



Section 319 of the Clean Water Act:

An Evaluation of Program Implementation in Region 10



**SECTION 319 OF THE CLEAN WATER ACT:
AN EVALUATION OF PROGRAM IMPLEMENTATION IN REGION 10**

By

Esther Bartfeld

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Esther Bartfeld

DISCLAIMER

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ABSTRACT

Nonpoint source pollution, long overlooked in federal water pollution regulation, has now become a centerpiece of pollution control efforts. Congress added §319 -- the nonpoint source management programs section -- to the Clean Water Act in the 1987 Amendments to demonstrate federal commitment to nonpoint source control activities. Section 319(h) grant money, provided by EPA to individual states, forms an integral part of the federal nonpoint source program. EPA national and regional guidance give direction to the §319(h) grant program. As an evolving federal program, §319 must carve out a niche for itself in relation to ongoing statewide nonpoint source control efforts.

This paper provides an analysis of the §319 program and the effectiveness of §319(h)-funded projects in protecting water quality in Region 10 states, which include Washington, Oregon, Idaho, and Alaska. The report identifies characteristics of successful §319 projects, reviews selected §319 projects, highlights several important issues surrounding the §319 program, and makes recommendations for program improvement.

EXECUTIVE SUMMARY

Nonpoint source pollution, long overlooked in federal water pollution regulation, has now become a centerpiece of pollution control efforts. Because nonpoint source pollution -- contaminated runoff associated with agricultural and urban activities and other diffuse sources -- escaped the stringent regulations imposed on point sources over the last two decades, it is now a principal cause of water quality impairment.

Congress added §319 -- the nonpoint source management programs section -- to the Clean Water Act in the 1987 amendments in recognition of a need for greater federal involvement in nonpoint source control activities. As the cornerstone of the federal nonpoint source control strategy, §319 strives to focus states' nonpoint source control programs and integrate nonpoint source pollution control into national water quality protection strategies. Grant money provided by EPA to individual states forms an integral part of the §319 program. Since Congress first appropriated money for §319(h) grants in 1990, EPA has funded over 80 projects totalling \$7,795,202 in the Region 10 states, which include Washington, Oregon, Idaho, and Alaska.

This report evaluates the §319(h) grant award process and the effectiveness of §319(h)-funded projects in protecting water quality in Region 10. Nonpoint source projects eligible for §319 funding span a wide spectrum of activities from on-the-ground implementation projects to public education campaigns to staff positions that strengthen the basic nonpoint source control structure within state and local agencies. With a diverse array of projects, EPA and the states hope to demonstrate on-the-ground improvement in water quality, increase public involvement and education regarding nonpoint source control activities, and promote institutionalization of nonpoint source control actions.

Conclusions and recommendations in the report are drawn from interviews with EPA staff, state nonpoint source coordinators, and individuals responsible for project implementation at the local level. State nonpoint source coordinators expressed praise for EPA's management of the §319 program, but also voiced concerns over certain aspects of the program and offered suggestions to improve program management. Two primary issues regarding the §319 program were expressed most frequently. First, a perceived tension exists regarding the underlying philosophy of §319: is it intended to support state initiatives or to advance EPA objectives carried out through the states? Second, most states face shrinking budgets, which may preclude institutionalization of nonpoint source programs, one of EPA's primary objectives for the §319 program. Declining state funds magnify the importance of §319 funds. The report includes a discussion of these and other issues surrounding the §319 program.

Case studies included in the report document selected §319 projects in Region 10 in order to portray the characteristics of effective projects and the diversity of projects funded with §319 money. A comprehensive project evaluation in its truest sense is premature at this

time because §319 projects did not receive funding until late 1990. Yet one can still identify a set of characteristics that identify successful projects. These characteristics include local support; clear problem identification and proposed solution; political feasibility; baseline measurement and water quality objective; monitoring; environmental stewardship; agency expertise; leveraging other resources; and integration of projects.

After reviewing the §319 program and individual projects, the report makes the following recommendations to further enhance the §319 program in Region 10:

Recommendations for the Region 10 §319 Program:

- **Clarification of §319 philosophy:** EPA and states will need to resolve the issue of §319 philosophy. A reasonable interpretation of the national guidance on base/competitive allocations suggests that the base funds could be used to address the state's most pressing problems, whereas the competitive portion could be more closely tailored to EPA's agenda.
- **Clarify method for allocation of competitive portion of grants:** Regional guidance should describe more clearly the process by which EPA awards competitive grants, and perhaps consider using a different name for this portion of funds. As suggested by the national guidance, this may be an appropriate place to advance EPA's nonpoint source control agenda.
- **Targeting §319 resources:** EPA and states should continue to target §319 funds to high priority areas and programs to obtain the most effective results from §319 expenditures. The issue of §319 philosophy will undoubtedly arise as targeting strategies take shape.
- **Need for planning and development support:** Initial nonpoint source management programs, developed as a prerequisite for §319(h) grants are not specific plans that can be readily implemented. EPA may wish to consider making available a small portion of funds that could be used for planning and program development in areas that would later be ideal candidates for implementation grants. However, this approach risks reducing the money available for program implementation, which is the statutory intent of §319.
- **Funding staff positions:** Severe state budget cuts interfere with institutionalization of nonpoint source control activities. EPA's objective of institutionalizing nonpoint source programs can be furthered by continuing to fund specific types of staff positions. A rallying cry from the states is "we need people." EPA may wish to specify the types of staff positions eligible for short- and long-term §319 grants.
- **Increase length of time for project support:** Because effective nonpoint source control requires a long-term commitment, §319's objective to provide initial start-up funds may not support its objective to realize long-term gains in water quality improvement. EPA should clarify the situations for which a state may seek long term support under §319 and develop specific criteria for projects funded beyond two or three years.

- **Funding Cycle:** EPA should re-evaluate the §319(h) funding cycle in order to accommodate projects, particularly agricultural ones, that operate on a calendar and not a fiscal year. One option would be to accept proposals for work to begin at a later date (i.e., the next calendar year). This would provide project officers security in planning projects, rather than forcing them to risk several months of work without guarantee of grant money.
- **Recognition of EPA as funding source:** Projects that receive §319 money should credit EPA as a funding source to heighten public awareness of EPA's role in nonpoint source control activities.
- **Strengthen monitoring component:** Many projects do not have a monitoring component, making it difficult to identify water quality improvements. Although all projects cannot include an extensive monitoring component, projects should include some type of monitoring method, such as photodocumentation, to measure water quality improvements.
- **Project evaluation:** Effective project evaluation is one of the most difficult tasks confronting the §319 program. To develop a truly effective program, project evaluation must move away from a focus solely on numbers and look instead at project impacts. EPA should encourage states to share information about characteristics of successful and unsuccessful projects in order avoid unnecessary mistakes in future §319 projects.
- **Ensuring long-term results:** Successful nonpoint source control requires long-term efforts. Projects should have some method of continuation and follow-up, even after §319 funding is no longer available. A project that attempts pollution prevention or restoration for only a short period of time is unlikely to show long-lasting positive impacts.

Recommendations for Region 10 §319 Program Management

- **Statement of EPA's long-term goals:** EPA should clearly articulate its long-term objectives for the §319 program and regional nonpoint source control activities. State and local officials responsible for individual project implementation expressed a need to know EPA's long-term nonpoint source goals and objectives in order to help focus both the individual projects and the types of projects submitted for §319 funding.
- **Increase site visits and contact with local communities:** Site visits provide an important link between EPA and the local communities responsible for project implementation. Like the well-worn phrase so adequately states: "a picture is worth a thousand words." Site visits reveal aspects of projects that may not come across in project proposals or quarterly reports. EPA's Operations Offices in each state would be an ideal avenue to increase EPA contact with individual projects, especially given limited travel dollars. In addition, EPA's new watershed manager and coordinator should become involved in §319 projects.

- **Strengthen EPA/state partnership in project development:** EPA should assist states in the initial project development stage. By strengthening its partnership with the states, EPA can review project ideas in their early stages to avoid prolonged development of projects not likely to be funded. One option would be for states to submit rough ideas to EPA for informal review before developing full proposals. States could also give presentations to EPA prior to award decisions.
- **Start grant award process earlier:** Both EPA and the States should begin the grant award process at an earlier date. For the states, this means beginning the grant development process earlier in the year so that projects can be formalized in the short time period between target grant amount notification and annual work program completion.
- **Provide models for grant proposals:** EPA should continue to provide examples of outstanding §319 grant proposals. Development of a regional project tracking system will help facilitate uniform work programs and standardize the process.
- **Increase regional information sharing:** EPA should increase its role in regional information sharing to facilitate communication between local and state agencies in the region. In addition, EPA could distribute brief summaries of §319 projects within Region 10, including local project officers to contact for more detailed information. National project information sharing would also be beneficial at a regional level. EPA may also wish to promote projects that can be replicated in other areas of the region.
- **Enhance communications with other agencies to reduce duplication of efforts:** EPA should strengthen its communication with federal, state, and local agencies so that projects funded under §319 supplement, instead of duplicate, ongoing efforts. EPA could also coordinate greater information sharing between different agencies and groups, and coordinating various nonpoint source programs.
- **Strengthen links between §319 and other EPA programs:** As EPA implements its watershed approach, §319 should become better integrated with programs such as the Clean Lakes Program or pollution prevention initiatives. EPA should share readily with each state's information on other EPA priorities in that state to help develop a cohesive and integrated nonpoint source program.

Section 319 is an evolving federal program. As it evolves, it must carve out a niche for itself in relation to ongoing statewide nonpoint source control efforts. Although the §319 program may not appear grand on the scale accorded other federal initiatives or even some state initiatives, its existence is clearly a positive step forward in nonpoint source control efforts. In addition to providing much-needed funds for nonpoint source control, §319 acts as a catalyst to focus a state's nonpoint source program and form interagency partnerships. With each passing year, EPA can learn from the past and refine the §319 program to better suit its needs while accommodating the needs of the states.

INTRODUCTION

Nonpoint source pollution, long overlooked in federal water pollution regulation, has now become a centerpiece of pollution control efforts. Because nonpoint source pollution -- contaminated runoff associated with agricultural and urban activities and other diffuse sources -- escaped the stringent regulations imposed on point sources over the last two decades, it is now a principal cause of water quality impairment.

Nonpoint source control will be neither quick nor easy. It is as much a social and political problem as a scientific one. Congress added §319 -- the nonpoint source management programs section -- to the Clean Water Act in the 1987 Amendments in recognition of a need for greater federal leadership to help focus state and local nonpoint source control efforts.¹ Section 319, which strengthened federal involvement in nonpoint source control, strives to integrate nonpoint source pollution control into national water quality protection strategies, and functions as the cornerstone of the federal nonpoint source control strategy.

