Texas Watershed Planning Short Course

Final Report

Texas Water Resources Institute Technical Report-390

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

Funding provided by the US Environmental Protection Agency through the Texas Commission on Environmental Quality

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Texas Watershed Planning Short Course Final Report

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Prepared for
Texas Commission on Environmental Quality

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Texas Water Resources Institute
make every drop count

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Executive Summary

Proper training of watershed coordinators and water professionals is needed to ensure that watershed protection efforts are adequately planned, coordinated and implemented. To provide this training, the Texas Watershed Planning Short Course was developed through a coordinated effort led by the Texas Water Resources Institute and funded by the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality.

The Texas Water Resources Institute partnered with the Texas AgriLife Extension Service, Texas AgriLife Research, Texas State Soil and Water Conservation Board, Texas Commission on Environmental Quality, U.S. Environmental Protection Agency, Texas State University-River Systems Institute and the Texas Institute for Applied Environmental Research to develop and conduct this short course.

Since 2008, four week-long Watershed Planning Short Courses have been hosted, providing training to over 160 watershed professionals on sustainable proactive approaches to managing water quality throughout the state. The Watershed Planning Short Course provides guidance on stakeholder coordination, education, and outreach; meeting the U.S. Environmental Protection Agency's nine key elements of a watershed protection plan; data collection and analysis; and the tools available for plan development.

Along with the Watershed Planning Short Courses, water professionals were invited to attend Texas Watershed Coordinator Roundtables, held biannually, to (1) provide a forum for establishing and maintaining dialogue between watershed coordinators, (2) facilitate interactive solutions to common watershed issues faced throughout the state, and (3) add to the fundamental knowledge conveyed at the short courses. More than 250 water professionals attended the four Texas Watershed Coordinator Roundtables held in Temple, Georgetown and Dallas. Topics of discussion included sustainable organizational structure for long-term watershed protection plan implementation; the U.S. Environmental Protection Agency's Region 6 review guide of watershed-based plans; strategies and expectations for demonstrating successful implementation and financing watershed protection plans.

Additional workshops also offered to further familiarize watershed coordinators with watershed management tools provided by the U.S. Environmental Protection Agency included Getting In Step Workshops and Key EPA Internet Tools for Watershed Management courses. The Getting In Step Workshop aims to improve the effectiveness of nonpoint source outreach in Texas and the internet tools course familiarizes users with online watershed management tools provided by the U.S. Environmental Protection Agency.

More than 90 watershed professionals participated in four Getting In Step Workshops offered in Houston, Austin, Dallas and Georgetown. Nearly 40 watershed professionals participated in the two Key EPA Internet Tools for Watershed Management courses offered in San Marcos and Dallas. Also, the Texas Water Resources Institute coordinated with Wildland Hydrology to provide an Applied Fluvial Geomorphology Short Course with 40 water resource professionals participating to better understand the fundamentals and general principles of river behavior.

To assist watershed professionals in searching for funding programs, the Texas Water Resources Institute worked with the Environmental Finance Center at Boise State University to update the Directory of Watershed Resources to include Texas-specific funding programs. The Environmental Finance Center Network is an

EPA-sponsored, university-based program providing financial outreach services. The Directory of Watershed Resources is an on-line, searchable database for watershed restoration funding. The database includes information on federal, state, private, and other funding sources and assistance and allows Texas users to query information in a variety of ways including by agency sponsor or keyword, or by a detailed search.

In total, the combined courses, workshops and meetings have reached out to more than 350 watershed coordinators and water professionals and will continue to do so by hosting biannual Watershed Coordinator Roundtable meetings and training opportunities.

Introduction & Project Description

According to the 2004 Texas Water Quality Inventory and 303(d) List, 306 water bodies in Texas were listed as impaired with a total of 419 impairments. Once listed as impaired, efforts must be made to restore water quality in these water bodies. In Texas and many other states, large scale planning efforts including watershed protection plans and total maximum daily load implementation plans are the mechanisms used to achieve water quality restoration. Proper training of watershed coordinators and water resource professionals ensures that watershed protection efforts are adequately planned, coordinated, and implemented and that results from these efforts are properly assessed and reported.

Project Description

To achieve this, Texas Water Resources Institute assembled a Planning Team consisting of the Texas Commission on Environmental Quality (TCEQ), Texas State Soil & Water Conservation Board (TSSWCB), U.S. Environmental Protection Agency (EPA), the Texas AgriLife Extension Service, Texas AgriLife Research, Texas Institute for Applied Environmental Research (TIAER), and Texas State University's River Systems Institute (RSI) personnel to guide the development and delivery of the Texas Watershed Planning Short Course to water resource professionals throughout Texas. The Planning Team met as needed to review planned and ongoing activities and provide recommendations and guidance.

The Planning Team developed a week-long Watershed Planning Short Course on developing each of the nine key elements of a watershed protection plan (WPP) as discussed below:

A. An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in the watershed plan (and to achieve any other watershed goals identified in the watershed plan), as discussed in item (B) immediately below. Sources that need to be controlled will be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., X number of dairy cattle feedlots needing upgrading, including a rough estimate of the number of cattle per facility; Y acres of row crops needing improved nutrient management or sediment control; or Z linear miles of eroded stream bank needing remediation).

B. An estimate of the load reductions expected for the management measures described in item (C) below (recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time). Estimates will be provided at the same level as in item (A) above (e.g., the total load reduction expected for dairy cattle feedlots, row crops, or eroded stream banks).

C. A description of the nonpoint source (NPS) management measures that will need to be implemented to achieve load reductions estimated in item (B) above (as well as to achieve other watershed goals identified in the watershed plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement the plan.

D. An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement the plan. As sources of funding, States should consider the use of their Section 319 programs, State Revolving Funds, USDA's Environmental Quality Incentives Program and Conservation Reserve Program, and other relevant federal, state, local and private funds that may be available to assist in implementing the plan.

E. An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.

F. A schedule for implementing NPS management measures identified in the plan that is reasonably expeditious.

G. A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.

H. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether the watershed plan needs to be revised or, if a NPS Total Maximum Daily Load (TMDL) has been established, whether the NPS TMDL needs to be revised.

I. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established in item (H) immediately above.

The Watershed Planning Short Course combined oral presentations with discussions, exercises, examples, and case studies. Examples from ongoing Texas projects were also included as part of the educational program. Watershed coordinators, such as those from the Arroyo Colorado, Plum Creek, Hickory Creek, and Cedar Creek provided examples of how they developed each section of their WPP. This allowed the participants to see how others developed their plans as well as provided ongoing watershed planning efforts with valuable input from participants and national experts on the methods being used.

As stated above, experts from around the nation were brought in to discuss such topics as obtaining stakeholder involvement, "how to" discussions on developing each section of the plan, identifying appropriate best management practices (BMPs), designing a monitoring program, and finding funding resources for implementing a WPP.

Sessions on obtaining stakeholder involvement using such guides as EPA's Getting in Step were also provided. Stakeholder involvement through such programs as the Texas Watershed Steward Program and Texas Stream Team (formerly Texas Watch) were highlighted. In addition, a comparison between TMDLs and WPPs was provided.

The Getting In Step Workshop aimed to improve the effectiveness of NPS outreach in Texas to reduce NPS and stormwater pollution, improve water quality on a priority watershed basis, and facilitate greater NPS TMDL and watershed-based plan implementation. The Key EPA Internet Tools for Watershed Management Course familiarized users with powerful watershed management tools provided online by EPA.

Also, the Applied Fluvial Geomorphology Short Course helped water resource professionals to better understand the fundamentals and general principles of river behavior.

Project Significance & Background

The short course was designed to combine the objectives of the Texas NPS Management Program, TCEQ_TMDL Team efforts, TSSWCB and TCEQ_WPP development efforts, and EPA watershed planning needs.

Project Deliverables

This collaborative project between EPA, TCEQ, TSSWCB, RSI, AgriLife Extension, AgriLife Research, TIAER and TWRI supports the development of WPPs and promotes sustainable proactive approaches to managing water quality at the state level. To achieve this goal, TWRI (1) assembled a Planning Team of key personnel, (2) developed a comprehensive WPP training program, and (3) provided the short course to water resource professionals throughout Texas and the surrounding region.

In addition to the four short courses offered, an Applied Fluvial Geomorphology Short Course, three Getting in Step courses, and two Key EPA Internet Tools for Watershed Management courses were also provided to further the understanding of Texas water resource professionals of watershed function and processes and planning and outreach tools.

TWRI also worked with the Environmental Finance Center (EFC) at Boise State University to update the Directory of Watershed Resources to include Texas-specific funding programs. The Environmental Finance Center Network is an EPA-sponsored, university-based program providing financial outreach services. The Directory of Watershed Resources is an online, searchable database for watershed restoration funding. The database includes information on federal, state, private, and other funding sources and assistance and allows Texas users to query information in a variety of ways including by agency sponsor, or keyword, or by a detailed search.

Finally, TWRI continues to work with TCEQ, TSSWCB, and EPA to facilitate Watershed Coordinator Roundtables. To build upon the fundamental knowledge conveyed through the short course, there was an evident need to establish a continuing dialogue between watershed coordinators to facilitate interactive solutions to common issues being faced by watershed coordinators statewide.

Consistency with Texas NPS Management Program

The project supported the Texas NPS Management Program long-term goal of protecting and restoring water quality from NPS pollution by providing training to water resource professionals in Texas, which will provide those individuals with knowledge and tools to 1) support the implementation of state, regional, and local programs to prevent NPS pollution through assessment, implementation, and education; and 2) develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage NPS pollution.

The project also supported the Texas NPS Management Program short-term goals of data collection and assessment and implementation by providing training to water resource professionals, which will provide those individuals with knowledge and tools to 1) identify surface water bodies and aquifers that need additional information to characterize non-attainment of designated uses and water quality standards; 2) conduct special studies to determine sources of NPS pollution and gain information to target TMDL activities and BMP

implementation; and 3) work with regional and local entities to determine priority areas and develop and implement strategies to address NPS pollution in those areas.

EPA Program Activity Measures

This project supported EPA's program activity measure WQ-27 by adding to the number of watershed-based plans supported under State NPS Management Programs since the beginning of FY 2002 that have been substantially implemented.

Methods & Results

Objective 1: Project Coordination and Administration

Goal: To effectively coordinate and monitor all work performed under this project including technical and financial supervision, preparation of status reports, and maintenance of project files and data.

Task 1.1
Team Organization – TWRI assembled a Planning Team to guide the development and delivery of the Texas Watershed Planning Short Course to water resource professionals throughout Texas. The Planning Team met quarterly to discuss project status, provide input, and coordinate project activities.

Planning Team meeting dates, agendas and sign-in sheet can be found at *watershedplanning.tamu.edu*. Planning Team members included:

Randy Rush	Environmental Protection Agency
Clint Wolfe	Texas AgriLife Research
Ann Kenimer	Texas A&M University
Jennifer Delk	Texas Commission on Environmental Quality NPS Team
Arthur Talley	Texas Commission on Environmental Quality TMDL Team
Nikki Dictson	Texas AgriLife Extension Service
Eric Mendelman	Texas River Systems Institute
Aaron Wendt	Texas State Soil and Water Conservation Board
Kevin Wagner	Texas Water Resources Institute

The first Planning Team meeting was held June 22, 2007 in College Station in which the Planning Team thoroughly reviewed the project's purpose and reviewed existing training programs. The Planning Team discussed teaching approaches and developed an outline for the short course including presentation topics and potential instructors.

On August 20, 2007, the Planning Team met again in conjunction with a Texas Watershed Coordinator Roundtable. The main focus of this meeting was ongoing watershed planning efforts and challenges faced by watershed coordinators. Planning Team members also provided additional input on the short course and brainstormed anticipated short course dates.

Considerable progress was made on the short course agenda from input obtained at the third Planning Team meeting on October 1, 2007 at TCEQ in Austin. The Planning Team and representatives from the TCEQ NPS and TMDL Teams, TWRI, AgriLife Research, TSSWCB, RSI, and AgriLife Extension participated and discussed:

(1) the August 20 meeting with the watershed coordinators,
(2) integration of the short course with TSU's Certified Public Manager program,
(3) the course content and speakers, and
(4) the timeline for the first short course.

The Planning Team further discussed the short course agenda and speakers during the fourth Planning Team meeting on November 20, 2007 at TWRI in College Station in order to make final arrangements. On January 22, 2010 the fifth Planning Team meeting was held via conference call to finalize the short course agenda. Final comments were incorporated following the conference call and the agenda was sent to the Planning Team for final review.

A pre-course examination was also developed to determine the knowledge level of each student prior to attending the short course. The same exam was administered upon completion of the short course to determine course impact and knowledge gained. Questions for the pre-/post-course exam were obtained and compiled from short course presenters and Planning Team members. The exam is discussed further below in *Task 3.6*.

After completion of the first short course, TWRI Project Manager Kevin Wagner met with AgriLife Extension Specialist Nikki Dictson and the TWRI Program Coordinator Courtney Swyden to discuss the second short course and prepare for the Planning Team meeting scheduled for July 15, 2008. Planning Team members provided input on revisions for the short course agenda for the second short course. Edits were made and the agenda was finalized during the August 11, 2008 Planning Team meeting.

During October and November, the TWRI Project Manager met with RSI via conference call and discussed revisions to the pre-/post-short course exam. Also in November, TWRI Project Manager met with panel speakers to coordinate presentations during the "Perspectives on WPPs" which included perspectives from a federal, state, and local level.

Outcomes of the second short course were discussed during a Planning Team meeting on February 20, 2009, and recommendations were made on how best to revise the agenda and the pre-/post-short course exam for the August short course. The exam was revised and can be found in Appendix H. Also during February, TWRI Project Manager contacted instructors for the August short course to confirm availability.

On June 4, 2009 a Planning Team meeting was held via conference call to make preparations for the July 8 Watershed Coordinator Roundtable. The Roundtable agenda was finalized and the complete schedule along with presentations can be found at *watershedplanning.tamu.edu/roundtable*.

