SECTION 319
FINAL PROJECT REPORTS

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

2. BACKGROUND

3. FINAL PROJECT EXAMPLES

4. FINAL PROJECT FORMATS

   A. ASSESSMENT/PLANNING PROJECT REPORTS

   B. GROUNDWATER PROJECT REPORTS

   C. INFORMATION/EDUCATION/TRAINING/DEMONSTRATION PROJECT REPORTS

   D. WATERSHED PROJECT REPORTS

5. FUTURE DIRECTIONS

6. PRESENTATION SLIDES

   A. CWA SECTION 319(H) FINAL REPORTING: ESSENTIAL ELEMENTS OF A SUCCESSFUL NPS PROJECT REPORT

   B. MAKING THE MOST OF YOUR FINAL REPORT

EXECUTIVE SUMMARY

INTRODUCTION

Preparation of a final project report is an important aspect of the section 319 grants program. These reports convey important information about NPS projects, their success or failure, and the way in which grant funds were spent. Final project reports can function as a multipurpose document that goes beyond fulfilling the requirements of a section 319 grant. This notebook describes the purpose of section 319 final reports, the information that should be included in the report, examples of especially effective elements from 319 reports, and ways to expand the final report to be used for outreach and education, building partnerships, and many other uses.

SECTION 319(H) BACKGROUND

Since 1990 EPA regional offices have funded projects under Section 319(h) of the Clean Water Act (CWA) to help implement state nonpoint source (NPS) management programs. These funds supported a wide variety of activities, including

- Watershed projects and watershed planning
- Technical assistance
- Financial assistance in the form of cost share
- Information and education
- Training
- Demonstration projects including technology transfer
- Monitoring to assess the success of specific NPS implementation projects
- Monitoring to assess the effectiveness of NPS controls
- Watershed Restoration Action Strategy (WRAS) development
- Total Maximum Daily Load (TMDL) development

In 2000 the Section 319 NPS program will reach two major milestones. This is the 10th year of state implementation of NPS programs with congressional funding. With the additional funding in FY 2000, the program will pass the $1 billion mark. The NPS program has arrived at an appropriate point for states and EPA to evaluate the program's accomplishments and the pace of progress relative to the extent of the remaining NPS problems. This juncture also affords an opportunity to consider how to improve efforts to track progress and report success in controlling NPS pollution to the public.

WHAT IS A SECTION 319 FINAL PROJECT REPORT?

An important part of the Section 319 grants process is preparation of the final project report, in which a state or local project sponsor presents a summary of a

project, including background information, water quality data and trends (where applicable), and other supporting information to describe the accomplishments and milestones reached. The final project report provides valuable information to the public, EPA, and other organizations to gauge the success of the project and the NPS controls implemented.

Project sponsors should keep final report development in the forefront of their minds throughout the project. Data, photographs, maps, and other information are collected most efficiently while the project is underway. For example, elements such as before-and-after photos that show improvements in the water resource would not be possible if baseline photographs were not taken early in the project.

Several parts of the final report can be developed while the project is underway, including project descriptions, maps, goals and objectives, and the history of water quality problems in the watershed. Sections of the report that should be written as the project draws to a close include achievement of milestones, evaluation of goal achievement, coordination activities, funding, problematic aspects of the project, and recommendations for future activities. *The final report should not be written as an afterthought—rather, it should be integrated from start to finish with the planning, coordination, and implementation aspects of the project.*

WHAT ARE THE BENEFITS OF PREPARING A SECTION 319 FINAL PROJECT REPORT?

Section 319 final project reports can go beyond fulfilling the grant requirements of documenting progress accomplished on the workplans. Ultimately, EPA hopes to better account for improvements brought about by the totality of water quality programs that are relevant to NPS pollution control. Section 319 final project reports document the location, scope, and progress of projects funded under the Section 319 program. This information can be used to help facilitate coordination between watershed projects. All parties involved can benefit by sharing resources and information and avoiding duplication of efforts.

Section 319 final project reports also provide tangible evidence that grant money was effectively spent. EPA can present data showing improvements in water quality, information on new programs and projects that resulted from the 319 project, and other 319 success stories to Congress to guide future budget allocations for additional NPS projects.

Section 319 final project reports can be used to garner support from watershed groups and other potential partners interested in continuing an NPS project after the 319 grant has ended. Results presented in a Section 319 final project report also can be used to support proposals for new grants. A Section 319 final project report is an excellent means for identifying additional water quality issues in the watershed and for proposing additional studies and programs to address these issues.

An attractive, informative, and user-friendly report can be used as outreach material to inform the public about projects taking place in their watershed and can help to gain widespread support for these and future projects. A short fact sheet or brochure that includes information from the report can help to spread the word about the project. The fact sheet can be derived from the report's executive summary and can be augmented with graphical and data elements from other sections. Also, the report can be published on the World Wide Web with links for more information to encourage feedback and participation. If the report is going to be published on the web, special consideration should be given to the report format to facilitate the transition between the printed page and an electronic document.

WHAT IS INCLUDED IN THIS HANDBOOK?

This handbook is divided into four sections that provide more information about Section 319 and grant reporting requirements:

BACKGROUND This section summarizes the laws and regulations that govern the Section 319 grant program.

FINAL PROJECT EXAMPLES This section presents examples of graphical and data elements from example final reports that are especially useful and informative. An explanation of why each element is effective is provided.

FINAL PROJECT FORMATS This section describes the "nuts and bolts" of reports. Four report formats are presented along with a description of the purpose of each type of report and additional clarification of the information being requested for certain elements of the reports. These four formats are

- Assessment project reports
- Watershed reports
- Information and education reports
- Groundwater reports

FUTURE DIRECTIONS The final section provides information on how to use all or portions of Section 319 final project reports to foster public education and participation, to involve other stakeholders, and to secure additional funding for continued support of NPS control efforts.

BACKGROUND

INTRODUCTION

In 1987 Congress recognized that state and local water authorities needed assistance with developing and implementing measures to control nonpoint source (NPS) pollution. The enactment of Section 319 of the Clean Water Act (CWA) established a national program to control nonpoint sources of water pollution, as well as a means to help fund state and local implementation of nonpoint source management programs. Nonpoint source pollution occurs as water from rain and snowmelt moves over and through the ground collecting natural and human-made pollutants and eventually enters lakes, rivers, streams, wetlands, estuaries, coastal waters, and ground water. Atmospheric deposition and hydrologic modification are also sources of nonpoint source pollution.

Section 319 addresses nonpoint source pollution control by requiring states to report to EPA all the major sources of nonpoint source pollution and nonpoint source problems in their state. States must also develop management programs with identified best management practices (BMPs) suitable for reducing nonpoint source pollution. To ensure the management programs are realized, Congress established Section 319(h) to award grants to states for implementation of nonpoint source management programs.

SECTION 319 GRANT FUNDING CRITERIA

The EPA awards Section 319 grants based on statutory, regulatory and administrative criteria that assures management of funds in a fiscally judicious manner.

PURPOSE OF GRANT

Section 319 (h)(1) allows EPA to award grants only to states with approved nonpoint source programs for implementation. Each funded activity and project should follow and achieve goals included in the nonpoint source program. An application for a 319 grant should contain information about the type of BMPs the state intends to use to assist, encourage, or require control of nonpoint source pollution (Section 319(h)(2)).

CONTINUING ENVIRONMENTAL PROGRAM GRANTS

All Section 319(h) funds are awarded as Continuing Environmental Program Grants, pursuant to Title 40 of the *Code of Federal Regulations* (CFR), Part 35, Subpart A. Unlike most other continuing environmental grants, Section 319(h) grants are not required to be closed out annually; rather, states and regions are encouraged to work together to ensure continuation of the grants.

REPORTING REQUIREMENTS FOR SECTION 319 GRANTS

All Section 319(h) grants are subject to the requirements under 40 CFR Part 31 and Part 35, Subpart A, general grant regulations and reporting requirements for federal grants awarded to states and localities. Section 319(h) of the CWA also has reporting requirements for grantees. The following sections include a description of the basic reporting requirements from 40 CFR Part 31.40 that are important to section 319 final reports. Sections 3 and 4 of this training manual provide more specific descriptions, suggestions, and examples of final reports.

SIGNIFICANT DEVELOPMENTS

If an event that has a significant impact on the grant occurs between performance report dates, then 40 CFR 31.40(d) requires states to send EPA a report describing how the significant development will affect performance. A significant development can include an event that causes a delay in meeting milestones, goals, and objectives or a favorable development that indicates a state might meet its milestones sooner than anticipated or can reduce their costs.

GRANT REPORTING AND TRACKING SYSTEM (GRTS)

The current reporting/tracking program enables EPA and states to describe the progress they have made in implementing the national NPS program. The Grant Reporting and Tracking System (GRTS) electronically tracks projects and activities funded with CWA Section 319(h) funds. This national database began tracking approximately 2,400 projects. From 1990 to 1999, this number has increased to 11,150 projects nationally, with 750 projects worth $81,000,000 currently being tracked in Region 8. The projects can be referenced geographically by cataloging unit, latitude/longitude number, and by state, complete with project descriptions and evaluations. In 1997, GRTS was migrated from a mainframe database to Lotus Notes. The system is capable of producing structured reports for state use as well as ad-hoc reporting capabilities. Currently, states have the ability to attach final project reports in GRTS, in an area called FEEDBACK. There is interest in creating a specific separate area on GRTS for final reports, however, the system administrators are waiting until there are more states that want to use it.

The primary purpose of the GRTS database is for funding, budgeting, and tracking 12 mandated elements that are reported to Congress annually. GRTS data entry, system support and maintenance, training and software/hardware needs are administered by states as part of their NPS program. GRTS is also used for obtaining project information nationally and is used by states to facilitate mid-year and annual electronic reporting. Key users of GRTS are federal agencies, states, tribes, regional NPS project officers, and others. To help with data reporting and management, EPA encourages states to report several nationally

mandated data elements. Listed below are some of those elements, their definitions, and examples.

- *NPS Program or Project Title*
- *NPS category* – Indicates the primary NPS category of pollution applicable to the project, such as, urban runoff, agriculture, and silviculture.
- *Functional category* – This selection should identify the principle or main approach, remedy, or solution that will achieve the objective of the project. For example, best management practices, design implementation, information and education (I&E), water quality assessment, and monitoring activities (TMDL) are all functional categories. (Note: NPS category and functional category can be confusing! Here is an easy way to remember the difference: "the NPS category is the pollution, the functional category is the solution.)
- *Waterbody type* – This data field identifies the waterbody type, such as rivers, streams, wetlands, lakes, groundwater, and reservoirs.
- *8-digit hydrologic unit code* – The U.S. Geological Survey designation for the geographic area or watershed affected by the NPS project or pollution source.
- *The budget* – This selection will determine the total budget based on information about the total 319(h) funds, EPA other funds, other federal funds, state funds, state in-kind funds, local funds and other funds data fields.
- *Amount of 319(h) funds allocated to sub-state recipients under the grant* – This selection determines the total dollar amount awarded to subgrantee's.

The information contained in GRTS enables EPA to more efficiently respond to inquiries from constituent groups, Office of Management and Budget, and Congress. Region VIII encourages states to work with EPA to help make report tracking more efficient and eliminate duplication of work by using GRTS. GRTS can make grant reporting easier, and it can be a useful educational tool by providing information about state and national nonpoint source programs and projects. However, the quality of the data and information entered into the database will reflect the quality of what goes into it.

Currently, EPA is working with states to revise the system to enable the Agency and states to more effectively account for progress in implementing the NPS program. A more integrated system would allow EPA and other system users to relate the implementation of 319-funded projects to the priority problems identified in TMDLs and 305(b) assessments. In the long term, it might also enable EPA to link more effectively with both federal agency programs (e.g., USDA's Environmental Quality Incentives Program) and state funding programs.

FINAL PROJECT EXAMPLES

FINAL REPORT EXAMPLES

This section of the 319 Final Report Training Handbook contains examples of effective text and graphics from reports that can be used as models for project sponsors when developing their final report. The examples include maps, tables, graphs, charts, and excerpts from completed final reports. These examples can help the project sponsor design an interesting and informative report that targets both technical and nontechnical audiences.

Project sponsors are encouraged to think ahead and identify their data analysis and display needs before the project is completed. For example, before-and-after photographs are a great way to show changes that have occurred because of the project. These graphics may not be possible unless project sponsors plan ahead and develop them through the duration of the project.

An advantage to including nontechnical explanations of data and results and tell-all graphics in final reports is that they can be used in newspaper articles, fact sheets, bulletins, or other outreach materials. Project sponsors should keep in mind that the report is important documentation of project accomplishments, and can be used for many purposes. The reports should be geared for a wide range of audiences.

EXECUTIVE SUMMARY

Here is one example of an executive summary. This part of the report should include a brief list of funding sources and expenditures and a description of the overall accomplishments of the project. This example, which is from the Owl Mountain Watershed Project Continuation final report, follows the Regional format and gives a brief but effective summary of the project's many successes.

Project Title: Owl Mountain Watershed Project Coordination

Grant Number: 98-11111 Grant Source: State Department of Water

Initiation Date: July 10, 1999 Expiration Date: April 6, 2000

Lists of funding sources and expenditures

FUNDING		
Total EPA Grant: Cash	$152,000	
Federal Agency Contributions: Cash	$233,100	
State & Private Contributions: Cash	$48,536	
Subtotal Cash:		$433,636
Federal Agency Contributions: In-kind	$369,750	
Local Match:	$162,438	
Subtotal In-kind:		$532,188
TOTAL FUNDING		**$965,824**
EXPENDITURES		
Expenditures of EPA Funds:	$152,000	
Other Expenditures:	$281,636	
TOTAL EXPENDITURES		**$433,636**

Clear summary of accomplishments

Summary Accomplishments:

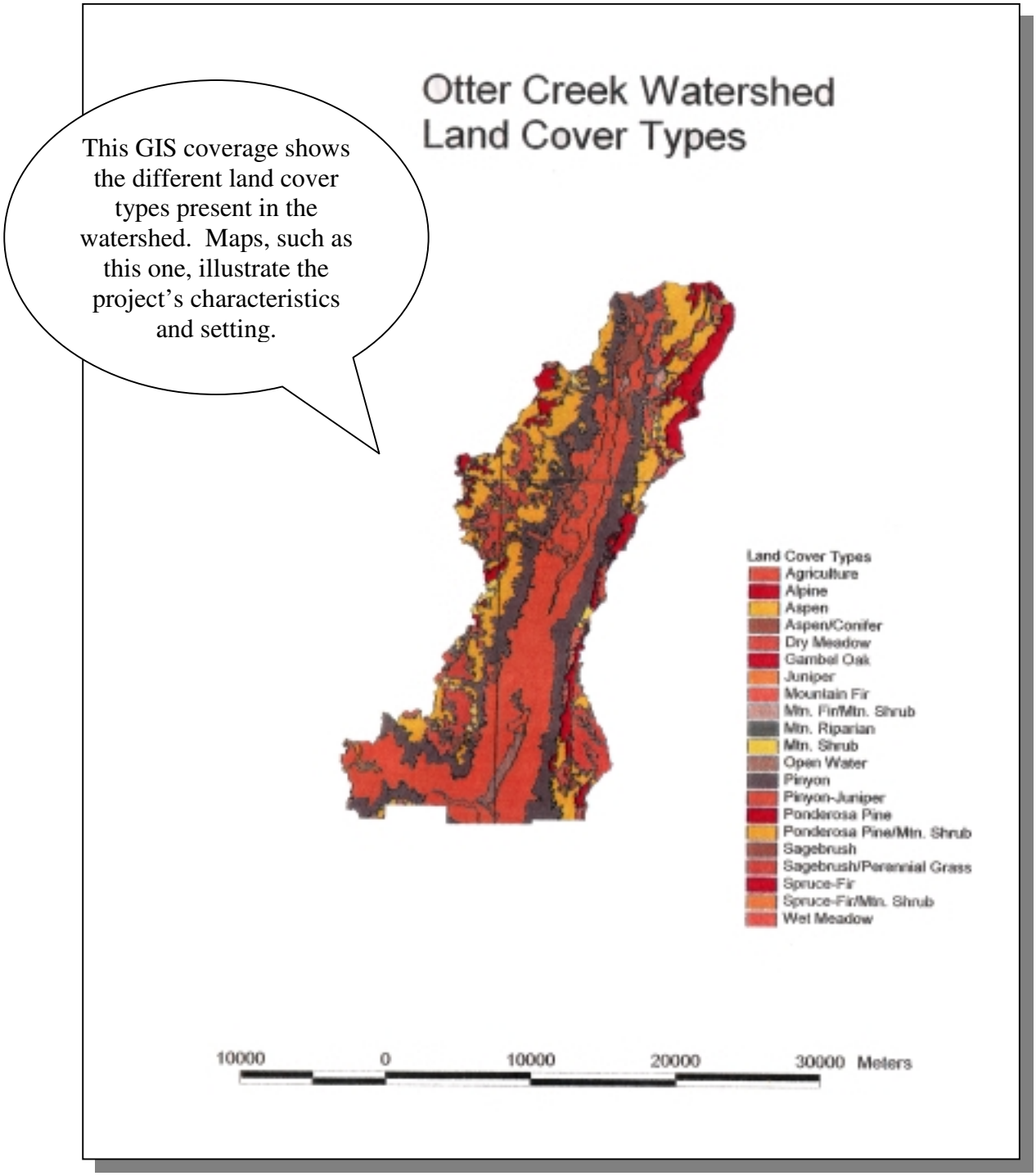
BMP's: Owl Mountain Partnership assisted in the completion of 18 water development projects as part of grazing rotation systems designed to improve livestock distribution and land health and to protect riparian areas. Of the 18 water developments, 13 were partially or totally paid for with 319 Nonpoint Source funds. We constructed 23 ½ miles of permanent fencing for grazing systems and 42 ¼ miles of temporary electric fences for pasture rotation or protection of vegetative treatments. 3, 021 acres were treated with spike, 2, 4-D, brush beating, or seeding. Please see project summaries in Appendix Sections C, D, and E for accomplishments on individual sites.