Grant money provided by EPA to individual states forms an integral part of the §319 program.² Since fiscal year 1990, when Congress first appropriated federal funds for §319(h), EPA Regional Offices have funded projects in accordance with national and regional guidance that supplement states' ongoing nonpoint source management programs. EPA recently completed its third cycle of grants awarded under §319, which will total \$52.5 million nationwide and \$2,715,532 for Region 10 states -- Washington, Oregon, Idaho, and Alaska -- in fiscal year 1992. Section 319 alone cannot solve the nation's voluminous nonpoint source problems, but its presence demonstrates a federal commitment to assist in finding a solution through strengthened federal, state, and local partnerships.

This report evaluates the §319(h) grant award process and the effectiveness of §319(h)-funded projects in protecting water quality in Region 10. The report is designed to draw attention to a variety of issues surrounding the §319 program, namely the role of §319 grants in relation to statewide nonpoint source control efforts, and attributes of successful §319 projects. Together, these two interrelated purposes will help determine how EPA can better allocate future §319 funds and improve program oversight. Because the first §319 projects did not receive funding until fiscal year 1990, and improvements in water quality require a number of years to detect, most projects do not yet demonstrate measurable improvements in water quality. Therefore, this report uses interim measures to evaluate the projects and their consistency with national and regional guidance.

¹§319, 33 U.S.C. §1329.

²§319(h), 33 U.S.C §1329(h).

Conclusions and recommendations are drawn from interviews with EPA staff, state nonpoint source coordinators, and individuals responsible for project implementation at the local level. Part I provides the background necessary to understand an evaluation of Region 10's §319 program: the goals and objectives of the §319 program, EPA guidance to states applying for §319 grants, and EPA's §319 grant award and evaluation process. Part II describes the nonpoint source control programs and opportunities in each of the Region 10 states -- Washington, Oregon, Idaho, and Alaska -- and their relationship to states' §319 nonpoint source management programs. In part III, case studies illustrate two projects deemed successful in each state by state and local officials and EPA staff. These projects are intended as a representative sampling of effective projects; they do not constitute the only successful §319 projects. Part IV summarizes the findings on the §319 program and individual projects. Finally, part V offers recommendations for the future direction of the §319 program in Region 10.

This report, reviewed in conjunction with recommendations offered in EPA Headquarters' recent review of states' implementation of §319,³ provides a picture of the current state of federal involvement in nonpoint source control activities. Recommendations based on these observations may supplement EPA guidance on §319 grant criteria and help improve the §319 grant award process and nonpoint source control activities across Region 10, thereby helping EPA, state agencies, and other interested and affected groups improve future use of §319 funds to achieve nonpoint source control objectives.

³U.S. EPA Office of Policy, Planning and Evaluation, Program Evaluation Division, *State Implementation of Nonpoint Source Programs* (draft), July 24, 1992.

I. BACKGROUND

Nonpoint sources of pollution contribute a substantial portion of water quality problems nationwide.⁴ Because the Clean Water Act has focused on stringent regulation of municipal and industrial point sources to curb pollutant discharges into the nation's waters, the relative contribution of nonpoint source pollution to water quality degradation has increased over the years.

Under the regulatory framework of the Clean Water Act, nonpoint source control is largely voluntary, not regulatory as is point source control. As a result, local nonpoint source regulation varies among states in both scope and types of controls required. Nonpoint source pollution is diffuse and highly variable, dependent on climate, soils, and land use practices. Effective control of nonpoint source pollution requires changes in land use practices and changes in personal behavior that cause nonpoint source pollution. Controlling nonpoint source pollution, therefore, requires a different set of solutions than point source control. The lack of federal nonpoint source regulation reflects the federal government's reluctance to mandate local land use regulation and the political difficulties associated with doing so. While the impact from individual nonpoint sources may be small, the cumulative impact from numerous unregulated activities can significantly degrade water quality.

Clearly, some type of nonpoint source control will be necessary to curb remaining pollution problems. The following section describes the federal commitment to nonpoint source control outlined in §319, the nonpoint source management programs section of the Clean Water Act. A review of national and regional guidance highlights EPA's priorities for awarding §319 grants. States rely on this guidance to tailor projects submitted for §319(h) grant awards.

A. §319 Program

Federal involvement in nonpoint source control most frequently takes the form of nonpoint source assessment, management, and grant award programs authorized in §319, added to the Clean Water Act in the 1987 amendments. Section 319 is not the federal government's first involvement in the nonpoint source arena, but it is the first effort focused on implementation. As the federal government's primary agenda for involvement in nonpoint source control, §319 promotes a watershed approach to nonpoint source control,⁵ and outlines a two-step process that states must follow in order to qualify for federal grant

⁴U.S. EPA Office of Water, *National Water Quality Inventory: 1990 Report to Congress*, Washington, DC (April 1992) (EPA 503/9-92/006). The report summarizes state-collected data, reported every two years, on the quality of their rivers, streams, lakes, estuaries, coastal waters, wetlands, and groundwater.

⁵§319(b)(4), 33 U.S.C. §1329(b)(4).

money. First, states must complete a Nonpoint Source Assessment Report, which identifies waters in the state that will require nonpoint source control to attain or maintain applicable water standards, and identifies the nonpoint sources of pollution responsible for water quality problems.⁶ States update this inventory every two years as part of §305(b) reports.⁷

Next, states develop a Nonpoint Source Management Program that outlines a four-year watershed-based strategy to bring nonpoint sources of pollution under control.⁸ Based on the findings of the Nonpoint Source Assessment, the Management Program forms the broad framework for each state's §319 program, and includes an identification of programs that achieve implementation of best management practices (BMPs) for categories of nonpoint sources, as well as an implementation schedule for management programs.⁹ With an EPA-approved management plan, states are eligible to receive federal financial assistance under the §319(h) grant program for nonpoint source program implementation.¹⁰

In addition to §319, the 1987 amendments incorporated nonpoint source control into the overall goals of the Clean Water Act:

It is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution.¹¹

A strengthened federal mandate allowed EPA greater involvement in nonpoint source control activities. However, EPA does not wield the same enforcement authority it does for point source control to compel states to develop adequate nonpoint source control measures.

⁶§319(a), 33 U.S.C. §1329(a).

⁷§305(b), 33 U.S.C. §1315(b). These biennial reports contain an assessment of water quality in each state. For each waterbody assessed, states provide information on the general causes and sources of pollution, and whether waterbodies are fully supporting their designated uses.

⁸§319(b), 33 U.S.C. §1329(b).

⁹Section 208 (33 U.S.C. §1288), which required state and areawide agencies to identify water quality problems related to point and nonpoint sources, formed the foundation for many nonpoint source management programs.

¹⁰§319(h), 33 U.S.C. §1329(h). Agriculture cost-share programs authorized under §208(j), 33 U.S.C. §1288(j), also encourage nonpoint source control by providing federal funds and technical assistance for agricultural nonpoint source control projects. The Department of Agriculture generally manages agriculture cost-share programs. Soil and water conservation districts implement the programs at the local level.

¹¹§101(a)(7), 33 U.S.C. §1251(a)(7).

Section 319 requires only that states attempt to control nonpoint source pollution; it falls short of requiring states to adopt a regulatory program.

Congress has not yet funded §319 to its authorized level. Although created in 1987, with \$400 million authorized over four years,¹² §319 did not actually exist as a federal grant program until 1990, when Congress appropriated the first funds for nonpoint source control projects. Until that time, states developed Nonpoint Source Assessment and Management programs, necessary prerequisites for §319 funds. To date, Congress has appropriated less than half of the authorized funding for §319. The table below shows the history of Region 10's §319(h) grant awards:

Table 1: Region 10 §319(h) Grant Awards

Fiscal Year	Washington	Oregon	Idaho	Alaska	Total
1990	\$ 980,621 ¹³	\$ 537,018	\$1,040,995 ¹⁴	no §319 grants awarded in fiscal year 1990	\$2,558,634
1991	\$ 810,711	\$ 625,450	\$ 650,780	\$ 434,095 ¹⁵	\$2,521,036
1992	\$ 834,000	\$ 956,672	\$ 457,950	\$ 466,910	\$2,715,532
Total	\$2,625,332	\$2,119,140	\$2,149,725	\$ 901,005	\$7,795,202 ¹⁶

Because of such limited funding, EPA must develop specific criteria and guidance for projects eligible for §319 funding in order to attract projects that promote the water quality protection objectives of EPA and the states most directly. In reality, however, the §319 program is much more than the EPA grant awards. Because each state's §319 grant requires a 40 percent non-federal match, §319 effectively leverages additional money for nonpoint source control. Possible sources of nonpoint source control funds include federal, state, and

¹²§319(j), 33 U.S.C. §1329(j).

¹³Grant award includes \$100,000 special national recognition grant.

¹⁴Grant award includes \$250,000 special national recognition grant.

¹⁵Total includes \$47,000 awarded under §205(j)(5) for Alaska Water Watch in fiscal year 1990.

¹⁶In addition to the awards shown in this table, Region 10 awarded §319 funds to the Colville Tribe in fiscal years 1991 and 1992 as part of a special §319 set-aside for tribal §319 grants.

local agencies, as well as special grant programs. Federal grant programs may not be used to meet the 40 percent match requirement for §319 grants.

B. §319(h) Grant Guidance

EPA guidance, both national and regional, gives direction to the §319(h) grant program. Detailed guidance, designed to assist states implement effective projects, describes federal objectives in awarding §319(h) grant money and the types of projects eligible for §319 funding. Final program guidance issued in February 1991 is intended to shape the §319 program at least until 1993.¹⁷ EPA's primary goal for the §319 program is to ensure implementation of "effective, high quality programs that achieve the best possible results in the national effort to prevent and abate nonpoint source pollution."¹⁸ Because of the statutory focus on implementation,¹⁹ planning and development activities are not eligible for §319 funding, with the exception of groundwater assessment programs.²⁰

EPA has four broad objectives for §319 grants:

- Support state activities that have the greatest potential to produce early, demonstrable water quality results;
- Encourage and reward effective performance;
- Assist in building the long-term capacity of states and local governments to address nonpoint source pollution problems; and
- Encourage strong interagency coordination and public involvement.

Although regional EPA offices have primary responsibility for the §319 program, national guidance shapes the program in some areas. National guidance describes EPA priorities for §319(h) grant awards. These priorities include activities that reduce ecological and human health risks, as well as projects that comprehensively integrate existing programs

¹⁷*Final Guidance on the Award and Management of Nonpoint Source Program Implementation Grants Under Section 319(h) of the Clean Water Act.* Memorandum from LaJuana Wilcher, Assistant Administrator, February 15, 1991.