On September 11, a Planning Team meeting was held via conference call to discuss the short course evaluation results of the August 2009 short course and needed changes based on participant feedback and comments (discussed further in *Task 3.6)*. On October 1, a Planning Team meeting was held to discuss agenda items and potential speakers for the January 27, 2010 Watershed Coordinator Roundtable.

For the final short course, TWRI and AgriLife Extension personnel met on February 16 to discuss changes needed for the May 2010 Watershed Planning Short Course agenda as a result of several previous speakers not being able to participate. Suggestions for speakers were contacted and added to the agenda.

On March 11, 2010, TWRI met with RSI to discuss the Watershed Planning Short Course and finalizing the project. TWRI submitted a Close-Out Plan to TCEQ on April 20, 2010 and the project was completed on time and on budget.

Task 1.2
Project Coordination – TWRI coordinated the project with other ongoing watershed efforts including, but not limited to the Southern Region Water Quality Coordination Project, TSSWCB Wharton Regional Office Watershed Coordination Project, AgriLife Extension Watershed Stewardship Program, and TCEQ TMDL Program.

On March 28, 2007, TWRI met with the TSSWCB to obtain input on the short course and discuss coordination of the short course with the TSSWCB Wharton Regional Office Watershed Coordination Project. TWRI also met with Nikki Dictson, of the AgriLife Extension Watershed Stewardship Program, in April to discuss the participation of AgriLife Extension in the project. AgriLife Extension was then subcontracted to assist with development and delivery of the short course. This ensured coordination of the program with the Watershed Stewardship Program and Southern Region Water Quality Coordination Project. TWRI also worked with Louanne Jones and Arthur Talley to gain input and coordination from the TCEQ TMDL Program.

Task 1.3
Quarterly Progress Reports – TWRI prepared electronic quarterly progress reports (QPRs) for submission to the TCEQ, TSSWCB, EPA, and all members of the Planning Team. QPRs were submitted by the 15th of the month following each state fiscal quarter for incorporation into EPA's Grant Reporting and Tracking System. The QPRs included status of deliverables for each objective and narrative description in Progress Report format.

TWRI prepared and submitted Quarterly Progress Reports, which can be viewed online at *watershedplanning.tamu.edu/reports*.

- June 15, 2007 — TWRI submitted Year 1, Quarter 1 Progress Report
- September 14, 2007 — TWRI submitted Year 1, Quarter 2 Progress Report
- December 15, 2007 — TWRI submitted Year 1, Quarter 3 Progress Report
- March 15, 2008 — TWRI submitted Year 1, Quarter 4 Progress Report
- June 15, 2008 — TWRI submitted Year 2, Quarter 1 Progress Report
- September 15, 2008 — TWRI submitted Year 2, Quarter 2 Progress Report
- December 15, 2008 — TWRI submitted Year 2, Quarter 3 Progress Report
- March 15, 2009 — TWRI submitted Progress Report #8
- June 15, 2009 — TWRI submitted Progress Report #9
- September 15, 2009 — TWRI submitted Progress Report #10
- December 15, 2009 — TWRI submitted Progress Report #11
- March 15, 2010 — TWRI submitted Progress Report #12

Task 1.4
Project Oversight – TWRI Project Manager provided technical and fiscal oversight to ensure Tasks and Deliverables are acceptable and completed as scheduled and within budget. With TCEQ Project Lead authorization, TWRI secured the services of contractors as necessary. Project oversight status was provided with the Quarterly Progress Status Reports. In addition, TWRI attended meetings with project manager and other meetings, as needed, to review project status,

deliverables, etc.

On February 28, 2007, TWRI held an internal meeting to discuss the project tasks, roles of participants, setting up the Planning Team, short course topics, and issues needing immediate attention to achieve the project timeline.

On April 4, 2007, TWRI held a teleconference with TCEQ and TSSWCB to discuss the project tasks, deliverables, and timeline. The meeting summary can be found online at *watershedplanning.tamu.edu/planning-team-meetings*.

- TWRI provided RSI with a draft subcontract to secure its assistance with developing and delivering the short course. Comments were received from the RSI on August 31, 2007. The Subcontract was finalized in September.
- TWRI provided AgriLife Extension with a draft subaccount notice (August 17, 2007) to secure its assistance with developing and delivering the short course. The subaccount was established in October.
- TWRI met with RSI at Texas State University on September 20, November 1, and via conference call on November 15 to negotiate a subcontract to secure its assistance with developing and delivering the short course. On February 11, 2008, the RSI subcontract was signed and fully executed. This $30,000 subcontract ($18,000 federal & $12,000 non-federal) secured the assistance of RSI with program development and delivery from December 1, 2007 – Aug 31, 2009.
- A subcontract with TIAER in the amount of $4,708 was drafted and sent to Texas A&M Contracts and Grants for review. This subcontract provided funding for Dr. Larry Hauck to deliver presentations on data gathering, modeling, and effectiveness monitoring at each of the short courses.

A Post-Award Conference was held in College Station on September 20 and personnel from TCEQ met with TWRI and Contract and Grants staff to discuss the scope of work, contract terms and conditions, invoicing requirements and payment procedures, potential problem areas, and contractor performance evaluations.

On August 28, 2009, the project was extended for one year, the budget was increased by a total of $93,006, and the plan of work was amended carry out the following additional tasks:

- Input Texas data into the Directory of Watershed Resources
- Provide one additional short course
- Provide three Getting In Step workshops
- Provide two Key EPA Internet Tools courses
- Host three, semi-annual Watershed Coordinator Roundtables

As a result of the project extension/amendment, TWRI initiated subcontracts with:

(1) Tetra Tech for work described in *Tasks 3.4* and *3.5*
(2) Environmental Finance Center at Boise State University for work described in *Task 2.3*

TWRI also amended and extended contracts with TIAER and RSI, as well as the subaccounts with AgriLife

Research and AgriLife Extension. As of May 31, 2010 the following subcontracted balances remained:

- TIAER = $757
- EFC = $2,237
- Tetra Tech = $0
- RSI = $1,133

TWRI Business Coordinator will receive invoices for June, July, and August upon completion of the project (on or after August 31, 2010).

Task 1.5
Reimbursement Forms – TWRI submitted appropriate Reimbursement Forms, purchase vouchers and Small and/or Minority Owned Business Report (where applicable) by the last day of the month following each state fiscal quarter.

The Texas Watershed Planning Short Course contract was initiated on February 27, 2007 and the budget was allocated and accounts were set up on March 22, 2007. The total federal funds expended as of:

Date	*Invoice $$*	*Balance*	*Cumulative Expended*	*Quarter/FY*
Aug. 31, 2007	13,564.89	232,893.11	13,564.89	Q4 FY07
Nov. 30, 2007	6,268.79	226,624.32	19,833.68	Q1 FY08
Feb. 29, 2008	38,914.84	187,709.48	58,748.52	Q2 FY08
May 31, 2008	7,186.63	180,522.85	65,935.15	Q3 FY08
Aug. 31, 2008	14,591.48	165,931.37	80,526.63	Q4 FY08
Nov. 30, 2008	4,822.41	161,108.96	85,349.04	Q1 FY09
Feb. 28, 2009	18,871.02	142,237.94	104,220.06	Q2 FY09
May 31, 2009	10,810.16	131,427.78	115,030.22	Q3 FY09
Aug. 31, 2009	21,772.78	109,655.00	136,803.00	Q4 FY09
Nov. 30, 2009	14,966.60	94,688.40	151,769.60	Q1 FY10
Feb. 28, 2010	18,847.35	75,841.05	170,616.95	Q2 FY10
May 31, 2010	25,880.64	49,960.41	196,497.59	Q3 FY10

Task 1.6
Contractor Evaluation – TWRI participated in Contractor Evaluation (as scheduled).

- The Contractor Performance Evaluation Report for year one was submitted to TCEQ on September 10, 2007 covering the period, February 15, 2007 to August 31, 2007.
- The Contractor Performance Evaluation Report for year two was submitted to TCEQ on August 7, 2008 covering the period of September 1, 2007 to August 31, 2008.
- The Contractor Performance Evaluation Reports for year three was submitted to TCEQ on September 17, 2009.

Objective 2: Develop Training Materials and Educational Program for Watershed Planning Short Course

Goal: To develop training materials for Watershed Planning Short Course.

Task 2.1
Compiled and Summarized Existing Programs – TWRI collected and compiled information about existing training programs.

Below is a list of compiled and summarized programs that were discussed at the June 22, 2007 Planning Team meeting (meeting summary notes can be found online at *watershedplanning.tamu.edu/planning-team-meetings*):

- The "After the Storm" DVD was obtained from EPA for potential viewing during the training program.
- TWRI and AgriLife Extension staff participated in the EPA Webinar titled "Watershed Plan Builder: EPA's Interactive Web-based Tool Designed to Promote the Development of Comprehensive Watershed Plans" on May 2, 2007 to evaluate the program for possible inclusion in the training program.
- TWRI staff participated in the EPA Stormwater Program's Webcast titled "Social Marketing: A Tool for More Effective Stormwater Education and Outreach Programs" on March 9, 2007 to obtain information for use in the Short Course.
- A list of Watershed Programs assembled and summarized by Jennifer Peterson, AgriLife Extension, for the Texas Watershed Stewardship Program were evaluated by TWRI for applicability for the short course.
- Course material for the EPA "Watershed Partnership Seminar," the Watershed Conservation Resource Center's "Essential Elements for Successful Watershed Planning," and others were collected for evaluation. A number of the members of the Planning Team have participated in these training programs.

A number of speakers were identified from previous agency and university training programs including Stuart Lehman, EPA; Charlie MacPherson, Tetra Tech; and Bill Jarocki, EFC. Course materials selected by the planning team to be provided to course participants included the Handbook for Developing Watershed Plans to Restore and Protect Our Waters, Watershed Plan Builder, example watershed plans, and course presentations.

Task 2.2
Developed Training Program – As directed by the TCEQ and Planning Team, TWRI modified existing training programs, such as the EPA Watershed Training Materials and those found as a result of task 2.1, to fit the needs of Texas water resource professionals.

A draft agenda for the short course – which takes an element by element approach to training – was discussed at the June 22, 2007 Planning Team meeting. Planning Team members decided that the best approach for delivering the short course was to follow the watershed planning approach. An example agenda was finalized, after multiple reviews and edits, in February 2008, and can be found in Appendix E.

Over the four and a half-day course, 34 presentations by 16 speakers were made. Assignments, in addition to a pre- and post-exam and survey, are also included. The list of instructors included such national experts as Charlie MacPherson with Tetra Tech, Stuart Lehman with EPA headquarters, Bill Jarocki with EFC,

Tom Davenport with EPA Region 5, and Jeff Thornton with the Southeastern Wisconsin Regional Planning Commission.

Assignments developed for the short course can be found in Appendix F. A certificate of completion was also developed, printed, and framed for each short course participant.

Based on input from the Planning Team and first short course participants, the short course agenda was revised to improve the second short course scheduled for January 12-16, 2009. Slight modifications were again made to each short course based on participants comments to refine the course to better meet the needs of the State.

On February 16, TWRI and AgriLife Extension personnel met to discuss minor changes needed for the May 2010 Watershed Planning Short Course agenda as a result of several previous speakers not being able to participate. The agenda for the fourth short course was finalized.

Task 2.3
Facilitated Updating of Directory of Watershed Resources for Texas – TWRI coordinated with the Environmental Finance Center at Boise State University in year four of the project to update the Directory of Watershed Resources with data for Texas-specific funding programs.

The Directory of Watershed Resources is an online, searchable database for watershed restoration funding. The database includes information on federal, state, private, and other funding sources and assistance and allows Texas users to query information in a variety of ways including by agency sponsor, or keyword, or by a detailed search.

Currently, 55 programs have been entered into the Directory and promotional documents were developed: a flyer that was distributed at the May Texas Watershed Planning Short Course; an electronic postcard (as seen at right) distributed to watershed coordinators in Texas; and promotion in the EFC's monthly newsletter in March, April and May.

Visit *efc.boisestate.edu/efc/* to view the online Directory and click on "Directory of Watershed Resources."

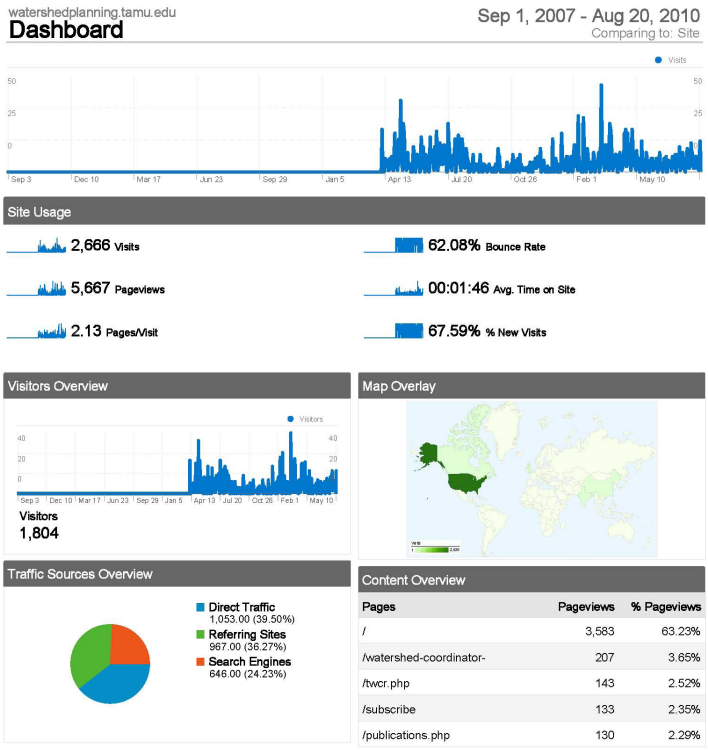
Task 2.4
Watershed Training Webpage – TWRI developed during Month 1-3 and hosted and maintained during Months 3-36 the Watershed Training website for information sharing and use by short course participants.