Outreach: OMP published a brochure and has a web page on the Internet. We continue to host at least three project tours each year and have many slide shows for college classes and other interested groups.

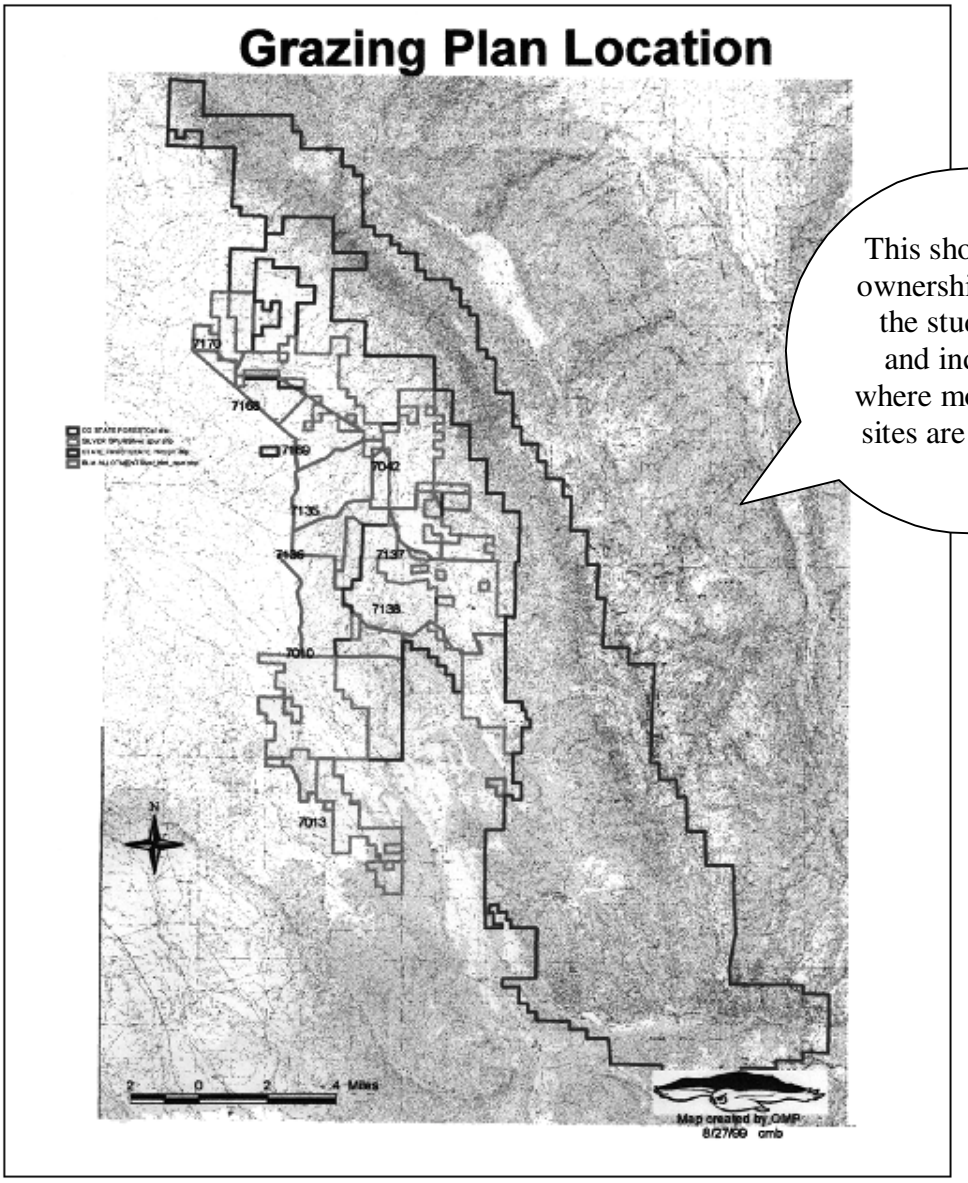
Other Issues: The Owl Mountain Partnership has expanded its boundaries to all of Jackson county. This has enables us to work with more ranches and to focus on projects impacting listed streams in North Park. As we end the first phase of our demonstration project, we are in the process of revising our vision statement and objectives for the next five years.

INTRODUCTION

The introduction should contain background information on the project including the project area, HUC number(s), a description of data available from historical reports, rationale for pursuing grant funds, and the NPS problems in the project area. To facilitate this understanding, project sponsors should include maps in the introduction to help orient the reader. Land cover or land use maps, topographic maps, road maps, and land area maps are great ways of displaying locational information and details about the study site(s).



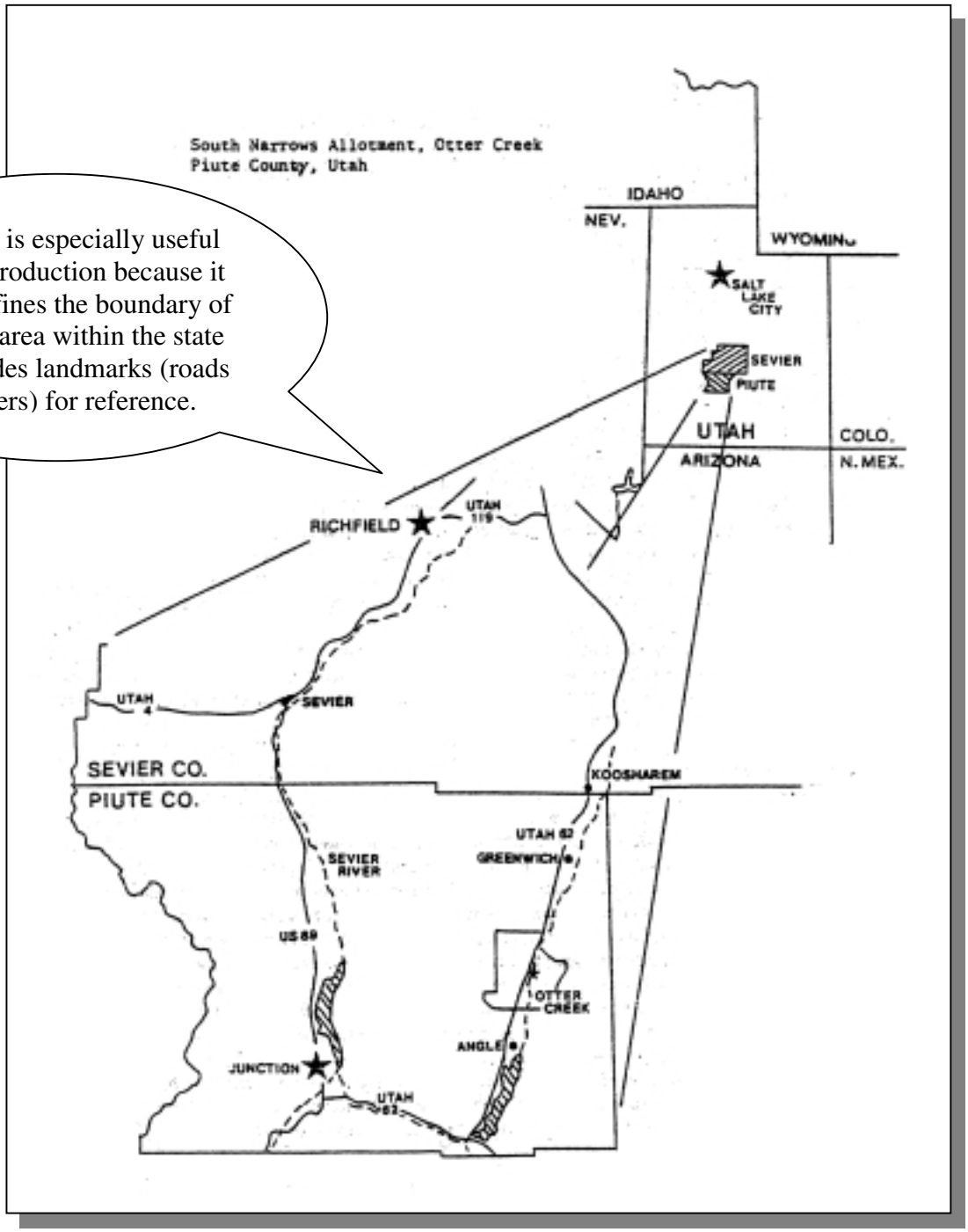
INTRODUCTION (CONTINUED)



This shows land ownership within the study area and indicates where monitoring sites are located.

INTRODUCTION (CONTINUED)

This map is especially useful for the introduction because it clearly defines the boundary of the study area within the state and provides landmarks (roads and rivers) for reference.



PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

Overall project goal is relatively broad-based

Goal: To decrease the slope of the regression between discharge vs. TSS by half in 4 out of 5 years (for stream x, from 0.51 to 0.26).

Specific, concise objective

Objective: Reduce sediment coming from 96,000 acres of eroding condition rangeland by 130,000 tons/year.

Task: Reestablish vegetative ground cover on 3,000 acres of rangeland (very poor condition and located on south facing slopes) by: controlling weeds on 1,000 acres; reseeding 3,000 acres with improved varieties of grasses and forbs, installing fencing, livestock water developments; applying deferred grazing on 3.000 acres.

The task is an "action item."

Products: Establish suitable vegetative cover on 3,000 acres; reseed 3,000 acres; install cross fencing and livestock water developments and deferred grazing on 3,000 acres. Reduce sediment, with associated phosphorous, by 24,000 tons annually.

A list of products clearly defines the expected or achieved results/successes

Goal: To identify specific areas within the Gunnison basin that are contributing the highest selenium loadings to the river system so remediation efforts and best management practices can be concentrated in those areas to reduce the selenium concentrations to protect fish and wildlife species, including some listed threatened and endangered species, while maintaining the viability of current land uses within the basin.

The goal describes the ultimate purpose of the project

Objective 1: Characterize the selenium loads for the tributaries of the Gunnison and the North Fork of the Gunnison Rivers.

Objective 2: Characterize the selenium loads for 3 tributaries on the east side of the Uncompahgre River downstream from Colona. This characterization will identify areas where implementation of best management practices would provide the largest reduction of selenium loading.

Objective 3: Establish an outreach and education program to water users and residents in the area to inform them of the selenium problem and provide them with the information necessary to implement BMPs and remediation practices for reducing selenium loading.

Objectives provide more specific details about how the goal will be met

PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

Objective 2: Management Plan Implementation/BMPs

Task #4: Water Developments: We projected completing 2-5 water developments per year from 1996 to 1999, for a total of 8-20 water developments. We actually completed 18 water development projects, all as part of grazing rotation systems designed to improve livestock distribution and land health. These projects consisted of ponds, wells, springs, and associated pipelines to increase water-holding capacity for wildlife and livestock. Several water development BMP's were constructed to provide additional water sources in upland areas to keep livestock from continuously using riparian areas.

Here is a useful example of a task description for a final report: clearly stating initial plans, then describing what was actually completed. A great way to show that the task was a success.

This table shows milestones for various tasks, which in this case are BMPs. A table is a useful way to summarize this information.

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Demonstration—Winter grazing and feeding on Wolf Creek	✔				
Implement 4 grazing BMPs on range units 9 and 10 on Little Porcupine Creek		✔			
Monitor range units 9 and 10 for range condition and water quality changes		✔	✔	✔	✔
Stabilize abandoned logging roads		✔	✔	✔	✔

PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES (CONTINUED)

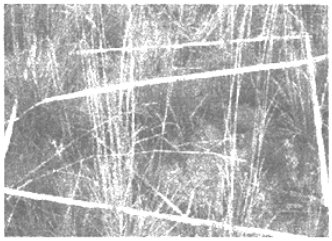
Owl Mountain Watershed Project Continuation
Grant # 97-05098
Project Goals, Objectives, and Activities

Planned Milestone, Actual Products and Completion Dates, continued:

Task # 10: Vegetation and Project Monitoring: We have continued monitoring of vegetation treatments and projects, even though monitoring was not funded by this grant. All vegetation treatments have pre- and post- treatment transects done to evaluate results. Project sites are visited frequently to assess progress. We projected completing 95 transects from 1996 - 1999. We actually completed 70 transects, including utilization, photo points, daubenmire, line intercept, and 4 transects unique to the Meyring spring pasture project. Many of these transects have been done for the North Park Habitat Partnership Program by sharing a monitoring/field person. This has been very successful and will be continued with the same person next year, since so much time is wasted by having a different person monitor each year. HPP does not have the capability to hire an employee, so using OMP's employee is a very efficient way to expand a part-time position to a full-time one. Assessment of transects will be done during the winter of 1999.

Meyring pasture before seeding in 1997.

Meyring pasture August 1999.



Close up of transe

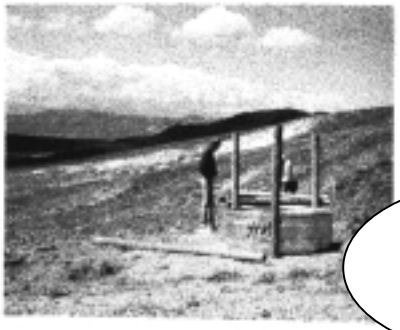
Page 4

This task description includes before-and-after photos, which are an excellent way to illustrate the success of a project. Pictures also help to describe the project area.

SUPPLEMENTAL INFORMATION

Project summaries are an excellent way of describing the tasks planned for each objective, are a good addition to any final report, and can be included either in the supplemental information section or as an appendix.

OWL MOUNTAIN PARTNERSHIP
BALLER RANCH RESOURCE MANAGEMENT PLAN
SPECK DRAW SPRING DEVELOPMENT
OWL 94-08



Good, concise description of the problem

Statement of Issue: This spring is located near the head of Speck Draw where the drainage slopes down toward Deer Creek. During past years, many improvements have been made to the private lands on/adjacent to Speck Draw including treatment of approximately 300 acres of sagebrush by using Spike and a cross-fence splitting the area into two different pastures. However, once this cross-fence was constructed, water became a limiting factor and forced livestock either down to Deer Creek or back to another spring source to the north which is used jointly by the Riley and Cary Lewis Ranches.

Solution: In 1997, the Natural Resource Conservation Service (NRCS), OMP and Mr. Jim Baller, manager for the Riley Ranch, looked at the potential spring source and hired local contractors to construct this spring. This water source development now allows the Riley Ranch to hold their livestock in the uplands above Deer Creek and allow for better livestock distribution within the Speck Draw area.

Funding: The total cost of this project was $4,418.50, which was funded by an Environmental Protection Agency (EPA) 319 Non-point Source grant.

Evaluation: The spring produces high-quality water. However, another trough will eventually be placed on this site to increase capacity for livestock waters so that livestock can water from two different pastures, which will allow for better regrowth of the area's vegetation. All maintenance responsibility lies with the Riley Ranch.

Evaluation of project includes future activities

SUPPLEMENTAL INFORMATION (CONTINUED)

This example is a list of the projects completed for a task. Include this list in the text of the final report or as an appendix.

Task #4: WATER DEVELOPMENT BMPs

OWL98-11 Baller Ranch Management Plan: Speck Draw spring (BMP#)

OWL 96-11 Hebron Management Plan: Hebron well and pipeline (BMP#)

This is a sample newsletter from the Owl Mountain Watershed Project Continuation final report. Newsletters are a great way to reach out to locals and can help gain local support. Make sure to cite any outreach material developed for a task or objective and include examples in an appendix.

Mountain Ecos

ng/Summer 1996 Volume III, Issue I

Owl Mountain Partnership

WHY MONITOR?

Monitoring rangelands is an important component of management. When we discuss monitoring, we refer to trend studies. The idea is to study the direction of change. This helps to determine the overall effectiveness of management, to see if land practices are achieving management goals.

A vegetation inventory is a means of determining the existing conditions of the vegetation. It is a single sample. The Owl Mountain Partnership's vegetation inventory is a baseline for existing vegetation conditions. This baseline can also be useful for monitoring trends. We can use the sample from 1994-95 to compare change over time. This is important when management changes occur.

When land managers make changes in their management practices, monitoring is a means of measuring the effect of those management practices on the landscape and the vegetation. It is otherwise difficult to determine if new practices are effective, valuable, and worth the investment.

There are a number of different monitoring methods. Photo monitoring is a common method. Another method is to use techniques similar to the vegetation inventory. All trend monitoring involves establishing permanent points or transects. In order to measure change over time, the same exact point must be visited in the future. This is an important part of trend monitoring. Establishing a permanent photo point or transect involve the use of a rebar marker, or some similar marking system, so that a metal detector and a good map of the permanent point can help to locate that point in the future. Global Positioning Systems are frequently being used for this purpose. The system uses satellites to determine the exact location of a point, and can help to relocate that point in the future.

Trend monitoring is an integral part of land management. It helps us understand the value of management practices and their effect on soil, water, vegetation, wildlife, and cattle.

Nancy Napp
Plant Ecologist

"I don't think there is anything more
conservation unless it is human survival-
are so closely interlaced that it is hard to se
from the other.

Charles Lindbergh

Pictures are an easy way to get a message across to readers.