¹⁸*Id.*

¹⁹§319(a)(1), 33 U.S.C. §1329 (a)(1).

²⁰§319 (h)(5)(D), 33 U.S.C. §1329 (h)(5)(D).

to control nonpoint source pollution. National guidance also recommends funding projects that help states achieve overall, balanced statewide nonpoint source management programs.

Beginning in fiscal year 1992, national §319 guidance directs regions to give priority to effective and comprehensive watershed projects, which include some form of monitoring component to evaluate project effectiveness. In addition, at least ten percent of each state's grant should include priority groundwater activities. States prioritize groundwater objectives based on risks to human health. Oregon, for example, places more emphasis on groundwater protection projects than other Region 10 states, and divides §319 program responsibilities between groundwater and surface water coordinators.

In awarding §319 grants, EPA considers the quality of a state's proposed activities, its conformance with §319 guidance, and past performance administering §319 grants. Each state must also provide a 40 percent non-federal match for §319 grant awards. Each region must set aside at least five percent of its annual regional allocation to support one or more intensive water quality monitoring projects, intended to provide credible documentation of results from §319 projects.

Individual regions may build upon national guidance to devise specific priorities governing use of §319 funds. For instance, Region 10 encourages states to submit projects that address the use of biological assessments such as development of rapid biological assessment protocols (RBPs) to evaluate project effectiveness. Specific Region 10 criteria include: (1) clearly defined state nonpoint source priorities; (2) effective monitoring and assessment; (3) comprehensive watershed protection, including groundwater; (4) implementation of on-the-ground nonpoint source controls; (5) measures for evaluating environmental results; and (6) a state's record of performance for previous §319 grant awards.²¹ Region 10 also promotes an environmental stewardship initiative to facilitate public involvement in nonpoint source control activities. Separate guidance helps states include effective public involvement and education as part of their overall §319 program.²²

In addition to the national and regional objectives and priorities outlined above, national guidance now reflects a two-pronged approach for grant awards. Each region receives its annual allocation in two equal portions: base and competitive award money. Base funds are used to support the state's base nonpoint source control programs. Each state's base funds are calculated from a complex planning targets formula that evaluates population, cropland acreage, pasture, and rangeland, among other factors.

²¹*Questions and Answers on Implementation Grants Under §319 of the Clean Water Act*, EPA Region 10 Water Division, January 30, 1992. See also *Guidance on the Management of Nonpoint Source Program Implementation Under §319(h) of the Clean Water Act*, EPA Region 10 Water Division, January 25, 1991.

²²*Guidance on Building Environmental Stewardship Into Nonpoint Source Program Implementation Under Section 319 of the Clean Water Act*, EPA Region 10, Water Division, February 5, 1992.

The competitive portion of the regional allocation, on the other hand, is intended to support the most effective and innovative projects and program activities within the region. According to national guidance, states may compete for these regional funds in addition to their base program support. In reality, Region 10 attempts to award each state a portion of the competitive pool approximately equal to its base program award.²³ Region 10 uses the same criteria, described above, to evaluate all §319(h) work programs, regardless of whether the project falls under the base or competitive portion of the work program.

C. §319 Grant Application and Award Process

The process of awarding §319(h) funds is a long one. After Congress appropriates funds for the upcoming fiscal year, the regional offices work with the states to develop annual work programs, and award §319(h) grants the following August. The table below outlines the §319 grant application schedule.

Table 2: Region 10 §319 Grant Award Schedule

Date	§319 Activity
September/ October	Congress allocates §319 money for next fiscal year.
October/ November	Final appropriations bill determines §319 budget for fiscal year.
November/ December	EPA issues §319(h) grant guidance. Base program planning targets and regional §319 money available by early January.
January/ February	States complete draft annual work program by March 1.
March/April/May	EPA comments on states' draft work programs, including preliminary determination of §319 grant award.
June	States submit final work programs to EPA.
July	EPA reviews states' final work programs and awards §319 grants by August 30.
August	States receive §319 grants.

²³Boundaries delineating base and competitive projects are not entirely clear. Both the "Summary of Findings" and "Recommendations" sections of this report address this issue in more detail.

State water pollution control agencies are the designated lead agencies eligible to receive §319 grants. These agencies may, and frequently do, contract grant funds to cooperating agencies. In each state, a nonpoint source coordinator oversees §319 grant proposals and program implementation.²⁴

State work programs describe §319 projects submitted annually for funding. Specific criteria guide work program development, including adherence to the state's nonpoint source management program, a clear description of quantifiable outputs and milestones for each project, and an indication of funding sources for the required 40 percent non-federal match. This match requirement applies to the state's overall §319 grant award, not to each individual project.

Currently, work programs vary greatly among the states, differing in specificity and types of projects submitted for funding. At a minimum, §319 proposals must clearly identify the state's funding priorities. States must also attempt to rank waters identified in their nonpoint source assessments in order to target §319 funds most effectively. Oregon has developed a formal process for ranking its projects, outlining a set of criteria by which to rate and rank projects. As the §319 grants application process becomes more competitive, other Region 10 states will need to develop formal priority ranking and criteria for their projects.

Work program development occurs in several stages. At the first level, state lead agencies must develop projects that meet §319 guidance and evaluate outside projects for conformity with §319 guidance. Several factors determine the projects ultimately submitted to EPA for funding, including how well the project is conceived and its likelihood of funding.

At the next level, EPA evaluates each state's work program based on ratings for the following criteria:²⁵

- 1) Project-specific criteria to determine how a project will control nonpoint source pollution, including achievable milestones and effective measures for evaluating environmental results;
- 2) Consistency with the state's nonpoint source assessment and management program;
- 3) Consistency with regional §319 guidance for priority restoration projects; and
- 4) Consistency with national §319 guidance for project expectations.

²⁴Appendix 1 includes a list of nonpoint source coordinators in each of the Region 10 states.

²⁵Appendix 2 includes a copy of Region 10's project rating sheet.

By following specific rating criteria, EPA can focus the direction of §319 while allowing states to retain primary control of individual projects. After receiving §319 grants, states submit quarterly reports to keep EPA up-to-date on project implementation. As EPA and the states learn to work within the §319 guidelines, the projects funded with §319 money, as well as the grant application and evaluation process, can become more effective.

II. STATE NONPOINT SOURCE CONTROL PROGRAMS

In an era of fiscal constraints, a state's nonpoint source program is all too often shaped by the dictates of available funding sources. Section 319 funds only one component of states' overall nonpoint source pollution control activities. Washington, Oregon, and Idaho all have statewide initiatives that fund nonpoint source control projects. These initiatives often equal or exceed the amount of money available through the §319 program. Furthermore, these funds are one of many nonpoint source control programs within a state. A complete picture of nonpoint source activities in each state is beyond the bounds of this report, and is difficult to portray in any case. Multiple state agencies administer programs that include nonpoint source components. For this reason, §319 projects cannot be viewed in isolation or interpreted as an adequate representation of a state's overall nonpoint source control program. However, this report reviews only §319 projects and the §319(h) grant award process.

The following section describes the major nonpoint source funds in each of the Region 10 states to illustrate other types of funding sources available for nonpoint source control. Knowledge of the interplay between major state nonpoint source control funds and §319 is crucial to understanding the types of projects contained within a state's §319 work program. Guidelines for these funds may dictate the types of projects submitted for §319 funding. These programs may or may not reflect priorities designated in a state's nonpoint point source management program. Where no specific grant program exists, an agency may still obtain nonpoint source money from state general funds.

A. Washington

Centennial Clean Water Fund

Washington has one of the most ambitious water quality funds in the nation. The Centennial Clean Water Fund (CCWF), established in 1986, provides financial assistance to local governments, conservation districts, schools, citizen groups, and Tribes for water quality protection efforts within Washington. Funded by a tax on tobacco products, and administered by the Water Quality Financial Assistance Program of the Department of Ecology, the CCWF generates \$40 - 50 million each year for water quality control efforts through 2021. The exact amount depends on annual legislative appropriation. All CCWF awards must address a specific water quality goal, be carried out according to an approved project plan, and be used for projects that benefit the public at large. A great deal of CCWF resources support local level staff. Washington uses CCWF funds to provide the 40 percent match requirement for its §319 funds.

The CCWF funds are awarded in five broad categories, with percentages of the total annual appropriation specified in the legislation: marine water facilities (50 percent),

groundwater (20 percent), freshwater lakes and rivers (10 percent), nonpoint source activities (10 percent), and discretionary activities and facilities (10 percent). Nonpoint source control projects may also receive funds from the discretionary category as well as the groundwater protection category for projects that protect groundwater resources.

The annual funds available for nonpoint source control activities under the CCWF far exceed those available through §319. For state fiscal year 1993, the CCWF will support 130 projects totalling over \$50 million. Nonpoint source control projects will receive over \$4.5 million.²⁶ Yet §319 funds still play a vital role in Washington's nonpoint source control efforts. The CCWF guidelines preclude state agencies from using funds to hire staff to carry out state water quality goals and objectives because CCWF is designed to foster local projects. This limitation on funding state staff positions imposed by CCWF drives Washington's §319 project proposals. A large number of Washington's §319 projects support state staff members who coordinate local and regional nonpoint source programs in addition to carrying out activities that support nonpoint source control. Without §319 money, these positions would not exist.

Another key distinction separates CCWF from §319 funds. The CCWF program has an extensive public grant application and review process, including a detailed project ranking process that evaluates projects based a number of factors. Projects selected for CCWF funding may not necessarily fall into the highest priorities identified by the state in its §319 nonpoint source management program. In contrast to the public application process for CCWF, §319 projects are initiated largely by the Washington Department of Ecology (Ecology) based on general priorities identified in Washington's nonpoint source management program. Thus, Ecology can target §319 funds more effectively than CCWF funds to high priority areas and programs. Ecology accepts proposals from local, state, and federal agencies, reviewing them for consistency with §319 priorities and state priorities before selecting those projects submitted as part of its §319 grant application.

Washington also funds nonpoint source control projects through the State Revolving Fund (SRF), a federal funding program administered by the states that provides low-interest loans for water quality protection efforts.²⁷ Of the 15 projects that will receive SRF financing for fiscal year 1992, eight projects totalling \$2,325,000 will control nonpoint source pollution.²⁸

²⁶Washington State Department of Ecology, *Centennial Clean Water Fund Draft Project Priority List* FY93, June 1992.

²⁷§§601 - 607, 33 U.S.C. §§1381 - 1387. The SRF replaced the Construction Grants program of the Clean Water Act (§201(g), 33 U.S.C. §1281(g)), which provided federal grant money to localities for wastewater treatment plant construction and design.

²⁸"Eight Local Government Nonpoint Source Projects Financed by Washington State Revolving Loan Fund," News-Notes, vol.17, p.4. EPA Office of Water, December 1991.

Strategy for Using §319 funds

In Washington, Ecology is the lead agency for the §319 program. Ecology develops §319 projects for priorities identified in the state nonpoint source management program. Its annual §319 work plan seeks to balance geographic priorities with nonpoint source program priorities, such as dairy waste management, groundwater protection, and forest practices activities under the Timber/ Fish/Wildlife (TFW) initiative. Washington's nonpoint source management program, which represents a compilation of existing state programs, such as the Puget Sound Water Quality Management Plan, identifies these broad priority areas and programs. Washington uses §319 funds to plug gaps in existing state programs and to complement programs supported by CCWF.

Washington presents the clearest example of a §319 program influenced by the constraints imposed by available funding sources. The CCWF essentially shapes the majority of nonpoint source activities that occur in the state. Because CCWF guidelines are not based on Washington's nonpoint source management program that guides §319 implementation, statewide priorities may not be adequately supported through the CCWF projects. Strict guidelines govern CCWF grant awards, but the program is still dependent upon the specific proposals submitted.

Like other Region 10 states, Washington did not anticipate congressional appropriations of §319 funds in fiscal year 1990. Its first round of §319 projects, pulled together hastily, included many projects designed for a two- or three-year implementation period. It will have more flexibility to design projects submitted for fiscal year 1993 funding, as most commitments from these early proposals will be complete. Washington will continue to move toward watershed-based implementation projects.

In order to ensure continued eligibility for §319 funds, Washington is developing a systematic approach to watershed and project prioritization. Such an approach will allow Ecology to target nonpoint source control measures more effectively. Furthermore, it will allow §319 to become a coordinating mechanism for statewide implementation objectives. For fiscal year 1993 projects, watershed prioritization will drive work plan development and will link §319 projects to statewide watershed priorities. Increased public awareness of the §319 program will force Washington to prioritize between state-initiated and public-generated projects when determining which projects to submit to EPA for §319 funding. Washington will also develop guidance for groups planning to submit potential §319 projects.

B. Oregon

Governor's Watershed Enhancement Board

Like Washington, Oregon has a nonpoint source grant program open to the public at large. The Governor's Watershed Enhancement Board (GWEB) program, created in 1987,

provides technical assistance and grant funds for projects that improve or enhance riparian areas and associated uplands. The GWEB program relies on local groups and volunteers to accomplish its objectives. In turn, these local groups rely on field-based representatives of government agencies. GWEB grants are available to any public or private agency or individual, provided the project meets GWEB funding criteria and increases public awareness of the importance of watershed improvement.

Lottery proceeds support GWEB projects. Legislative authorization for GWEB has ranged from \$500,000 in the 1991-1993 biennium to \$1 million in the 1989-1991 biennium. A technical advisory committee reviews all projects, submitting rankings and comments to the Board's voting members for grant awards. Voting members include members of the state Boards of Environmental Quality, Forestry, Agriculture, Fish and Wildlife, and Water Resources.

Each year, Oregon dedicates a portion of its §319 funds to support GWEB projects. EPA places significant faith in the GWEB program by awarding Oregon a lump sum of money to allocate, as needed, to GWEB projects. This arrangement is due to the fact that GWEB shares similar goals with the §319 program. It is also due to the nature of the GWEB grant award cycle in which final grant awards are not made until after EPA approves states' final work programs. The GWEB §319 grant includes a grant condition that requires the Department of Environmental Quality (DEQ) to submit selected projects to EPA for approval. GWEB projects that have received §319 funding include individual instream enhancement projects and watershed condition assessments for areas identified as having serious nonpoint source pollution problems.

Strategy for Using §319 funds

In Oregon, DEQ is the designated lead agency for the §319 program. The state Department of Agriculture is the designated management agency for agricultural nonpoint source control efforts. DEQ relies on a cooperative effort between various agencies and private organizations involved in nonpoint source control issues to develop and implement its §319 work program. Interagency agreements reflect these partnerships. Prior to developing project proposals, DEQ solicits comments and ideas for potential projects from numerous agencies and organizations. In order to develop a balanced approach to its nonpoint source control program, it identifies planning targets for the number of projects that fall into statewide, water quality-limited basins, groundwater, and GWEB categories. The GWEB program does not influence Oregon's §319 projects to the degree that the CCWF program influences Washington's work program, largely because the GWEB program is much smaller than CCWF.

Oregon's priority areas for targeting §319 funds include monitoring, evaluation, implementation of action plans developed through interagency agreements, implementing projects that help meet total maximum daily load (TMDL) requirements in critical basins,

and enhancing interagency coordination. DEQ has active relationships with virtually all state and federal agencies engaged in nonpoint source control activities. Development of rapid bioassessment protocols is another important priority, as these techniques represent a key assessment and evaluation tool for watershed condition assessment.

Oregon has a well-developed set of evaluation criteria designed to rank each project -- both surface and groundwater -- early in the planning process. These criteria include the site's ranking in the State Clean Water Strategy and the severity of the nonpoint source problem. For fiscal year 1993, citizen stewardship, erosion control, and riparian zone management will become important priorities for §319 projects in Oregon.

C. Idaho

Idaho's Water Pollution Control Account (WPCA) provides funds for a variety of nonpoint source-related water quality projects. The State Agricultural Water Quality Program (SAWQP), administered by the Idaho Department of Health and Welfare, Division of Environmental Quality, provides grants to local soil conservation districts for technical assistance, information and education, project administration and cost-sharing for BMP installation.²⁹ During the past year, the state committed over \$4 million in watershed project awards through the agricultural cost share program. SAWQP cost-share funds provide up to 75 percent of the BMP cost in eligible project areas where the land contributes to the area's agricultural nonpoint source pollution problems. Landowners participating in the program may receive up to \$50,000 in cost share funds for the life of a project.

The SAWQP relies on voluntary farmer participation to achieve its objectives. The cost share payments made under this program supplement other federal, state and local cost share programs. Farmers applying for cost share funds work with local conservation districts to develop a water quality plan that identifies BMPs to reduce agricultural nonpoint sources of pollution, and includes a schedule for implementation. Landowners enter into a contract with local soil conservation districts outlining their responsibility to apply their water quality plan.

While agriculture is the primary focus of the WPCA, several other nonpoint source control projects receive funding from this account. Two of these projects, groundwater vulnerability mapping and water quality education for teachers, which are discussed later in the report, began as §319 projects and are now funded through the WPCA. The WPCA funds provide the 40 percent match for Idaho's §319 grants. In addition to the WPCA, Idaho has three other state-funded nonpoint source initiatives: antidegradation, nutrient management, and comprehensive groundwater quality.

²⁹For program details, see Idaho Department of Health and Welfare, Division of Environmental Quality, and Idaho Department of Lands, Soil Conservation Commission, *State Agricultural Water Quality Program Handbook*, June 1991.

Strategy for Using §319 funds

The Division of Environmental Quality (DEQ) is the lead agency for §319 funds. The availability of §319 grant money bolstered Idaho's nonpoint source control program by providing funds for project management, interagency coordination, and long-term, on-the-ground results. The Idaho §319 program consists of monitoring, assessment, evaluation, watershed projects, groundwater protection efforts, and environmental stewardship.

The availability of §319 money allowed Idaho to diversify its nonpoint source program. Due to the large amount of state funds available for nonpoint source implementation projects, Idaho uses §319 money primarily for project management, statewide and interagency coordination, and other areas for which state funds are not available. Interagency committees solicit project ideas and develop §319 proposals. Several projects initially funded with §319 grants have now been incorporated into state programs and used as part of the required 40 percent match for §319 grants.

D. Alaska

In Alaska, the Department of Environmental Conservation (ADEC) is the designated lead agency for §319 funds. Although Alaska does not have a dedicated source of funding for nonpoint source control as do the other Region 10 states, it successfully uses a variety of funding sources to accomplish its nonpoint source control objectives. These funding sources include state agency general funds such as those provided under the state Forest Practices Act; local community and government funds; and other federal grants. Alaska is exploring the possibility of using its State Revolving Loan Fund³⁰ for nonpoint source control activities to supplement money available through grant programs.

Strategy for Using §319 funds

Alaska's nonpoint source management program, developed by ADEC and other state and federal agencies and interest groups, provides the foundation for its §319 program. Several factors guide Alaska's direction for annual §319 work programs. Primarily, these include the schedule of projects and tasks identified within different categories of the nonpoint source strategy, and the priority list of §319 projects identified in the strategy.

Section 319 provides funds that are vital for Alaska to implement its nonpoint source control strategy. In developing its annual §319 work program, Alaska uses working groups set up for each source category. These groups prioritize projects within each category.

³⁰In Region 10, Washington uses its revolving loan fund to finance nonpoint source control projects. See *supra* note 27.

Alaska also gives priority ranking to projects located on its §305(b) list of impaired waters.³¹

³¹*See supra* note 7.

III. SELECTED §319 PROJECTS IN REGION 10

Nonpoint source projects eligible for §319 funding span a wide spectrum of activities from on-the-ground implementation projects to public education campaigns to staff positions that strengthen the basic nonpoint source control structure within state and local agencies. The following section documents some of these projects in order to illustrate the diversity of projects funded with §319 money. With a diverse array of projects, EPA and the states hope to demonstrate actual improvement in water quality, increase public involvement and education regarding nonpoint source control activities, and promote institutionalization of nonpoint source control actions.

A comprehensive project evaluation in its truest sense is premature at this time. Section 319 projects did not receive funding until late 1990, and many projects did not begin formally until even later. Thus they do not yet demonstrate measurable improvements in water quality. Furthermore, it is often difficult to document a definite link between a specific nonpoint source control project and water quality improvement. Projects that involve best management practices (BMPs) generally rely on the assumption that designated changes in land management practices will result in water quality improvements over the long term. Some projects do not include a specific effectiveness monitoring component due to the nature of the project, required expertise, and high expense involved. In addition, waterbodies receive multiple sources of pollution, which may not remain constant during the life of a project.

Absent concrete data on water quality improvements, the best measures of project effectiveness are application of BMPs, noticeable changes in behaviors, and increased public awareness of the nonpoint source pollution problem. Measuring behavior change and public awareness are subjective criteria, and may be more difficult to measure and defend than water quality data. However, a subjective evaluation can serve several useful purposes. As a mid-course evaluation for the §319 program, it can identify a range of projects that help accomplish §319 goals. It can also provide Region 10 states with a sampling of projects conducted elsewhere in the region, thereby assisting in regional information sharing. Region 10 states confront many similar nonpoint source pollution problems. While individual projects are site specific, lessons that emerge can be applied to similar projects elsewhere in the region.

State nonpoint source coordinators and EPA staff recommended the projects included in this report. For the most part, the case studies came from the first round of §319 projects -- those funded in fiscal year 1990 -- since they have been in progress for the longest period of time. In addition, the projects were selected with the goal of including a variety of examples, both in the type of project and the §319 objective best exemplified by the project. In recommending projects for inclusion in this report, state nonpoint source coordinators

considered the following criteria:

- clarity of project goals and the relationship between water quality problem and type of action needed to achieve objectives;
- progress in implementation and accomplishment of objectives;
- evidence of behavior change resulting from project implementation;
- inventory of baseline conditions against which to measure project success;
- level of state commitment, including ability to leverage other funds;
- potential for expansion to other areas, both nationally and statewide; and
- improvement in water quality.

The projects described below offer a representative sampling of successful projects; they do not constitute the only successful §319 projects. Detailed case studies for these projects, which appear in Appendix 3, include an evaluation of project effectiveness and a contact person who can provide more detailed information on an individual project. Information for the case studies was gathered from state annual work programs, quarterly reports, interviews with state and local officials and EPA staff, and site visits for the Oregon and Washington projects.

In addition to the case studies, Appendix 4 provides a brief description of all §319 projects funded in each of the Region 10 states. This list, although not detailed, presents a picture of the broad scope of Region 10's §319 program. State nonpoint source coordinators, listed in Appendix 1, can provide more details on individual nonpoint source control projects.

A. Washington

TFW/Forest Practices Assistance in Central Washington: Section 319 supports an Ecology staff member in the Central Regional Office who reviews timber harvest applications, participates in interagency site reviews of harvest applications in high priority areas, and provides individual on-site follow-up. This project allows Ecology to provide expert water quality impact review and maintain a presence in the interagency, pre-harvest site reviews. Throughout the basin, the interagency review teams have successfully incorporated BMPs into over 100 forest practice applications. Public outreach campaigns help educate timber operators and recreational users about potential water quality impairment resulting from their activities.

Willapa Bay Watershed (Dairy Waste Implementation): Ecology used §319 to re-open a Soil Conservation Service (SCS) office in Pacific County -- which includes the Willapa Bay watershed -- that had been closed for a number of years. The SCS staff member provides various types of technical assistance to the county's dairy operators to improve the handling of dairy waste.

Before SCS re-opened this office with §319 funds, technical assistance came from an SCS office in an adjacent county and did not adequately meet farmers' needs. Due to the importance of this position in accomplishing nonpoint source control objectives in the basin, the CCWF, Washington's well-endowed fund for nonpoint source control, will fund the position beginning in July 1993. The three years of seed money provided by §319 proved sufficient for the state to obtain another funding source, thereby institutionalizing the project.

B. Oregon

Malheur County groundwater protection projects: Oregon uses §319 funds to support multiple, inter-related groundwater protection projects in the Malheur Basin. Oregon State University's Agriculture Experiment Station is leading the research efforts to develop modified fertilizer applications and new irrigation practices that reduce nitrate contamination of the groundwater. Section 319 funds some of these experiments, as well as a researcher who oversees the work. A Water Quality Coordinator at the Malheur County Soil and Water Conservation District coordinates and implements the effort to address the groundwater contamination, providing a vital link between the Experiment Station research and the local growers.

The Malheur projects represent an outstanding example of a locally driven, well-coordinated nonpoint source control effort. The Experiment Station shares its results with local growers through widely attended annual field days, during which they take growers on tours of various experiment sites and explain the objectives and results of each experiment. The Ontario Hydrologic Unit Area (HUA), an interagency cooperative effort designed to reduce nonpoint source pollution in northern Malheur County, has received national recognition for its environmental achievement.

Nonpoint Source Monitoring/Applying Rapid Bioassessment Protocols: Biological monitoring is gaining increasing importance in gauging the health of ecosystems. With biomonitoring, biological organisms -- not chemical measurements -- determine a stream's environmental conditions. EPA has developed guidelines for using rapid bioassessment protocols (RBPs) to assess the overall health of streams. Scientists at DEQ's lab are calibrating RBPs to ecoregions within the state. In 1990 and 1991, the biomonitoring project focused on method development. In 1992, the emphasis will shift to project effectiveness monitoring and development of an ecoregion reference site database for the Coast Range.

Oregon will use its RBP methodology as a tool to assess watershed conditions and to measure the impacts of nonpoint source control projects that attempt to improve water quality. In this manner, it integrates the work from this project into its overall §319 program.

C. Idaho

Project WET (Water Education for Teachers): Project WET is a statewide, interdisciplinary water education program that provides educators with scientifically-based information to incorporate into their K-12 curriculums. Administered through the Idaho Water Resources Research Institute at the University of Idaho, Project WET presents workshops and seminars that review educational strategies for teaching water quality awareness. Nonpoint source learning modules provide an important emphasis on groundwater and surface water nonpoint source pollution problems and issues.

By providing a forum to teach Idaho's teachers about water resources, Project WET helps to build water education into curriculums at all grade levels. Launched as a statewide pilot program, Project WET concepts will now be developed into a nationwide curriculum.

Groundwater Vulnerability Mapping: The groundwater vulnerability project will develop maps that delineate aquifer characteristics, such as depth to water, recharge rates, and soil types, in order to determine groundwater vulnerability to contamination. These groundwater vulnerability maps will be used to set priorities for groundwater management. Ultimately, the results from the mapping project will allow DEQ to employ differential management approaches based on relative vulnerability of different aquifers. Section 319 provided seed money for the initial stages of the project. It is currently funded through the Water Pollution Control Account and contracted out to various agencies to perform the technical work.

D. Alaska

Alaska Water Watch: Alaska Water Watch is an interagency public participation and education network that promotes comprehensive stewardship of Alaska's aquatic resources. Citizen volunteers carry out the program's objectives of water quality monitoring, pollution prevention, and water quality restoration activities. Section §319 funds a program coordinator who manages the Water Watch program, conducts monitoring training and quality assurance sessions, and works to expand the number of communities with Water Watch programs. The Alaska Water Watch label develops a uniform theme and name recognition for numerous statewide citizen stewardship efforts. The Water Watch program began as an ADEC effort to promote and expand citizen monitoring activities. Other agencies are now joining ADEC as Water Watch partners.

Best Management Practices Implementation and Effectiveness Monitoring on the Tongass National Forest: Section 319 supports an ADEC staff member who works closely with the Forest Service to help develop and implement BMPs that effectively meet state water quality standards. ADEC provides technical direction to the Forest Service BMP monitoring program, and helps the Forest Service establish procedures for routine BMP implementation monitoring. The project has greatly strengthened the working relationship between ADEC and the Forest Service. Forest Service district rangers, timber planners, and engineers in two of the three forests within the Tongass now actively cooperate with ADEC to implement BMPs in timber sales.

IV. SUMMARY OF FINDINGS

The following section documents findings on the §319 program within Region 10. Availability of state resources affects a state's use of §319 funds and its perceptions of the §319 program. Each state operates its nonpoint source program under a different set of constraints. Thus, opinions of §319 program implementation varied across the states. While state nonpoint source coordinators expressed overall praise for EPA's management of the §319 program and the open communication that has developed, they also voiced concerns over certain aspects of the program and offered suggestions on ways to make the §319 program more user-friendly to the states. Those viewpoints, which are incorporated below, helped shape many of the recommendations offered in the concluding section of this report.

A. Comments on the Region 10 §319 Program

Importance of §319 funds: State budget cuts magnify the importance of §319 funds. Oregon's Measure 5, designed to reign in state government spending, takes a greater toll on state agencies each year. Water quality control programs, including nonpoint source programs, are not immune from the budgetary ax. Within the next few years, central programs will likely be cut. In Washington, state agencies must prepare for budget cuts in the next biennium ranging from 6 - 22 percent. Alaska, too, is facing shrinking budgets. Thus an ambitious nonpoint source control plan may be hampered by lack of available funding. Idaho is not facing as severe budgetary shortfalls as Washington and Oregon, but relies on §319 to expand its nonpoint source control program beyond agricultural projects.

§319 Philosophy: At present, the §319 program wrestles with a difficult tension regarding its underlying philosophy. Are §319 grant awards intended to support state objectives or to advance EPA objectives carried out through the states? This question does not have an easy answer. Region 10 states vary in the degree to which they perceive this tension.

The Clean Water Act, itself, sends contradictory signals regarding the specific use of §319 funds, stating that the "Administrator [of EPA] shall make grants, subject to such terms and conditions as the Administrator considers appropriate ... to [a] State for the purpose of assisting the state in implementing such management program."³² This language can be interpreted to support either viewpoint: that §319 is designed to expand a state's nonpoint source agenda or that it is a vehicle for EPA to carry out its own agenda through the states.

Legislative history sheds no more light on the issue.³³ On one hand, it directs states to set priorities for nonpoint source control action for categories of BMPs and watersheds.

³²§319(h)(1), 33 U.S.C. §1329(h)(1).

³³H.R. Conf. Rep. No. 1004, 99th Cong., 2d Sess. (1986), reprinted in Environmental Law Institute, *Environmental Law Reporter Clean Water Deskbook* at p.143. (Washington, DC, 1988).

On the other hand, it instructs EPA to give priority to specific types of projects when awarding §319 grants.

Nonpoint source control is typically left to the states, however, partly due to federal reluctance to get involved in local land use issues. Because of this, §319 treads upon an area typically dominated by the states. Section 319 grant money augments states' nonpoint source control programs and increases the size of the pie available to tackle the daunting challenge of nonpoint source pollution. As a grant program, §319 must outline requirements for acceptable use of funds. It also must include constraints. Thus, §319 money walks a fine line between federal and state leadership of nonpoint source control programs. The confusion over the underlying philosophy of the §319 program affects the types of projects that receive funding, because EPA may have different priorities than do the states. EPA has been flexible in its administration of §319, but states still feel this tension.

Base/competitive allocation of funds: National guidance spells out a clear distinction between the base and competitive portions of each region's §319 allocation. In reality, the base/competitive distinction is not so clear. National guidance adopted the base/competitive split in order to encourage funding for top quality projects. Region 10's implementation of the competitive portion does not necessarily weigh one state's projects against another. Instead, it tries to fund, as much as possible, projects submitted in each state's work program. Fiscal year 1992 marked the first time EPA Region 10 completely used this approach.

States appear to misperceive the process by which EPA awards competitive funds. For the time being, states generally include watershed projects in their competitive portion and programmatic targets in their base programs. However, the perceived distinction between base and competitive allotments makes strategizing difficult for states trying to put together the best possible work program. The difficulty lies in trying to determine which programs to put into base programs (which states perceive as more likely to be funded) and which projects to put into the competitive pool (which risk losing secure funding). This base/competitive split raises the discomfort level of the states by appearing to foster competition where one state gains only at the expense of another.

Institutionalization of nonpoint source programs: Section 319 grants are designed to provide start-up money for new nonpoint source programs that will eventually be supported by other sources. One of EPA's criteria for §319 projects is that states demonstrate a long-term commitment to nonpoint source control and help institutionalize nonpoint source programs. Yet one sentiment emerged very clearly from most Region 10 states: with states facing drastic budget cuts, funds will probably not be available for such institutionalization. Thus, even if a state wants to institutionalize nonpoint source control projects -- or its whole nonpoint source program -- it may not be able to do so, as state funds will not be available to pick up the §319 projects.

Although state agencies and state funds are not the only alternatives to institutionalizing a nonpoint source program, adequate state-level funding is necessary to maintain a broad perspective on nonpoint source control activities. The lack of statewide resources may force local communities to find more money for nonpoint source control activities, and reduce state-level involvement.

Putting aside budgetary shortfalls, §319 funds often fill a gap where no other funding sources are available. Without §319 money, many projects would not exist. For instance, Idaho has a well-developed agriculture pollution abatement program, but limited resources for any other types of nonpoint source control activities. Thus, fiscal realities may interfere with institutionalization of nonpoint source programs, one of EPA's primary objectives for the §319 program.

Program continuation: Grants awarded under §319 generally occur on an annual basis. State agencies may apply for funds to cover multiple years of a project, but such a strategy requires a state to commit a large share of funds to fewer projects in a given year. Thus, states generally opt to re-apply each year for multiple year projects. From a planning perspective, this situation is difficult for the states. Most projects will take several years to obtain satisfactory results. These long-term projects require long-term commitments. Planning only for the short term may lack the quality necessary for long term results. Furthermore, a project that requires multiple years probably will not yield quantifiable results after one year.

The lack of certainty over program continuation permeates state agencies and local project managers. One impact of short-term funding is a high turnover of project staff positions. Because §319 has an annual grant application process, the §319 positions lack the security of a permanent position. State agencies have difficulty implementing a program with transient staff. Furthermore, state budget cuts make it unlikely that those positions will be picked up by general fund money. This insecurity extends to continuation of entire projects. EPA does not have control over all aspects of program continuation. The future of the §319 program hinges on annual congressional appropriations and continuation of the §319 program upon reauthorization of the Clean Water Act. A long-term commitment of federal funds for nonpoint source control is beyond the control of EPA alone, and will require changes in the current Clean Water Act.

Funding cycle: The timing of §319 grant awards raises two primary concerns. First is the long delay from proposal development to actual grant award. State agencies try to promote proposal development in the fall in order to complete proposals by EPA's March deadline. At a local level, a community is likely to have difficulty developing enthusiasm for a project for which they will not see the funds for almost a year. Second, grants received in August or September are particularly difficult to administer for agricultural and field-related projects because the grants are not synchronized with the growing season or to the field season. For instance, in Malheur County, Oregon, the Agriculture Experiment Station must use its own money for the first several months of the year, before they receive confirmation of project

funding. In Alaska, §319 funds can arrive too late for the short field season. For local agencies operating on a shoe-string budget, committed money is not the same as spendable money.

State work program development: State lead agencies in Region 10 generally develop their own projects for §319 grant awards, instead of using a public grant process like the Oregon's GWEB program or Washington's CCWF program. This difference is partially due to the availability of generous state-funded programs that have an extensive grant solicitation process. More important, state lead agencies can more effectively target §319 funds to high priority programs and regions when they retain control over the program. States have limited resources to develop proposals, and view any money and time spent developing §319 projects as speculative. Thus, agencies are unlikely to reach out into communities to generate new projects when they cannot be assured that such projects will receive funding.

While the lack of widespread public participation in work program development is common among states, the methods of developing §319 grant proposals and soliciting project ideas differ significantly. In Oregon, DEQ relies primarily on agreements with other state agencies, whereas Washington uses a large portion of its §319 funds for programs within Ecology. Idaho and Alaska use interagency committees to develop their §319 project proposals. With more groups becoming aware of §319 funds, states anticipate additional unsolicited project proposals in the future. An increase in outside proposals will require states to develop a more formal procedure for project ranking and work program development.

Regardless of the exact process used to develop work programs, EPA expects projects submitted for §319 funding to be ready to begin when grant money becomes available. Although staff positions take time to fill, agencies should be ready to begin the hiring process immediately upon award notification. In the early stages of the §319 program, several projects did not begin until almost one year after the grant award. Because a state's annual §319 grant award is based, in part, on its past performance, delaying projects will only detract from the next year's grant.

B. Characteristics of Successful Projects

Project evaluation is a difficult task due to the nature of nonpoint source pollution and the variety of methods employed to tackle the problem. Broad categories of §319 projects include on-the-ground implementation, public education, and program coordination. Within these categories, projects may focus on prevention, remediation, education, or enforcement. Projects may be divided further by geographic scope: statewide, watershed, or groundwater protection. Most §319 projects do not fit neatly into one specific category, but include aspects of several categories.

Because of the wide range of projects eligible for §319 funding, no uniform list of conditions will guarantee a successful project. Furthermore, at the technical level, due to the site-specific nature of nonpoint source pollution, technologies and land use alterations employed to control nonpoint source pollution may not have the same effect across different basins. Thus, multiple characteristics should be evaluated at the state level prior to initial project submission, and by EPA when awarding §319 grants.

In addition to the diversity of projects funded with §319, the long time period frequently required to achieve measurable improvement in water quality creates a dilemma regarding a need to document water quality improvements, while at the same time recognizing constraints involved in long-term projects. When a project may require several years to yield measurable results, how can EPA and the state agencies determine if it is proceeding according to projections? To a large degree, the answer to this question depends on the reputation of the agency conducting the project and best professional judgement of EPA and state agency staff.

Given these constraints on formal project evaluation, one can still identify characteristics of successful projects. Each project's success depends on a unique set of circumstances. Yet close attention to several underlying characteristics can help increase a project's success. Many of the projects reviewed for this report exhibit several of the conditions described below.³⁴ At the end of this list, Table 3 shows how the projects selected for this report incorporate these characteristics.

Local support: For all the projects, local recognition of the nonpoint source pollution problem and support of project objectives are perhaps the most vital components. Successful projects rely on a dedicated set of individuals who recognize a problem and develop the groundswell of support necessary to ensure a successful project. At the local level, people feel that federal mandates usually come with inadequate resources. If a local community perceives a project as merely another government imposed program, the project is not likely to succeed.

Locally-driven programs empower the local community to solve problems. For instance, in Washington's Upper Yakima watershed, timber industry recognizes its contribution to the heavy sediment loads and, in the region encompassed by the Resource Management Plan, is working cooperatively with other groups to help reduce their impact. In Malheur County, Oregon, local support is particularly evident, perhaps because the problem (nitrates in groundwater) is close to home. Most of the growers recognize their contribution to the problem and are quite interested in the research conducted at the agriculture experiment station. However, a potential problem that plagues this and other nonpoint source control projects is the long lag time between changed practices and

³⁴This list is not in priority order.

noticeable water quality improvements. In this case, new farming practices will not result in immediate improvements in groundwater quality.

Clear problem identification and proposed solution: Projects need to be well-defined in terms of proposed accomplishments. A well conceived plan with well defined goals will be easier to implement. Without clear objectives, it is difficult to document achievement. Developing very specific, targeted projects can help accomplish this objective. For instance, Alaska developed its BMP implementation monitoring project in Tongass National Forest in recognition of a need to establish routine BMP implementation in forest management activities.

Political feasibility: Nonpoint source pollution problems may be politically difficult to remedy. Thus, state agencies must give careful consideration to the political climate in the area of the proposed project. A project that appears viable on paper may not be feasible without political support. A friendly political climate is closely tied to the need for local support. A state agency may also feel political pressure to submit a particular project that may not be a top priority.

Baseline measurements and water quality objectives: The presence of a baseline measurement and a water quality objective are two closely related parameters. A baseline measurement indicates the present water quality, whereas a water quality objective is the environmental goal that shapes a nonpoint source control project. Where possible, projects should have a quantifiable water quality baseline and objective against which to measure project success. For instance, as part of the Yakima Resource Management Plan, the results of a sediment study that documented high levels of sediment in a number of streams drives the harvest review process.

Monitoring: EPA national and regional guidance recognize the importance of monitoring nonpoint source control projects. Monitoring takes two forms. First, implementation monitoring refers to monitoring the installation of BMPs and other activities designed to reduce nonpoint source pollution. BMPs may not be fully or properly implemented, due to lack of institutional commitment or inadequate resources. Second, effectiveness monitoring refers to the evaluation of the effectiveness of those BMPs. The site-specific nature of nonpoint source pollution makes it difficult to forecast accurately the degree of control achieved from each project. Oregon's RBP project is developing the tools necessary to evaluate the health of streams, and to measure the effectiveness of nonpoint source control actions.

Environmental Stewardship: EPA recognizes the vital role of public involvement and education in nonpoint source control, and requires each §319 project to include a strong environmental stewardship component.³⁵ Environmental stewardship, a recognition that

³⁵See *supra* note 22 for Region 10 guidance on environmental stewardship.

long-term solutions to water quality problems will require increased public awareness, understanding, and ownership of the problems and solutions, varies widely among projects. Examples of environmental stewardship components include citizen monitoring programs and development and distribution of informational materials. Alaska's Water Watch program effectively demonstrates several types of environmental stewardship activities. Another form of stewardship is community information sharing, like the field days incorporated into the Malheur County projects, which enable the Experiment Station to share research results with local growers. Ultimately, the success of environmental stewardship efforts will be measured by changed attitudes and behaviors that help reduce nonpoint sources of pollution.

Agency credibility and expertise: State environmental quality agencies are the designated lead agencies for receipt of §319 funds. Most of these agencies pass through a significant portion of their §319 grants to various state and local agencies, such as local conservation districts responsible for actual project implementation. These agencies must possess the necessary expertise to carry out the projects and maintain important links to the local community. Problem identification and prioritization are crucial elements to nonpoint source control plans, but successful implementation is what ultimately makes an effective project. In each state, interagency agreements and partnerships help direct nonpoint source control funds to the agencies best suited for particular projects.

Leveraging other resources: States must provide a 40 percent match for their §319 grants. Matching funds must come from non-federal sources. The match requirement effectively requires states to use §319 funds to leverage additional resources for nonpoint source control. For some projects, §319 provides the entire funding. For others, §319 joins forces with other funding sources to make possible a stronger project.

Integration of projects: Several states use §319 money to fund multiple projects that are closely interrelated. By tying projects together, a state can develop a more comprehensive approach to nonpoint source pollution control. For example, one of Oregon's major projects involves refining rapid bioassessment protocols for the region, while other stream restoration projects funded jointly by §319 and GWEB incorporate RBPs for monitoring water quality improvements. In addition, Oregon funds multiple projects in Malheur County that collectively work to reduce nitrate levels in the groundwater.

Often, §319 projects are part of a broader nonpoint source control effort. For example, the results of Idaho's groundwater vulnerability mapping project will be used to develop statewide groundwater management strategies. Washington's Willapa Bay dairy waste implementation project is one of numerous nonpoint source control activities in the watershed.

Table 3: Successful Characteristics of Selected §319 Projects

Project Characteristics	<u>Washington</u> TFW/Forest Practices Assistance	<u>Washington</u> Willapa Bay Dairy Waste Implementation	<u>Oregon</u> Malheur County Projects	<u>Oregon</u> Rapid Bioassessment Protocols
Local Support	timber companies work with local community	many, though not all, dairy operators in the watershed cooperate	local community committed to cleaning up its groundwater	(N/A -- research project)
Clear problem identification	sediment studies document nonpoint source problems in the watershed	dairy waste contributes to fecal coliform contamination in the bay	nitrate contaminated groundwater detected in wells	RBPs need to be tailored to individual ecoregions
Political feasibility	affected landowners actively participate	several government agencies involved in nonpoint source control projects	local agencies involved in research and information sharing	(N/A -- research project)
Baseline measurement/water quality objective	sediment study provides necessary data	dairy management practices contribute to water quality degradation	groundwater contamination found in county wells	research methods will measure nonpoint source impacts
Monitoring component	sediment levels monitored	county-wide monitoring (not associated with this project)	research monitors soil nitrate levels	developing tools to monitor stream health
Environmental Stewardship component	outreach to local community	education and outreach to dairy operators in county	public outreach through SWCD and annual field days	N/A -- research project
Agency expertise	Ecology staff member	SCS staff member	multiple agencies involved	DEQ staff members
Integration of projects	closely related to statewide T/F/W efforts	part of county-wide nonpoint source control efforts	multiple, interrelated §319 projects	RBP techniques used to monitor results of §319 mitigation projects
Leverage other funds	jointly funded	will be funded by CCWF	multiple funding sources	jointly funded

Table 3 cont'd:

Project Characteristics	Idaho Project WET	Idaho Groundwater Vulnerability Mapping	Alaska Alaska Water Watch	Alaska BMP Monitoring in Tongass National Forest
Local Support	(statewide education effort)	N/A -- research effort	active citizen participation in numerous projects	cooperation between ADEC and Forest Service
Clear problem identification	teachers need to learn about nonpoint source pollution	need to assess relative vulnerability of aquifers	individual projects identify specific problems	need to institutionalize BMPs into forest management practices
Political feasibility	schools generally welcome Project WET curriculum	N/A -- research effort	interagency cooperative agreements	interagency agreements
Baseline measurement/water quality objective	N/A -- general education project	research provides tools to assess relative contamination	individual projects address specific problems	incorporate monitoring into forestry practices
Monitoring component	N/A	project provides mechanisms for data management that can assist future projects	individual projects include monitoring	incorporate implementation monitoring into forest management
Environmental Stewardship component	education project	mass sampling events identify status of groundwater	widespread citizen participation in projects	increased level of awareness of need for BMPs
Agency expertise	project contracted to university	project contracted to university	interagency agreements	ADEC staff
Integration of projects	statewide public education effort	research results will affect groundwater management decisions	unify numerous individual projects	part of Alaska's Forest Practices work plan
Leverage other funds	project is now state-funded	project is now state-funded	other state agencies provide funding	jointly funded by §319 and general fund

V. RECOMMENDATIONS

Section 319 is an evolving federal program. As it evolves, it must carve out a niche for itself in relation to ongoing statewide nonpoint source control efforts. One constant theme emerged from discussions with state nonpoint source coordinators: no matter what its size, §319 money is vital to carrying out state nonpoint source control objectives. It channels money to projects not likely to be funded in its absence. The following recommendations, derived from numerous interviews and document reviews, can further enhance the §319 program.³⁶

A. Recommendations for the Region 10 §319 Program

- **Clarification of §319 philosophy:** EPA and states will need to resolve the important issue of whose priorities -- EPA's or states' -- guide the types of projects funded through §319. This is no easy task. At present, statutory language does not provide a clear indication of §319's underlying philosophy, although a re-authorized Clean Water Act may address this issue. Resolving the issue of the nature and philosophy of §319 should come from a joint effort between EPA and the states. One way to resolve the issue may be through the existing base and competitive allocations. A reasonable interpretation of the national guidance on base/competitive allocations suggests that the base funds could be used to address the state's most pressing problems, whereas the competitive portion could be more closely tailored to EPA's agenda. This approach would allow EPA to set programmatic and regional priorities while allowing states flexibility to tailor their individual programs.

- **Clarify method for allocation of competitive portion of grants:** Closely related to the issue of the underlying philosophy of the §319 program is the base/competitive division of a state's §319 grant award. A strong misperception exists between EPA and the states regarding the allocation of the competitive portion of the regional §319 allocation. National guidance recommends interstate competition for these funds. However, Region 10 only compares projects between states in a limited fashion. According to Region 10 guidance, EPA uses the same criteria to evaluate competitive projects as base programs. Yet states view the competitive portion as tenuous due to the lack of an exact dollar figure attached to this portion. Regional guidance should describe more clearly the actual process by which Region 10 awards competitive grants, and perhaps consider using a different name for this portion of funds. As suggested by the national guidance, this may be an appropriate place to advance EPA's nonpoint source control agenda by identifying types of projects likely to be funded with the competitive portion of §319 money. If EPA puts forth its agenda through the competitive allocation, states will need leeway to design projects funded under the base portion of their grant.

³⁶This list is not in priority order.

● **Targeting §319 resources:** EPA and states should continue to target §319 funds to high priority areas and programs to obtain the most effective results from §319 expenditures. Geographic and programmatic priorities such as public education or development of Rapid Bioassessment Protocols, may not be tied to a specific site, but represent a broader approach to developing and enhancing a state's fundamental toolkit to address nonpoint source pollution issues. Section 319 funds may be used more effectively if they are combined with other nonpoint source control projects in a given area. EPA and states will need to refine methods used to target §319 funds. The issue of §319 philosophy will undoubtedly arise as targeting strategies take shape.

● **Need for planning and development support:** Lack of planning and development up front is problematic. Initial nonpoint source management programs, developed as the basis for §319 implementation, represent broad program areas. For the most part, these plans are quite general, allowing wide latitude in the types of projects eligible for §319 funds. The lack of specificity makes the plans difficult to implement, as they were not designed as site specific programs to be readily implemented. By now, they may also be out of date. Many states developed plans under §208³⁷, but these, too, are largely out of date. Ironically, when §208 funds were available for planning, little money was available for implementation. Now, several years later, implementation money is available under §319, but little planning money is available. For now, states are more likely to look for projects that have already started moving, even though they may have been initiated with a different motive.

Although Congress designed the §319 program to focus on implementation, EPA may wish to consider making available a small portion of funds that could be used for planning and program development in areas that would later be ideal candidates for implementation grants. Small planning grants could be made by the state agency to local communities that have recognized a nonpoint source problem, but have not yet identified the extent of the problem, other interested parties, or potential funding sources. Any funding made available for planning should involve the local community in the planning process in order to foster ownership of the program. However, dedicating a portion of §319 funds to planning risks reducing the money available for program implementation, which is the statutory intent of §319. Demonstration projects available with §319 funds may provide the necessary catalyst for additional nonpoint source control activities. Money available through the Clean Lakes program,³⁸ provides another option available to help with planning and development.

● **Funding staff positions:** Severe state budget cuts interfere with institutionalization of nonpoint source control activities. EPA can further its objective of institutionalization by continuing to fund specific types of staff positions with §319 grants. A rallying cry from the states is "we need people." Many projects require staff to spearhead a specific effort or to carry out nonpoint source control objectives. For instance, Washington's use of §319 funds

³⁷§208, 33 U.S.C. §1288. See *supra* note 9.

³⁸§314, 33 U.S.C. §1324. The Clean Lakes program provides funds for lake water quality studies.

to support a staff member in Ecology's Central Regional Office maintains a state presence in forest practices negotiations in the upper Yakima basin. Without §319 funds, this position would not exist, and Ecology would not have a role in forest management decisions in the basin.

EPA may wish to clarify the types of staff positions eligible for short- and long-term §319 grants. EPA's reluctance to fund general coordination staff positions at the state level stems from a requirement to focus §319 funds on projects with identifiable milestones and to build collaborative initiatives for nonpoint source programs. Thus positions that primarily involve ongoing facilitation and coordination are not likely to receive long-term (three years or longer) §319 support. Projects that hire staff to implement basin-specific projects are likely to receive continued funding.

- **Increase length of time for project support:** Because effective nonpoint source control requires a long-term commitment, §319's objective to provide initial start-up funds may not support its objective to realize long-term gains in water quality improvement. Frequently §319 provides the only funding available. EPA should clarify the situations for which a state may seek long term support under §319. EPA could develop specific criteria for projects funded beyond two or three years. Projects funded over a number of years may face greater pressure to document environmental results to justify continued funding.

- **Funding Cycle:** EPA should re-evaluate the §319 funding cycle in order to better accommodate projects that rely on a field or growing season, and are more closely tied to a calendar year rather than a fiscal year. One option would be to accept proposals designed for work to begin at a later date (i.e., the next calendar year). This would provide project managers security in planning projects, rather than forcing them to risk several months of work without guarantee of grant money. Most soil and water conservation districts, as one example, operate with very little cash reserves, and find it difficult to support projects before funds become available. Larger organizations will not face this problem so severely. Regional guidance may need to be clarified to accommodate projects that will not officially begin until several months after the grant award.

- **Recognition of EPA as funding source for §319 projects.** Projects that receive §319 money should credit EPA as a funding source. This will help bolster public awareness of EPA's involvement in nonpoint source control projects, and communicate EPA's role in the partnerships necessary to control nonpoint source pollution. For instance, EPA is not listed on a plaque identifying agencies that contributed to a GWEB-initiated public education project in Oregon, which EPA helped fund through a §319 grant. By recommending that projects acknowledge EPA as a funding source, EPA can heighten public awareness of its role in nonpoint source control activities. This role may not be well known, as §319 is a relatively new program.

- **Strengthen monitoring component:** Many projects do not have an effectiveness monitoring component, making it difficult to identify water quality improvements. Obviously

all projects cannot include an extensive monitoring component, but projects should include some type of monitoring method, such as photodocumentation, to measure water quality improvements. For instance, both Oregon and Idaho use §319 funds to refine RBPs in their regions. In Oregon, restoration projects funded jointly with §319 and GWEB funds use RBPs to evaluate project effectiveness.

- **Project evaluation:** As stated earlier, effective project evaluation is one of the most difficult tasks confronting the §319 program. To develop a truly effective program, project evaluation must move away from a focus solely on numbers and look instead at the results of the projects. EPA should encourage states to share information about characteristics of successful and unsuccessful projects in order to avoid unnecessary mistakes in future §319 projects. While the success -- or lack of success -- of certain projects will be highly site- and project-specific, many project experiences will generate information that can be shared among the Region 10 states.

- **Ensuring long-term results:** Successful nonpoint source control requires long term efforts and commitments. Projects should have some method of continuation and follow-up, even after §319 funds are no longer available. A project that attempts pollution prevention or restoration for only a short period of time is unlikely to show long-lasting positive impacts.

Ensuring long-term results from nonpoint source control efforts is not possible with §319 alone. Ultimately, the Clean Water Act will need to be amended to commit solid, long-term funding for planning, implementation, and assessment efforts, and to make nonpoint source controls enforceable through citizen suits or other provisions. These revisions will be necessary to make nonpoint sources equal partners with point sources.

B. Recommendations for Region 10 Program Management

- **Statement of EPA's long-term goals.** At both the state and local level, officials responsible for individual project implementation expressed a need to know EPA's long-term nonpoint source goals and objectives in order to focus both the individual projects and the types of projects submitted for §319 funding. EPA should clearly articulate its long-term objectives for the §319 program and regional nonpoint source control activities. A long-term plan being developed by EPA's watershed section should help address some of these concerns.

- **Increase site visits and contact with local communities:** Without exception, the people responsible for actual project implementation at the local level expressed an interest in greater EPA contact through site visits. Like the well-worn phrase so adequately states: "a picture is worth a thousand words." Site visits reveal aspects of projects that may not come across in project proposals or quarterly reports. They also serve to highlight implementation barriers that are not readily understood from an office perspective. Unfortunately, a limited

travel budget precludes numerous visits. But where possible, EPA should increase site visits. At the local level, primary contact occurs with the state agencies responsible for immediate oversight. EPA seems to be a more distant player, but project managers are anxious to have EPA observe their work firsthand. EPA's Operations Offices in each state provide one avenue to pursue this recommendation, especially given limited travel dollars. At present, only the Idaho Operations office has a staff member dedicated to nonpoint source issues.

- **Strengthen EPA/state partnership in project development:** Due to the short timeframe from congressional §319 appropriation to proposal deadlines, EPA should assist states in the initial project development stage. By strengthening its partnership with the states, EPA can review grant ideas in their early stages to avoid prolonged development of projects not likely to be funded. By working more closely with EPA in the early stages, states would have a better idea about the projects likely to be funded, and have time to tailor projects to suit funding guidelines. One option would be for states to submit preliminary ideas to EPA for informal review before developing full proposals. This approach may help give states a bit more advance notice for the next years' awards. After project proposals are more fully developed, states could give presentations to EPA prior to award decisions. Presentations may convey project objectives more effectively and provide an opportunity for face-to-face discussion about unresolved issues. In addition, presentations would help bring a region-wide perspective to the §319 program.
- **Start grant award process earlier:** Both EPA and the States should begin the grant award process at an earlier date. For the states, this means beginning the grant development process earlier in the year so that projects can be formalized in the short time period between target grant amount notification and annual work program completion. For EPA, this means working closely with the states in the early stages of project development. States' annual work programs undergo many reviews before the final package is complete. Thus, the earlier the process starts, the earlier EPA can award grants. The congressional budget timeframe imposes some limits on the planning process, but states can begin to develop their work programs based on their previous year's §319 grant amount, and then revise it accordingly when final congressional appropriation occurs.
- **Provide models for grant proposals:** EPA should continue to provide examples of outstanding grant proposals. As a model for the fiscal year 1992 grants, EPA provided Region 10 states with a copy of Oregon's fiscal year 1991 work program. Development of a regional project tracking system will help facilitate uniform work programs and standardize the process.
- **Increase regional information sharing:** Many areas within Region 10 face similar problems, and projects underway in one area may be beneficial to other areas. EPA should increase its role in regional information sharing to facilitate communication between local and state agencies in the region. Several people at the project level greatly appreciate the information and technology sharing that occurs at EPA's annual workshops. EPA may also wish to promote projects that can be replicated in other areas of the region. Regional

information sharing sessions would help fulfill this recommendation. But like additional site visits, limited travel money may foreclose this option. In the alternative, EPA could distribute brief summaries of §319 projects within Region 10, including local project managers to contact for more detailed information. National project information sharing would also be beneficial at a regional level. For instance, EPA Region 7 supported an Iowa nitrogen management program quite similar to Oregon's Malheur County nitrogen management projects.³⁹

At another level, EPA may wish to encourage projects to expand their reach beyond the immediate project area. For instance, in the area encompassed by the Yakima Resource Management Plan, timber industries willingly modify some of their practices in response to pre-harvest review, but Ecology does not know if the companies adopt these modifications elsewhere in the region.

- **Enhance communications with other agencies to reduce duplication of efforts:** Many agencies, at the federal, state, and local level, are involved in nonpoint source control projects. EPA and state agencies should strengthen their communication with these agencies so that projects funded under §319 supplement, instead of duplicate, ongoing efforts. EPA should also coordinate greater information sharing throughout the region, tying together information from different agencies, Tribes, and other groups working on nonpoint source issues.

- **Strengthen links between §319 and other EPA programs:** EPA currently operates several programs that relate closely to nonpoint source control activities. As EPA implements its watershed approach, §319 should become better integrated with programs such as the Clean Lakes Program or pollution prevention initiatives. EPA should also share readily with each state information on other EPA priorities in that state to help develop a cohesive and integrated nonpoint source control program. In addition, EPA's new watershed manager and coordinator should become involved in §319 projects. Section 319 projects should also be integrated with states' §303(d) lists that identify water quality-limited waters.⁴⁰ This list sets in motion the regulatory process for water quality restoration. As EPA develops its watershed approach, such linkages will be crucial to painting a complete picture of existing problems and ongoing control efforts, and to target §319 funds most effectively.

³⁹"Iowa Corn Producers Cut Nitrogen Use in a Big Way," News-Notes, vol.19, p.18. EPA Office of Water, March 1992.

⁴⁰§303(d); 33 U.S.C. §1313(d).

VI. CONCLUSION

The §319 program may not appear grand on the scale accorded other federal initiatives. It may not even compare in magnitude to statewide nonpoint source control initiatives. Yet its existence is clearly a positive step forward in nonpoint source control efforts. In addition to providing much-needed funds for nonpoint source control, §319 acts as a catalyst to focus a state's nonpoint source program and form interagency partnerships. The recommendations included in this report are intended to address issues raised by states throughout the information-gathering stage of the report. Some of these recommendations will be easier to implement than others.

Nonpoint source pollution problems cannot be controlled through short term fixes. Control efforts will require patience and persistence, venturing into new areas, involving interagency cooperation, and citizen action. In today's era of environmental consciousness, we have inherited the results of yesterday's poor practices. To move forward, we cannot lament the past, but must seek new methods for the future that focus on water quality restoration and protection efforts, public education, and other means of nonpoint source pollution control. Secure long-term funding will be necessary to ultimately realize this goal.

Awareness is the key to change, particularly for nonpoint source pollution. Section 319 seeks to foster that awareness through a strong emphasis on the environmental stewardship aspect of §319 projects. Changed behavior is not a direct measure of water quality improvement, but it is a step in the right direction. Furthermore, by taking advantage of research that demonstrates better management practices, EPA can demonstrate a commitment to pollution prevention and environmental restoration.

Learning by doing is a hallmark of any government program. Such is the case with implementation of the §319 program and individual nonpoint source control projects. With each passing year, EPA can learn from the past and refine the §319 program to better suit its needs while accommodating the needs of the states. By keeping what works and improving what does not, EPA can help the §319 program continue to evolve as an effective component of nonpoint source control initiatives.

APPENDIX 1: REGION 10 STATE NONPOINT SOURCE COORDINATORS

State nonpoint source coordinators develop annual §319 work programs, oversee §319 project implementation, and coordinate general nonpoint source control activities statewide. Following is a list of nonpoint source coordinators who manage §319 program implementation in Region 10:

Washington:

Kahle Jennings
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504
(206) 438-7528

Oregon:

Roger Wood
Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, OR 97204
(503) 229-6893 (surface water projects)
Ivan Camacho (503) 229-5088 (groundwater projects)

Idaho:

Donna Rodman
Idaho Department of Health and Welfare
Division of Environmental Quality
1410 N. Hilton
Boise, ID 83720
(208) 334-5860

Alaska:

Drew Grant
Department of Environmental Conservation
Division of Environmental Quality
410 Willoughby Ave
Juneau, Alaska 99801-1795
(907) 465-5304

APPENDIX 2: REGION 10 §319 PROJECT RATING SHEET

PROJECT TITLE: _____ STATE: _____

1. Work program specific criteria [0 - 40 points] _____
 - A. Clear demonstration of how project controls NPS pollution
 - B. Effective monitoring and assessment for evaluating environmental results
 - C. Comprehensive watershed protection
 - D. On-the-ground implementation
 - E. Defined, achievable milestones and products
 - F. Protection of critical aquatic resources
 - G. Inclusion of measures for evaluating environmental results
2. Consistency with state's NPS assessment and management program [0 - 25 points] _____
 - A. Process and priority setting for target watersheds
 - B. Involvement of interested and affected publics in work program development
 - C. Multiple funding sources for project
 - D. Continuation of successful §319(h) project
3. Consistency with regional §319 guidance [0 - 20 points] _____
 - A. Protect or restore riparian areas
 - B. Protect or restore wellhead protection areas
 - C. Protect or restore wetlands
 - D. Protect coastal waters
 - E. Constructed wetlands demonstration
 - E. Environmental stewardship
4. