou, Double Bayou, Bacteria Implementation Group, Mission and Aransas Rivers, and Upper San Antonio River, and is currently assisting and has assisted in development and implementation of several more. Brian also represents the agency on the Coastal Coordination Advisory Council, Galveston Bay Estuary Program, and Coastal Bend Bays and Estuaries Program, and assists with the TSSWCB's Water Quality Management Plan Program.

Ward Ling is a program specialist at Texas Water Resources Institute, assists stakeholders with development and implementation of watershed-based plans. He has worked for the State of Texas for over 30 years as a genetics lab coordinator, fisheries technician, Total Maximum Daily Load project manager, and now at TWRI as a watershed coordinator for various project areas. Ward and his wife reside in College Station, and in his spare time, he enjoys hunting, fishing, working on antique cars, and spending time with his family.

Charlie McPherson is Vice President of corporate communications at Tetra Tech, a global environmental consulting and engineering firm. She is a communications and public outreach specialist who specializes in stakeholder involvement, public outreach support for various environmental programs. In her 37 years of experience, she has worked on the development of stakeholder involvement programs; public outreach-related projects, including supporting the development of *EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters*. She previously worked for the U.S. Environmental Protection Agency as a marine biologist in the Office of Wetlands, Oceans and Watersheds.

Ally Schlandt is the Program and Outreach Specialist for The Meadows Center for Water and the Environment's Watershed Services Division. In this role, she assists Texas Stream Team with program outreach and leading citizen science water quality training sessions. Ms. Schlandt also contributes to the implementation and management of grant funded projects from the Texas Commission on Environmental Quality, Environmental Protection Agency, Texas General Land Office, and co-leads the Meadows Center's Clean Rivers Program monitoring efforts.

The Texas Stream Team, formerly known as Texas Watch, at The Meadows Center for Water and the Environment is a statewide environmental education and volunteer-based water quality monitoring program. Texas Stream Team is specifically housed within the Meadows Center's Watershed Services division. Through Texas Stream Team, citizen scientists are trained to collect and submit surface water and environmental quality data that can then be used to promote and protect the 191,000 miles of Texas waterways. Texas Stream Team brings together community members, students, educators, academic researchers, environmental professionals, and both public and private sector partners to conduct scientific research and promote environmental stewardship.

The mission of Texas Stream Team is to facilitate environmental stewardship by empowering a statewide network of concerned citizen scientists, partners, and institutions in a collaborative effort to promote a healthy and safe environment through environmental education, data collection, and community action.

Appendix C: Watershed Planning Short Course Agenda

Texas Watershed Planning Short Course

August 29 – September 1, 2022

Mayan Conference Center, Bandera, Texas

Monday, August 29, 2022

Facilitator: Lucas Gregory

- 11:00 – 1:00 pm **Registration (Distribute Knowledge Assessment)**
- A pre-course examination will determine the knowledge level of each participant prior to going through the course. The pre-course exam results will be compared to the post-course exam results to assess course impact/knowledge gained.
- 1:00 – 1:30 pm **Welcome & Introductions.....Gregory**
- This session provides (1) the opportunity for participants to introduce themselves and the watersheds they are working in, (2) information on facilities and ground rules, and (3) an overview of course, materials, purpose, and structure.
- 1:30 – 2:15 pm **Texas Riparian and Stream Ecosystems..... Dictson**
- This session will present information on riparian and stream ecosystems, their function, and benefits with a focus on connections between watersheds and riparian systems.
- Watershed Planning Step 1: Partnership Building and Element E**
- 2:15 – 3:15 pm **Working with Stakeholders to Move the Process ForwardMacPherson**
- Stakeholders form the backbone of watershed planning efforts. Learn tips on how to get off on the right foot and keep the energy going throughout your watershed planning and implementation program. Topics include determining who needs to be involved, making meetings count, diffusing conflict, making decisions using a consensus-based approach, and sustaining the stakeholder group.
- 3:15 – 3:45 pm **Break/Room Check-In**
- 3:45 – 4:30 pm **Partnership Building Experiences..... Dictson**
- Experiences in watersheds getting local involvement, announcing meetings, setting up committees and subcommittees, publicizing the effort, examples of what needs to be discussed/decided at meetings, and timelines will be discussed. Sample invitation letters, ground rules, press releases, and other materials will be provided.

- 4:30 – 5:15 pm **Using Outreach to Develop and Implement WPPs.....MacPherson**
- Outreach is a powerful tool to get stakeholders involved early in the planning process, promote behavior change, and enhance watershed management implementation. Learn tips and tools to conduct effective outreach without breaking the bank.
- 5:15 – 5:45 pm **The Good, The Bad, and the UglyMacPherson**
- Participants will learn methods to improve outreach materials and critique samples to determine their effectiveness in reaching and communicating with the audience.
- 5:45 – 6:00 pm **Expectations for Element E and Facilitated Q&A..... Dictson**
- Expectations for Element E will be reviewed and discussed to provide participants with an understanding of the information & education components of WPPs.
Answer participant questions from cards.

Tuesday, August 30, 2022

Facilitator: Nikki Dictson

- 7:30 – 7:55 am **Breakfast**
- 8:00 – 8:10 am **Facilitator intro for the day’s topics and Q&A from cards**

Watershed Planning Step 2: Watershed Characterization and Elements A: Causes and Sources and Element B: Estimating pollutant loadings and needed load reductions

- 8:10 – 9:15 am **Gathering data to assess your watershed..... Dictson**
- What data do you need? Where do you find the data? How do you get info from TCEQ and other agencies? This session will examine (1) materials from Chapters 5-6 of the *Handbook*; (2) how GIS may be used for watershed analysis, source identification and watershed characterization; and (3) sources of data in Texas and how best to obtain it, including gathering animal density data
- 9:15 – 10:00 am **Wastewater Treatment SystemsGregory**
- This session briefly reviews wastewater treatment systems (WWTFs and OSSFs), their impacts, and effectiveness in removing pollutants in addition to identifying and addressing wastewater treatment system issues in your watershed. This session will also discuss an approach to estimating on-site sewage facility (OSSF) numbers and locations in watersheds.

10:00 – 10:15 am **Expectations for Element A Fontenot**

Expectations for and an example of Element A will be reviewed and discussed to provide participants an understanding of what is necessary to identify causes and sources of water quality impairments and concerns.

10:15 – 10:30 am **Break**

Watershed Planning Step 3: Set Goals and Identify Solutions, Elements B and C

10:30 – 11:15 am **Analyzing Data to Characterize Your Watershed.....Davenport**

How do you analyze your data? What tools are available? Is modeling needed? This session will review Chapters 7 and 8.1-8.2 of the *Handbook* to provide participants an understanding of the methods/options available for analyzing watershed data and estimating pollutant loads. Simplistic methods for calculating loads and assessing sources will be presented. The session will also examine refining goals, identifying management objectives, and determining load reductions needed (Chapter 9 of the *Handbook*).

11:15 – 11:45 am **Overview of Models for Estimating Pollutant Loads & Reductions...Gregory**

If modeling is needed, what models are available and how do you select a model? This session will provide an overview of models available, expectations for what each model can deliver, costs, and factors to consider when selecting models.

12:00 – 1:00 pm **Lunch**

1:00 – 1:40 pm **Introduction to Load Duration Curves (LDC)Gregory**

Overview of LDCs and their utility in watershed planning and pollutant reduction goal setting.

1:40 – 2:00 pm **Expectations for Element BHendon**

Expectations for Element B will be reviewed and discussed to provide participants with an understanding of the level of detail and effort needed to determine ‘acceptable’ pollutant loadings, and whether load reductions are needed to reach acceptable levels.

2:00 – 3:00 pm **Urban NPS MeasuresDavenport**

This session will provide an overview of (1) urban NPS measures, (2) how to develop a preliminary list of urban BMPs to address the issues of concern, (3)

finding information on the effectiveness of urban BMPs, (4) estimating BMP implementation costs; and (5) stormwater permitting.

3:00 – 3:30 pm

Break

3:30 – 4:00 pm

Other Common Measures (Wildlife, Pets, etc.).....Hendon

Brief overview of other management measures commonly found in a WPP to address ‘other’ sources of pollution in a watershed.

4:00 – 4:30 pm

Agricultural NPS Measures Helton/Koch

Agricultural nonpoint source measures in Texas are typically implemented through SWCDs, TSSWCB, and NRCS. This session discusses (1) agricultural BMPs, (2) how to develop a preliminary list of agricultural BMPs to address the issues of concern, (3) finding information on the effectiveness of agricultural BMPs, and (4) estimating BMP implementation costs.

4:30 – 5:30 pm

Targeting Critical Areas Davenport

To achieve the most effective and immediate benefit, BMP implementation must be targeted to the most critical areas. This session discusses targeting management measures and the importance of it in the ultimate success of the WPP.

5:30 – 5:45 pm

Brief note card Q&A time

6:00 pm

Dinner

7:00 pm

Roundtable – Why Watershed Planning is important?

EPA – Brian Fontenot / Jim Drake / Rachel Renz

TSSWCB – TJ Helton / Brian Koch

TCEQ – Faith Hambleton

EPA Retired/Former – Mike Bira / Tom Davenport / Tina Hendon

Wednesday, August 31, 2022

Facilitator: Lucas Gregory

7:30 – 7:55 am	Breakfast
8:00 – 8:45 am	Estimating Load Reductions from BMPs and AssignmentGregory Overview of common approaches to estimate potential load reductions from planned management measures. Group exercise estimating hypothetical load reductions.
8:45 – 9:00 am	Overview & Discussion of Assignment 1 on Load Calculations..... Gregory
9:00 – 9:30 am	Overview and Expectations for Element C Fontenot This session will provide a discussion of expectations for Element C as well as steps to select management practices.
9:30 – 10:00 am	Watershed Resources and Tools AvailableDictson Presentation provides an overview of watershed resources and tools available, kiosks, online modules, web apps, and TWRI’s watershed planning website.
10:00 – 10:30 am	Break
Watershed Planning Step 4: Design Implementation Program; Element D: Estimate of Technical and Financial Assistance, Elements F, G, H	
10:30 – 10:45 pm	Expectations for Element D..... Fontenot This session will discuss expectations for Element D, which describes the financial and technical assistance needs and identifies the sources/authorities that will be relied on for implementation (Chapter 12.7 of the <i>Handbook</i>).
10:45 – 11:05 am	Overview of Sustainability & ESG goals to attract funding.....Hendon This talk focuses on how WPPs can address corporate sustainability, environmental, social and governance goals within their contents to better align with potential funding sources.
11:05 – 12:00 pm	Implementation Costs and Sources of Funding.....Ling This session will discuss sources of funding in Texas for implementing WPPs along with match requirements and the mechanisms for requesting it.
12:00 – 1:00 pm	Lunch
1:00 – 1:30 pm	Scheduling Management Measure Implementation.....Ling This session provides guidance and lessons learned for scheduling management measure implementation.

1:30 – 1:45 pm	<p>Hayride Transportation to River for Outdoor Presentations</p> <p><i>Please note: This is a light field exercise at the Medina River. Appropriate field attire for expected weather is recommended.</i></p>
1:45 – 2:00 pm	<p>Designing & Implementing Effectiveness Monitoring – Element I Gregory</p> <p>This session will provide brief guidance on monitoring considerations and selecting an appropriate experimental design that incorporates previous and ongoing monitoring efforts. Full slides are in the workshop folder.</p>
2:00 – 3:30 pm	<p>Water Quality Monitoring: Element I</p> <p>Practical Guidelines & Lessons Learned TWRI/Schlandt/Bira</p> <p>An overview of the how to use automated samplers, multi-probes, flow meters, and Texas Stream Team volunteer monitoring will be provided. Discussion about why water quality matters.</p> <p><i>*Sessions are 45 minutes each; class will split between the sessions</i></p>
3:30-3:45 pm	<p>Hayride Transportation to Return from Outdoor Presentations</p>
3:45 – 4:15 pm	<p>Expectations for Elements F, G, & H Dictson/Gregory</p> <p>The expectations for Element F, G, and H will be reviewed to provide insight on the level of detail and effort needed to schedule implementation, describe interim milestones, and establish criteria to determine if load reductions are achieved.</p>
4:15 – 5:30 pm	<p>Developing Interim Milestones & Criteria to Measure Progress.... Davenport</p> <p>This session will discuss developing interim measurable milestones (Element G) and establishing a set of criteria to measure progress (Element H) toward meeting water quality goals (Chapter 12.4-12.5 of the <i>Handbook</i>). This is the point in the WPP where you define in realistic terms how you will determine (1) if you are on track and making progress or not, (2) how/when you evaluate your progress, and (3) what to do if watershed improvements are not on track.</p>
6:00 pm	<p>Dinner</p>
7:30 – 8:30 pm	<p>Optional: In Depth Demonstration of LDC Development.....Gregory</p> <p>This demo will guide you step by step through the process to develop an LDC using LOADEST and MS Excel showing formulas, calculations, and tips and tricks for visualizing data. This process starts with raw data and produces a completed LDC.</p>

Let Lucas know if you would like further instruction on developing LDCs before we break for dinner.

Thursday, September 1, 2022

Facilitator: Nikki Dictson

- 7:30 – 7:55 am **Breakfast**
- 8:00 – 8:15 am **Facilitator intro for the day’s topics and Q&A from cards**
- 8:15 – 8:45 am **The Do’s & Don’ts of Presentations.....Ling**
- This session will discuss tips and tricks on how to give an effective presentation and provide some examples on what to avoid when giving presentations
- 8:45 – 9:45 am **Assignment 2: Consistency Review of Elements F, G, and H & Discussion**

Watershed Planning Step 5: Implement Plan and Step 6: Measure Progress and Adjust

- 9:45 – 10:15 am **Putting it All Together, Implementation, and Next Steps.....Dictson**
- This session will discuss assembling a WPP, gaining stakeholder approval, submitting the WPP for state and federal review, developing an evaluation framework and devising a method for tracking progress as described in Chapter 12.8-12.11 of the *Handbook*.
- 10:15 – 10:30 am **Break**
- 10:30 – 11:00 am **Implementing Your WPP – Case StudyLing**
- This session will focus on Geronimo & Alligator Creeks watershed protection plan implementation efforts. Topics include implementation strategies, adaptive management, and approaches to addressing long-term sustainability of your WPP (i.e., grant writing, developing 501(c)(3), merging/collaborating with existing organizations and creating community level commitment).
- 11:00 – 11:30 am **Benefits of the WPP Process..... Fontenot**
- State of science of watershed planning with my perspectives on common issues that we see as EPA WBP reviewers as well as good examples and best practices.
- 11:30 – 11:45 am **Short Course Wrap Up.....Gregory**
- Overview of the Texas Watershed Planning Short Course Program, Watershed Planning Listserv, and available training resources for watershed planners and managers.
- 11:45 – 12:00 pm **Knowledge Assessment/Course Evaluation**

A post-course examination will be distributed to determine course impact and knowledge gained. A course evaluation will also be distributed to gain feedback on how to improve the course.

12:00 pm

Adjourn, Check Out, and Lunch

Certificates will be distributed as the class turns in their post-course exam and course evaluations. Lunch is available prior to heading home.

Appendix D: Watershed Planning Short Course Evaluation

Texas Watershed Planning Short Course Evaluation August 29 – September 1, 2022

Name _____

1. Overall, how would you rate the short course?

Unsatisfactory

Most Satisfactory

1

2

3

4

5

2. Using the scale above, how **satisfied** were you with each of the course topics below?

TOPICS	<u>Level of Satisfaction</u>				
MONDAY					
Welcome & Introduction (<i>Gregory</i>)	1	2	3	4	5
Texas Riparian and Stream Ecosystems (<i>Dictson</i>)	1	2	3	4	5
Working with Stakeholders to Move the Process Forward (<i>MacPherson</i>)	1	2	3	4	5
Partnership Building Experiences (<i>Dictson</i>)	1	2	3	4	5
Using Outreach to Develop and Implement WPPs (<i>MacPherson</i>)	1	2	3	4	5
The Good, The Bad, and the Ugly (<i>MacPherson</i>)	1	2	3	4	5
Expectations for Element E (<i>Dictson</i>)	1	2	3	4	5
TUESDAY					
Gathering Data to Assess Your Watershed (<i>Dictson</i>)	1	2	3	4	5
Wastewater Treatment Systems (<i>Gregory</i>)	1	2	3	4	5
Expectations for Element A (<i>Fontenot</i>)	1	2	3	4	5
Analyzing Data to Characterize your Watershed (<i>Davenport</i>)	1	2	3	4	5
Overview of Models for Estimating Pollutant Loads & Reductions (<i>Gregory</i>)	1	2	3	4	5
Introduction to Load Duration Curves (<i>Gregory</i>)	1	2	3	4	5

TOPICS	<u>Level of Satisfaction</u>				
Expectations for Element B (<i>Hendon</i>)	1	2	3	4	5
Urban NPS Measures (<i>Davenport</i>)	1	2	3	4	5
Other Common Measures (Wildlife, Pets, etc.) (<i>Hendon</i>)	1	2	3	4	5
Agricultural NPS Measures (<i>Helton/Koch</i>)	1	2	3	4	5
Targeting Critical Areas (<i>Davenport</i>)	1	2	3	4	5
Roundtable – Why Watershed Planning is Important (<i>Panel</i>)	1	2	3	4	5
WEDNESDAY					
Estimating Load Reductions from BMPs (<i>Gregory</i>)	1	2	3	4	5
Overview and Expectations for Element C (<i>Fontenot</i>)	1	2	3	4	5
Watershed Resources and Tools Available (<i>Dictson</i>)	1	2	3	4	5
Expectations for Element D (<i>Fontenot</i>)	1	2	3	4	5
Overview of Sustainability and ESG Goals (<i>Hendon</i>)	1	2	3	4	5
Implementation Costs and Sources of Funding (<i>Ling</i>)	1	2	3	4	5
Scheduling Management Measure Implementation (<i>Ling</i>)	1	2	3	4	5
Designing & Implementing Effectiveness Monitoring – Element I (<i>Gregory</i>)	1	2	3	4	5
Water Quality Monitoring (<i>Gregory/Schlandt/Bira</i>)	1	2	3	4	5
Expectations for Elements F, G, and H (<i>Dictson/Gregory</i>)	1	2	3	4	5
Developing Interim Milestones & Criteria to Measure Progress (<i>Davenport</i>)	1	2	3	4	5
<i>Optional:</i> In Depth LDC Development Demonstration (<i>Gregory</i>)	1	2	3	4	5
THURSDAY					
The Do's & Don'ts of Presentation (<i>Ling</i>)	1	2	3	4	5
Putting it All Together, Implementation and Next Steps (<i>Dictson</i>)	1	2	3	4	5
Implementing Your WPP – Case Study (<i>Ling</i>)	1	2	3	4	5
Benefits of the WPP Process (<i>Fontenot</i>)	1	2	3	4	5
<i>Short Course Wrap Up</i> (<i>Gregory</i>)	1	2	3	4	5

7. What topic(s), if any, should be omitted from future short courses?

8. Overall how satisfied were you with the following aspects of the course (please check one of the boxes below):

	Completely	Mostly	Somewhat	Slightly	Not at all
Quality of Course Materials					
Sequencing of Topics					
Training Location and Facility					

9. What will be the first 3 steps you'll implement as a result of taking this training?

Appendix E: Agendas for Roundtables and Trainings



**April 22, 2021 | 9:00 a.m. – 12:00 p.m.
Virtual Roundtable**

- 9:00 a.m. Event Sign In Online**

- 9:10 a.m. Welcome, Introductions and Round Table Overview**
Dr. Lucas Gregory, TWRI

- 9:20 a.m. Federal and State Agency Updates**
- Continued COVID-19 Implications to Programs and Contracts

- 9:30 a.m. Program Highlight: Texas Riparian & Stream Ecosystems and Urban Stream Processes & Restoration Educational Programs Response to COVID-19**
Clare Escamilla and Nathan Glavy, TWRI

- 10:30 a.m. Discussion and Breakout Rooms: Programming Response to COVID-19**
-

- 11:55 a.m. Wrap-Up & Program Evaluation**
Nathan Glavy, TWRI
 - Next Roundtable – October 2021 –TBD

The Texas Watershed Planning Program is managed by the [Texas Water Resources Institute](#) and is funded through a Clean Water Act Section 319(h) nonpoint source grant provided by the Texas State Soil and Water Conservation Board and U.S. Environmental Protection Agency.



**December 13, 2021 | 9:00 a.m. – 12:00 p.m.
Virtual Roundtable**

- 9:00 a.m. Event Sign In Online**
- 9:10 a.m. Welcome, Introductions and Round Table Overview**
Dr. Lucas Gregory, TWRI
- 9:20 a.m. Federal and State Agency Updates**
-Continued COVID-19 Implications to Programs and Contracts
- 9:30 a.m. AgriLife Panel: Continued Engagement with Stakeholders in Response to COVID-19.**
-Brent Bachelor, Regional Program Leader, Texas A&M AgriLife Extension
- Whitney Ingram, County Extension Agent, Texas A&M AgriLife Extension
- 10:30 a.m. Breakout Rooms: Programming Response to Stakeholder Engagement**
- 10:50 a.m. Program Spotlight: Hybrid Events- Successes & Challenges**
-Michael Kuitu, Texas A&M AgriLife Extension
- 11:10 a.m. Texas A&M AgriLife Water Education Program Updates**
- 11:50 a.m. Wrap-Up & Program Evaluation**
Nathan Glavy, TWRI
- Next Roundtable – April 2022 –TBD

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Texas Watershed Coordinator Roundtable - Agenda

May 24, 2022 | 9:00 a.m. – 3:00 p.m.
TAMU Equine Center – College Station, TX

8:30 a.m. Event Sign In

9:00 a.m. Welcome, Introductions and Round Table Overview
Lucas Gregory, TWRI

9:05 a.m. Extended Attendee Introductions
Reintroduce Yourself to the Crowd...Its been a While!

9:30 a.m. Federal and State Agency Updates Plus Q&A Session
- EPA, TCEQ & TSSWCB Program Updates

10:15 a.m. Networking Break

10:45 a.m. Agency Program Presentations & Panel
- Mason Miller – TCEQ Source Water Protection Program
- Tim Siegmund – TPWD Private Lands Program
- Jason Pinchback – GLO – Clean Coast Texas
o Presenter Q&A Session

12:30 p.m. Networking Lunch Break

1:30 p.m. Interactive Watershed Coordinator Session
- On the Fly Watershed Coordinator Feedback
- Facilitated Discussion Regarding Feedback Received

2:45 p.m. Wrap-Up & Program Evaluation
Lucas Gregory, TWRI
- Next Roundtable – November 2022 – Location TBD

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Texas Watershed Coordinator Roundtable - Agenda

December 13, 2022 | 9:00 a.m. – 3:00 p.m.

Jester Annex Bldg. 1801 E. Old Settlers Blvd., Round Rock, TX

9:00 a.m. Event Sign In

9:30 a.m. Welcome, Introductions and Round Table Overview
Lucas Gregory, TWRI

9:40 a.m. Urban Agriculture Resources

- Technical and Financial Assistance for Urban Agriculture
 - o Kyle Wright, USDA NRCS State Water Quality Specialist

10:15 a.m. Networking Break

10:45 a.m. Integrating Urban Forestry Projects into Watershed Plans

- Texas A&M Forest Service
 - o Julia Schmidt, Water Resources Forester

11:20 a.m. Federal and State Agency Updates Plus Q&A Session

- EPA, [TCEQ](#) & TSSWCB Program Updates

12:00 p.m. Networking Lunch Break

1:00 p.m. Stormwater Management in Urban Settings

- MS4 Program Integration with Watershed Planning
 - o Grayson Roberts, City of Round Rock MS4 Coordinator
- Implementing Blue-Green Infrastructure
 - o Matthew Boger, City of Austin

2:45 p.m. Wrap-Up & Program Evaluation
Lucas Gregory, TWRI

- Next Roundtable – May 2023 – Location TBD

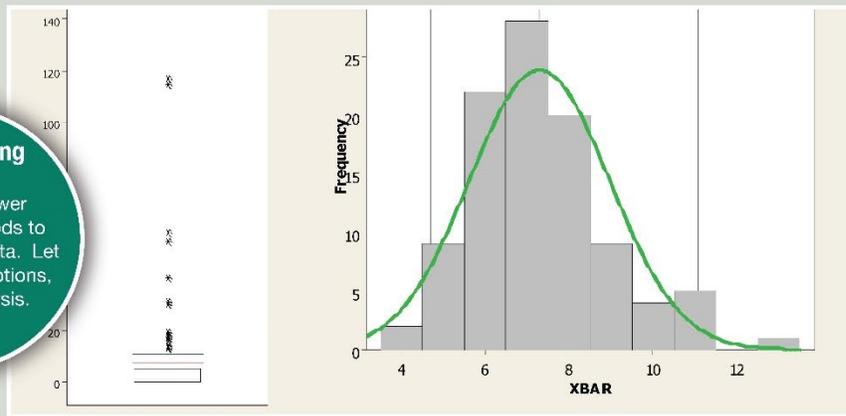
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Bootstrapping

One of the newer statistical methods to analyze messy data. Let data, not assumptions, drive the analysis.



Applied Environmental Statistics

Statistics, down to earth

This 4.5 day course develops hands-on expertise for all environmental scientists who interpret data and present their findings to others. A complete understanding of how statistical methods work unfolds through applications to field-oriented problems in water quality, air quality, and bio contaminants. Statistical methods are explained in the light of data with nondetects, outliers, and skewed distributions. Methods for estimation and prediction are illustrated along with their common pitfalls. Emphases include nonparametric methods, including permutation tests and bootstrapping.

Course Content:

- Trend analysis -- is it getting better or worse?
- Confidence, prediction, tolerance & equivalence intervals.
- How hypothesis tests work.
- Parametric, nonparametric and permutation tests. When to use which.
- How to build a good regression equation.
- Dealing with outliers.
- When are transformations OK?
- How many samples do I need?
- and more.



Interactive and relevant

Student exercises follow each lecture to ensure that when you return to the office, so does your new knowledge

www.practicalstats.com/training/aes/

= Practical Stats

Applied Environmental Statistics

Course Outline

DAY 1

Describing Data in a Group

When to use a median vs a mean
Dealing with skewed, non-normal data
Dealing with outliers
When to transform the scale
Seven urban legends in env. statistics

How Hypothesis Tests Work

Their common denominators
Their jargon explained
1-sided and 2-sided tests
Parametric, nonparametric and permutation tests

Statistical intervals

Confidence, prediction, tolerance intervals
Coping with skewed data
Intervals for small data sets
Bootstrap intervals — better than t-intervals

DAY 2

Comparing Two Groups of Data

Are means, medians different?
Parametric, nonparametric and permutation tests
Have standards been met?
Testing paired data
Permutation tests - test the mean of non-normal data

How many observations do I need? *[if there's time]*

Weaknesses of standard formulae
Interactions between variation, power, and dollars
Software available

Comparing Three or More Groups

One- and two-factor ANOVA
Nonparametric Kruskal-Wallis test
Multiple comparison tests: who's different?
Permutation tests - testing means for non-normal data

Testing differences in Variability/Precision

Characterizing differences in variability
Levene's & Fligner-Killeen tests
Why NOT to use Bartlett's test

DAY 3

Correlation

Linear and monotonic correlation
r, rho and tau
Permutation test for Pearson's r
The Theil-Sen line: a linear median

Linear Regression

Building a good regression model
Measures of quality better than r-squared
Hypothesis tests, confidence and prediction intervals
Consequences of transforming the Y variable
Bootstrapping tests for significance

Multiple Regression

How to build a good multiple regression model
Why plots of Y vs X don't work, and what to do instead
Dealing with multi-collinearity
Model selection methods better than stepwise
Bootstrapping tests for significance, not transforming

Which test to use?

Get the answer from the guide on our website.

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Applied Environmental Statistics

Course Outline

DAY 4

Analysis of Covariance

- Do two lines differ?
- Modeling seasonal changes
- Testing differences in slope and intercept

Trend Analysis

- Selecting a trend test
- Regression vs. Mann-Kendall approaches
- Monotonic and step trends
- Dealing with seasonality: the Seasonal Kendall test
- Detecting consistent regional trends
- R routines for trend testgin

Final Exam

Download the free course textbook [Statistical Methods in Water Resources](#). Published by the US Geological Survey in 2002, it can be downloaded from the course page at: <http://practicalstats.com/training/aes/>

DAY 5

Handling Nondetect Data Correctly

- Why not substitute 1/2 the detection limit?
- Simple methods without substitution
- Introduction to survival analysis methods

Contingency Tables

- Does the frequency change between groups?
- Application to nondetect and other categories
- Bootstrapping contingency tables

Logistic Regression

- Regression for categorical responses
- Effect of X variables on the odds
- Modeling nondetects, qualitative methods, more
- Multicollinearity and hypothesis tests

The Digital Now for Natural Resource Professionals: Online in the 21st Century

Online is now firmly front and center for most of our organizations and agencies. If you've been battling the ramifications, or embracing them, you may still have some questions about how natural resources can compete better with other online content. Things have changed dramatically in design, writing standards and searchability. In addition, smart devices have outsold desktops significantly in the last 10 years. What does that mean to those in outreach and education? It means we have to continue to grow our expertise in learning how to connect the consumer to the important information we provide. We need to understand how content is found, how conversations and learning networks start, how to be discovered and what constitutes quality outreach. We have to know where to post, when to post and what to build on our websites. We have to learn how to reach our traditional clients as well as new clients. There are many successful models that can be used and applied in natural resource outreach and education that can help us down the road of discoverability.



Location: Online Delivery
Link to the event will be sent to registered attendees the week of the event.

Trainer: Amy E. Hays
www.linkedin.com/in/amyehays/

Nov. 11th, 2021: 10 AM-4 PM   

Digital Learning Strategies – There's no faster way to the bottom of the online learning world than to be online without a strategy designed for learners. Many organizations put the test of success at being content to be "just online." Digging deeper, most of us want to be able to have either impact or influence in our outreach and not just count the number of hits or likes. This day is dedicated to understanding how natural resource information is (or could be) consumed online using a learner-based approach. What happens when you shift your mindset from marketing to learning? From information to knowledge? From connecting to engaging? The 21st century isn't about being online; it's about being online well. To do that, we will look at learner differences, how online learning can be enhanced, how simple messaging can turn into engagement, and how generational intelligence helps us pick the right tools, tones, and messages to reach broad audiences.

Nov. 12th, 2021: 8:30 AM-12:30 PM

Getting Found with all the Noise – We will look at some of the best platforms for natural resource professionals to form a presence in and some of the biggest platforms to learn how writing changes between them and making the most out of your content. How do you get found with so many competing voices? We'll go through various exercises to help you build good content. We will look at some additional graphics and analysis tools to help you refine your reach. Learn some quick tricks and tips to get you down the road.

Register for event updates at:
<https://twri.tamu.edu/our-events/>

\$50 Registration fee includes course materials and completion certificate

Finding Success for Science through Social Media – Tips, Tools, and Tactics for Natural Resource Professionals

The Web is almost 30 years old from the first design by Tim Berners-Lee to what we know today in 2017. Things have changed dramatically in design, writing standards, and search ability. In addition, smart devices have outsold desktops significantly in the last 5 years. What does that mean to those in outreach and education? It means we have to continue to grow our expertise in learning how to connect the consumer to the important information we provide. We need to understand how content is found, how conversations and learning networks start, how to be discovered, and what constitutes quality outreach. We have to know where to post, when to post, and what to build on our websites. We have to learn how to reach our traditional clients as well as new clients. There are many successful models that can be used and applied in natural resource outreach and education that can help us down the road of discoverability.

Location:

Upper Trinity Regional Water District
900 North Kealy Street, Lewisville, TX, 75067

Trainer: Amy E. Hays

www.linkedin.com/in/amyehays/

November 6th: 1 PM-4 PM    

Finding your Tribe – this half day is designed to help you figure out who is using what platforms and why. One of the most common mis-steps in your social media plan is working on the wrong platforms for your goals. Find out what research and user-data tells you about where to put your resources and efforts. We will do some hands-on learning to discover where your tribe is and how your message can reach them. We will look at some of the new platforms as well as your materials and you want to use them. We will cover accounts, designing strategies, learning best practices, analyzing outreach and planning schedules.

NO LUNCH

November 7th: 8:30 AM-3:30 PM

Getting Found With All the Noise— We will look at Facebook, Instagram, Pinterest and some of the biggest platforms to learn how writing changes between them and making the most out of your content. How do you get found with so many competing voices? We'll go through various exercises to help you build good content. We will look at some additional graphics and analysis tools to help you refine your reach. Learn some quick tricks and tips to get you down the road.

LUNCH PROVIDED

Register online: <http://naturalresourcestraining.tamu.edu/>

\$100 Registration fee includes breaks, course materials and completion certificate

Please Bring your own device for this workshop!

Funding provided through a federal Clean Water Act §319(h) Nonpoint Source Grant administered by the Texas State Soil and Water Conservation Board from the U.S. Environmental Protection Agency

Stakeholder Facilitation - Working with Stakeholders to Move the Process Forward

November 9: 1–4 p.m.

Introductions, course objectives and expectations

Part 1: Setting Up for Success

- Stakeholder engagement in a virtual environment
 - Adapting to online platforms
 - Making the most of Virtual Meetings
- Understanding stakeholder perspectives
 - Context/driving forces
 - Stakeholder analysis
- Roles and responsibilities
- Organizational structures
- Decision-making methods

Part 2: Getting Stakeholders to the Table

- Concerns/needs
- Matching needs to goals
- Encouraging participation

November 10: 8:30 a.m.–12 p.m.

Part 3: Facilitation 101

- Elements of effective meetings (online and in-person)
- Making decisions
- Building an agreement
- Diffusing/resolving conflict

Part 4: Keeping the Ball Rolling

- Motivating existing members
- Bringing in new members

Adjourn

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AGENDA

Virtual Training

November 9, 2020

1-4 p.m.

November 10, 2020

8:30 a.m.-12 p.m.

...

Stakeholder Facilitation - Working with Stakeholders to Move the Process Forward

Introductions, course objectives and expectations

Day One: June 6, 1- 4 pm

Part 1: Setting Up for Success

- Stakeholder engagement in a virtual environment
 - Adapting to online platforms
 - Making the most of Virtual Meetings
- Understanding Stakeholder perspectives
 - Context/driving forces
 - Stakeholder Analysis
- Roles and responsibilities
- Organizational structures
- Decision-making methods

Part 2: Getting Stakeholders to the Table

- Concerns/needs
- Matching needs to goals
- Encouraging participation

Day Two: June 7: 8:30 a.m.-12 p.m.

Part 3: Facilitation 101

- Elements of effective meetings (online & in-person)
- Making decisions
- Building an agreement
- Diffusing/resolving conflict

Part 4: Keeping the Ball Rolling

- Motivating existing members
- Bringing in new members

Adjourn

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AGENDA

Dallas
Texas A&M
AgriLife - Dallas
Center

June 6, 2022

1 – 4:00 PM

June 7, 2022

8:30 a.m. – 12 pm

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Implementing Watershed Protection Plans Training

Texas A&M Forest Service Headquarters, Room 1105B

College Station – February 21, 2023

Agenda

Tuesday, February 21

10 a.m. to 4 p.m.

- 10:00 a.m. **Introductions and Overview of Implementing Watershed Plans**Lucas Gregory
Provide participants with an introduction to implementing watershed plans. Participants will gain a broad understanding of how to implement WPPs and why tracking is important.
- 10:30 a.m. **Completed Your Plan, Now What?**Nikki Dictson
This session will discuss advertising approved plan to the public, approaches to addressing long-term sustainability of WPPs, and developing an evaluation framework.
- 11:00 a.m. **Implementing Watershed Protection in Geronimo and Alligator Creeks**.....Ward Ling
This presentation will discuss working with local partners to acquire implementation grants, keeping stakeholders engaged, as well as implementing outreach and BMPs programs in Geronimo and Alligator Creeks Watershed.
- 12:00 p.m. **Lunch** (*catered lunch or bring your own*)
- 1:00 p.m. **Implementing Watershed Plans to Protect Drinking Water in North Texas**.....Aaron Hoff
This presentation will discuss working with local partners on watershed planning and land stewardship, implementing outreach and BMPs programs, tracking and evaluating implementation in North Texas watersheds to protect drinking water.
- 2:00 pm **Tracking WPP Implementation**.....Nikki Dictson
This session will focus on Watershed Protection Plan implementation efforts built upon the stakeholder partnerships established during the WPP development process. Case Study examples of implementation strategies, tracking implementation, evaluating progress, and adaptive management.
- 2:30 p.m. **Break**
- 2:45 pm **Implementation Costs and Sources of Funding**Lucas Gregory
This session will discuss the process of funding WPP implementation, project plan development, budgeting, lessons learned, potential sources for implementation funding, how to find funding sources, matching funds requirements and the mechanisms for requesting it.
- 3:45-4 p.m. **Wrap Up and Evaluations**.....Lucas Gregory

The Texas Watershed Planning education program is managed by the [Texas Water Resources Institute](#), part of [Texas A&M AgriLife Research](#), [AgriLife Extension](#) and College of Agriculture at [Texas A&M University](#). The training course is supported by funding through a federal Clean Water Act Section 319(h) Nonpoint Source Grant administered by the Texas State Soil and Water Conservation Board from the Environmental Protection Agency.



Agricultural BMPs for Watershed Planning
Fireman's Hall 214 Main St., Thrall, TX
March 21, 2023

- 8:30 Meeting Registration
- 9:00 Introductions, Overview and Role in Watershed Planning
- Lucas Gregory, Texas Water Resources Institute
- 10:00 Break
- 10:15 Planning and Implementing BMPs for Water Quality
- Kyle Wright, USDA Natural Resource Conservation Service
- 11:15 Agricultural NPS Programs – The Conservation Connection
- Brian Koch, Texas State Soil and Water Conservation Board
- 11:45 Catered Lunch Provided
- 12:45 Relocate to Stiles Farm – Address and QR code for map
- 1:00 Tour the Texas A&M AgriLife Extension Stiles Farm Foundation
- Ryan Collett, Stiles Farm Manager
- 2:00 Landowner Process for Securing Technical Assistance
- Audrey McCrary, Texas Water Resources Institute
- 3:45 Course Evaluation
- 4:00 Wrap up and Head Home!

Field Tour Address: Stiles Farm Foundation
5700 FM 1063
Thrall, TX 76578



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Urban BMPs for Watershed Planning Training

Dallas AgriLife Center, Water Education Building

November 10, 2022

9:00 a.m.	Introductions, Overview and Role in Watershed Planning Lucas Gregory, TWRI <i>Provide participants with an introduction to how Urban BMPs fit into WPPs.</i>
9:30 a.m.	Urban NPS Measures Overview and Considerations Lucas Gregory, TWRI <i>This presentation provides a broad overview of typical Urban Best Management Practices and Considerations for their Implementation.</i>
10:00 a.m.	Break
10:15 a.m.	Low Impact Development and Green Infrastructure Fouad Jaber, TAMU <i>This presentation will cover why stormwater is a concern; Urban BMPs: rain gardens, detention pond, porous pavements, green roofs, and rainwater harvesting; modeling study on high density development; and modeling LID effects of practices on stream health.</i>
12:15 p.m.	Lunch
1:00 p.m.	City of Plano Environmental Quality Division Roles & Responsibilities Keith White, Plano <i>This presentation will cover city Environmental Division Roles & Responsibilities and how cities use ordinances and encourage implementation.</i>
1:45 p.m.	Multifunctional Stormwater Management with Green Infrastructure .Anthony Kendrick, EcoServices <i>This presentation will cover getting developer buy-in; why LID; and examples of multifunctional design; and maintenance.</i>
2:30 p.m.	Break
2:45 p.m.	Tour of LID and Green Infrastructure Dallas AgriLife Center
4:00 p.m.	Evaluation and Wrap Up Lucas Gregory, TWRI



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