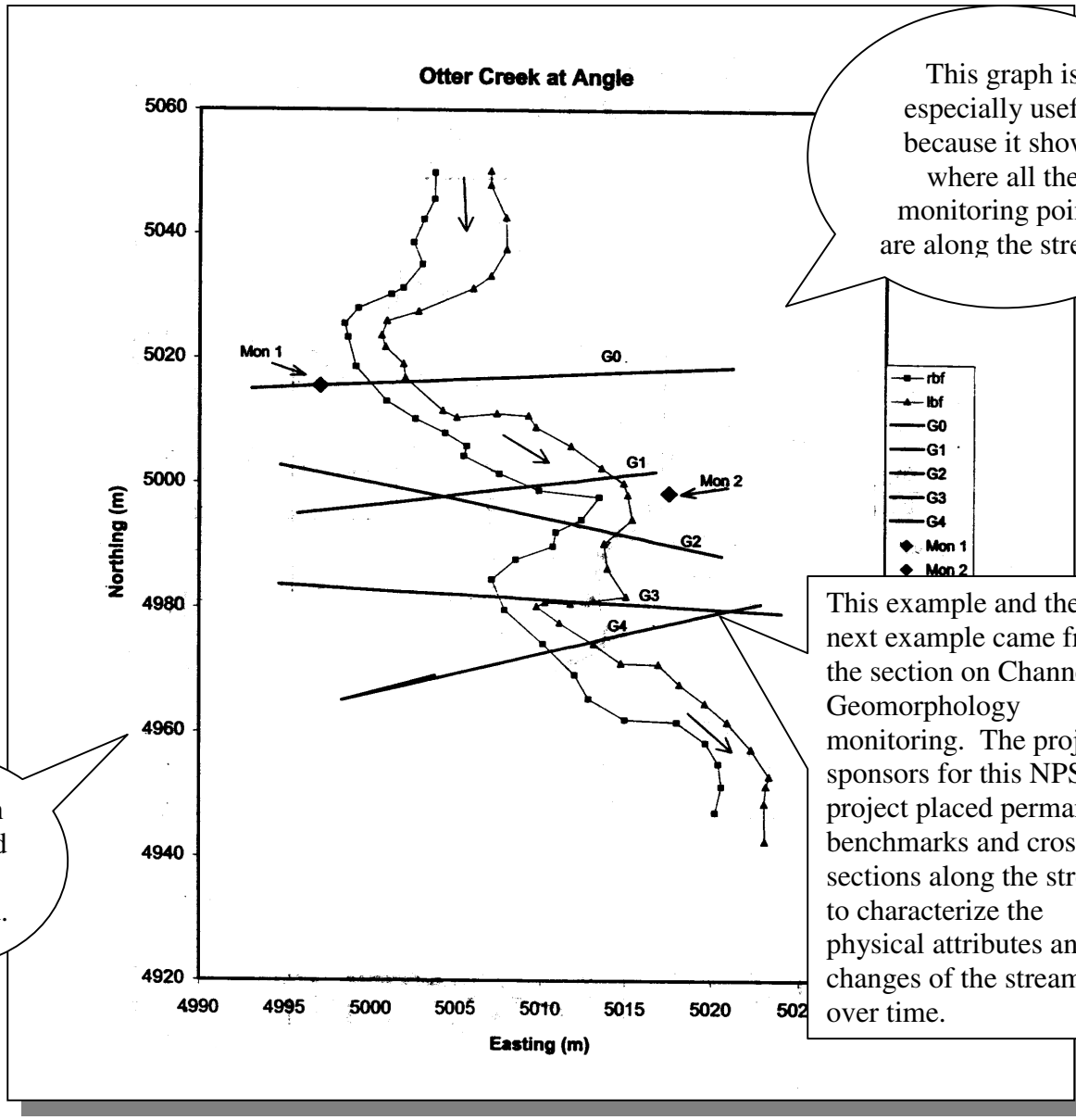
Use plain language for non-technical readers

Always include contact information for interested individuals

Phone: (970)-723-0020 Fax: (970)-723-0021
5th and Logan, P.O. Box 737, Walden, CO 80480

MONITORING RESULTS

Included in this section are several examples of the tools used to display information in the monitoring results section of the final report. The monitoring results section should include a good data analysis summary for all projects or monitoring sites, show any trends in water quality monitoring, and emphasize the surrogate measures used. The examples provided in this section include several tables, charts, and graphs, which are good models for use in other final reports. These examples are easy to read, contain the right amount of information, and when appropriate, aggregate the data to display the monitoring results over several years. Project sponsors are encouraged to model these examples of data summary and presentation for all types of 319 NPS projects. All of the following examples came from the Otter Creek Field Evaluations and Progress Report.



This graph is especially useful because it shows where all the monitoring points are along the stream.

This example and the next example came from the section on Channel Geomorphology monitoring. The project sponsors for this NPS project placed permanent benchmarks and cross sections along the stream to characterize the physical attributes and changes of the stream over time.

This graph is clear and easy to understand.

MONITORING RESULTS (CONTINUED)

These graphs show the channel cross section for one transect in a four plot series from 1993 to 1998. This is a excellent way to show results for each year and still display trends.

Putting similar graphs on one page helps the reader to recognize trends.

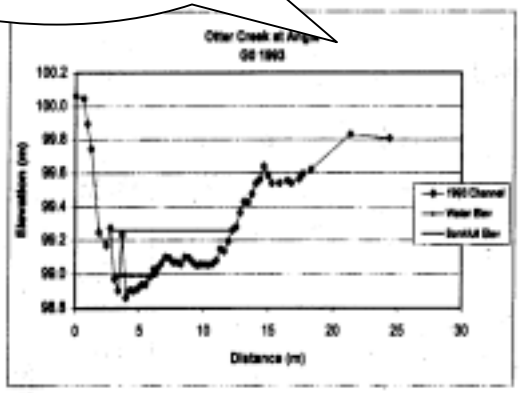


Figure 6.3 G0 1993.

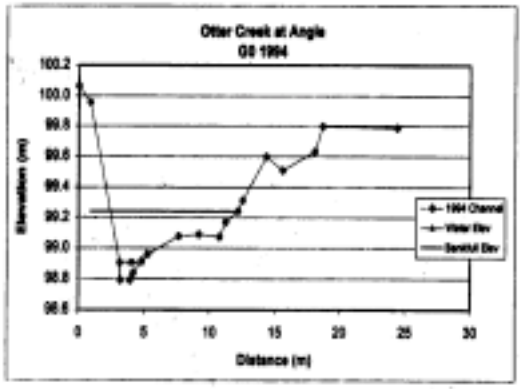


Figure 6.4 G0 1994.

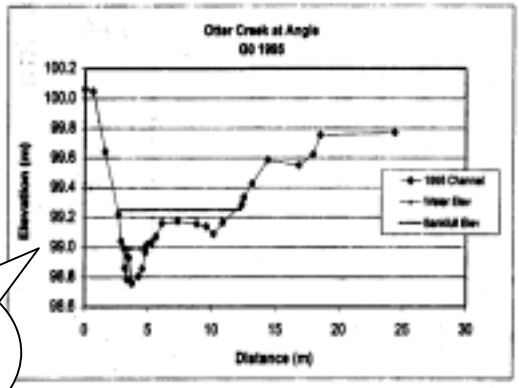


Figure 6.5 G0 1995.

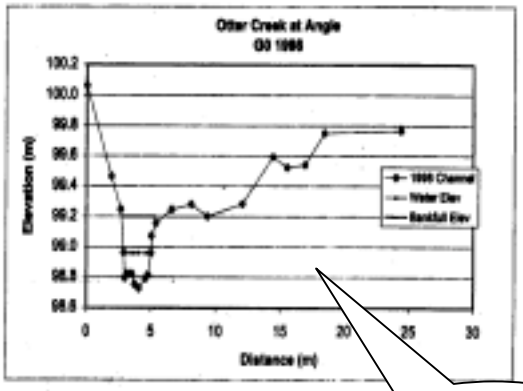


Figure 6.6 G0 1998.

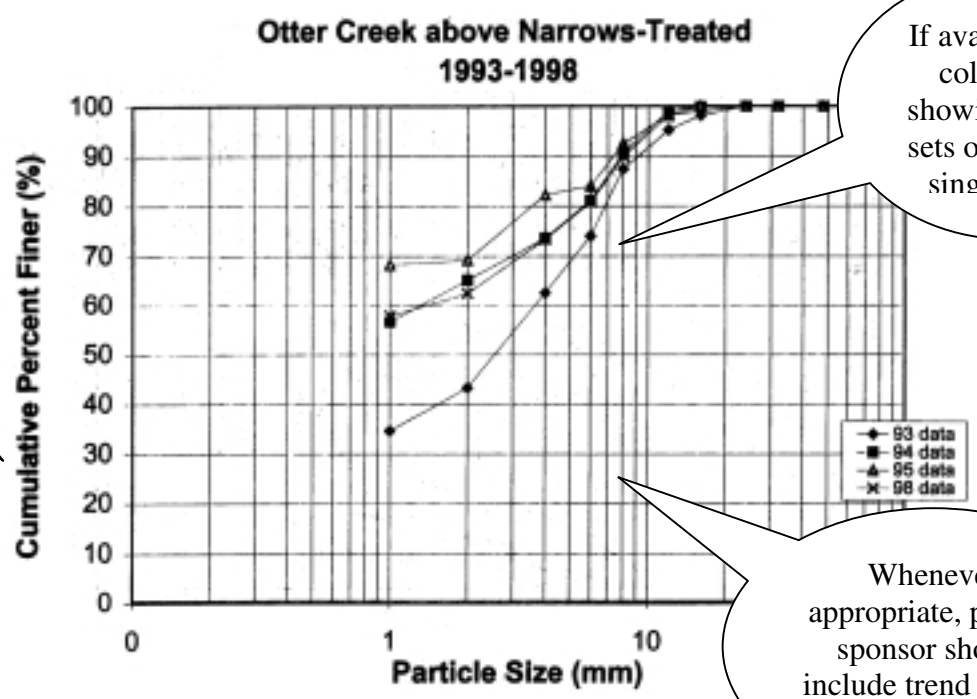
Clear and concise graphic

The right amount of information

MONITORING RESULTS (CONTINUED)

The next two examples came from the section on Substrate and Streamside evaluation. The project sponsors looked at the daily radiation and recorded the pebble size for each transect.

Here is a great example of trend reporting! The results are shown for several years on one graph, which help demonstrate the changes in pebble size over several years.



If available, use color when showing several sets of data on a single graph.

Whenever appropriate, project sponsor should include trend graphs in their final report.

MONITORING RESULTS (CONTINUED)

Here is an excellent example of informative tables. Never cram many data sets onto one table. Instead, separate several years of data, like in this example—it is easier for the reader to understand.

Otter Creek above Narrows-Treated
Pebble counts taken at G0

Table 6. 1993 Pebble Count Data

1993 Particle Size (mm)	Count (#)	% Cumulative Finer Than
256.00	0.00	100.00
192.00	0.00	100.00
128.00	0.00	100.00
96.00	0.00	100.00
64.00	0.00	100.00
48.00	0.00	100.00
32.00	0.00	100.00
24.00	0.00	100.00
16.00	2.00	100.00
12.00	3.00	98.08
8.00	8.00	95.19
6.00	14.00	87.50
4.00	12.00	74.04
2.00	20.00	62.50
1.00	9.00	43.27
0.50	36.00	34.62
TOTAL	104.00	

Table 7. 1994 Pebble Count Data

1994 Particle Size (mm)	Count (#)	% Cumulative Finer Than
256.00	0.00	100.000
192.00	0.00	100.000
128.00	0.00	100.000
96.00	0.00	100.000
64.00	0.00	100.000
48.00	0.00	100.000
32.00	0.00	100.000
24.00	0.00	100.000
16.00	0.00	100.000
12.00	1.00	100.000
8.00	9.00	99.057
6.00	10.00	90.566
4.00	8.00	81.132
2.00	9.00	73.585
1.00	9.00	65.094
0.50	60.00	56.604
TOTAL	106.00	

If there are several sets of data tables for one project, put them on the same page. This helps the reader make comparisons.

Table 8. 1995 Pebble Count Data

1995 Particle Size (mm)	Count (#)	% Cumulative Finer Than
256.00	0.00	100.000
192.00	0.00	100.000
128.00	0.00	100.000
96.00	0.00	100.000
64.00	0.00	100.000
48.00	0.00	100.000
32.00	0.00	100.000
24.00	0.00	100.000
16.00	0.00	100.000
12.00	2.00	100.000
8.00	6.00	98.131
6.00	9.00	92.523
4.00	2.00	84.112
2.00	14.00	82.243
1.00	1.00	69.159
0.50	73.00	68.224
TOTAL	107.00	

Table 9. 1998 Pebble Count Data

1998 Particle Size (mm)	Count (#)	% Cumulative Finer Than
256.00	0.00	100.00
192.00	0.00	100.00
128.00	0.00	100.00
96.00	0.00	100.00
64.00	0.00	100.00
48.00	0.00	100.00
32.00	0.00	100.00
24.00	0.00	100.00
16.00	1.00	100.00
12.00	1.00	99.08
8.00	9.00	98.17
6.00	10.00	89.91
4.00	8.00	80.73
2.00	12.00	73.39
1.00	5.00	62.39
0.50	63.00	57.80
TOTAL	109.00	

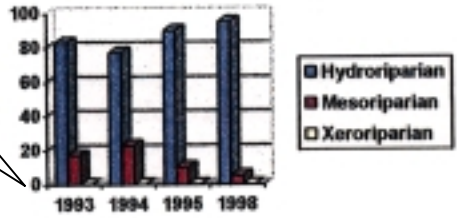
MONITORING RESULTS (CONTINUED)

These graphs show changes in the plant community at all sites. Displaying them side by side on the same page makes it easy to compare results.

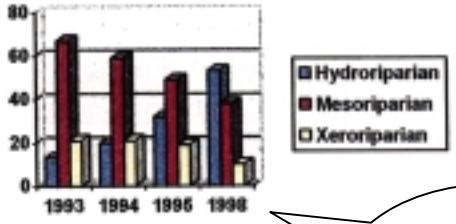
OTTER CREEK WATERSHED
CHANGES IN RIPARIAN WETLAND VEGETATION

OTTER CREEK ABOVE NARROWS Treated:

Green Line Vegetation



Cross-Section Vegetation

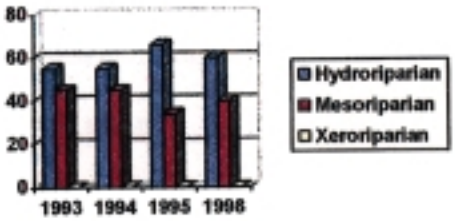


Trend reporting!

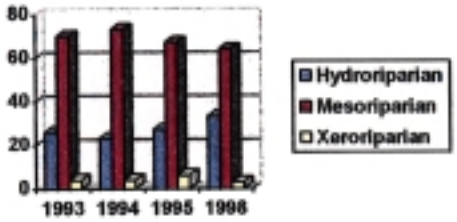
Another great example of data summary

OTTER CREEK ABOVE NARROWS Untreated:

Green Line Vegetation



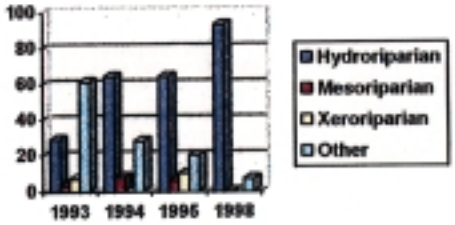
Cross-Section Vegetation



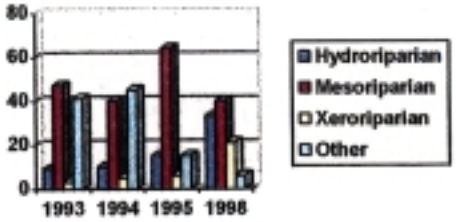
If possible, use color on graphs and charts.

OTTER CREEK AT ANGLE:

Green Line Vegetation



Cross-Section Vegetation



MONITORING RESULTS (CONTINUED)

Here are examples of the surrogate measures used to evaluate the changes in water quality in the streams of the Otter Creek project.

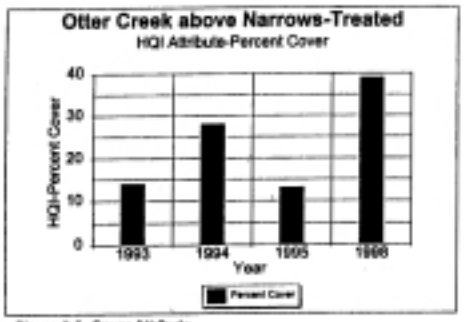


Figure 9.5 Cover Attribute

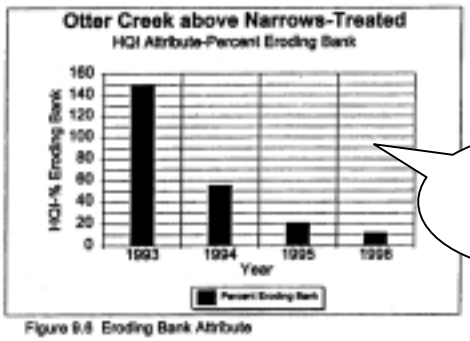


Figure 9.6 Eroding Bank Attribute

More trend reporting!

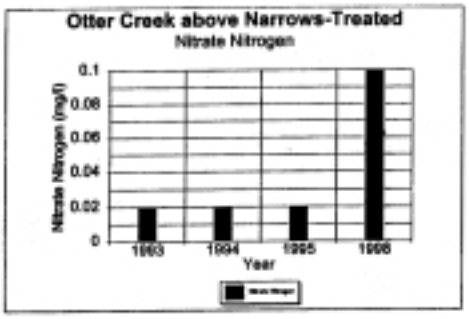


Figure 9.7 Nitrate Nitrogen Attribute

Figure 9.8 HQI and Predicted Standing Crop

Do not forget to use color.

Surrogate measures are an excellent way to demonstrate improvement in water quality.

MONITORING RESULTS (CONTINUED)

Pictures are an excellent way to show information, especially improvements to a watershed or waterbody.

A "before" photo of the project

Plan ahead! Take *before* and *after* shots of the project.

An "after" photo of the project

Pictures are also a great non-technical way of showing the results of the project.

MONITORING RESULTS (CONTINUED)

A "before" photo of the project

Pictures help reports reach a wide range of audiences.

Whenever possible, project sponsors should include pictures of improvements or changes brought about by a successful NPS project.

An "after" photo of the project

Pictures really help show the accomplishments of the project.

FINAL PROJECT FORMATS

ASSESSMENT/PLANNING PROJECTS

Assessment projects are sometimes needed as part of specific watershed projects or as part of an overall statewide, regional, or ecoregional effort. They are also used for implementation targeting or program development. Assessments facilitate the development of watershed project proposals, Total Maximum Daily Loads (TMDLs), and watershed restoration action strategies (WRASs) and plans, help to more clearly identify and prioritize nonpoint source problems, and aid in developing and evaluating NPS management programs and Best Management Practice (BMP) effectiveness. A template showing the format for assessment/planning projects is provided on page 5. The following sections are included in an assessment/planning project report:

EXECUTIVE SUMMARY

The executive summary provides a brief overview of the project with start and finish dates, funding information, and a summary of accomplishments. The summary should outline the goals that were set for the project and include a statement of whether some or all of these goals were met. Project sponsors also might provide information on significant accomplishments and describe how high-priority issues were addressed and what products were produced.

1.0 INTRODUCTION

When developing the introduction, project sponsors are encouraged to consider multiple audiences in addition to states and EPA Region 8. The introduction should contain background information on the project, including the project area, HUC number, a description of data available from historical reports, and rationale for pursuing grant funds, especially the NPS problems in the project area. Much of this information can be derived from the statement of need and project description in the original section 319 proposal.

The introduction to a final report should contain the following information:

- Identification of the waterbody or watershed with HUC code if available, including details on the need for an additional assessment project and desired data endpoints (i.e., TMDLs). As each project begins collecting data, there should be some prethinking of what metrics will be used as TMDL endpoints—endpoints that will be used to judge the success of any watershed management measures. Endpoints could be any number of direct or surrogate measures related to the physical, biological, or chemical integrity of the waterbodies. The assessment part of the project should be sure to collect data relative to that metric that will eventually be used in the TMDL.
- Description of water quality problems, including identification of NPS pollutants of concern and water quality standards that are violated or threatened.

- A description of how the project was consistent with the state NPS management program and other state programs including 305(b) reports, Unified Watershed Assessments (UWAs), Total Maximum Daily Load (TMDL) development, 303(d) listings, and source water protection reports.
- A general project description (keeping in mind the following section will explain the goals and objectives).
- A map of the region with the assessment project area highlighted and a site map with monitoring stations and assessment areas identified.

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

It is important to describe the goals for the project. In general, the *goals* are broad statements about project needs that are achievable through *objectives*. An example of a goal statement is "to identify specific areas within Gunnison basin that are contributing the highest selenium loadings to the river system so remediation efforts and best management practices can be concentrated in those areas to reduce the selenium concentrations to protect fish and wildlife species, including some listed threatened or endangered species, while maintaining the viability of current land uses within the basin."

A description of the objectives and tasks should immediately follow each identified goal. Objectives should provide more detail about the accomplishments that were identified and met for each goal. An example of an objective is "characterize the selenium loads for the tributaries of Gunnison and the North Fork of the Gunnison Rivers." Each objective should have a description of the tasks that achieved the objective. Pictures, maps, graphs, or tables are useful to describe a task or objective.

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

One method for presenting this information is a milestone table. Each table should list planned and actual milestones and product completion dates. A brief explanation should be provided when anticipated milestones were not met. A timeline-type figure may also be used to depict schedules and milestones.

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

In this section, the project sponsor should provide a description of events leading to the achievement of each goal. The report should describe how the project helped implement the state's NPS management program and other state program priorities as outlined in 305(b) reports, 303(d) lists, and UWAs. Project sponsors should describe how the project contributed to controlling NPS pollution as part of an integrated, watershed-wide approach.

2.3 SUPPLEMENTAL INFORMATION

Any additional information the sponsor may want to add relating to achieving project goals should b e included in this section. Project sponsors are encouraged to include BMP lists and descriptions of projects or programs implemented for each task. Pictures, maps, graphs, or tables may be used to better explain these projects and programs. Graphical elements are strongly encouraged because they help "tell the story" and increase the multi-purpose usefulness of the report.

3.0 MONITORING RESULTS

This section should include a brief discussion of the monitoring strategy and sampling and analysis techniques used in the assessment project. Descriptions of the models used to analyze data should also be included.

The heart of the assessment report is the discussion of the analysis and summary of all the data collected using tables, graphs, or charts that show trends in water quality. The section also should describe any surrogate measures (environmental indicators) used to measure existing conditions or progress in controlling NPS pollution. Examples of effective graphs, tables, and other data presentation methods are shown in Section 3 of this notebook—*Final Project Examples*.

The monitoring results will be separated into the following categories:

- Surface water chemistry (3.1).
- Groundwater, including separate sections on metals, chemistry, and nutrients (3.2), if applicable.
- Stream physical, biological, or habitat monitoring (3.3).
- Other monitoring (3.4).
- Quality assurance reporting (3.5), if applicable. If there is an EPA-approved Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) for the project, describe briefly how the monitoring was consistent with the QAPP or SAP.

4.0 PUBLIC INVOLVEMENT AND COORDINATION

In this section any public involvement and coordination activities should be described.

4.1 STATE AGENCIES

This section identifies any cooperating state agencies and describes their role in implementing the project.

4.2 FEDERAL AGENCIES

This section identifies any cooperating federal agencies, such as the U.S. Geological Survey, Natural Resources Conservation Service, and Fish and Wildlife Service and describes their role in project implementation.

4.3 LOCAL GOVERNMENTS, INDUSTRY, ENVIRONMENTAL AND OTHER GROUPS, PUBLIC-AT-LARGE

This section describes local involvement and support from a variety of entities and the public.

4.4 OTHER SOURCES OF FUNDS

If the project received funding through other sources, such as a non-federal match of state and local funds, volunteer labor, and other federal funds, this section should provide a description of those sources. A budget table may be a useful way to present this information.

5.0 ASPECTS OF THE PROJECT THAT DID NOT WORK WELL

This section should provide an explanation of elements of the project that did not work out as planned. For instance, this section may include a discussion of why milestones were difficult to meet. Was the failure due to lack of good data, inadequate funding, lack of sufficient technical resources, or "circumstances of nature?" Was there a need for a more thorough assessment or more advanced technology? Problems with organizational dynamics, an inability to contract assessment work, or other confounding factors also would be discussed here. This section can help others to avoid similar problems in the future.

6.0 FUTURE ACTIVITY RECOMMENDATIONS

This section should be used to describe any programs, activities, and/or assessments that are or should be planned for the area of concern based on the results of the assessment. Plans for future coordination with other agencies should be indicated here. If the project is continuing, anticipated funding sources and continuation of the section 319 funding should also be discussed. This section provides an excellent opportunity to informally propose projects that will address NPS problems in the watershed or other area of concern.

SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

ASSESSMENT/PLANNING PROJECT FINAL REPORT

(Project Title Here)

by

(Author and Project Sponsor Here)

(Date Here)

This project was conducted in cooperation with the State of _____ and the United States Environmental Protection Agency, Region 8.

Grant #

EXECUTIVE SUMMARY

PROJECT TITLE _____

PROJECT START DATE_____ PROJECT COMPLETION DATE_____

FUNDING: TOTAL BUDGET_____

TOTAL EPA GRANT	_____
TOTAL EXPENDITURES OF EPA FUNDS	_____
TOTAL SECTION 319 MATCH ACCRUED	_____
BUDGET REVISIONS	_____
TOTAL EXPENDITURES	_____

SUMMARY ACCOMPLISHMENTS

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY .....

INTRODUCTION .....

PROJECT GOALS, OBJECTIVES, AND ACTIVITIES .....

PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES .....

EVALUATION OF GOAL ACHIEVEMENT .....

SUPPLEMENTAL INFORMATION .....

MONITORING RESULTS .....

SURFACE WATER CHEMISTRY .....

GROUND WATER .....

METALS .....

CHEMISTRY .....

NUTRIENTS .....

STREAM PHYSICAL/BIOLOGICAL MONITORING .....

OTHER MONITORING .....

QUALITY ASSURANCE REPORTING .....

PUBLIC INVOLVEMENT AND COORDINATION .....

STATE AGENCIES .....

FEDERAL AGENCIES .....

LOCAL GOVERNMENTS; INDUSTRY, ENVIRONMENTAL, AND OTHER GROUPS; AND PUBLIC-AT-LARGE .....

OTHER SOURCES OF FUNDS .....

ASPECTS OF THE PROJECT THAT DID NOT WORK WELL .....

FUTURE ACTIVITY RECOMMENDATIONS .....

LITERATURE CITED .....

LIST OF TABLES .....

LIST OF FIGURES .....

LIST OF APPENDICES (SUCH AS WATERSHED RESTORATION ACTION STRATEGIES/PLANS, DATABASES, AND TOTAL MAXIMUM DAILY LOADS [TMDLS]) .....

GROUNDWATER PROJECTS

Groundwater projects focus on protecting those groundwater resources that, if contaminated, would pose human health, welfare, and ecological risks. A template showing the format for groundwater project final reports is provided on page 5. The following sections are included in a groundwater project report:

EXECUTIVE SUMMARY

The executive summary provides a brief overview of the project with start and finish dates, funding information, and a summary of accomplishments. The summary should outline the goals that were set for the project and include a statement of whether some or all of these goals were met. Project sponsors also might provide information on significant accomplishments and describe how high-priority issues were addressed and what products were produced.

1.0 INTRODUCTION

When developing the introduction, project sponsors are encouraged to consider multiple audiences in addition to states and EPA. The introduction should contain background information on the project, including the project area, HUC number, a description of data available from historical reports, rationale for pursuing grant funds, and the NPS problems in the project area. Much of this information can be derived from the statement of need and project description in the original section 319 work plan.

The introduction to a groundwater project report should contain the following information:

- A description of the aquifer with information on the use of the water, source water protection program needs in the area, the aquifer's relationship to surface water, and the source of recharge water. General information on location, land use, and pertinent aquifer geology should also be included.
- Description of water quality problems, including identification of NPS pollutants of concern and water quality standards that are violated or threatened.
- Maps showing the location, size and depth of the aquifer and other relevant features of the landscape.
- A description of how the project was consistent with the state NPS management program and other state programs including 305(b) reports, Unified Watershed Assessments (UWAs), Total Maximum Daily Load (TMDL) development, 303(d) listings, and source water protection reports.

- A general project description (keeping in mind the following section will explain goals and objectives).

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

It is important to describe in detail all of the goals for a section 319-funded NPS project. In general, the *goals* are broad statements about project needs that are achievable through *objectives*. An example of a goal statement is "to assess the levels of nitrogen and pesticides in three priority shallow aquifers to provide information for the Pesticides in Groundwater State Management Plan."

A description of the objectives and tasks should immediately follow each identified goal. Objectives should provide more detail about the accomplishments that were identified and met for each goal. An example of an objective is "to develop a long range plan to establish a permanent state wide monitoring network for the purposes of monitoring contaminants in groundwater." Each objective should have a description of the tasks that achieved the objective. Pictures, maps, graphs, or tables are useful to describe a task or objective. Tasks should have had quantified and measurable output, where applicable.

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

One method for presenting this information is a milestone table. Each table might list planned and actual milestones and product completion dates. A brief explanation should be provided when anticipated milestones and output quantities were not met. A timeline-type figure may also be used to depict schedules and milestones.

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

In this section, the project sponsor should provide an evaluation of how well the goals were achieved. The report should describe how the project helped implement the state's NPS management program and other state program priorities as outlined in state pesticide in groundwater plans, 305(b) reports, 303(d) lists, UWAs, and source water protection reports. Project sponsors should describe how the project contributed to controlling NPS pollution as part of an integrated, watershed-wide approach.

2.3 SUPPLEMENTAL INFORMATION

Any additional information on project goals and objectives should be included in this section. Project sponsors are encouraged to include descriptions of projects or programs implemented that have not already been discussed in previous sections of the final report. Pictures, maps, graphs, or tables may be used to better

explain the project. Graphical elements are strongly encouraged because they help "tell the story" and increase the multi-purpose usefulness of the report.

3.0 MONITORING RESULTS

This section should include a brief discussion of the monitoring strategy and sampling and analysis techniques used in the project. Descriptions of the models used to analyze data should also be included, if applicable.

It is important to include an analysis and summary of the data collected using tables, graphs, or charts, when possible. Examples of effective graphs, tables, and other data presentation methods are shown in Section 3 of this notebook—*Final Project Examples*.

The monitoring results should be separated into the following sections:

- Metals (3.1).
- Chemistry (3.2).
- Nutrients (3.3).
- Other monitoring (3.4).
- Evaluation of BMP effectiveness (3.5). This section should describe whether BMPs used were effective. It should also include a discussion of why they were effective and how effectiveness was evaluated.
- If applicable, quality assurance reporting (3.6). If there is an EPA-approved Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) for the project, describe briefly how the monitoring was consistent with the QAPP or SAP.

4.0 PUBLIC INVOLVEMENT AND COORDINATION

In this section any public involvement and coordination activities should be described.

4.1 STATE AGENCIES

This section identifies any cooperating state agencies and describes their role in implementing the project.

4.2 FEDERAL AGENCIES

This section identifies any cooperating federal agencies, such as the U.S. Geological Survey, Natural Resources Conservation Service, and Fish and Wildlife Service and describes their role in project implementation.

4.3 LOCAL GOVERNMENTS, INDUSTRY, ENVIRONMENTAL, AND OTHER GROUPS, PUBLIC AT LARGE

This section describes local involvement and support from a variety of entities and the public.

4.4 OTHER SOURCES OF FUNDS

If the project received funding through other sources, such as non-federal match from state and local funds, volunteer labor, and other federal funds, this section should provide a description of those sources. A budget table may be a useful way to present this information.

5.0 ASPECTS OF THE PROJECT THAT DID NOT WORK WELL

This section should provide an explanation of elements of the project that did not work out as planned. For instance, this section may include a discussion of why milestones were difficult to meet. Was the failure due to lack of good data, inadequate funding, lack of sufficient technical resources, or "circumstances of nature?" Was there a need for a more thorough assessment or more advanced technology? Problems with organizational dynamics, an inability to contract assessment work, or other confounding factors also would be discussed here. This section can help others to avoid similar problems in the future.

6.0 FUTURE ACTIVITY RECOMMENDATIONS

This section should be used to describe any programs, activities, and/or other groundwater projects that are or should be planned for the area of concern based on the results of the project. Plans for future coordination with other agencies should be indicated here. If the project is continuing, anticipated funding sources and continuation of the section 319 funding should also be discussed. This section provides an excellent opportunity to informally propose projects that will address NPS problems in the watershed or other area of concern.

SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

GROUNDWATER PROJECT FINAL REPORT

(Project Title Here)

by

(Author and Project Sponsor Here)

(Date Here)

This project was conducted in cooperation with the State of _____ and the United States Environmental Protection Agency, Region 8.

Grant #

EXECUTIVE SUMMARY

PROJECT TITLE _____

PROJECT START DATE_____ PROJECT COMPLETION DATE_____

FUNDING: TOTAL BUDGET_____

TOTAL EPA GRANT	_____
TOTAL EXPENDITURES OF EPA FUNDS	_____
TOTAL SECTION 319 MATCH ACCRUED	_____
BUDGET REVISIONS	_____
TOTAL EXPENDITURES	_____

SUMMARY ACCOMPLISHMENTS

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY .....

INTRODUCTION .....

PROJECT GOALS, OBJECTIVES, AND ACTIVITIES .....

PLANNED AND ACTUAL MILESTONES, PRODUCTS, ANDCOMPLETION DATES .....

EVALUATION OF GOAL ACHIEVEMENT .....

SUPPLEMENTAL INFORMATION .....

MONITORING RESULTS .....

METALS .....

CHEMISTRY .....

NUTRIENTS .....

OTHER MONITORING .....

EVALUATION OF DEMONSTRATION EFFECTIVENESS .....

QUALITY ASSURANCE REPORTING .....

PUBLIC INVOLVEMENT AND COORDINATION .....

STATE AGENCIES .....

FEDERAL AGENCIES .....

LOCAL GOVERNMENTS; INDUSTRY, ENVIRONMENTAL, AND OTHER GROUPS; AND PUBLIC-AT-LARGE .....

OTHER SOURCES OF FUNDS .....

ASPECTS OF THE PROJECT THAT DID NOT WORK WELL .....

FUTURE ACTIVITY RECOMMENDATIONS .....

LITERATURE CITED .....

LIST OF TABLES .....

LIST OF FIGURES .....

LIST OF APPENDICES (SUCH AS PROJECT DATA BASES, SIGN-UP SHEETS, TRAINING WORKBOOKS, GUIDANCE DOCUMENTS, PROPOSED ORDINANCES, AND BROCHURES) .....

INFORMATION/EDUCATION/TRAINING/DEMONSTRATION PROJECTS

Information/education/training/demonstration projects (hereafter information and education projects (I&E)) generally involve one of two classifications of activities:

- Development and distribution of information, such as publications, videos, establishment of Internet web sites, or the development and presentation of various training activities.
- Development and demonstration of new BMPs or demonstration of approved BMPs.

A template showing the format for I&E projects is provided on page 6. The following sections are included in an information and education project final report.

EXECUTIVE SUMMARY

The executive summary provides a brief overview of the project with start and finish dates, funding information, and a summary of accomplishments. The summary should outline the goals that were set for the project and include a statement of whether some or all of these goals were met. Project sponsors also might provide information on significant accomplishments and describe how high-priority issues were addressed and what products were produced, new and effective best management practices (BMPs) used, and how the project helped implement the state's NPS management program.

1.0 INTRODUCTION

When developing the introduction, project sponsors are encouraged to consider multiple audiences in addition to states and EPA. The introduction should contain background information on the project, including the project area, the HUC number if appropriate, a description of data available from historical reports, rationale for pursuing grant funds, and the NPS problems in the project area. Much of this information can be derived from the statement of need and project description in the original section 319 work plan.

More specifically, the introduction to a final report should contain the following information:

- Where applicable, identification of the waterbody or watershed with HUC code if appropriate, including details on the need for additional or new education/information dissemination, training, or demonstration projects.
- Description of water quality problems, including identification of NPS pollutants of concern and water quality standards that are violated or threatened.
- Description of the new BMPs used in the project or a discussion of the need to re-evaluate BMPs.

- Discussion of the need for new educational materials and/or training.
- A description of the criteria that led to the selection of the audience intended for this project with an explanation of how the audience was targeted.
- A description of how the project was consistent with the state NPS management program and other state programs, where applicable, including 305(b) reports, Unified Watershed Assessments (UWAs), Total Maximum Daily Load (TMDL) development, 303(d) listings and source water protection reports.
- A general project description (keeping in mind the following section will explain the goals and objectives).
- Maps, where applicable, showing the location and size of the waterbodies or watersheds that were targeted for education activities or locations of demonstration projects.

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

It is important to describe the goals for a section 319-funded project. In general, the *goals* are broad statements about project needs that are achievable through *objectives*. An example of a goal statement is:

> The goal of this project is to implement a comprehensive media campaign and supporting activities that will increase the awareness of the general public in Colorado about the causes and solutions to urban polluted runoff. This project will partially achieve all of the goals set forth in the Draft White Paper of the Information/ Education subcommittee of the Nonpoint Task Force. It will fully achieve Goal Three of that document, which is to "proactively engage in public information relating to NPS issues." This project also will accomplish the first goal of the Urban/Construction Subcommittee—to educate the general public in urban areas about nonpoint source pollution.
>
> This campaign will include basic information about urban runoff covering such topics as what behaviors lead to polluted runoff and how polluted runoff affects Colorado's water resources. Targeted audiences will be informed about the role of storm sewers in polluted runoff; what they are, what they do, and where they lead. A small number of easily understood, highly focused messages will provide non-technical, easily implemented solutions to the household-generated urban runoff problem. Consistency of the message will be maintained through the use of recognizable logos and graphics throughout the campaign. This project will provide baseline data about the public's awareness of household polluted

runoff through the survey and will establish an ongoing, easily accessible clearinghouse of nonpoint source information.

A description of the objectives and tasks should immediately follow each identified goal. Objectives should provide more detail about the accomplishments that were identified and met for each goal. An example of an objective is "develop an assessment tool to determine current levels of awareness about urban polluted runoff." Each objective should have a description of the tasks that achieved the objective, as well as quantifiable goals, such as "train 100 farmers in no-till" or print and distribute 10,000 brochures." Pictures, maps, graphs, or tables are useful to describe a task or objective.

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

One method for presenting this information is a milestone table. Each table should list planned and actual milestones and product quantity and completion dates. A brief explanation should be provided when anticipated milestones were not met. A timeline-type figure may also be used to depict schedules and milestones.

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

In this section, the project sponsor should provide an evaluation of how well the goals were achieved. The report should describe how the project helped implement the state's NPS management program and other state program priorities as outlined in 305(b) reports, 303(d) lists, UWAs, and source water protection reports. Project sponsors should describe how the project contributed to controlling NPS pollution as part of an integrated, watershed-wide approach.

2.3 SUPPLEMENTAL INFORMATION

Any additional information the sponsor may want to add relating to achieving project goals should be included in this section Project sponsors are encouraged to include BMP lists and descriptions of projects or programs implemented for each task. Pictures, maps, graphs, tables, or diagrams may be used to better explain these projects and programs. Graphical elements are strongly encouraged because they help "tell the story" and increase the multi-purpose usefulness of the report.

3.0 LONG TERM RESULTS IN TERMS OF BEHAVIOR MODIFICATION, STREAM/LAKE QUALITY, GROUND WATER, AND/OR WATERSHED PROTECTION CHANGES

This section should include a brief discussion of how the information, education, training, or demonstration project has contributed to the improvement of water quality. Charts, graphs, tables, or diagrams that show trends may be included.

When appropriate, describe how the changes in behavior were evaluated. Include the different types of evaluation tools used, such as recording requests for NPS newspapers and videos, exit and follow-up surveys for training courses, and readers surveys.

4.0 BEST MANAGEMENT PRACTICES (BMPS) DEVELOPED AND/OR REVISED (FOR DEMONSTRATION PROJECTS)

In this section a brief description of BMPs implemented for each project should be provided. More detail or descriptions can be provided in appendices. Pictures, maps, graphs, or tables may be used to further describe the location, configuration, and performance of each practice.

5.0 MONITORING RESULTS FOR DEMONSTRATION PROJECTS

This section should include a brief discussion of the monitoring and/or evaluation strategy used in the information and education, training, or demonstration project. Descriptions of any models used to analyze data should also be included, if applicable. For demonstration projects, monitoring should be considered for determining project effectiveness directly on water quality or by surrogate methods. For I&E projects, discuss the results from the evaluations tools used, such as recording requests for NPS newspapers and videos, exit and follow-up surveys for training courses, and readers surveys.

It is important to include an analysis and summary of data collected using tables, graphs, or charts that may show trends in water quality, if applicable. Also, this section should describe any surrogate measures (environmental indicators) used to measure progress in controlling NPS pollution. Examples of effective graphs, tables, and other data presentation methods are shown in Section 3 of this notebook—*Final Project Examples*.

Monitoring results for a demonstration project, where applicable, should be separated into the following categories:

- BMP effectiveness evaluations (5.1).
- Surface water improvements (5.2).
- Ground water improvements (5.3).
- Results of BMP operation and maintenance reviews (5.4).
- Quality assurance reporting (5.5), if applicable. If there is an EPA-approved Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) for the project, describe briefly how the monitoring was consistent with the QAPP or SAP.

6.0 PUBLIC INVOLVEMENT AND COORDINATION

In this section, describe public involvement and coordination activities for the project.

6.1 STATE AGENCIES

Identify cooperating state agencies and describes their role in implementing the project.

6.2 FEDERAL AGENCIES

Identify any cooperating federal agencies, such as the U.S. Geological Survey, Natural Resources Conservation Service, and Fish and Wildlife Service and describe their role in project implementation.

6.3 LOCAL GOVERNMENTS, INDUSTRY, ENVIRONMENTAL, AND OTHER GROUPS, PUBLIC AT LARGE

Describe local involvement and support from a variety of entities and the public.

6.4 OTHER SOURCES OF FUNDS

If the project received funding through other sources, such as a non-federal match of state and local funds, volunteer labor, and other federal funds, this section should provide a description of those sources. A budget table may be a useful way to present this information.

7.0 ASPECTS OF THE PROJECT THAT DID NOT WORK WELL

This section should provide an explanation of elements of the project that did not work out as planned. For instance, this section may include a discussion of why milestones were difficult to meet. Was the failure due to lack of good data, inadequate funding, lack of sufficient technical resources, or "circumstances of nature?" Was there a need for a more thorough assessment or more advanced technology? Did the training or education activities result in any changes in methods on the part of the trainee? Problems with organizational dynamics, an inability to contract work, or other confounding factors also would be discussed here. This section can help others to avoid similar problems in the future.

8.0 FUTURE ACTIVITY RECOMMENDATIONS

This section should be used to describe any programs, activities, and/or assessments that are or should be planned for the area of concern based on the results of the project. Plans for future coordination with other agencies should be indicated here. If the project is continuing, anticipated funding sources and continuation of the section 319 funding should also be discussed. This section

provides an excellent opportunity to informally propose new projects that will continue to address NPS problems in the watershed or other area of concern.

8.1 INFORMATION AND EDUCATION OUTPUTS

Description of outputs (videos, pamphlets, training manuals, driving guides, etc.) that are available for use by other projects.

SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

INFORMATION/EDUCATION/TRAINING/DEMONSTRATION PROJECT

FINAL REPORT

(Project Title Here)

by

(Author and Project Sponsor Here)

(Date Here)

This project was conducted in cooperation with the State of _____ and the United States Environmental Protection Agency, Region 8.

Grant #

EXECUTIVE SUMMARY

PROJECT TITLE _____

PROJECT START DATE_____ PROJECT COMPLETION DATE _____

FUNDING:	TOTAL BUDGET	_____
	TOTAL EPA GRANT	_____
	TOTAL EXPENDITURES OF EPA FUNDS	_____
	TOTAL SECTION 319 MATCH ACCRUED	_____
	BUDGET REVISIONS	_____
	TOTAL EXPENDITURES	_____

SUMMARY ACCOMPLISHMENTS

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY .....

INTRODUCTION.....

PROJECT GOALS, OBJECTIVES, AND ACTIVITIES.....

PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES.....

EVALUATION OF GOAL ACHIEVEMENT .....

SUPPLEMENTAL INFORMATION.....

LONG TERM RESULTS IN TERMS OF BEHAVIOR MODIFICATION, STREAM/LAKE QUALITY, GROUND WATER, AND/OR WATERSHED PROTECTION CHANGES .....

BEST MANAGEMENT PRACTICES (BMPS) DEVELOPED AND/OR REVISED (FOR DEMONSTRATION PROJECTS .....

MONITORING RESULTS FOR DEMONSTRATION PROJECTS.....

BMP EFFECTIVENESS EVALUATIONS .....

SURFACE WATER IMPROVEMENTS .....

GROUNDWATER IMPROVEMENTS .....

RESULTS OF BMP OPERATION AND MAINTENANCE REVIEWS .....

QUALITY ASSURANCE REPORTING.....

PUBLIC INVOLVEMENT AND COORDINATION.....

STATE AGENCIES .....

FEDERAL AGENCIES .....

LOCAL GOVERNMENTS; INDUSTRY, ENVIRONMENTAL, AND OTHER GROUPS; AND PUBLIC-AT-LARGE.....

OTHER SOURCES OF FUNDS .....

ASPECTS OF THE PROJECT THAT DID NOT WORK WELL .....

FUTURE ACTIVITY RECOMMENDATIONS .....

INFORMATION AND EDUCATION OUTPUTS .....

LIST OF APPENDICES (SUCH AS PARTICIPANT SIGN-UP LIST(S) AND WRITTEN OUTPUTS SUCH AS BROCHURES, NEWSLETTERS, CURRICULUMS, MONITORING OF PROJECT EFFECTIVENSS, CLASS NOTEBOOKS, TOUR AGENDAS, AND DATA REPORTS) .....

NOTE: NON-WRITTEN PRODUCTS SUCH AS VIDEOS SHOULD ALSO BE PROVIDED TO THE STATE AND EPA.

WATERSHED PROJECTS

Watershed projects address major sources of nonpoint source pollution affecting water quality in the watershed. Typically the primary project objective of a watershed project is to reduce the pollutant load entering either surface or ground water from nonpoint sources such that beneficial uses are restored or protected. Watershed projects may focus on developing and implementing TMDLs. A template showing the format for watershed final projects is provided on page 6. The following sections are included in a watershed project report:

EXECUTIVE SUMMARY

The executive summary provides a brief overview of the project with start and finish dates, funding information, and a summary of accomplishments. The summary should outline the goals that were set for the project and include a statement of whether some or all of these goals were met. Project sponsors also might provide information on significant accomplishments and describe how high-priority issues were addressed and what products were produced, new and effective best management practices (BMPs) used, and how the project helped implement state NPS management programs or TMDLs.

1.0 INTRODUCTION

When developing the introduction, project sponsors are encouraged to consider multiple audiences in addition to states and EPA. The introduction should contain background information on the project, any applicable TMDLs, including the project area, HUC number(s), a description of data available from historical reports, rationale for pursuing grant funds, and the NPS problems in the project area.

More specifically, the introduction to a final report should contain the following information:

- Identification of the waterbody or watershed with HUC code if available, including information on location, land use, land ownership, historical data, and the beneficial uses of the waterbody.
- Description of water quality problems, including identification of NPS pollutants of concern and water quality standards that are violated or threatened.
- Description of the TMDL(s) implemented.
- Description of how the project was consistent with the state NPS management program and other state programs including 305(b) reports, Unified Watershed Assessments (UWAs), Total Maximum Daily Load (TMDL) development, or implementation, 303(d) listings, and source water protection reports.

- Maps showing the location and size of the waterbody or watershed with project areas and/or BMP locations indicated.
- A general project description (keeping in mind the following section will explain the goals and objectives).

2.0 PROJECT GOALS, OBJECTIVES, AND ACTIVITIES

It is important to describe goals for the project. In general, the *goals* are broad statements about project needs that are achievable through *objectives*. Examples of goal statements are "to restore the recreational health of the Green River by decreasing nutrient loads by x% that contribute to overenrichment" and "to identify and implement appropriate grazing practices to reduce the amount of sediment and nutrients entering the Green River by x%."

A description of the objectives and tasks should immediately follow each identified goal. Objectives should provide more detail about the accomplishments that were identified and met for each goal. Examples of objectives are "achieve a biomass concentration of 150 gm/m^2 as a summertime instantaneous reading and 100 gm/m^2 as a summertime 60-day average reading in the selected monitoring locations" or "sponsor a demonstration project of seasonal management of livestock on the Clear Fork of the Green River." Each objective should have a description of the tasks that achieved the objective. Pictures, maps, graphs, or tables are useful to describe a task or objective. Task outputs should be measurable and quantifiable.

2.1 PLANNED AND ACTUAL MILESTONES, PRODUCTS, AND COMPLETION DATES

One method for presenting this information is a milestone table. Each table might list planned and actual milestones and product completion dates and quantities (# BMPs etc.) A brief explanation should be provided when anticipated milestones were not met. A timeline-type figure may also be used to depict schedules and milestones.

2.2 EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN

In this section, the project sponsor should provide an evaluation of how well the goals were achieved. The report should describe how the project helped implement the state's NPS management program, and other state program priorities as outlined in 305(b) reports, 303(d) lists, and UWAs. Project sponsors should describe how the project contributed to controlling NPS pollution as part of an integrated, watershed-wide approach.

2.3 SUPPLEMENTAL INFORMATION

Any additional information the sponsor may want to add relating to achieving project goals should be included in this section. Project sponsors are encouraged to include BMP lists and descriptions of projects or programs implemented not already discussed in previous sections of the final project report. Pictures, maps, graphs, or tables may be used to better explain these projects and programs. Graphical elements are strongly encouraged because they help "tell the story" and increase the multi-purpose usefulness of the report.

3.0 BEST MANAGEMENT PRACTICES DEVELOPED AND/OR REVISED

Describe BMPs (plus quantities) implemented, such as the number of acres converted to no-till, or the number of tons per year of sediment reduced. More detail or descriptions can be provided in appendices. Pictures, maps, graphs, or tables can be used to further describe the location, configuration, and performance of each practice.

4.0 MONITORING RESULTS

This section should include a brief discussion of the monitoring strategy, sampling, and analysis techniques used in the watershed project. Descriptions of the models used to analyze data should also be included, if applicable.

A crucial part of a watershed final report is an analysis and summary of the data collected using tables, graphs, or charts that may show trends in water quality. The section should also describe any surrogate measures (i.e. environmental indicators) that were used to measure existing conditions and progress in controlling NPS pollution. Examples of effective graphs, tables, and other data presentation methods are shown in Section 3 of this notebook—*Final Project Examples*.

The monitoring results should be separated into the following categories:

- TMDL implementation effectiveness (4.1).
- BMP effectiveness evaluations (4.2).
- Surface water improvements, including separate sections for chemical, biological, and physical/habitat (4.3).
- Groundwater improvements, including separate sections on metals, chemistry, nutrients, and sediment (4.4), if applicable.
- Other monitoring (4.5).
- Quality assurance reporting (4.6). If there is an EPA-approved Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) for the project, describe briefly how the monitoring was consistent with the QAPP or SAP.

- Results of BMP operation and maintenance (O&M) reviews (4.7). This section should describe how project sponsors assured proper O&M of the BMPs. The discussion should include the frequency of on-site O&M evaluations, identification of the organization(s) who did the evaluations, and the frequency of state reviews of O&M procedures. If problems with O&M procedures occurred, follow-up procedures should be described. Also, if landowners abandoned any section 319-funded BMPs, a description of actions taken by the project sponsor should be included.

5.0 COORDINATION EFFORTS

This section describes coordination efforts with different agencies, entities, and the public. It includes the following sections:

5.1 COORDINATION FROM OTHER STATE AGENCIES

This section identifies any cooperating state agencies and describes their role in implementing the project.

5.2 OTHER STATE ENVIRONMENTAL PROGRAM COORDINATION

This section identifies any cooperating state environmental programs and describes their role in implementing the project.

5.3 FEDERAL COORDINATION

This section identifies any cooperating federal agencies, such as the U.S. Geological Survey, Natural Resources Conservation Service, and Fish and Wildlife Service and describes their role in project implementation.

5.4 USDA PROGRAMS

This section identifies cooperation with U.S. Department of Agriculture programs such as the Environmental Quality Incentives Program (EQIP), Hydrologic Unit Funding, Buffer Initiative, or Conservation Reserve Program. The section should include a description of each program's role in project implementation.

5.5 ACCOMPLISHMENTS OF AGENCY COORDINATION MEETINGS

This section should provide a summary of agency coordination meetings, participants lists and meeting outcome may be included. Details or transcripts from the meetings may be attached as an appendix in the final report.

5.6 RESOURCES/COORDINATION FROM FEDERAL LAND MANAGEMENT AGENCIES

This section identifies coordination with federal land management agencies, if applicable. Included would be each agency's role in project implementation, and information on resources provided by the agencies.

5.7 OTHER SOURCES OF FUNDS

If the project received funding through other sources such as non-federal match from state and local funds, volunteer labor, and other federal funds, this section should provide a description of those sources. A budget table may be a useful to present this information.

6.0 SUMMARY OF PUBLIC PARTICIPATION

This section describes public participation and other local support for project implementation.

7.0 ASPECTS OF THE PROJECT THAT DID NOT WORK WELL

This section should provide an explanation of elements of the project that did not work out as planned. For instance, this section may include a discussion of why milestones were difficult to meet. Was the failure due to lack of good data, inadequate funding, lack of sufficient technical resources, or "circumstances of nature?" Was there a need for a more thorough assessment and targeting, or more advanced technology? This section can help others to avoid similar problems in the future.

8.0 FUTURE ACTIVITY RECOMMENDATIONS

This section should be used to describe any programs, activities, and/or assessments that are or should be planned for the area of concern based on the results of the project. Plans for future coordination with other agencies should be indicated. If the project is continuing anticipated funding sources and continuation of the section 319 funding should also be discussed. This section provides an excellent opportunity to informally propose new projects that will continue to address NPS problems in the watershed or other area of concern.

SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

WATERSHED PROJECT FINAL REPORT

(Project Title Here)

by

(Author and Project Sponsor Here)

(Date Here)

This project was conducted in cooperation with the State of _____ and the United States Environmental Protection Agency, Region 8.

Grant #

EXECUTIVE SUMMARY

PROJECT TITLE _____

PROJECT START DATE_____ PROJECT COMPLETION DATE_____

FUNDING: TOTAL BUDGET _____

TOTAL EPA GRANT _____

TOTAL EXPENDITURES OF EPA FUNDS _____

TOTAL SECTION 319 MATCH ACCRUED _____

BUDGET REVISIONS _____

TOTAL EXPENDITURES _____

SUMMARY ACCOMPLISHMENTS

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY .....

INTRODUCTION .....

PROJECT GOALS, OBJECTIVES, AND ACTIVITIES .....

PLANNED AND ACTUAL MILESTONES, PRODUCTS AND COMPLETION DATES .....

EVALUATION OF GOAL ACHIEVEMENT AND RELATIONSHIP TO THE STATE NPS MANAGEMENT PLAN .....

SUPPLEMENTAL INFORMATION .....

BEST MANAGEMENT PRACTICES DEVELOPED AND/OR REVISED .....

MONITORING RESULTS .....

BMP EFFECTIVENESS EVALUATIONS .....

SURFACE WATER IMPROVEMENTS .....

CHEMICAL .....

BIOLOGICAL .....

PHYSICAL/HABITAT .....

GROUND WATER IMPROVEMENTS .....

METALS .....

CHEMISTRY .....

NUTRIENTS .....

OTHER MONITORING .....

QUALITY ASSURANCE REPORTING .....

RESULTS OF BMP OPERATION AND MAINTENANCE REVIEWS .....

COORDINATION EFFORTS .....

COORDINATION FROM OTHER STATE AGENCIES .....

OTHER STATE ENVIRONMENTAL PROGRAM COORDINATION .....

FEDERAL COORDINATION .....

USDA PROGRAMS (E.G. ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP), HYDROLOGIC UNIT FUNDING, BUFFER INITIATIVE, CONSERVATION RESERVE PROGRAM .....

ACCOMPLISHMENTS OF AGENCY COORDINATION MEETINGS .....

RESOURCES/COORDINATION FROM FEDERAL LAND MANAGEMENT AGENCIES .....

OTHER SOURCES OF FUNDS .....

TABLE OF CONTENTS (CONTINUED)

PAGE

SUMMARY OF PUBLIC PARTICIPATION .....

ASPECTS OF THE PROJECT THAT DID NOT WORK WELL .....

FUTURE ACTIVITY RECOMMENDATIONS .....

LITERATURE CITED

LIST OF TABLES .....

LIST OF FIGURES .....

LIST OF APPENDICES, IF NOT PREVIOUSLY PROVIDED TO EPA (INCLUDING MONITORING DATA BASE, AND WRITTEN OUTPUTS SUCH AS BROCHURES, NEWSLETTERS, PARTICIPANT SURVEYS, AND MONITORING REPORTS).....

FUTURE DIRECTIONS

FUTURE DIRECTIONS

The section 319 Final Project Report can be more than just a document that fulfills the requirement of a grant. The report can and should be prepared for a wider audience than just state and EPA staff. The final report is an excellent means to explain the technical concepts of the 319 project to both technical and non-technical audiences.

The report should clearly identify and describe nonpoint source issues in the watershed and outline the 319 project's successes in addressing these issues. If data and concepts are presented effectively, the report can be used to advertise this and other related projects and can garner support from stakeholders and the public at large. Section 3 of this notebook—*Final Project Examples*—provides examples of effective and informative text and graphics that can be used to improve the presentation and readability of the final report.

During preparation of the report, project sponsors brainstorm ways in which the report can be extended to a more multipurpose document. The report can be made available on the World Wide Web to provide stakeholders with information about the project, its purpose, and its successes. Also, a web site can solicit suggestions and comments from stakeholders and provide information about ways that they can become more involved in the project or other watershed initiatives.

Other means of communicating information about the project include newsletters, brochures, fact sheets, or other outreach materials that can be distributed to watershed and environmental groups, the public, government agencies, or other interested parties. These materials can be rich with graphics, highlighting the successes and future directions of the 319 project. Elements from the final report can be used to develop these materials, especially if the report contains pictures and graphs showing clear trends in water quality.

Finally, the report may be used to support proposals for new grants to continue addressing nonpoint source issues in the area of concern. A good final report will convey to the reader that the project was successful and worthwhile and that project sponsors are capable of using grant funds to bring about improvements in water quality.

Project sponsors may consider all of the ways that the final report can be used to disseminate information about the project. It is important that project sponsors plan data collection, data analysis, and display needs from the start of the project to facilitate report preparation and smooth the transition between the final report and a web site, outreach materials, or grant proposals.

PRESENTATION SLIDES

CWA Section 319(h) Final Reporting

Essential Elements of a
Successful NPS Project Report

Robert Edgerton
Tetra Tech, Inc.

NPS and Section 319(h)

- Section 319 addresses NPS by requiring all States to report to EPA all major sources of NPS
- States must develop management programs with identified BMPs suitable for reducing NPS
- Section 319(h) grants are awarded to States with approved NPS programs

- Emphasis also placed on:
  - Innovative BMPs
  - Projects that control interstate nonpoint sources
  - Projects concerned with groundwater protection

Why a Final Project Report?

- All Section 319(h) grants are subject to the requirements under 40 CFR Part 31 and 35, Subpart A
- Creating a legacy – documentation and proof of NPS mitigation, and watershed restoration and conservation activities
- A living document – creation of a database that can be expanded upon by future projects and project sponsors

Benefits of Final Project Reporting

- Section 319(h) final project reports *can* go beyond fulfilling grant requirements:
  - *Cost sharing amongst agencies/partnerships*
  - *Avoid duplication of work*
  - *Provide tangible evidence that grant monies were spent effectively*
  - *Garner support for locally led watershed efforts*
  - *Results (positive and negative) aid other current projects as well as future efforts*
  - *Identify other water quality issues that should be addressed in the watershed*
  - *Outreach material that disseminates information to the public*

Final Report Outline

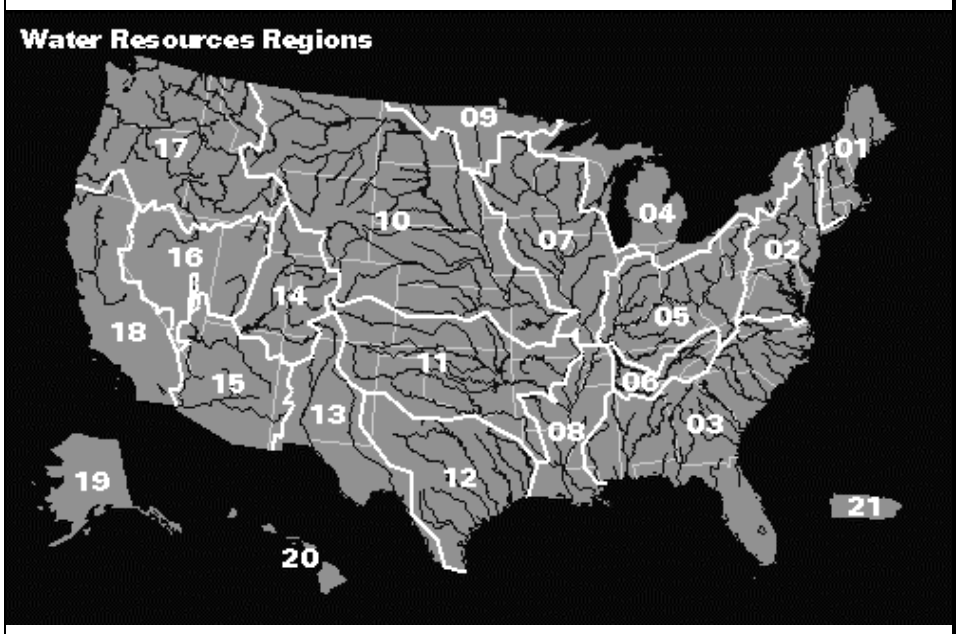
- Executive Summary
- Introduction
- Project Goals, Objectives, and Management Strategies
- Best Management Practices
- Monitoring Plan and Results
- Coordination Efforts
- Public Participation
- Lessons learned
- Future Activity Recommendations

Executive Summary

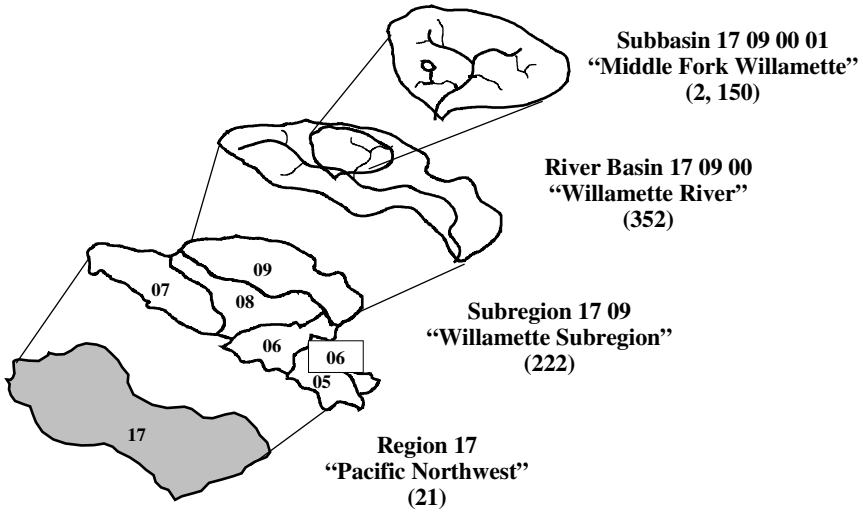
- Brief overview, emphasizing:
  - **Goals and Objectives**
  - **Location, size, and timeframe**
  - **Start and completion dates**
  - **Funding information**
  - **Summary of accomplishments**
  - **Use of new/innovative BMPs**
  - **Relevance of project to State NPS program**
  - **Consistency with other NPS-related programs: 305(b) reports, 303(d) listings, Unified Watershed Assessments, and TMDL development**

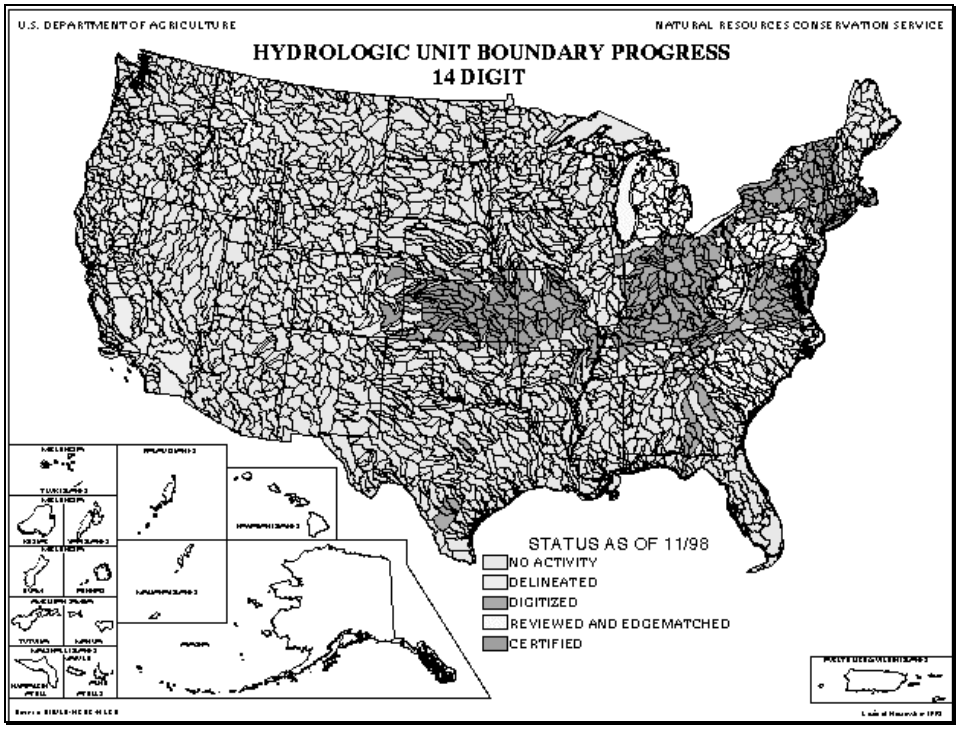
Introduction

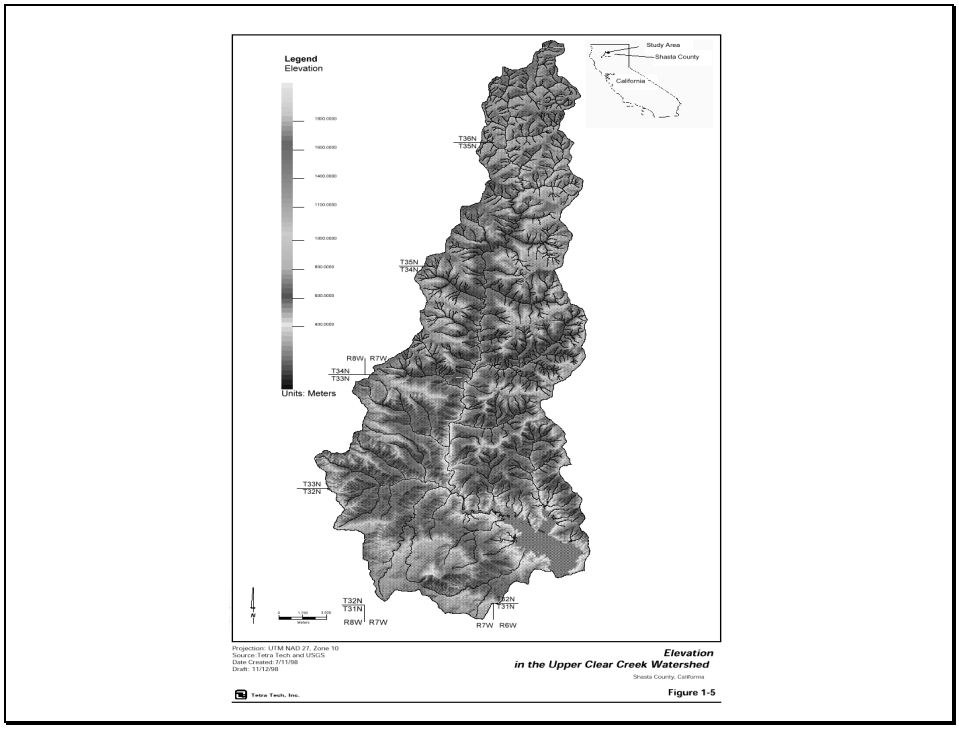
- All pertinent background information on project, including:
  - **Identifying the spatial/temporal scale**
  - **Description of available data (historical and current)**
  - **Description of water quality problems**
  - **Relevance of project to State NPS program**
  - **Assessment/Watershed Projects:**
    - **general project description, with introduction to assessment**
    - **data collection techniques**
    - **monitoring schedule**



Watershed Delineation Using USGS Hydrologic Unit Codes




U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
HYDROLOGIC UNIT BOUNDARY PROGRESS
14 DIGIT
STATUS AS OF 11/98
NO ACTIVITY
DELINEATED
DIGITIZED
REVIEWED AND EDGEMATCHED
CERTIFIED


Legend
Elevation
Units: Meters
Study Area
Shasta County
California
T36N
T35N
T35N
T34N
R8W
R7W
T34N
T33N
T33N
T32N
T32N
T31N
R8W
R7W
T32N
T31N
R7W
R6W
Projection: UTM NAD 27, Zone 10
Source: Tetra Tech and USGS
Date Created: 7/11/98
Draft: 11/12/98
Elevation
in the Upper Clear Creek Watershed
Shasta County, California
Tetra Tech, Inc.
Figure 1-5

Project Background Data

- **Site location and description**
  - Location
  - Size
  - Ownership and land use
  - Setting (rural/urban)
- **Site History**
  - Type of site (mine, agriculture, silviculture, hydrologic modification)
  - Concise history of contamination
  - Past and on-going investigations/restoration
  - Current stage of site investigation/restoration

- **Physical setting**
  - Geology, hydrogeology, morphology (if applicable)
  - Precipitation, soils
  - Topography and drainage patterns
- **Existing data**
  - Summary of significant results from past investigations/restoration
  - Usability/quality of existing data
  - Identification of data gaps
  - Extent and level of pollutants/pollution

Focus on site information/data that is relevant to the proposed sampling design…

Goals, Objectives, and Strategies

- ***Goals*** = broad statements about project needs that are achievable through project ***objectives***.
  - ***"to mitigate the effects of agricultural runoff that may adversely impact water quality…"***
- ***Objectives*** = provide a roadmap for obtaining the project ***goals***.
  - ***"reduce wind and water erosion in the watershed by implementing approved agricultural-based BMPs"***
- ***Strategies*** = specific management techniques used to accomplish the ***objective***.
  - Tables listing BMPs, tracking numbers, implementation schedule, cost and cost-share ratios
  - TMDL implementation

Goals, Objectives, and Strategies

- Planned and Actual Milestones
  - Table with anticipated milestones, and achieved or historic milestones with completion dates (schedule)
- Relevance of project to State NPS program
  - How does each goal/associated objective(s) relate or contribute to the control of NPS pollution
- Supplemental information
  - Maps, tables, charts, graphs, brochures

Goal: to improve erosion control measures and reduce sediment loading in the project area*

Objectives	*Strategies*
Determine incentives, training opportunities, and educational materials needed to obtain landowner acceptance	◆ Hold public meeting to determine interest towards project ◆ Research opportunities to partner with other outreach organizations (Cop. Ex. Agents, NRCS, EPA)
Implement BMPs determined to be the most effective at reducing sediment loading given land use activities, and biological, physical, and chemical attributes of the project area	◆ Planned grazing systems (entire project area) ◆ Controlled grazing practices (60% of project area) ◆ Riparian vegetation establishment (10 pre-selected sites) ◆ Stockwater ponds (10 pre-selected sites)

*Matrix adapted from South Dakota Bad River Phase II Water Quality Report, June 1996

Project Methodology

- Best Management Practices
  - Detailed description either in text or as an appendix. Include NRCS-BMP code and discuss any deviation from standardized implementation.
- Other conservation/management measures
  - Resource management plans
  - Point source permit controls
- Detailed budget of how 319(h) dollars were spent

NRCS Approved Agricultural-based BMPs*

NRCS Code	BMP	Life Span (Years)	Flat Rate	Cost-Share
352	Deferred grazing	1	$5.00/Acre	$3.00/Acre
386	Field border	5	$20.00/Acre	$12.00/Acre
ND589	Herbaceous wind barrier	5	$5.00/Acre	$3.00/Acre
329A	Residue management; No till and Strip till	1	$10.00/Acre	$6.00/Acre
556	Planned grazing	--	NC	NC

*Certain long-term restrictions may apply to BMPs implemented with Section 319(h) dollars.
†Table adapted from North Dakota Nonpoint Source Pollution Program, July 1999

Monitoring Results and Data Analysis

- Main body of report – should include description of monitoring strategy, sampling and analysis techniques, models used, and conclusions
- Emphasis on presenting results/findings that indicate ***trends***, where appropriate, with data
- Describe surrogate measures in subcategories:
  - Water quality analysis (chemical, biological, physical elements)
  - Photo points for before/after comparison
  - Ground water modeling

Convey the successful elements of the project in the final report!

Monitoring Results Subcategories

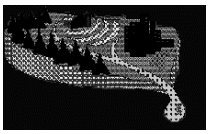
- BMP effectiveness evaluation
- Improvements to surface water quality
- Ground water improvement
- Quality assurance reporting
  - Based on EPA-approved Quality Assurance Project Plan applicability
- Results of BMP operation & maintenance
  - How did sponsors meet the O&M requirements of 319-funded BMPs?
  - Show frequency of on-site O&M evaluations, personnel involved, and frequency of State reviews

Measurable Attributes for Surface Waters/Stream Corridors

- **Hydrology**
  - Total (annual) discharge
  - Seasonal (peak) discharge
  - Peak flows
  - Minimum flows
  - Annual flow durations
  - Rainfall records
- **Erosion and Sediment Yield**
  - Watershed cover and soil health
  - Dominant erosion processes
  - Rates of surface erosion and mass wasting
  - Sediment delivery ratios
  - Channel erosion processes and rates
  - Sediment transport functions

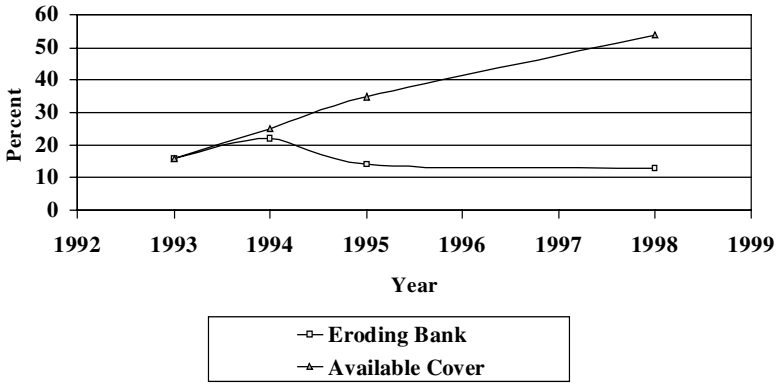
- **Floodplain/Riparian Vegetation**
  - Community type
  - Type distribution
  - Surface cover
  - Canopy
  - Community dynamics and succession
  - Recruitment and reproduction
  - Connectivity
- **Aquatic and Riparian Species and Critical Habitats**
  - Aquatic species of concern and associated habitats
  - Riparian species of concern and associated habitats
  - Native vs. introduced species
  - Benthic, macroinvertebrate, or vertebrate indicator species
- **Corridor Dimension**
  - Plan view maps
  - Topographic maps
  - Width
  - Linearity

- **Water Quality**
  - Color
  - Temperature, dissolved oxygen
  - Suspended sediment
  - Present chemical condition
  - Present macroinvertebrate condition
- **Channel Processes**
  - Flow characteristics
  - Channel dimensions, shape, profile, and pattern
  - Substrate composition
  - Floodplain connectivity
  - Evidence of entrenchment and/or deposition
  - Lateral (bank) erosion
  - Floodplain scour
  - Channel avulsions and/or realignments
  - Meander and braiding processes
  - Depositional features
  - Scour-fill processes
  - Sediment transport class (suspended bedload)



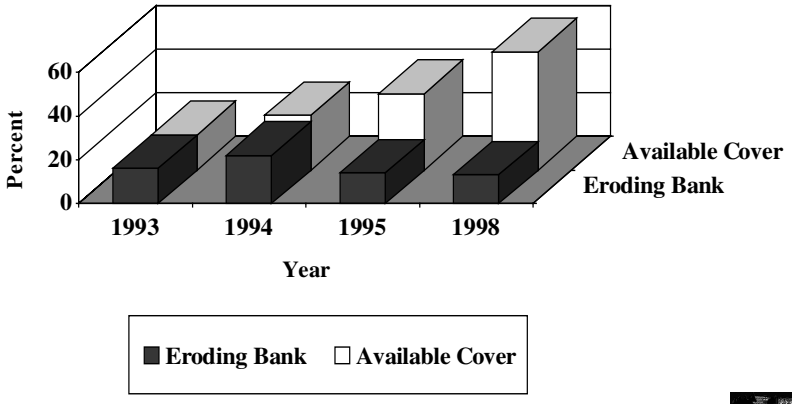
Data Analysis and Presentation

*The Good…**

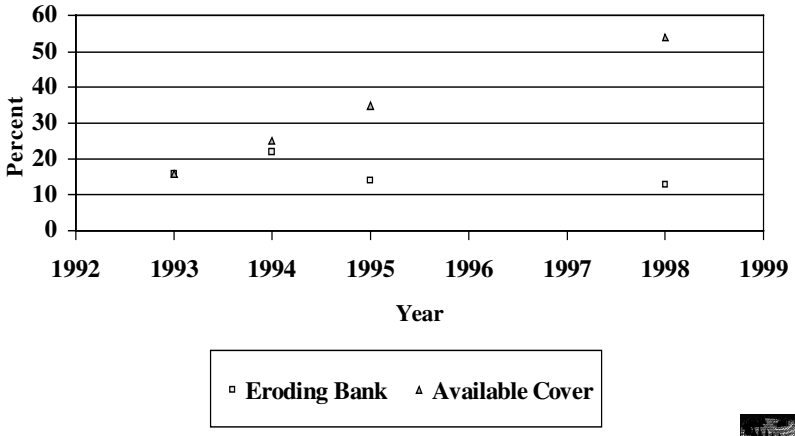


*Data adapted by Utah Otter Creek Nonpoint Source Interagency Monitoring Workgroup, May 1999

The Bad…



The Ugly…



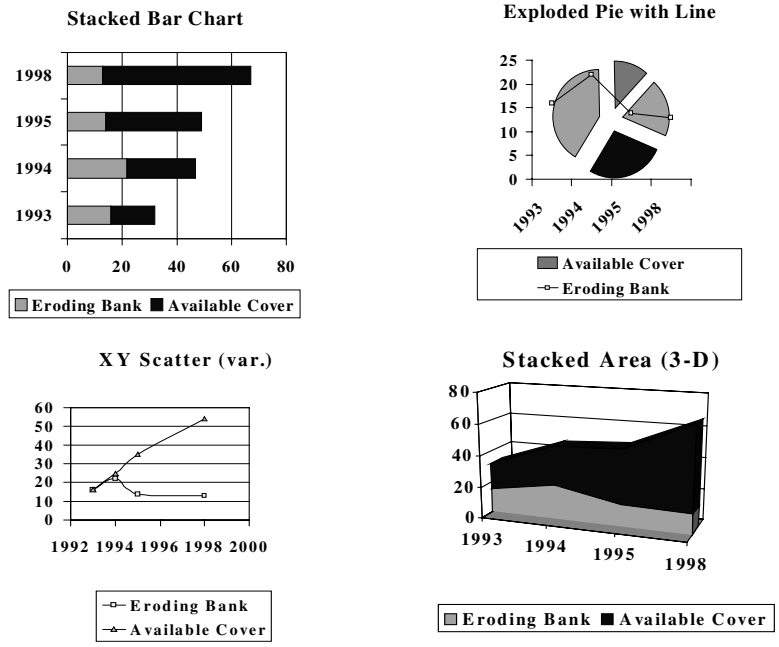


Photo Points

- Provide documented visual site conditions for the project area at specified locations and times (scale!)
- Invaluable for communicating trends in site condition (pre-monitoring), and assisting in analysis and quality assurance/data verification of other site information
- Relatively inexpensive means of data collection and analysis. Minimal experience required when following Standard Operating Procedures (SOP)

Select Photo Point References

- **Bauer, S.B. and T.A. Burton. 1993. Monitoring protocols to evaluate water quality effects of grazing management on western rangeland streams. EPA 910/R-93-017.**
- **Bovee, K.D. 1986. Development and evaluation of habitat suitability criteria for use in the instream flow incremental methodology. Instream Flow Information Paper No. 21. Biological Report 86(7). U.S. Fish and Wildlife Service.**
- **Meyers, L.H. 1987. Montana BLM riparian inventory and monitoring. Riparian technical Bulletin No.1, BLM-MT-PT-88-001-4410.**
- **U.S.D.I. Bureau of Land Management. 1974. BLM Manual Supplement No. 6671 – Stream Surveys.**

Select Monitoring References

- Averett, R.C. and L.J. Shroder. 1993. A guide to design of surface-water quality studies. USGS Open-File Report 93-105.
- Karr, J.R. and W. Chu. 1997. Biological monitoring and assessment: using multimetric indexes effectively. USEPA 235-R97-0001. University of Washington.
- Kerchner, J.L. 1997. Setting riparian/aquatic restoration objectives within a watershed context. Restoration Ecology Vol. 5, No. 45.
- Manley, P.A. et al. 1995. Sustaining ecosystems: a conceptual framework. USDA Forest Service, Pacific Southwest Region.
- Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, CO.
- Sanders, T.G. et al. 1983. Design of networks for monitoring water quality. Water Resources Publications. Littleton, CO.
- Stednick, J.D. 1991. Wildland water quality sampling and analysis. Academic Press. San Diego, CA.
- Ward, R.C., J.C. Loftis, and G.B. McBride. 1990. Design of water quality monitoring systems. Van Nostrand Reinhold. New York.

Coordination Efforts

- Identify roles and responsibilities of all involved parties
  - Project coordinator, sponsor, landowners/participants
  - State/Federal agencies
  - Tribal governments
- MOU's
- Identify activities/outreach/partnering with other funded or non-funded Section 319 NPS programs
  - Environmental Quality Incentives Program
  - Conservation Reserve Program
- Did project compliment the State NPS program, CWAP requirements, CWA 305(b) or 303(d) listing requirements

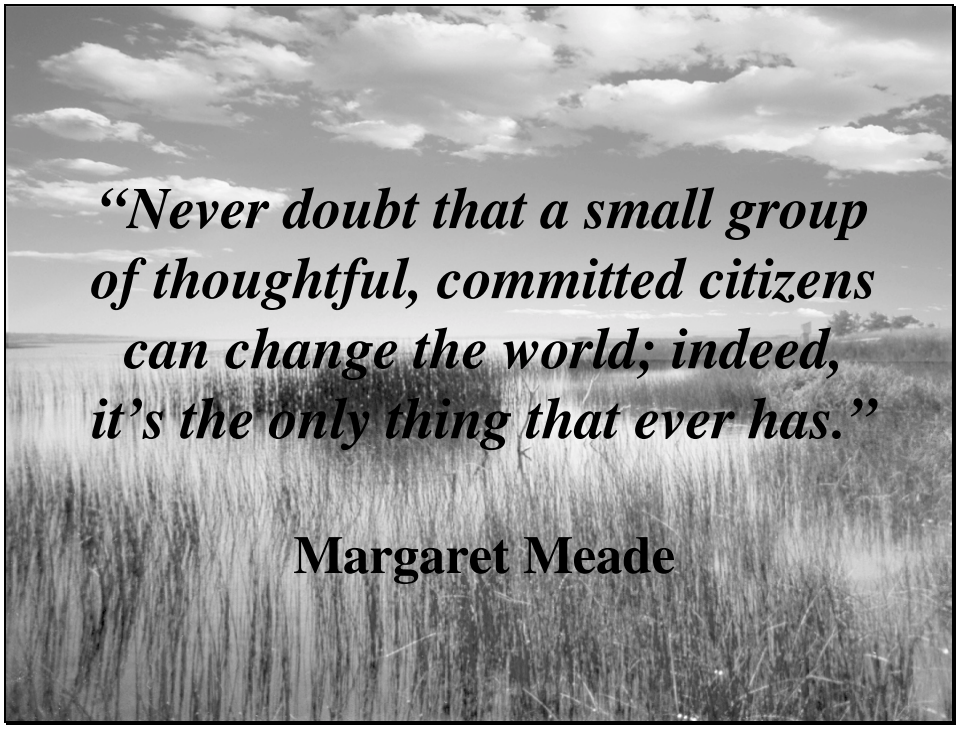
Public Participation

- Qualitative description of public participation in the project
- Outreach
  - Final report essential to convey message of project success to Congress, landowners, public, other watershed groups
  - Emphasize that final reporting is a ***process*** and not just a ***product***!

Learning from our experience…

- Describe in detail aspects of the project that did not work well:
  - Missed milestones/opportunities
  - Poor planning
  - Lack of scientifically relevant data
  - Inadequate funding
- Future project recommendations:
  - Anticipated funding sources for project continuation
  - Proposal of new projects
  - Identification of new/innovative BMPs

One project's downfall may be another's silver lining!



Making the Most of Your Final Report

Charlie MacPherson
Tetra Tech, Inc.

Scientists need to know this to…

- ✔Explain technical concepts to non-technical audiences
- ✔Get buy-in from decision-makers to fund further implementation
- ✔Identify additional issues in the watershed

Managers need to know this to…

- ✔Educate decision-makers so they can make informed decisions
- ✔Show program accomplishments
- ✔Create partnerships to share responsibilities and resources

Go slow to go fast...

By taking the time up front to produce a good product, you'll get the payoff later.

Make the report work for you

- ✔ Gives credibility to your organization
- ✔ Increases the chances of future funding
  - – from both state and outside sources
- ✔ May be used to create additional outreach pieces
- ✔ May be used to help recruit partners

When do you start thinking about the final report?

A. When the project is finished.
B. When EPA has called for the 14th time and is threatening to withhold the remaining grant money.
C. When the project is first awarded.

Before you start writing...

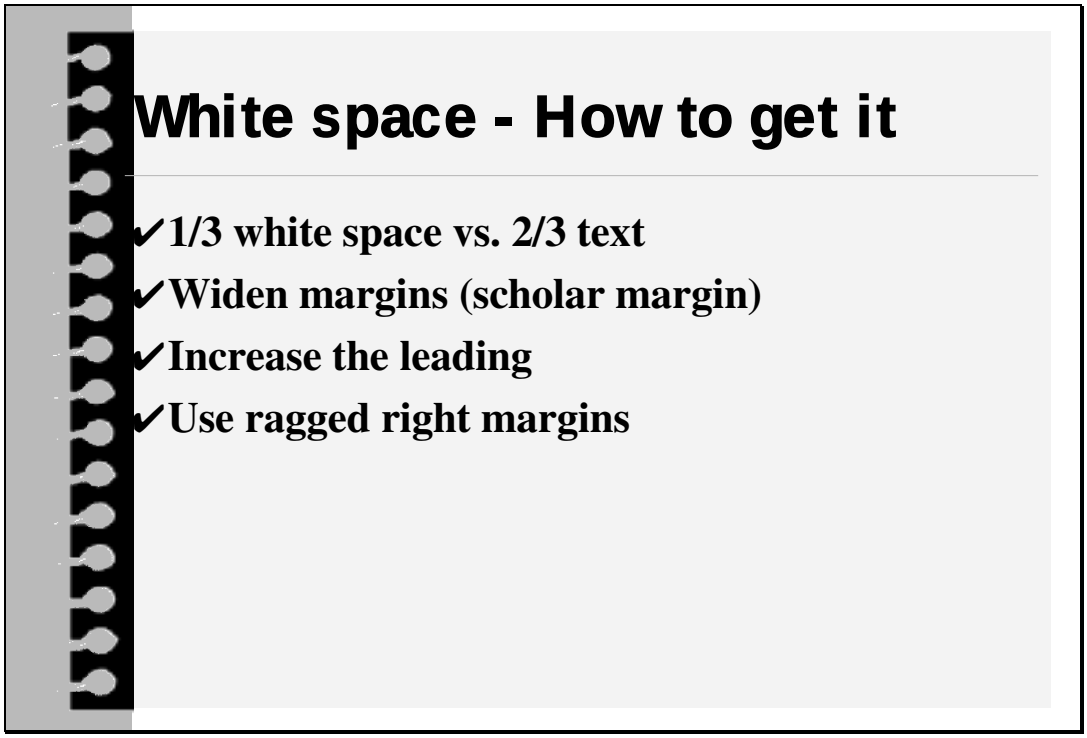
- ✔ What is the purpose of the report?
- ✔ Who is the primary audience?
- ✔ What major messages do we want to communicate?
- ✔ How will we distribute this report?
- ✔ What resources are available to help you?

Don't reinvent the wheel

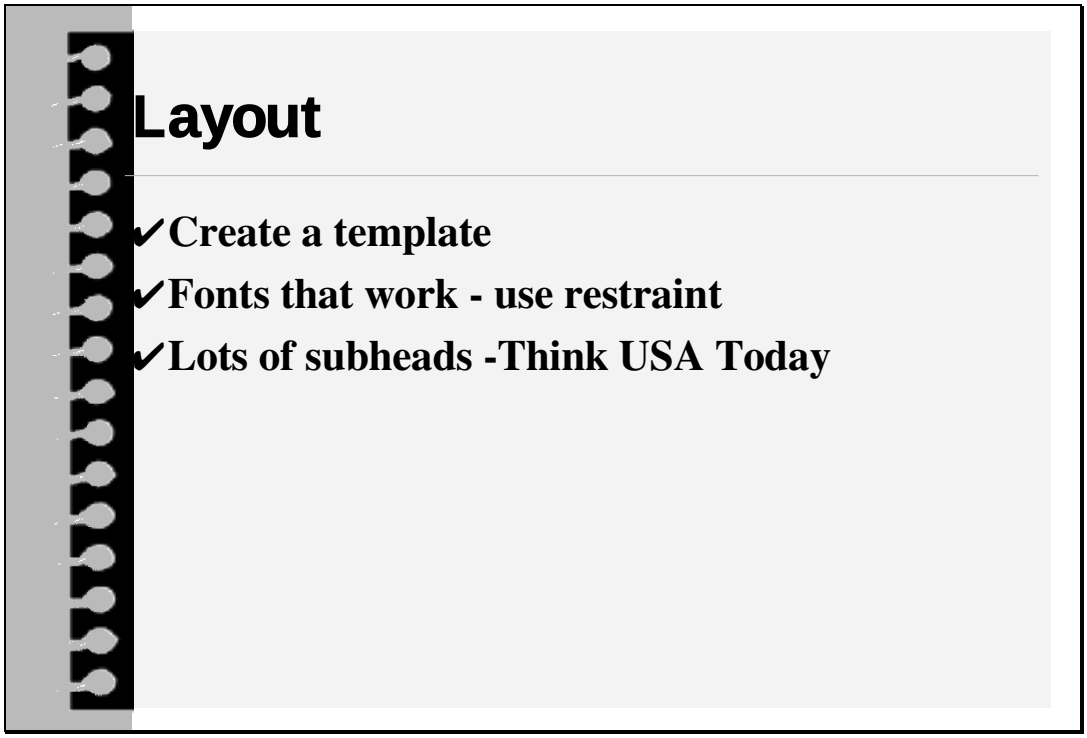
- ✔ What information exists that can be used in the final report?
  - GRTS summary
- ✔ What additional materials can be developed as "spin-offs" from the final report?
  - Fact sheets
  - Project highlights

The art of the final report

- ✔ White space
- ✔ Layout
- ✔ Graphics
- ✔ Communicating technical data
- ✔ Photographs
- ✔ Color
- ✔ Content



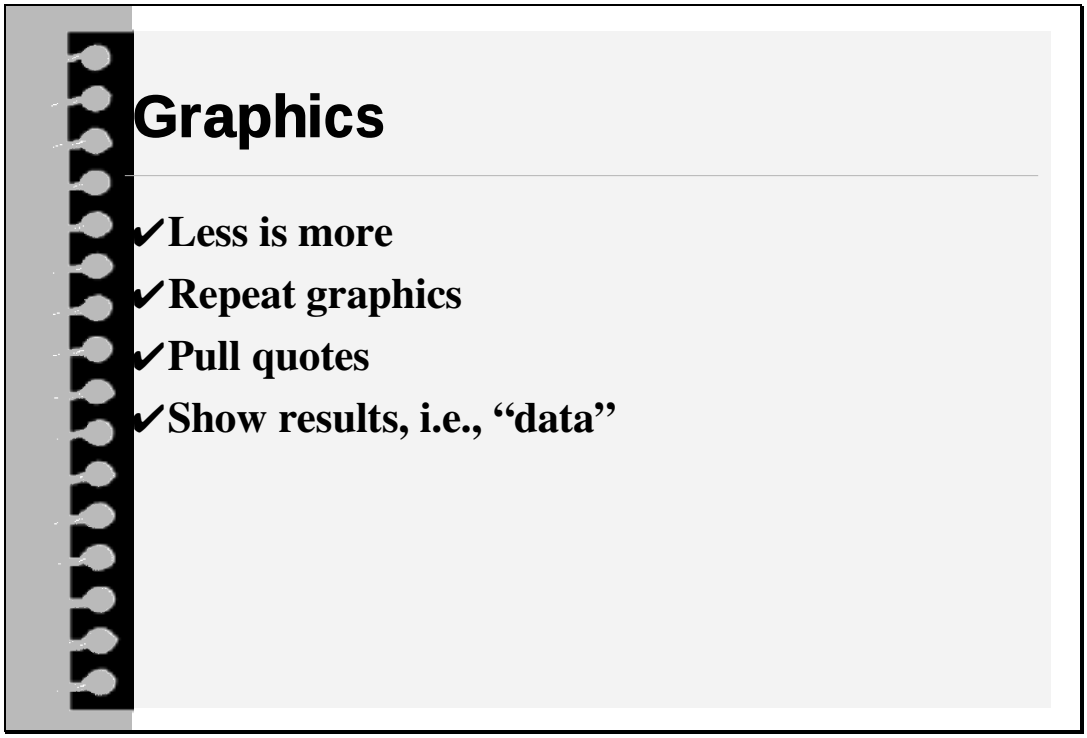
White space refers to the amount of space on the page that is left blank. White space should be treated as a graphic and used liberally. To immediately create white space, try expanding the margins on the page. Make your headline wrap onto several lines so white space is created on the right side of the page. Use left (not full) justification for text; this creates more white space at the end of each line and also makes text easier to read since your brain "remembers" the last word in the line above the one you're reading.



When designing the layout of your final report, use restraint, consistency, and quality materials. Restraint should be used in choosing type faces or fonts, consistency should be used with the kinds of graphics or artwork selected, and quality materials should be used for photographs and artwork. Invite readers into your material with appealing, user-friendly layouts.

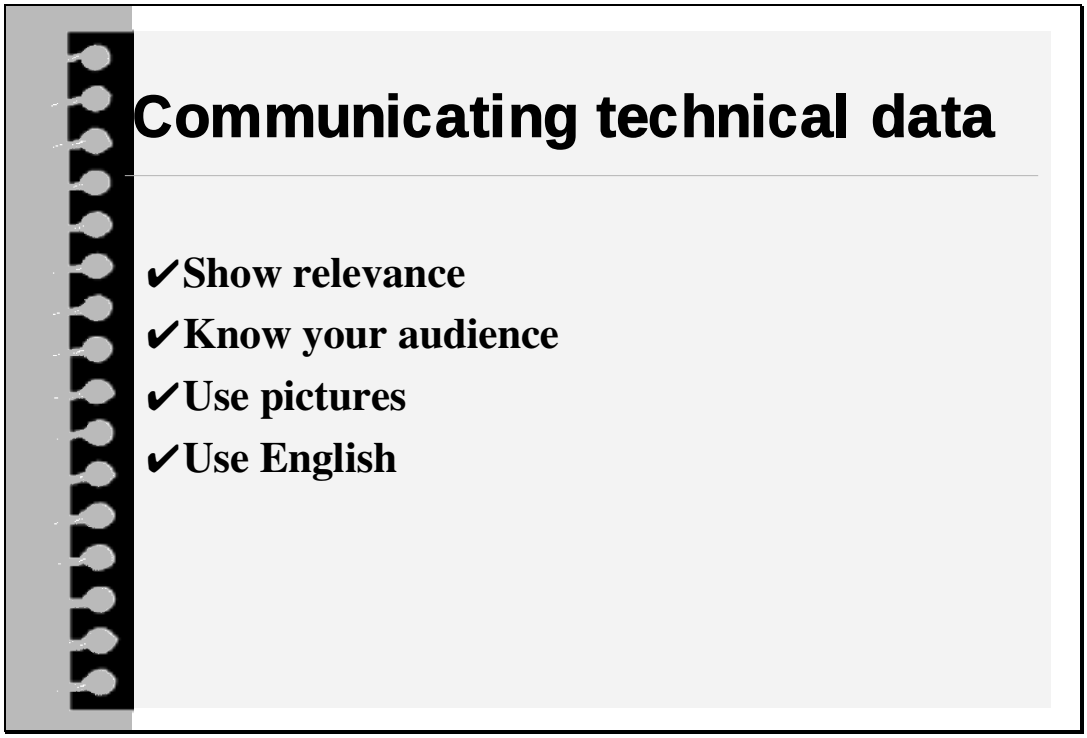
Design your materials so the layout draws the eye into and around the entire work. Select typefaces for readability. Provide variety, but don't use them all. A good typeface calls attention to the message, not to itself. Choose no more than two or three different typefaces for your piece. DO NOT USE ALL CAPS BECAUSE IT IS TOO HARD TO READ THE TEXT. San serif fonts (fonts that don't have "feet" on the letters) are good choices for headlines and subheads.

Arial and Helvetica are popular sans serif fonts. Serif fonts, such as Times Roman, should be used for large blocks of text because your eye can read the words more easily (this guide uses Humanist typeface for the headings and Century Old Style for the text). Hundreds of fonts are available, but resist the urge to use them all in one publication just because they are loaded on your computer. Experiment with the fonts to get the look you want.



Graphics—photos, logos, or other artwork—are great for breaking up long, gray blocks of text, allowing readers a visual break. Images of lakes, streams, rivers, wetlands, and other watershed features are "naturals" for dressing up your message format. The emotional appeal they elicit can be tremendous.

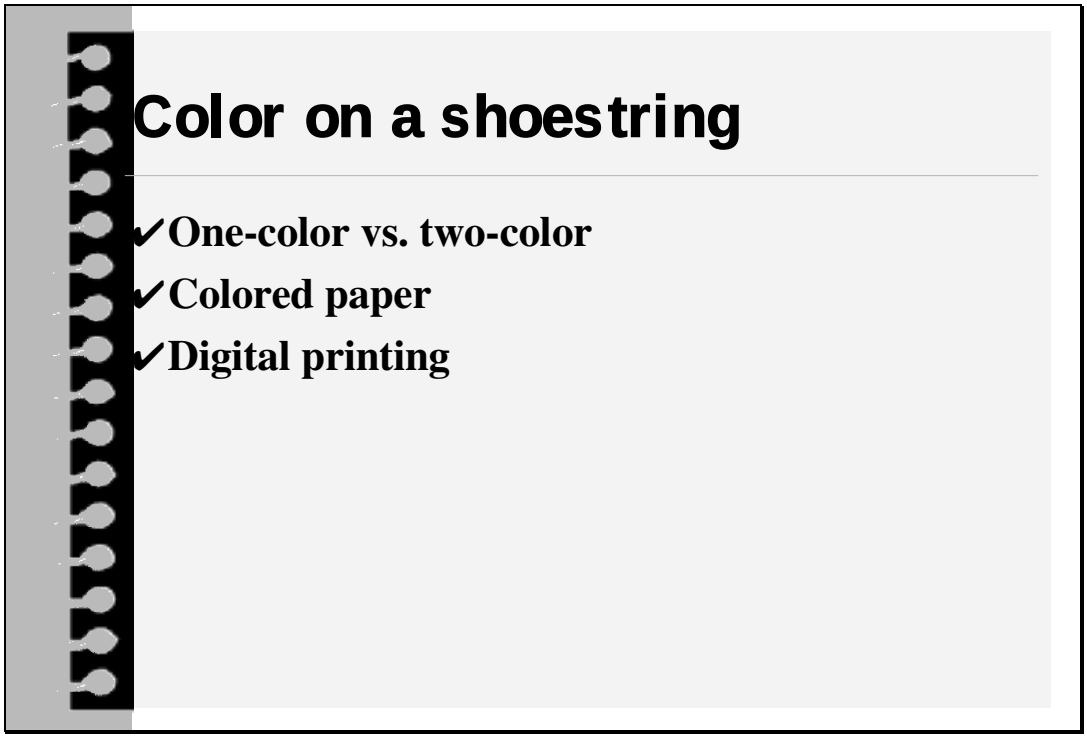
If you have a limited number of graphic images, try repeating the image across the page or make the image different sizes. When using several graphic images on one page, vary the sizes of the graphics for interest.



When presenting technical data always keep the audience in mind. Whenever possible, tie the data back to the resource with a graphic or a photograph to "show" why the results are important. Consider showing the same information in several different formats to reinforce the information being presented.

Using photographs can reinforce your message dramatically. But it is better not to use a photograph at all if it is of poor quality. Taking effective photographs takes practice and patience. Photos of people, especially children, appeal to many audiences. Show action in your photographs, such as water quality sampling, tree plantings, or festivals.

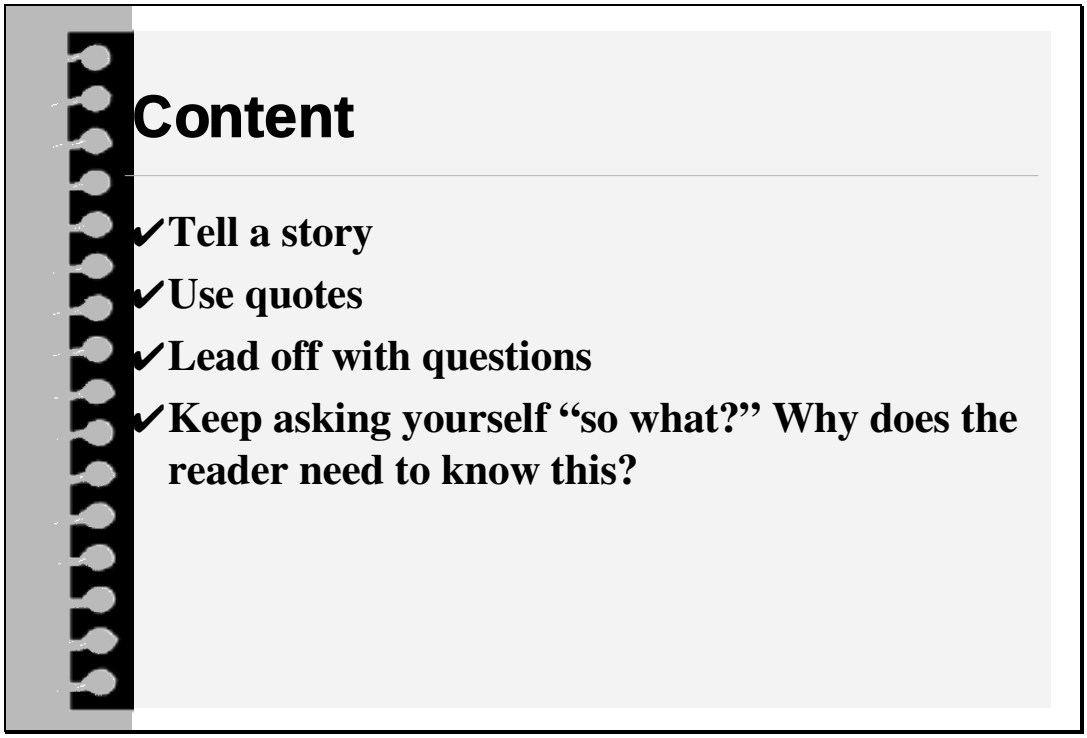
If you do not have access to a good photographer, consider using stock photos. These photos are available on CD-ROMs and can start as low as $25 for a set of 50 good-quality photographs. The Internet also stocks thousands of images that can be downloaded.



Using color in your final report will make it more attractive to your readers. There are several ways to incorporate color without blowing your budget. Printing your report in one color (such as a dark green or blue), costs no more than using black ink. The increased printing cost for using two colors is minimal. Many printers have specific days of the week where an extra color is "free" so be sure to ask.

Even just using a colored paper can add interest to your document. Remember to select a color that will not interfere with reading the text and make sure it is on recycled paper.

Printing costs decrease dramatically with volume so think for the long-term when producing copies.



Make the text interesting for your readers. Keep the text to a minimum and use the active voice. You can use various formats to make your text more engaging. Consider telling a story or leading off with a letter from a stakeholder in the watershed. Always try to include a local angle, and keep the message simple. Don't use acronyms or overly technical language.

Putting it all together

- ✔The good
- ✔The bad
- ✔The ugly