As resources were developed for the project, the website (*watershedplanning.tamu.edu*) was continually updated. Information presented through the website includes:

- PDF versions of all reports, course materials, and presentations generated
- Links to all cooperating and/or participating agencies
  - TCEQ
  - TSSWCB
  - TWRI
  - TSU-RSI
  - U.S. EPA – Office of Water, CWA §319
- Schedule of upcoming meetings/programs dealing with this project
- Contact list of "Certified Watershed Coordinators" who have participated in the short course
- Roundtable agendas, presentations, and summary notes

Total visits by unique visitors for *watershedplanning.tamu.edu* are described in the "Dashboard" seen on the right.

Appendix D provides a more detailed website analysis.



Objective 3: Conduct Watershed Planning Short Course and Other Watershed Training

Goal: To provide watershed education to 340 water resource professionals in Texas and the surrounding region.

Task 3.1
Organized Watershed Planning Short Course Events – TWRI identified key speakers for training, made all arrangements for facilities, advertised the short course, conducted registration, and made all travel arrangements for speakers. Travel for speakers was fully paid for through project funds.

TWRI worked with the Planning Team to identify speakers for the course and met with the following faculty members in August 2007 regarding participation of Texas A&M University's Water Program in developing and delivering the Watershed Planning Short Course:

- Dr. Ann Kenimer, Associate Dean for Academic Operations
- Dr. Val Silvy, Water Management and Hydrological Sciences Program Coordinator
- Dr. Ron Kaiser, Professor and Attorney, Recreation, Park & Tourism Sciences

Dr. Kenimer represented the Water Program by serving as one of the instructors – her topics covered included modeling and best management practices.

Also in August, TWRI discussed the short course with Stuart Lehman of EPA Headquarters. Stuart provided a number of recommendations regarding speakers and topics; and expressed a willingness to participate and make presentations on the Watershed Plan Builder, Watershed Planning Process Overview and Web Resources. TWRI then met with Mel Vargas of Parsons Engineering. Mel has been active in TMDLs and watershed planning for a number of years and provided good insight on topics and speakers for the course.

Further meetings were scheduled to identify potential speakers from TCEQ, EPA, and RSI in September. Brad Lamb, Randy Rush and Mike Bira were identified as potential instructors from EPA Region 6.

Speakers identified to assist with the short course included:

Kevin Wagner, TWRI
Randy Rush, EPA Region 6
Charlie MacPherson, Tetra Tech
Larry Hauck, TIAER
Brad Lamb, EPA Region 6
Roger Miranda, TCEQ
Tom Davenport, EPA Region 5
Jeff Thornton, Southeastern Wisconsin Regional Planning Commission
Stuart Lehman, EPA Headquarters
Aaron Wendt, TSSWCB
Nikki Dictson, AgriLife Extension
Ann Kenimer, Texas A&M University
Daren Harmel, USDA-ARS
Walter Rast, TSU
Eric Mendelman, TSU-RSI
Bill Jarocki, EFC

Methods & Results

TWRI's business coordinator contacted each speaker in regards to travel arrangements, reimbursement procedures, and necessary forms to be signed. PowerPoint presentations were also obtained (to be included in the course binder) and instructor biographies were included for participants knowledge.

A short course flyer and registration form were developed (see Appendix B). The Mayan Dude Ranch was also reserved and used for each of the four short courses. The Mayan Dude Ranch has a Conference Center and cabins around the property for participants to stay. A group rate was set and a block of rooms were reserved.

An invite list was developed and a "Save the Date" was emailed in regards to the first short course. This same invite list was added to throughout the project and emails were sent out as each short course date was set (as well as for other related workshops or Roundtables).

As participants registered for the short course, more information was emailed in regards to short course location and schedule. TWRI continually coordinated with the Mayan Ranch to ensure all registered participants and instructors had room reservations.

The first short course officially filled with 40 participants on April 29, 2008. On May 30, all materials including the short course notebook and CD were finalized. Upon completion of the first short course, the second short course was scheduled for January 12-16, 2009 and the third short course was scheduled for August 17-21, 2009. Registration was opened on June 9, 2008 and February 17, 2009 for the second and third short course respectively and 18 speakers were included to assist with the short courses.

It was determined and approved that a fourth short course could be held and dates were set for May 10-14, 2010. Upon completion of the third short course, speakers were requested to assist with a final short course. Registration was then opened and past short course participants were sent a "Save the Date" email encouraging them to pass on to potential short course participants.

The TWRI Training Course Program emailed monthly updates regarding training courses (including the short course and related workshops) to a contact list of state agencies, river authorities, and academia. The Training Course Program also mailed a postcard that highlighted upcoming training courses hosted by TWRI (including the short course) to 7,200 plus engineering firms nationwide as well as to 5,200 engineers in training (EIT) statewide. The short course (and related workshops) were advertised in more than 16 various other media outlets as well including Texas A&M Agricultural Communications AgNews (examples can be found in Appendix C).

Task 3.2
Delivered Watershed Planning Short Course – TWRI facilitated the delivery of four Texas Watershed Planning Short Courses to 160 water resource professionals in Texas and the surrounding region. Certificates were provided to participants upon completion of the course. A registration fee of $350 was charged to participants.

More than 160 water professional participated in the short courses:

June 2-6, 2008 (43 participants) Aug. 17-21, 2009 (45 participants)

Texas Watershed Planning Short Course

Jan. 12-16, 2009 (41 participants) May 10-14, 2010 (36 participants)

Participant lists for each short course were combined and can be found on the Project website under "Certified Watershed Coordinators" (*watershedplanning.tamu.edu/coordinators*).

Task 3.3
Organized one Applied Fluvial Geomorphology Short Course – TWRI coordinated with Wildland Hydrology to provide an Applied Fluvial Geomorphology Short Course to 40 water resource professionals in Texas. A registration fee of $500 was charged to short course participants.

Dave Rosgen of Wildland Hydrology delivered an Applied Fluvial Geomorphology Short Course (AFG) on January 28-February 1, 2008 with participant accommodations at the Mayan Ranch.

Prior to the Course, a conference call between TCEQ and TWRI was scheduled to discuss invitees. A list was assembled and an announcement was emailed. Course registrants included:

13 - TCEQ
22 - Texas Parks and Wildlife Department
5 - Texas Department of Transportation
3 - Texas Forest Service
1 - TWRI

Copies of the AFG Manual were assembled and submitted to Copy Services for binding prior to the course. TWRI developed a rating curve, flood frequency analysis, hydraulic geometry plots, and downloaded U.S. Geological Survey gage station data for the Medina River at Bandera for inclusion in the Manual.

Also prior to the course, West Verde Creek, located in the Hill Country State Natural Area, was selected for the field exercises planned for Tuesday, January 29.

The AFG Course was well received. An evaluation form was distributed via email following the course to determine the level of satisfaction on a scale of 1-5 with the course overall, lectures, field tours, administration of the course, likelihood of application of knowledge gained, and interest in attending other short courses put on by Dave Rosgen in the future. Participants responded as follows:

1. Overall Short Course Evaluation	4.8
2. Dave Rosgen Lectures	4.6
3. Field Tour	
• Transportation	3.4
• Medina River Gage	4.6
• W. Verde Creek	4.7
• Deer Creek Camp Dam Site	4.6
• FM337 Bridge	4.8
• Garner SP Bank Stabilization	4.8

• Nueces River Bank Erosion	4.4
4. Administration	
• Course Announcement	4.6
• Website	4.4
• Course Materials	4.8
• Registration	4.7
• Facilities	4.6
• Refreshments	4.6
• Meals	4.7
5. Likelihood of Applying Knowledge	4.4
6. Interest in Future Rosgen Courses	4.6

Further participant comments can be found in Appendix I.

Task 3.4
Organized four Getting In Step Workshops – TWRI coordinated with Tetra Tech to provide four Getting In Step Workshops (Houston, Austin, Dallas, Georgetown) and assisted nearly 90 water resource professionals in conducting watershed outreach campaigns. Registration was free for participants.

The Getting In Step workshop aims to improve the effectiveness of NPS outreach in Texas to reduce NPS and stormwater pollution, improve water quality on a priority watershed basis, and facilitate greater NPS TMDL and watershed-based plan implementation.

Workshop Objectives:
- Increase outreach and social marketing knowledge and skills of attendees
- Identify opportunities for agencies and organizations to partner to conduct and improve outreach efforts
- Promote the adoption of social marketing and outcome-based methods to improve effectiveness of outreach efforts targeted at adults

Getting In Step workshops were provided in Houston, Austin, and Dallas on September 22-24, training nearly 90 water resource professionals in conducting watershed outreach campaigns. On a scale of 1-5, participants gave the course a score of 4.2. A fourth Getting in Step workshop was provided on January 28, 2010 in Georgetown, Texas. The Lower Colorado River Authority advertised the Getting In Step Workshop in their Clean Rivers Program Newsletter and TCEQ advertised the workshop on their website "News from the Texas TMDL Program". Ten participants were in attendance and on a scale of 1-5, participants gave the course an average score of 4.375.

All Getting In Step workshops were very well received and participant feedback was positive. Overall, comments included applying the knowledge learned by using various channels of communication. A few participants even agreed that they needed to reevaluate the goals and objectives of their outreach program. The case studies presented and examples of successful outreach campaigns seemed to be most valuable to workshop participants.

Task 3.5
Organize two Key EPA Internet Tools for Watershed Management Courses – TWRI coordinated with Tetra Tech to provide two Key EPA Internet Tools for Watershed Management Courses to more than 50 water resource professionals. This course provided instruction on using the Internet tools developed by EPA to support development of watershed plans. EPA's Watershed Central website was highlighted. Registration was free for participants.

The Key EPA Internet Tools for Watershed Management is a comprehensive, two-part course designed to familiarize users with powerful watershed management tools provided online by EPA. These tools are a powerful resource for novice and master watershed planners alike.

TWRI worked with the RSI to provide a Key EPA Internet Tools course in conjunction with the Land Water People 2009 Conference on November 19, 2009 with 22 water resource professionals in attendance.

Participant evaluations were completed and of the ten evaluations returned, all ten participants agreed that the tutorial document (manual) was clear and easy to follow.

(7) participants gained quite a bit of new and usable knowledge
(2) participants gained a large amount of new and usable knowledge
(1) participant gained some new and usable knowledge

The second course was held at the Texas AgriLife Research and Extension Urban Solutions Center in Dallas on July 26, 2010 in conjunction with the Watershed Coordinator Roundtable with 15 water resources professional in attendance.

Participant evaluations were completed with 13 evaluations returned. All participants agreed that the tutorial document (manual) was clear and easy to follow.

(6) participants gained quite a bit of new and usable knowledge
(4) participants gained a large amount of new and usable knowledge
(3) participant gained some new and usable knowledge

Both courses received positive participant feedback with comments including a well-designed course; clear and easy to follow instructor; and one participant stated that they would recommend the tools to all watershed coordinators/planners.

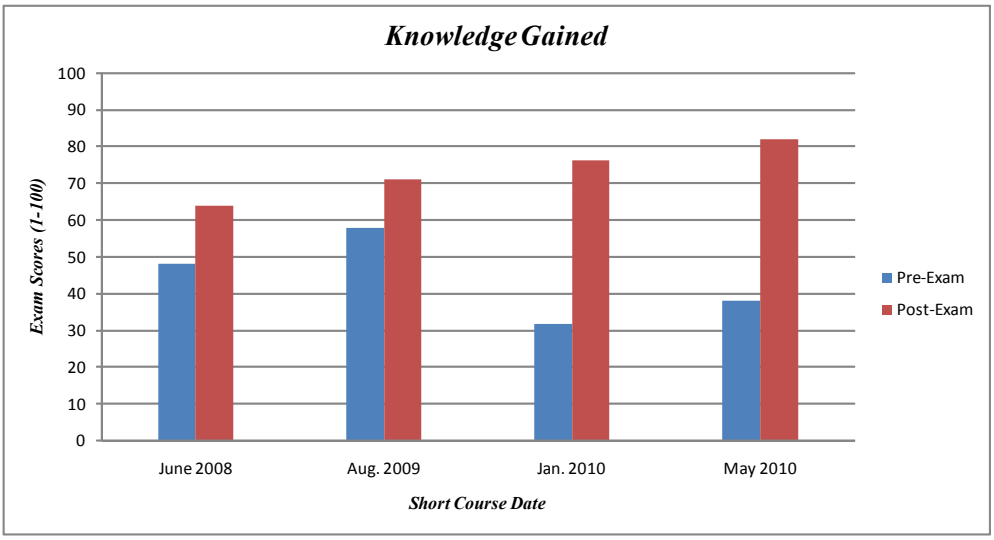
Task 3.6
Developed and Administered Questionnaires and Evaluations – TWRI developed and administered questionnaires and evaluations to gauge the knowledge gained and the effectiveness of the course for each course participant. Questionnaires were administered at the beginning and end of each short course to demonstrate the course's effectiveness and to identify areas needing adjustment.

The questionnaire used for the North Central Texas Watershed Management Training was evaluated for

potential modification and use for the short course questionnaire.

Evaluations were developed for participants to provide input on the overall course, individual presentations, and additional comments. A pre- and post-course exam was developed to gauge knowledge gained by participants (Appendix G and H).

Upon completion of the June 2008 short course, 42 evaluations were submitted by participants providing input on the course. On a scale of 1-5, ratings for presentations ranged from 3.6 – 4.7. Overall, the presentations averaged a 4.0 rating. The pre- and post-course exam turned out to be very difficult for the course participants. The average on the pre-course exam was 48 and the average on the post-course exam was 64. Despite the difficulty of the exam, it demonstrated an overall improvement in knowledge. Considering the experience level of the first group of participants, the 33 percent increase in knowledge was satisfactory.



The exam was re-evaluated and revised for the second course by RSI with the assistance of Jeff Thornton. The group decided to utilize the EPA Watershed Plan Guide chapter summaries to develop a series of questions structured around EPA's nine elements. RSI also extended additional efforts in developing questions directly from short course presentations and aligning these questions with the EPA Watershed Plan Guide content.

The short course evaluation indicated that participants of the second short course were very satisfied with the course. On a scale of 1-5, the rating for the overall satisfaction of the short course was 4.43 (87 percent satisfied). Ratings for individual presentations ranged from 3.70 – 4.66. The pre- and post-course exam again turned out to be very difficult for the course participants. The average on the pre-course exam was 58 and the average on the post-course exam was 71. The exam demonstrated an overall improvement in knowledge of almost 22.4 percent.

The short course evaluation indicated that participants of the third short course were very satisfied with the course. On a scale of 1-5, the rating for the overall satisfaction of the short course was 4.03 (80 percent satisfied), which was a drop from the previous course rating of 4.43. Ratings for individual presentations

ranged from 3.16 – 4.59. The pre- and post-course exam again turned out to be very difficult for the course participants. The average on the pre-course exam was 31.64 and the average on the post-course exam was 76.10. Once again despite the difficulty of the exam, it did demonstrate a considerable improvement in knowledge as a result of the course.

The short course evaluation indicated that participants of the fourth short course were very satisfied with the course. On a scale of 1-5, the rating for the overall satisfaction of the short course was 4.4 (88 percent satisfied), which was an improvement from the previous course rating of 4.03. Ratings for individual presentations ranged from 3.3 – 4.6. Grades on the pre-course exam ranged from 3-82 and averaged 38.2 while grades on the post-course exam ranged from 38.5-91 and averaged 82.

Task 3.7
Facilitate Watershed Coordinator Roundtables – TWRI coordinated with TCEQ, TSSWCB and EPA to organize and facilitate biannual Watershed Coordinator Roundtables in year four of the project. Roundtables built upon the fundamental knowledge conveyed through the Watershed Planning Short Course and established a continuing dialogue between watershed coordinators in order to facilitate interactive solutions to common issues being faced by watershed coordinators statewide.

The first Watershed Coordinator Roundtable was held on August 20, 2007 in conjunction with a Planning Team meeting. The main focus of this meeting was ongoing watershed planning efforts and challenges faced by watershed coordinators. Other topics of discussion included what it takes to satisfy the nine elements; long-term sustainability for partnerships; and partnerships and stakeholder involvement. More than 30 water professionals were in attendance at the Roundtable kick-off meeting which was used as an example for future Roundtables. Presentations, summary notes, and participant list are available on the Project website (*watershedplanning.tamu.edu/roundtable*).

A Watershed Coordinator Roundtable was held on July 8, 2009 at the Blackland Research and Extension Center in Temple. The Roundtable focused on sustaining watershed plan implementation and over 80 watershed professionals were in attendance. The Roundtable included presentations on organizing watershed groups, creating and working with nonprofit partners, and forming the legal framework for a nonprofit organization. The agenda and a video are available on the Project website (*watershedplanning.tamu.edu/roundtable*).

A Watershed Coordinator Roundtable was held on January 27, 2010 at the Texas AgriLife Research and Extension Center in Georgetown. The 78 watershed coordinators and water resource professionals in attendance discussed the EPA Region 6 Guide for Review of Watershed-Based Plans, the 4b delisting process, tracking and reporting success, strategies and expectations for demonstrating successful implementation, and adaptive management. Presentations, summary notes, and photos are available on the Project website (*watershedplanning.tamu.edu/roundtable*).

A Watershed Coordinator Roundtable was held on July 27, 2010 at the Texas AgriLife Research and Extension Urban Solutions Center in Dallas. The primary discussion topic was financing watershed organizations and

watershed plan implementation and 63 watershed coordinators and water resource professional were in attendance. Presentations and summary notes are available on the Project website (*watershedplanning.tamu.edu/roundtable*).

TWRI also developed a listserv for Watershed Coordinators to assist in the exchange of information (*http://watershedplanning.tamu.edu/subscribe*).

Objective 4: Submit Final Report

Goal: To provide TCEQ and EPA with a comprehensive report on the activities and success of the project conducted by TWRI during the course of this project.

Task 4. 1
Draft Report (August 1, 2010)

Submitted to Jennifer Delk of TCEQ on Friday, July 16, 2010 to review and edit in preparation for TWRI to modify, prepare and submit final report. Also submitted to Kathy Wythe, TWRI Communications Manager, to edit first draft.

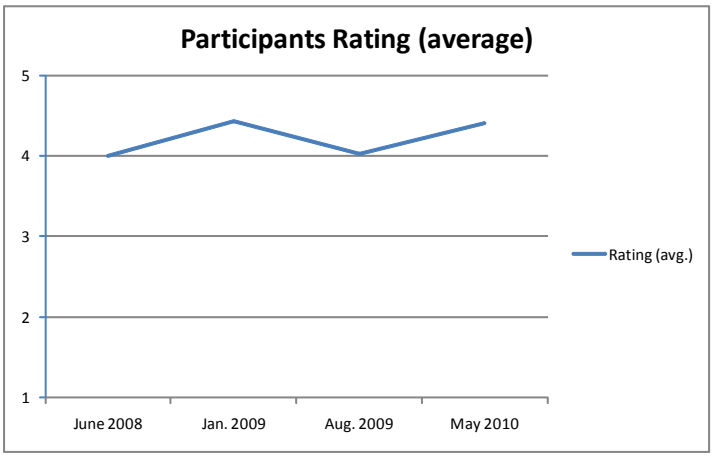
Task 4.2
Final Report (August 31, 2010)

Submitted final report to Jennifer Delk of TCEQ on Thursday, August 26, 2010.

Discussion & Summary

Training Courses such as the Texas Watershed Planning Short Course, the Getting In Step workshop, and the Key EPA Internet Tools course proved to be an effective method to train watershed coordinators and water professionals to ensure watershed protection efforts are adequately planned, coordinated, and implemented.

The more than 160 water professional that participated in the short courses were added to the Project website as a "Certified Watershed Coordinator." The short course was modified and improved from course to course based on the feedback from participants. From the results below, knowledge was gained and overall the participants had a positive experience:



Course	*Increase in Knowledge (%)*
June 2008	33.3%
January 2009	22.4%
August 2009	141%
May 2010	115%

The more than 90 water professionals that participated in the Getting In Step workshops also provided positive feedback. The evaluations exhibited that workshop objectives were met including an increase outreach and social marketing knowledge and skills of attendees; identifying opportunities for agencies and organizations to partner to conduct and improve outreach efforts; and promoting the adoption of social marketing and outcome-based methods to improve effectiveness of outreach efforts targeted at adults.

The Key EPA Internet Tools course, designed to familiarize users with powerful watershed management tools provided online by EPA, exhibted a knowledge gain according to participant evaluations. During the first Tools course, offered on November 19, 2009, ten participants returned evaluations stating the following:

- 7 participants gained quite a bit of new and usable knowledge
- 2 participants gained a large amount of new and usable knowledge

- 1 participant gained some new and usable knowledge

Participants of the second course, held in Dallas on July 26, 2010 in conjunction with the Watershed Coordinator Roundtable, returned evaluations stating the following:

- 6 participants gained quite a bit of new and usable knowledge
- 4 participants gained a large amount of new and usable knowledge
- 3 participant gained some new and usable knowledge

To assist watershed professionals in search of watershed restoration funding, TWRI worked with the EFC at Boise State University to update the Directory of Watershed Resources to include Texas-specific funding. To date, 55 programs have been entered into the Directory which will help to accelerate the development of watershed protection plans.

In total, the Project's courses reached out to more than 350 watershed coordinators and water professionals and continues to do so with the biannual Watershed Coordinator Roundtables. Roundtables provide an opportunity for water professionals to meet and provide a forum for establishing and maintaining dialogue between watershed coordinators; facilitate interactive solutions to common watershed issues faced throughout the state; and add to the fundamental knowledge conveyed at the short courses.

Roundtable topics have included presentations on organizing watershed groups; creating and working with nonprofit partners; and forming the legal framework for a nonprofit organization. During another Roundtable, discussion included the EPA's Region 6 Guide for Review of Watershed-Based Plans; the 4b delisting process; tracking and reporting success; strategies and expectations for demonstrating successful implementation; and adaptive management. Financing watershed organizations and watershed plan implementation has also been a Roundtable topic of discussion.

It is evident by participant feedback at each Roundtable and participant feedback from training courses that additional training is needed to continue to provide watershed coordinators and watershed professionals with up-to-date information on watershed protection plans. Roundtables and the Watershed Coordinator's Listserv will also prove to be an outlet to provide this information and any changes in funding agency's expectations or funding opportunities.

Nikki Dictson of AgriLife Extension and Kevin Wagner, Kathy Wythe, and Courtney Swyden all of TWRI, met on July 28, 2010 to further discuss how the Project website can be enhanced to become a resource for watershed coordinators and watershed professionals. Updates to the website will include facts and the benefits of watershed protection plan, including the EPA's nine key elements and descriptions of each. Resources will include ongoing watershed protection plans in Texas; information on financing watershed protection plans including tips on grant writing; and links to ongoing implementation efforts.

Appendices

Appendix A

Texas Watershed Planning Short Course Manual Outline

Introduction:
- Instructors list
- Collaborators
- Funding agencies
- TWRI On-Site Representatives (contact information)

Section One:
- Course Agenda
  - Detailed agenda outlining speaker and topic

Section Two:
- Speaker Biographies
  - Listing of each speaker with brief biography

Section Three:
- Monday presentations
  - PowerPoint presentations printed for participants to make notes
  - Allows participants to reference notes upon course completion

Section Four:
- Tuesday presentations
  - PowerPoint presentations printed for participants to make notes
  - Allows participants to reference notes upon course completion

Section Five:
- Wednesday presentations
  - PowerPoint presentations printed for participants to make notes
  - Allows participants to reference notes upon course completion

Section Six:
- Thursday presentations
  - PowerPoint presentations printed for participants to make notes
  - Allows participants to reference notes upon course completion

Section Seven:
- Friday presentations
  - PowerPoint presentations printed for participants to make notes
  - Allows participants to reference notes upon course completion

Appendix A

Section Eight:

- Additional Resources
  - Course participant contact list
  - List of Acronymns
  - U.S. EPA Region 6 Review Guide For Watershed-Based Plans
  - Texas Watershed Planning Short Course CD

CD Table of Contents

Ag BMPs

Arroyo Colorado WPP Implementation Resources

- Sustainability
- O&E and Presentations
- Steering Committee Agendas & Summaries
- Publications and the Pachanga (Public Release of WPP)
- Bimonthly Updates & Newsletter
- Workgroup Agendas & Summaries
- Pre Survey Watershed Assessment

Clueless Template

EPA Handbook, Getting In Step Guide, & WBP Review Guide

LDC Guidance

Monitoring Guidance

Plum Creek WPP Development Resources

Course Presentations

TCEQ Publications

- TX Surface WQ
- Rights to Surface Water
- Procedures to Implement TWQS
- Preserving & Improving WQ
- Texas Clean Rivers Program

Urban BMPs

Watershed Plans

- Texas WPPs
  - Plum Creek WPP
  - Arroyo WPP
  - Upper San Antonio WPP
- Other WPPs
  - Crab Orchard Creek Watershed Plan
  - Blacks Creek Plan
  - Mill Creek WIP
  - Yellow Bank Creek Watershed Plan
  - South Branch Yellow Medicine River IP
  - Millers Creek Plan
  - Deckers Creek Plan
  - Beaver & Little Creek TMDL-IP
  - Corsica River Plan

Appendix B

Texas Watershed Planning Short Course

Course Flyer

Texas Watershed Planning Short Course

Mayan Dude Ranch

May 10-14, 2010 – Bandera, Texas

Comprehensive watershed protection plans that outline strategies for preserving or restoring watersheds have become the 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.

The goal of the Texas Watershed Planning Short Course is to equip watershed coordinators and water professionals with the tools they need to plan, coordinate and implement watershed protection efforts. This four-day course will cover:

- Partnership Building
- Identifying Solutions
- Watershed Characterization
- Designing an Implementation Program

Individuals interested in or responsible for watershed protection and restoration including employees and volunteers with federal, state, county, and local agencies; soil and water conservation districts; universities; consulting firms; non-governmental organizations; and watershed groups will benefit from this course. This course will be especially beneficial to those pursuing or receiving Clean Water Act Section 319(h) Grant funds, as the course provides guidance on meeting EPA's nine key elements of a watershed protection plan.

Agenda

Click **HERE** for a tentative Agenda or visit http://watershedplanning.tamu.edu/docs/courses/2009-01/agenda.pdf.

Registration Information

To register online, visit http://agrilifevents.tamu.edu. For more information contact Courtney Swyden at cmswyden@ag.tamu.edu or (979) 845-1851. Registration forms can also be mailed/faxed to: Texas AgriLife Extension, 2139 TAMU, College Station, TX 77843 (Please include acct. # 228100-60010). Fax: (979) 862-4511.

Cost

Early registration fee, $350 (postmarked by April 12). Registration postmarked on or after April 13, $375. Registration fee **does not** include lodging and meals.

Instructors

- Kenneth Banks, City of Denton
- Tom Davenport, EPA Region 5
- Jim Davenport, TCEQ
- Nikki Dictson, Texas AgriLife Extension
- Daren Harmel, USDA-ARS
- Larry Hauck, TIAER
- Bill Jarocki, NW Environmental Finance Center
- Ann Kenimer, Texas AgriLife Research
- Brad Lamb, EPA Region 6
- Bruce Lesikar, Texas AgriLife Research
- Charlie MacPherson, TetraTech
- Jennifer McDonnell, TetraTech
- Eric Mendelman, River Systems Institute
- Randy Rush, EPA Region 6
- Jeff Thornton, SE Wisconsin Regional Planning Commission
- Kevin Wagner, TWRI
- Aaron Wendt, TSSWCB
- Clint Wolfe, Texas AgriLife Research

Texas Water Resources Institute

AgriLIFE RESEARCH & EXTENSION
Texas A&M System

Venue

The course will be held at the **Mayan Dude Ranch** at http://www.mayanranch.com/index.html located in Bandera, 47 miles northwest of San Antonio, high in the beautiful Hill Country of Texas.

A block of rooms has been reserved at a special rate of **$121 per night per person**. This rate includes all meals and lodging. To receive this special rate, reservations must be made by April 30, 2010. When making your reservation, please identify yourself as attending the "Short Course."

Click **HERE** for a map to the ranch or visit: http://www.mayanranch.com/map.html.

Please note that all attendees are responsible for their own reservations.

Travel Information

Airports

San Antonio International Airport (SAT) is only 60 minutes away. This airport is serviced by 21 air carriers. For a list of SAT air carriers click **HERE** or visit: http://www.sanantonio.gov/aviation/airlines.asp.

Car Rental

Car rentals are available at the San Antonio International Airport. For reservations, call the rental of your choice or go to the following web site for links to the individual carriers: http://www.sanantonio.gov/aviation/carrentals.asp.

- Advantage Rent-A-Car 1-800-777-5500
- Alamo Rent-A-Car 1-800-GOALAMO
- Avis Rent-A-Car 1-800-331-1212
- Budget Rent-A-Car 1-800-527-0770
- Dollar Rent-A-Car 1-800-800-3665
- Enterprise Rent-A-Car 1-800-736-8222
- The Hertz Corporation 1-800-654-3131
- National Car Rental 1-800-CARRENT
- Thrifty Car Rental 1-800-367-2277

Collaborators

- Texas Water Resources Institute, Texas A&M AgriLife
- Texas AgriLife Extension Service
- Texas AgriLife Research
- Texas Commission on Environmental Quality
- Texas State Soil and Water Conservation Board
- U.S. Environmental Protection Agency
- Texas Institute for Applied Environmental Research
- River Systems Institute, Texas State University

Funding Agencies

- Texas Commission on Environmental Quality
- U.S. Environmental Protection Agency

Appendix C

Texas Watershed Planning Short Course News Releases

(example news releases advertising the short course)

Appendix C

The Winkler Post :: Kermit - Wink - Winkler County - Texas - The United States
Friday, 25 June, 2010 10:57:45 am Issue for March 25, 2010

Watershed Planning Short Course

The Winkler Post for March 25, 2010

Watershed Planning

Winkler Post Headlines For This Issue

Farm/Ranch - Agriculture - Garden - Pet News For March 25, 2010

- Butterflies Facing a Tough Journey
- A&M Livestock Judging Team
- El Salvador's Agriculture Minister
- Ram Sale Prices
- A&M Ag: Highest Environmental Honor
- Animal Disease Centers
- Small-Acreage Crops Webinar

... Set May 10-14 in Bandera.

Paul Schattenberg, Texas AgriLife News :: Kevin Wagner, Courtney Swyden - Texas AgriLife Research ♦ March 29, 2010

Bandera – The Texas Water Resources Institute will be presenting a Texas Watershed Planning Short Course May 10-14 in Bandera.

The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

The institute is part of Texas AgriLife Research, the Texas AgriLife Extension Service and the College of Agriculture and Life Sciences of the Texas A&M System.

"This is one of the few courses that builds upon the nine essential elements for watershed planning as identified by the Environmental Protection Agency," said Kevin Wagner, an associate director at the institute and course leader. "People attending this course will come out better prepared to develop plans according to EPA guidelines."

Well-considered, holistic watershed protection plans involving as many stakeholders as possible are becoming a widely accepted approach to protecting Texas surface waters available for drinking, Wagner added.

"The goal of the Texas Watershed Planning Short Course is to equip watershed coordinators and water professionals with the tools they need for effective watershed protection efforts," he said.

The course will address watershed protection planning, building partnerships, watershed assessment, and how to identify solutions and create and implement a plan.

Wagner added that the Texas State Soil and Water Conservation Board and Texas Commission on Environmental Quality, state agencies responsible for Texas' water quality, are financing the creation of more than a dozen watershed-protection plans statewide.

"The course will benefit those involved or interested in watershed restoration and protection projects to improve the water quality of the state's rivers, streams and estuaries," said Aaron Wendt, the soil and water board's state watershed coordinator.

Upon completion, participants will receive continuing education units from the National Registry of Environmental Professionals.

Course registration is $350 if postmarked by April 12 and $375 thereafter. Registration does not include lodging and meals.

A block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes all meals as well as lodging. Reservations must be made by April 30 to receive this special rate, and participants should identify themselves as program attendees when making reservations.

The upcoming short course is the fourth such program to be held in Bandera.

For more information, visit the Watershed Planning web site or contact Courtney Swyden at 979-862-2299.

Current Issue of the Winler Post - Home Page

Discuss this article in the The Winkler Post Forum!

Appendix C

Texas Water Resources Institute

Watershed planning short course set May 10-14 in Bandera

April 20th, 2010 | Posted in NewWaves (April 2010)

The **Texas Water Resources Institute** will be presenting a **Texas Watershed Planning Short Course** **May 10-14** in Bandera. The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

"This is one of the few courses that builds upon the nine essential elements for watershed planning as identified by the Environmental Protection Agency," said **Kevin Wagner**, an associate director at the institute and course leader. "The goal of the Texas Watershed Planning Short Course is to equip watershed coordinators and water professionals with the tools they need for effective watershed protection efforts."

Upon completion, participants will receive continuing education units from the National Registry of Environmental Professionals. Course registration is $375 and does not include lodging and meals. A block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes all meals as well as lodging. Reservations must be made by April 30 to receive this special rate, and participants should identify themselves as program attendees when making reservations.

A grant from the **Texas Commission on Environmental Quality** and **Environmental Protection Agency** provides funding for the course.

For more information, visit **watershedplanning.tamu.edu** or contact **Courtney Swyden** at 979.862.2299.

Appendix C

Texas Watershed Planning

Short Course set May 10 to 14 in Bandera

Texas

The Texas Water Resources Institute will be presenting a Texas Watershed Planning Short Course May 10 to 14 in Bandera.

The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

The institute is part of Texas AgriLife Research, the Texas AgriLife Extension Service and the College of Agriculture and Life Sciences of the Texas A&M System.

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A block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $121 per night, which includes all meals as well as lodging. Reservations must be made by April 30 to receive this special rate, and participants should identify themselves as program attendees when making reservations.

The upcoming short course is the fourth such program to be held in Bandera.

For more information, visit http://watershedplanning.tamu.edu or contact Courtney Swyden at 979-862-2299.

Click for related articles

Sorghum producers applaud checkoff
USDA: Corn farmers to plant 9.2 million acres
UNL to host witchweed seminar April 9
USDA reports U.S. farmers to plant record soybean acres in 2010
OSU to host Winter Canola Field Day April 22
Missouri Ag Outlook Conference projects slow recovery

article 2010- 15 - 0325WatershedPlanningCourse.cfm

Article: **Texas Watershed Planning Short Course set May 10 to 14 in Bandera**

Appendix C

Bandera County Courier
Serving Bandera and the Texas Hill Country
Headline News

2010-04-01

Watershed planning short course set for Bandera Mayan Ranch

By Paul Schattenberg,

Special to the Courier 210-467-6575

Personnel with the Texas Water Resources Institute will present a Texas Watershed Planning Short Course, slated for May 10 through May 14 in Bandera. The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Road.

The institute is part of Texas AgriLife Research, the Texas AgriLife Extension Service and the College of Agriculture and Life Sciences of the Texas A&M System.

"This is one of the few courses that builds upon the nine essential elements for watershed planning as identified by the Environmental Protection Agency," said Kevin Wagner, an associate director at the institute and course leader. "People attending this course will come out better prepared to develop plans according to EPA guidelines."

Well-considered, holistic watershed protection plans, involving as many stakeholders as possible, are becoming a widely accepted approach to protecting Texas surface waters available for drinking, Wagner added.

"The goal of the Texas Watershed Planning Short Course is to equip watershed coordinators and water professionals with the tools they need for effective watershed protection efforts," he said.

The course will address watershed protection planning, building partnerships, watershed assessment, and how to identify solutions and create and implement a plan.

Wagner added that the Texas State Soil and Water Conservation Board and Texas Commission on Environmental Quality, state agencies responsible for Texas' water quality, are financing the creation of more than a dozen watershed-protection plans statewide.

"The course will benefit those involved or interested in watershed restoration and protection projects to improve the water quality of the state's rivers, streams and estuaries," said Aaron Wendt, the soil and water board's state watershed coordinator.

Participants, who complete the session, will receive continuing education units from the National Registry of Environmental Professionals.

Course registration is $350 if postmarked by April 12 and $375 thereafter. Registration does not include lodging and meals.

Headline News
Thursday June 24, 2010
- Sheriff Tucker indicted
- Two-car accident near Pipe Creek
- Roadcheck 2010 places 1,738 vehicles, 160 drivers out of service
- HAVA funds aim to electronically speed up local voting process
- City judge-selection skills leave a lot to be desired

Appendix C

Environmental Finance Center
Boise State University
Environmental Finance News
Volume 5, Issue 5 May 2010

Texas Watershed Planning Short Course

BANDERA – The Texas Water Resources Institute will be presenting a Texas Watershed Planning Short Course May 10-14 in Bandera.

The course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Rd., about 47 miles northwest of San Antonio.

The institute is part of Texas AgriLife Research, the Texas AgriLife Extension Service and the College of Agriculture and Life Sciences of the Texas A&M System.

"This is one of the few courses that builds upon the nine essential elements for watershed planning as identified by the Environmental Protection Agency," said Kevin Wagner, an associate director at the institute and course leader. "People attending this course will come out better prepared to develop plans according to EPA guidelines."

Well-considered, holistic watershed protection plans involving as many stakeholders as possible are becoming a widely accepted approach to protecting Texas surface waters available for drinking, Wagner added.

"The goal of the Texas Watershed Planning Short Course is to equip watershed coordinators and water professionals with the tools they need for effective watershed protection efforts," he said.

The course will address watershed protection planning, building partnerships, watershed assessment, and how to identify solutions and create and implement a plan.

The upcoming short course is the fourth such program to be held in Bandera.

For more information, visit http://watershedplanning.tamu.edu/ or contact Courtney Swyden at 979-862-2299.

4

Appendix D

Texas Watershed Planning Short Course

Website Analytics

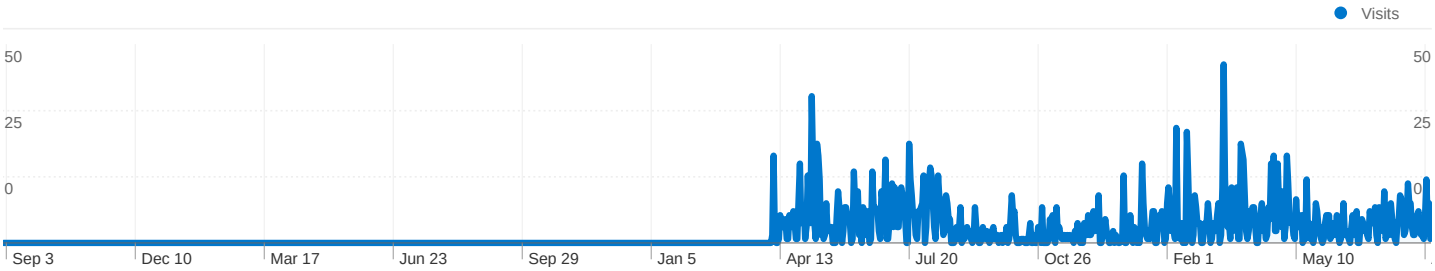
http://watershedplanning.tamu.edu

watershedplanning.tamu.edu

Dashboard

Sep 1, 2007 - Aug 20, 2010

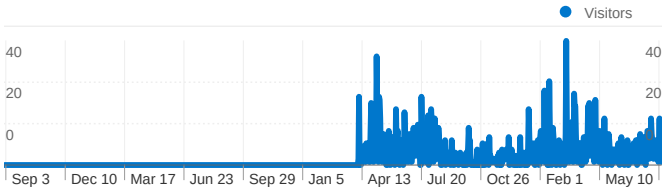
Comparing to: Site



Site Usage

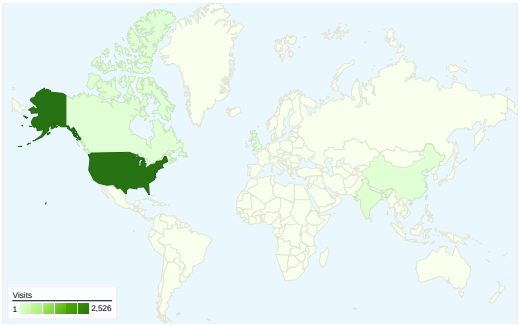
2,666 Visits	62.08% Bounce Rate
5,667 Pageviews	00:01:46 Avg. Time on Site
2.13 Pages/Visit	67.59% % New Visits

Visitors Overview

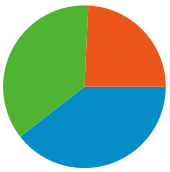


Visitors
1,804

Map Overlay



Traffic Sources Overview



- Direct Traffic
  1,053.00 (39.50%)
- Referring Sites
  967.00 (36.27%)
- Search Engines
  646.00 (24.23%)

Content Overview

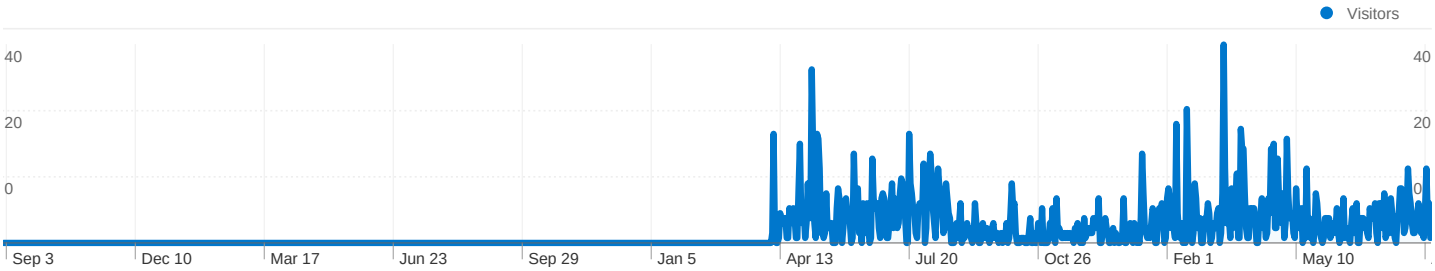
Pages	Pageviews	% Pageviews
/	3,583	63.23%
/watershed-coordinator-	207	3.65%
/twcr.php	143	2.52%
/subscribe	133	2.35%
/publications.php	130	2.29%

watershedplanning.tamu.edu

Visitors Overview

Sep 1, 2007 - Aug 20, 2010

Comparing to: Site



1,804 people visited this site

2,666 Visits

1,804 Absolute Unique Visitors

5,667 Pageviews

2.13 Average Pageviews

00:01:46 Time on Site

62.08% Bounce Rate

67.59% New Visits

Technical Profile

Browser	Visits	% visits
Internet Explorer	1,660	62.27%
Firefox	835	31.32%
Safari	95	3.56%
Chrome	62	2.33%
Opera	5	0.19%

Connection Speed	Visits	% visits
T1	1,026	38.48%
Unknown	765	28.69%
Cable	469	17.59%
DSL	362	13.58%
OC3	22	0.83%

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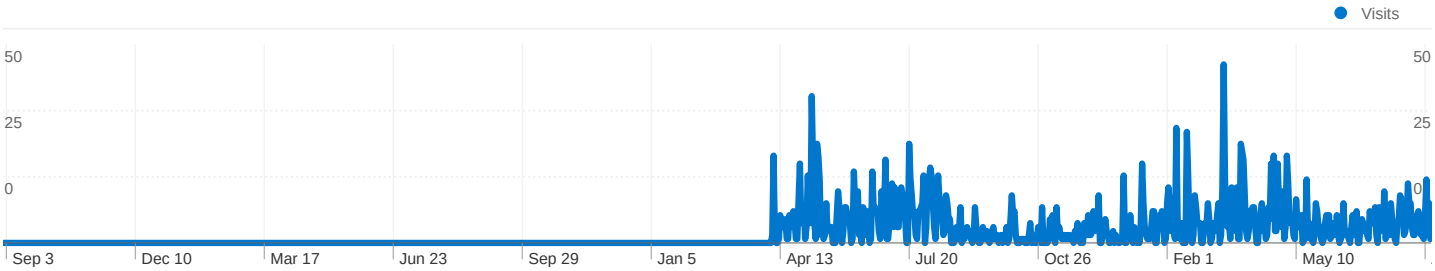
Traffic Sources Overview

Sep 1, 2007 - Aug 20, 2010

Comparing to: Site



All traffic sources sent a total of 2,666 visits

39.47% Direct Traffic

36.24% Referring Sites

24.21% Search Engines

Direct Traffic
1,053.00 (39.50%)

Referring Sites
967.00 (36.27%)

Search Engines
646.00 (24.23%)

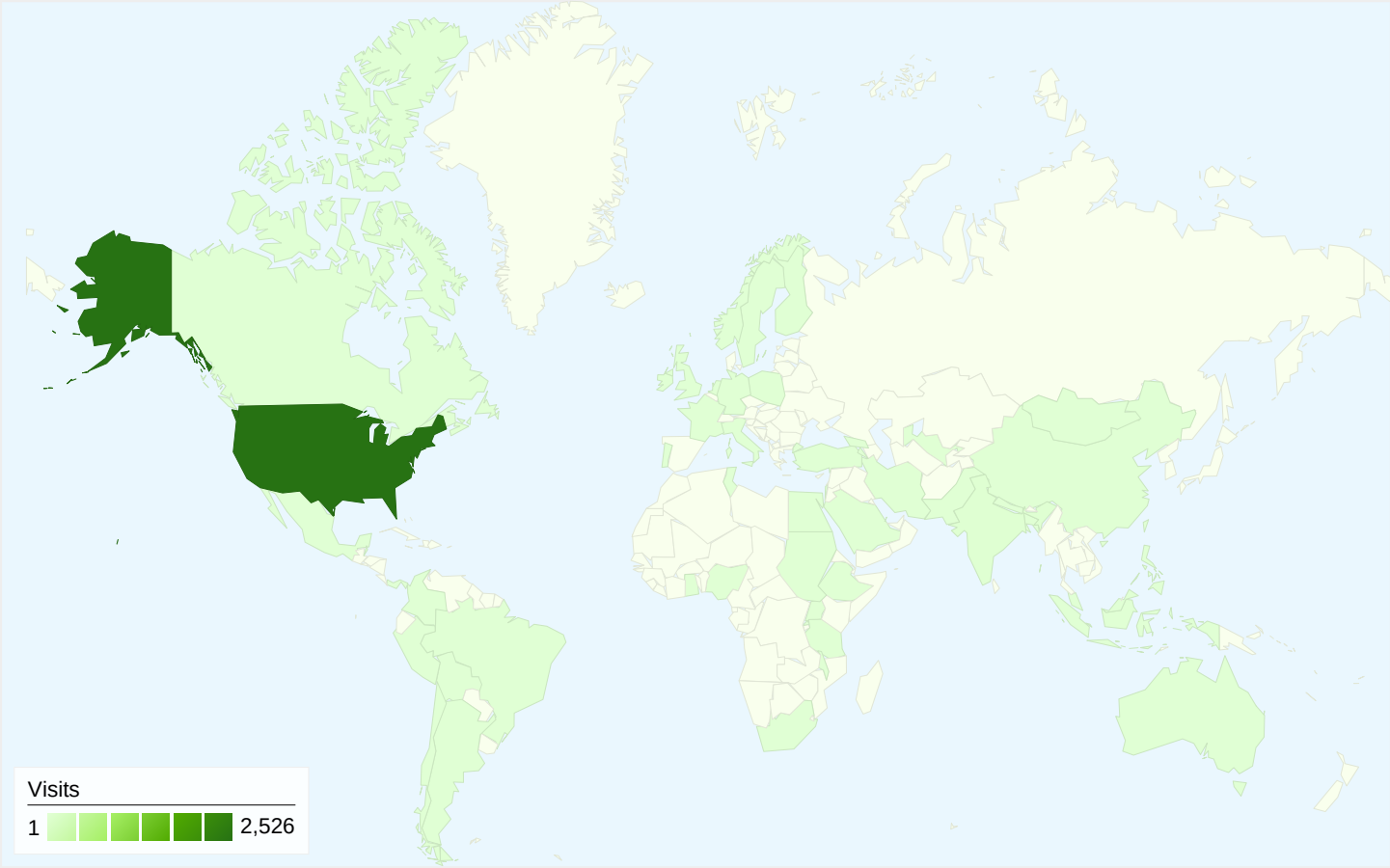
Top Traffic Sources

Sources	Visits	% visits
(direct) ((none))	1,053	39.47%
google (organic)	534	20.01%
twri.tamu.edu (referral)	368	13.79%
watereducation.tamu.edu	334	12.52%
tceq.state.tx.us (referral)	106	3.97%

Keywords	Visits	% visits
texas watershed planning short	58	8.96%
watershed planning	23	3.55%
current events in texas	21	3.25%
watershed planning short	18	2.78%
short current events	12	1.85%

Map Overlay

Sep 1, 2007 - Aug 20, 2010
Comparing to: Site



2,666 visits came from 53 countries/territories

Site Usage

Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
2,666 % of Site Total: 100.00%	2.13 Site Avg: 2.13 (0.00%)	00:01:46 Site Avg: 00:01:46 (0.00%)	67.59% Site Avg: 67.59% (0.00%)	62.08% Site Avg: 62.08% (0.00%)

Country/Territory	Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
United States	2,526	2.15	00:01:47	66.07%	61.72%
India	22	1.59	00:01:25	95.45%	72.73%
United Kingdom	8	1.12	00:00:09	100.00%	87.50%
Canada	7	2.57	00:00:40	100.00%	57.14%
China	6	1.00	00:00:00	100.00%	100.00%
Ethiopia	6	1.33	00:01:17	100.00%	66.67%
Turkey	6	1.17	00:00:04	100.00%	83.33%
Mexico	5	1.00	00:00:00	100.00%	100.00%
Iran	5	3.00	00:04:12	100.00%	20.00%

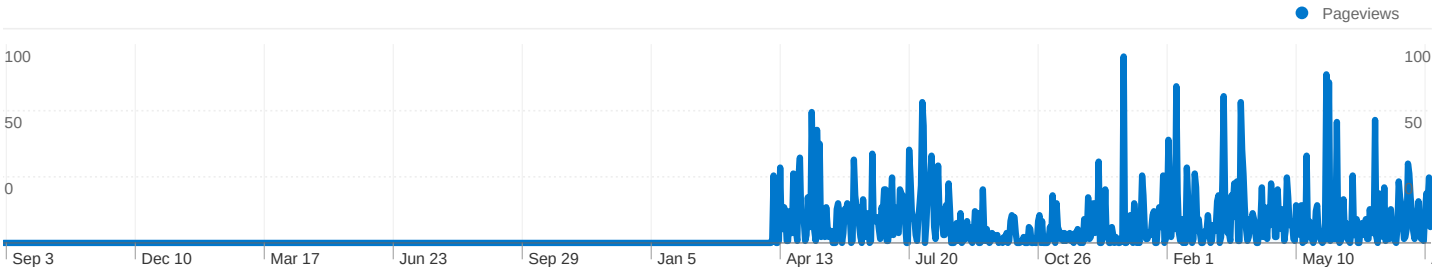
Nigeria	**4**	1.00	00:00:00	100.00%	100.00%
					1 - 10 of 53

watershedplanning.tamu.edu

Content Overview

Sep 1, 2007 - Aug 20, 2010

Comparing to: Site



Pages on this site were viewed a total of 5,667 times

5,667 Pageviews

3,719 Unique Views

62.08% Bounce Rate

Top Content

Pages	Pageviews	% Pageviews
/	3,583	63.23%
/watershed-coordinator-roundtable	207	3.65%
/twcr.php	143	2.52%
/subscribe	133	2.35%
/publications.php	130	2.29%

Appendix E

Texas Watershed Planning Short Course

May 2010 Course Agenda

Texas Watershed Planning Short Course

Course Agenda – May 10-14, 2010

Monday, May 10, 2010 **Facilitator: Nikki Dictson**

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 **Introduction..... Dictson**
This session will provide the group (1) the opportunity to introduce themselves and the watersheds they are working in, (2) information on facilities and ground rules, and (3) an overview of the course, its purpose and structure.

1:30 – 2:30 pm **Nine Elements of Watershed Protection Plans & EPA's Expectations.....Bira**
This session will provide an overview of the Nine Elements to be included in a WPP as outlined in Chapter 2 of the *Handbook* and the EPA Region 6 Review Guide for Watershed-Based Plans.

2:30 – 3:30 pm **Perspectives on WPPs .....Panel**
A panel composed of Jane Watson (EPA), Aaron Wendt (TSSWCB), Kerry Niemann (TCEQ) and James Earp (City of Kyle) will discuss (1) the goals and importance of WPPs, (2) how WPPs fit into state, federal and local objectives and interact with other state and federal programs, and (3) current issues affecting watershed planning efforts.

3:30 – 3:50 pm **Break**

3:50 – 5:15 pm **Working with Stakeholders to Move the Process Forward .....MacPherson**
Stakeholders form the backbone of your watershed planning effort. Learn tips on how to get off on the right foot and keep the energy going throughout your watershed planning and implementation program. Topics to be addressed include: determining who needs to be involved, making meetings count, diffusing conflict, making decisions using a consensus-based approach, and sustaining the stakeholder group. This session will focus on Chapter 3 of the *Handbook*.

5:15 – 6:00 pm **Partnership Building Experiences in Plum Creek..... Dictson**
Experiences in Plum Creek watershed with getting local involvement, announcing meetings, setting up the committee and subcommittees, publicizing the effort, what needs to be discussed/decided at each meeting, and timelines will be discussed. Sample invitation letters, ground rules, press releases, and other materials will be provided.

6:45 pm **Dinner**

Tuesday, May 11, 2010 **Facilitator: Eric Mendelman**

7:00 – 8:00 am **Breakfast**

8:15 – 8:30 am **Expectations for Element E ..... Dictson**
The expectations for and an example of Element E will be reviewed and discussed to provide the group an understanding of the information/education components of the WPP.

8:30 – 9:30 am **Using Outreach to Develop & Implement WPPs .....MacPherson**
Outreach is a powerful tool to get stakeholders involved early in the planning process, promoting behavior change in the watershed, and enhancing the implementation of your management strategies in the watershed. Learn tips and tools to conduct effective outreach without breaking the bank. This session will focus on Chapter 12.2 of the *Handbook*.

9:30 – 9:45 am **Texas Watershed Steward Program ..... Dictson**
This session provides an overview of the Texas Watershed Steward Program, a sciences-based, watershed education designed to help citizens identify and take action to address local water quality issues. Incorporation of this program into WPP efforts empowers stakeholders by providing them with the knowledge to make informed decisions about water resources.

9:45 – 10:05 am **Break**

10:05 – 10:35 am **Expectations for Element A ..... Watson**
The expectations for and an example of Element A will be reviewed and discussed to provide the group an understanding of what is necessary to identify causes and sources of water quality impairments and concerns.

11:35 – 11:15 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.

11:15 – 11:20 pm **Defining the Scope of the WPP .....Wendt**
This session will discuss identifying issues of concern, developing preliminary goals, and selecting indicators of environmental conditions as outlined in Chapter 4 of the *Handbook*.

12:00 – 1:00 pm **Lunch**

1: – 2:00 pm **The Good, the Bad, and the Ugly .....MacPherson**
Participants will learn techniques to improve their outreach materials and critique samples to determine their effectiveness in reaching the audience and communicating the message.

2:00 – 3:10 pm **Analyzing Data to Characterize Your Watershed.....Davenport**
How do you analyze your data? What tools are available? Is modeling needed? This session will concentrate on materials from Chapters 7 and 8.1-8.2 of the *Handbook* in order to provide the group 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 as described in Chapter 9 of the *Handbook.*

3:10 – 3:30 pm **Break**

3:30 – 6:00 pm **Web-Based Tools for Watershed Assessment & Management ..... McDonnell**
Web-based tools available from EPA to support watershed planning will be reviewed.

6:45 pm **Dinner**

Wednesday, May 12, 2010 **Facilitator: Nikki Dictson**

7:00 – 8:00 am **Breakfast**

8:15 – 8:45 pm **Expectations for Element B .....Wendt**
The expectations for Element B will be reviewed and discussed to provide the group with an understanding of the level of detail and effort needed to determine 'acceptable' pollutant loadings, and whether or not load reductions are needed to reach acceptable levels.

8:45 – 10:00 am **Overview of Models for Estimating Pollutant Loads & Reductions.....Hauck**
If modeling is needed, what models are available and how do you select a model? This session will present materials from Chapter 8.3-8.5 of the *Handbook* to give the group an overview of the models available, expectations for what each model can deliver (i.e. what you can and cannot get from them), costs, and factors to consider when selecting models (i.e. timelines and data needs for complex watershed models).

10:00 – 10:20 am **Break**

10:20 – 11:00 am **Simple Tools for Estimating Loads and Load Reductions..... Riebschleager**
This session will describe and demonstrate simple tools (i.e. load duration curves (LDC) and SELECT model) to determine needed pollutant load reductions and assess potential sources of the pollutants.

11:00 – 12:00 pm **Watershed Modeling: Plum Creek Case Study..... Riebschleager**
This session will demonstrate the use and integration of the SWAT, LDC, and SELECT models in the development of the Plum Creek WPP.

12:00 – 1:00 pm **Lunch**

1:00 – 2:00 pm **Overview and Expectations for Element C .....Bira**
This session will provide a discussion of expectations for Element C as well as steps to select management practices as described in Chapter 10 of the *Handbook.*

2:00 – 2:45 pm **Urban NPS Measures .....Davenport**
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.

2:45 – 3:30 pm **Agricultural NPS Measures ....Gregory**
Agricultural NPS measures in Texas are typically implemented through the SWCDs, TSSWCB, and NRCS as part of a Water Quality Management Plan or Resource Management System. This session provides an overview of (1) agricultural BMPs and these plans, (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.

3:30 – 3:50 pm **Break**

3:50 – 4:30 pm **Wastewater Treatment Systems .....Lesikar**
This session provides a brief overview of wastewater treatment systems (WWTFs and OSSFs), their impacts, and effectiveness in removing pollutants.

4:30 – 5:00 pm **Wastewater Issues .....Wong**
Learn how to help identify and address wastewater treatment system issues in your watershed.

5:00 – 5:45 pm **Online Wastewater Treatment Modules..... Dictson**
This session provides an overview of Online Educational Modules on wastewater treatment plants, onsite wastewater treatment systems and fats, oils, and grease.

5:45 – 6:00 pm **Expectations for Elements F, G, and H.....Gregory**
The expectations for Element F, G, and H will be reviewed and discussed to provide the group with an understanding of the level of detail and effort needed to schedule implementation, describe interim milestones, and establish criteria to determine if load reductions are achieved.

6:45 pm **Dinner**

Thursday, May 13, 2010 — Facilitator: Lucas Gregory

7:00 – 8:00 am **Breakfast**

8:15 – 9:00 am **BMP Selection: Cedar Creek Reservoir Case Study .....Wolfe**
This session will discuss evaluating and selecting management practices for Cedar Creek Reservoir. Session will also discuss developing decision criteria and summarizing evaluation results for presentation to stakeholders, obtaining feedback from stakeholders, ranking preferences, and selecting the final management strategy.

9:00 – 10:00 am **Targeting Critical Areas and Scheduling Implementation .....Davenport**
To achieve the most effective and immediate benefit, BMP implementation must be targeted to the most critical areas. This session discusses the targeting of control measures and the importance of this effort to the ultimate success of the WPP. This session also discusses scheduling implementation efforts (Element F) as described in the final management strategy (Chapter 12.3 of the *Handbook*).

10:00 – 10:20 am **Break**

10:20 – 11:00 am **Developing Interim Milestones & Criteria to Measure Progress .... Davenport**
This component of the WPP is 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. 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 as presented in Chapter 12.4-12.5 of the *Handbook.*

11:00 – 12:00 pm **Designing & Implementing Effectiveness Monitoring – Element I ..... Hauck**
This session will provide guidance on developing Element I as described in Chapter 12.6 of the *Handbook.* Selecting an appropriate experimental design that incorporates previous and ongoing monitoring efforts will be discussed.

12:00 – 1:00 pm **Lunch**
**Meet at the Pavilion at 1 p.m. for hayride to river for next presentation.*
Please note: Participants will divide into two groups for the presentations below.

1:00 – 1:45 pm **Water Quality Monitoring: ..... Harmel**
Practical Guidelines & Lessons Learned
An overview of the how to use automated samplers and data sondes will be discussed. Practical guidance on installation and operation will be presented along with information on difficulties encountered and data uncertainty and how to communicate to stakeholders.

1:45 – 2:00 p.m. Additional Q&A and groups 1 & 2 will rotate to next presentation

2:00 – 2:45 pm **Texas Stream Team Monitoring Methods Demonstration ..... Pinchback**
This session provides an overview of Texas Stream Team, a statewide network of trained volunteers, partners, and institutions who promote a healthy and safe environment through outreach, data collection, and stakeholder engagement. This stream side session will describe how trained citizen monitoring efforts are valuable components to any WPP or ambient monitoring program. Staff will demonstrate field data collection techniques and provide hands-on opportunities for interested participants.

2:45 – 3:05 pm **Break**

3:05 – 3:35 pm **Expectations for Element D .....Bira**
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 as described in Chapter 12.7 of the *Handbook* (Element D). Funding sources in Texas will be discussed along with match requirements and the mechanisms for requesting it.

3:35 – 6:00 pm **Sustaining Watershed Groups for Implementation Success ..... Jarocki**
This session will provide an overview of Plan2Fund, Plan2Fund OPT, and the Directory of Watershed Resources developed by the Environmental Finance Center (EFC) Network for helping implement watershed plans.

6:45 pm **Dinner**

Friday, May 14, 2010 **Facilitator: Lucas Gregory**

7:00 – 8:00 am	**Breakfast**
8:15 – 8:45 am	**Putting It All Together ..... 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*.
8:45 – 9:15 am	**Implementing Your WPP – Arroyo Colorado Case Study ..... Engledow** This session will focus on Arroyo Colorado watershed protection plan implementation efforts built upon the stakeholder efforts and partnerships developed during the WPP development process. 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).
9:15 – 10:15 am	**Watershed Protection Plan Implementation in Oklahoma..... Phillips** This session will focus on watershed protection plan development and implementation efforts in Oklahoma, their experiences, and lessons learned.
10:15 – 10:35 am	**Break**
10:35 – 11:00 am	**Perspectives on Watershed Group Organization..... Dictson** As watershed protection efforts move beyond planning stages, transition to implementation and maintaining public involvement raise some challenges with implications on long-term sustainability. This presentation will discuss approaches for sustaining your watershed group once your watershed plan has been developed.
11:00 – 11:30 am	**Course Wrap-Up.....Gregory** Review of Nine Key Elements & the EPA Review Guide.
11:30 – 12:00 pm	**Knowledge Assessment/Course Evaluation** A post-course examination will be distributed and the results compared to the pre-course exam in order 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; Lunch** Certificates will be distributed as the class turns in their post-course exam and course evaluations.

Appendix F

Texas Watershed Planning Short Course

Course Assignments

Assignment 1

1) Split up into your respective teams.

2) The Team Leaders and Assigned Watersheds are as follows:

Team	Team Leader	Assigned Watershed
1	Jason McAlister	Lampasas River
2	Jay Bragg	Lake Granger
3	Matt Berg	Lake Granbury
4	Bud Solmonsson	Dickinson Bayou
5	Phyllis Dyer	Buck Creek
6	Jennifer Delk	Leon River
7	David Waidler	Eagle Mountain Lake
8	Om Chawla	Bastrop Bayou
9	Beverly Allen	Caddo Lake
10	Lucas Gregory	Carter Creek

3) Enter the Watershed Planning Website (http://iaspub.epa.gov/watershedplan)

4) Click on “Watershed Plan Builder”

5) Click “Enter the Watershed Plan Builder”

6) Fill in all required fields for Plan Name for your assigned watershed. List the Team Leader as the primary contact. Click Next.

7) Use the map tool to identify the location of your assigned watershed. Click Next.

8) Fill in all required fields for Plan Drivers in your assigned watershed then click on Next.

9) Fill in all required fields for Activities in your assigned watershed then click on Next.

10) Fill in all required fields for Issues/Concerns in your assigned watershed then click on Next.

11) Fill in all required fields for Pollutants in your assigned watershed then click on Next.

12) Add all team members (besides the Team Leader) as Stakeholders. Click Next.

13) Review the Summary Page. Click View or Print Outline.

14) Click Customized Outline (PDF version).

15) Save a Copy of the PDF.

16) Review the Annotated Outline for your assigned watershed.

17) Print the last 2 pages of the document and turn in to Kevin to get credit for Assignment 1.

18) Be prepared to discuss the Watershed Plan Builder, how you can use it in your ongoing WPPs, pros, cons, suggestions for improvements, and other issues on Tuesday before lunch.

Assignment 2

1) Split up into your respective teams.

2) The Team Leaders and Assigned Sites and Pollutants are as follows:

Team	Team Leader	Site	Pollutant
1	Jason McAlister	Uhland	*E. coli*
2	Jay Bragg	Lockhart	*E. coli*
3	Matt Berg	Luling	*E. coli*
4	Bud Solmonsson	Uhland	Total Phosphorus
5	Phyllis Dyer	Lockhart	Total Phosphorus
6	Clint Wolfe	Uhland	*E. coli*
7	David Waidler	Lockhart	*E. coli*
8	Om Chawla	Luling	*E. coli*
9	Lee Thomas	Uhland	Total Phosphorus
10	Lucas Gregory	Lockhart	Total Phosphorus

3) **Flow Duration Curve:** Using available daily streamflow data, a flow duration curve is developed for the site in question. You are starting with the Streamflow Data from one of three locations in Plum Creek. The data includes the date and the mean streamflow for that date for a period of approximately 46 years. Copy the flow data from the PCData.xls file (Flow Sheet) into Columns A&B of the LDC Calculator Flow Sheet.

Data for the curve is generated by: 1) ranking the daily flow data from highest to lowest; 2) calculating percent of days these flows were exceeded (percent = (rank ÷ number of data points) X 100).

4) **Develop Load Duration Curve:**

a) Copy the Water Quality data from the PCData.xls file (Water Quality) Sheet) into Columns A&B of the LDC Calculator Water Quality Sheet. The calculations are performed automatically in the LDC Calculator Water Quality Sheet to determine the daily load estimates and percent days exceeded for observed values.

b) The LDC Calculator sheet performs the following calculations automatically in the flow sheet. The load duration curve is developed by multiplying the Load or concentration (cfu or mg/L per day) = streamflow (cfs) x concentration x conversion factor (Equation 1). For these examples, the 126 cfu/100 ml for Ecoli and total phosphorus screening criteria of 0.62 mg/l is used, verify the appropriate number is in column H1.

c) The calculation conversion factors are for Ecoli - 864000000*(0.308^3) and for phosphorus - 86.4*(0.3048^3).

d) To apply a 10% margin of safety (MOS), the results of Equation 1 are divided by 1.1. In this case, a 10% MOS was selected to account for uncertainties in the gaged flow data.

5) **Graph the LDC** Graph the % Exceeded (Column E) with the Allowable Load with a 10% Margin of Safety (Column I) as a scatter plot. Format the Y axis to logarithmic scale.

6) **Plot Water Quality Sample Data on Load Duration Curve:** In order to compare monitored water quality samples they will need to be added to the graph by adding a series and plotting the % days exceeded (Column E) on the x axis and the bacteria load (Column D) on the y axis.

7) **Print your completed LDC with monitored loads graph and turn into Kevin to get credit.**

Assignment 3

1) Split up into your respective teams.

2) The Team Leaders, Water Resource Issues, and Sources for Assignment 3 are as follows:

Team	Team Leader	Water Resource Issue	Source
1	Beverly Ethridge	Excessive turbidity	Cropland Erosion
2	Loren Henley	Lake sedimentation	Streambank Erosion
3	Tiffany Morgan	Flooding	Unknown
4	Jason Hoffman	Pesticides in Groundwater	Cropland
5	Penny Wimberly	Nutrients in Surface Water	Animal Feeding Operations
6	Dickie Clary	Excessive stream sediment	Pastureland Erosion
7	Rachel Powers	Stream sedimentation	Construction Site
8	Brian Koch	Nutrients in Surface Water	Pastureland
9	Mitch Conine	Nutrients in Groundwater	Cropland
10	Pamela Casebolt	Nutrients in Surface Water	Cropland

3) Using the Conservation Practice Physical Effects (CPPE) table provided, develop a list of practices that provide at least a slight-moderate decrease for your Assigned Water Resource Issue and Source.

Conservation Practice	Effectiveness	Conservation Practice	Effectiveness

4) Prioritize the list based on effectiveness.

5) Select the top 5 practices that you would recommend for implementation.

Priority	Conservation Practice	Effectiveness
1		
2		
3		
4		
5		

6) Turn in to Kevin to get credit for Assignment 3.

Assignment 4

1) Split up into your respective teams.

2) The Team Leaders for Assignment 4 are:

Team	Team Leader
1	Trey Anderson
2	Sharon Daugherty
3	Nelly Smith
4	Amanda Ross
5	Jennifer Buratti
6	Todd Running
7	Mark Palmie
8	Steven Johnston
9	Louanne Jones
10	Ernest Moran

3) Each Group will be reading and reviewing pages 4-12 of the Yellow Bank Creek Watershed Management Plan (one of EPA's Top 6 Plans in the Nation).

4) After individually reading the section of the plan (20 min allotted), work as a group to evaluate the Yellow Bank Creek Watershed Plan for Elements A, B, and C in the provided worksheet (20 min allotted).

5) Indicate your team number at the top of the page and work through the two page worksheet.
   1. Satisfied column - Answer with a yes or no
   2. Level of Satisfaction ranges from 0 (low) – 4 (high)
   3. Page reference – pages where the information was described
   4. How did the plan satisfy or fail to satisfy evaluation criteria? – describe
   5. How can the plan improve this element? – describe
   6. Other notes and comments – Feel free to add comments here

6) Once you have evaluated all three elements and filled in the worksheet turn it into Kevin to get credit for Assignment 4.

7) We will provide EPA's evaluation of Yellow Bank Creek Watershed Protection Plan and discuss the groups' evaluations and compare all of the evaluations.

Assignment 5

EFC Software Tools Demonstration / Blue River Basin Case Study

1) View Blue River Basin Video

- This video will help the participants develop a shared mindset for the challenges of developing and implementing a watershed plan.

2) Plan2Fund Demonstration

- Using the Blue River Basin as an example, participants – in this case the whole class - will use Plan2Fund to identify the Blue River Basin's mission, goals and objectives.

3) Plan2Fund Objective Prioritization Tool Demonstration

- Plan2Fund OPT is a tool the group will use to prioritize plan objectives. Objectives are the essential elements of the watershed plan that when prioritized, direct the order of implementation events. Together, the class will use OPT to develop decision rules to determine when objectives will be implemented.

4) Task identification using Plan2Fund

- After the priority order of the objectives is established, the class will return to Plan2Fund to invent the tasks that need to be performed to finish those objectives. This exercise will draw on the practical experience of the group to identify the most basic building blocks of the implementation plan – and the budgeted resources necessary for each task.

5) Finding Resources Using the Directory of Watershed Resources

- This segment will begin with an overview of the Directory of Watershed Resources, a tool watershed organizations can use to search for financial and other resources to fund plan implementation.
- Next, the class will split up into their respective teams to discover the potential resources for each task identified in the Blue River Basin Plan case study.
- The Team Leaders for Assignment 5 are as follows:

Team	Team Leader	State
1	Jenna Barrett	Idaho
2	Steve Potter	Maryland
3	Lewis Brockette	Arkansas
4	Lauren Bilbe	Missouri
5	Kathleen Ramsey	Idaho
6	Clint Wolfe	Maryland
7	Peter Ilieve	Arkansas
8	Lisa Prcin	Missouri
9	Larry Hauck	Idaho
10	Vanessa Escobar	Maryland

- In this exercise, each team will be asked to access the common federal resources in the Directory. But, the teams will be assigned a specific State in the Directory database to discover how the variety of funding sources in different states affect the implementation of the watershed plan.

6) Discussion, Conclusions, Lessons Learned and Future Workshop Suggestions

- The different State groups will share their implementation funding experiences.

Appendix G

Texas Watershed Planning Short Course

Course Evaluation

Texas Watershed Planning Short Course Evaluation
May 10-14, 2010

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	Level of Satisfaction				
Nine Elements of Watershed Protection Plans	1	2	3	4	5
Perspectives on WPPs	1	2	3	4	5
Working with Stakeholders to Move the Process Forward	1	2	3	4	5
Partnership Building Experiences in Plum Creek	1	2	3	4	5
Expectations for Element E	1	2	3	4	5
Using Outreach to Develop & Implement WPPS	1	2	3	4	5
Texas Watershed Steward Program	1	2	3	4	5
Expectations for Element A	1	2	3	4	5
Gathering data to assess your watershed	1	2	3	4	5
Defining the Scope of the WPP	1	2	3	4	5
The Good, the Bad, and the Ugly	1	2	3	4	5
Analyzing Data to Characterize Your Watershed	1	2	3	4	5
Web-Based Tools for Watershed Assessment & Management	1	2	3	4	5
Expectations for Element B	1	2	3	4	5
Overview of Models for Estimating Pollutant Loads & Reductions	1	2	3	4	5
Simple Tools for Estimating Loads and Load Reductions	1	2	3	4	5
Watershed Modeling: Plum Creek Case Study	1	2	3	4	5
Overview and Expectations for Element C	1	2	3	4	5
Urban NPS Measures	1	2	3	4	5
Agricultural NPS Measures	1	2	3	4	5
Wastewater Treatment Systems	1	2	3	4	5
Wastewater Issues	1	2	3	4	5
Online Wastewater Treatment Modules	1	2	3	4	5
Expectations for Elements F, G, and H	1	2	3	4	5
BMP Selection: Cedar Creek Reservoir Case Study	1	2	3	4	5
Targeting Critical Areas and Scheduling Implementation	1	2	3	4	5
Developing Interim Milestones & Criteria to Measure Progress	1	2	3	4	5
Designing & Implementing Effectiveness Monitoring- Element I	1	2	3	4	5
Water Quality Monitoring: Practical Guidelines & Lessons Learned	1	2	3	4	5
Texas Stream Team Monitoring Methods Demonstration	1	2	3	4	5
Expectations for Element D	1	2	3	4	5
Sustaining Watershed Groups for Implementation Success	1	2	3	4	5
Putting It All Together	1	2	3	4	5
Implementing Your WPP- Arroyo Colorado Case Study	1	2	3	4	5
Watershed Protection Plan Implementation in Oklahoma	1	2	3	4	5
Perspectives on Watershed Group Organization	1	2	3	4	5

3. **If you were not "completely satisfied" with the short course, please tell us what we could have done better in order for you to have been "completely satisfied?"**

4. **What was the most significant thing(s) you learned from this short course?**

5. **Which topic(s) covered by this short course, if any, would you have liked discussed in greater detail?**

6. **What topic(s), if any, did you have a particular interest in but was not covered by the short course?**

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

8. **How satisfied were you with the quality of the course materials? Are there additional resources that should be provided at future courses?**

9. **What is your level of satisfaction with the sequencing of topics?**

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

11. **Looking beyond the course, in your opinion what could the state and/or federal agencies do to best serve you in your WPP efforts?**

12. **What other tools, training, capacity building, etc. (if any) would you suggest to serve your efforts in WPP planning?**

13. **What was your level satisfaction with the training location and facility?**

14. **How would you rate the WPP you are involved in as meeting the intent of EPA's WPP guidelines?**

15. **In your watershed, what are the local strengths for success?**

16. **In your watershed what are the local obstacles for success?**

Appendix H

Texas Watershed Planning Short Course

Pre/Post Course Exam

Name:_____

Texas Watershed Planning Short Course Pre-/Post-Test

(1) List 6 steps in a comprehensive watershed planning process. (3.5 points each)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

(2) What 4 characteristics of a WPP set it apart from a TMDL and other water planning efforts? (3.5 points each)

a. _____

b. _____

c. _____

d. _____

(3) According to the EPA Handbook for Developing Watershed Plans, what are the 9 elements of a fundamentally-successful watershed plan? (3.5 points each)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

(4) Who is ultimately responsible for approving watershed plans? (3.5 points total)

_____

(5) Load duration curves can estimate loading during time periods when there is no sampling by establishing relationships between: (3 points total)

a. Stream flow and pollutant concentration
b. Land use activity and rainfall
c. Rainfall-runoff relationship
d. None of the above

(6) Which is the more accurate method of estimating pollutant loads? (3 points total)

a. Unit area load
b. Calculation of load based on monitoring data
c. Watershed modeling
d. Watershed surveys

(7) According to the EPA Handbook, what is the preferred method for evaluating BMP efficiency during watershed planning? (3 points total)

a. Model BMP effects
b. Use literature values
c. Monitoring
d. Best professional judgment

(8) One of the most common reasons why water quality control measures fail is failure to _____ (3 points total)

a. Spend adequate funds up front for the most effective controls
b. Provide adequate oversight during the construction phase
c. Locate the controls properly
d. Budget and fund maintenance costs
e. Implement post project monitoring

(9) When developing management measures for watersheds with multiple pollutant sources, which of the following aids in determining BMP effectiveness? (3 points total)

a. Proximity to impaired segment
b. Self-reporting data
c. A mixed analysis approach
d. Total load management analysis

(10) What factors need to be taken into account when developing an implementation schedule within your watershed protection plan? (3 points total)

A. Availability of funds for capital purchases
B. Staff skills and talents
C. Weather conditions
D. Availability of appropriate technical and technological solutions
E. All of the above
F. None of the above

(11) Critical milestones have to be achieved or the management approach must be modified to reach your desired goal. (3 points total)

a. True b. False

(12) The Element, "interim measurable milestones," outlines how you will measure: (3 points total)

a. Progress in implementing the management measures
b. Whether or not loading reductions are being achieved
c. Progress in attaining water quality standards
d. All of the above

(13) At a minimum, what must you measure to evaluate a load reduction? (3 points total)

a. Concentration
b. Temperature
c. Flow
d. Precipitation
e. Type of pollutant
f. A and C
g. C and D
h. A and E

(14) Which of the following questions is most likely to require a model to answer? (3 points total)

a. Where and when does impairment occur in a water body?
b. Which combination of BMPs will most effectively meet load targets?
c. What are the loads associated with individual sources?
d. None of the above.

Appendix I

Applied Fluvial Geomorphology Course

Participant Comments

Attachment 2

PARTICIPANT COMMENTS FROM *AFG SHORT COURSE*
January 28 – February 1, 2008

1. There is a lot of jargon/equations in Dave's lectures, much of which I was unfamiliar with prior to the course. Instead of pre-reading literature on stream measurements, I think students should read and familiarize themselves with the terminology used throughout the week. Other than being a little behind the terminology all week, the course was great and Dave is excellent at what he does. I would like to know what becomes of the sites we visited on Thursday? Especially the one at Garner S.P.

2. I learned more about applying fluvial geomorphology principles in this one week course than I did in a semester long geomorphology graduate course. I look forward to putting these principles into practice and learning more about stream restoration by participating in other Rosgen courses in the future.

3. Thanks for putting this course on. I learned a lot in a very short time. The information will be very valuable in addressing stream impairments associated with physical modifications. I think it is important, however, to recognize that the Rosgen method is not yet universally accepted and that there are notable objections to his methodology in the scientific community. I am not sure how to address this issue in a course like the one held in Bandera, but I think thought should be given on devising a way of incorporating differing opinions on stream restoration methodologies into future courses. Thanks again for a great course.

4. Good mix of instruction and professional networking

5. Field tour transportation was rated as neutral because the charter bus was comfortable and a great idea; however, this particular driver was terrible. We could have easily crashed a couple of times with his lack of driving skills. The class was money well spent! Rosgen gave us our money's work with the long days of activities. Very good information that needs to reach more professionals in the water resources disciplines. Very appreciative of the sponsorship role of TWRI & EPA to reduce the cost for government employees, because I would not have been able to attend at the full rate. Thank you. Very good information gained through the Thursday site assessments; good choice of projects.

6. Excellent location, social entertainment, lodging staff

7. I would have liked some bottled water available, especially with the poor quality tap water at the facility. Granted, there was a water cooler in the corner, but we could only get water one cup at a time (and it looked a little mildewy). The class was very informative. I spent lunchtime on Friday and the car ride home discussing how we could implement some of it at TxDOT. Like we said during class, it will take time but we have ideas on how to approach it. The second book for each agency is much appreciated, even if we have to share. And thanks for the coffee mug!

8. Overall this was one of the best courses I have ever taken. I can see where many agencies can incorporate these principles into their job functions. I also feel that Texas is definitely lacking in the utilization of these concepts using old methods that have been proven over and over that they do not work. I hope to complete all the courses to gain the valuable experience, knowledge and in depth understanding that these courses have to offer in order to be able to fully implement these principles in my job.

9. Great location

10. Because of our location in the state and the high degree of our responsibility devoted to reservoirs it is unlikely that I will be conducting the stream measurements and or restoration first hand. However, the material covered in this course will allow me to communicate and understand what the engineers and hydrologists from the controlling authorities are telling me. Furthermore, it will allow me to make more informed decisions when reviewing permits for engineering projects and bank stabilization projects on reservoirs or streams. I would recommend this course for any water resource manager.

11. This was a very informative class, and I enjoyed meeting and networking with the other participants. I hope we will get Dave Rosgen to come and give the remaining 2 courses in Texas.

12. The staff and the facilities at the Mayan Ranch were top notch and made the duration of the class easy to handle.

13. My only complaint for the entire trip was the bus driver for the final field day. That guy scared the crap out of me and take my word for it, that's not an easy thing to do. In future classes, it would be EXTREMELY helpful to have someone fairly knowledgeable and 'high up' from the Corps of Engineers attend this training to provide insight from the Corps perspective on how government entities (such as the DOT) could approach large scale restoration projects in conjunction with highway and bridge replacement/ rehabilitation projects. Along with this, a Corps representative could provide some guidance on constructing such projects to stockpile or 'bank' mitigation credits for future transportation project impacts.

14. I really liked the course, though it was a bit over my head in light of my particular job (storm water permitting). I will be able to use the info from the class if I deal with others who are more directly involved in restoration projects. I'd love to see a very one-day (or half day) class tacked on to the beginning of the week-long course, for managers/decision-makers who are not technical. I personally would have benefitted from more direction prior to going out in the field. I think that the groups may have functioned better as teams if we had met together before, to discuss who would take on what role. I think that Rosgen is one of those rare individuals who can bring significant change in the way things are done. He obviously loves his work and knows his subject. It was a pleasure to learn from a person who has something truly new to teach.

15. Lodging was below average.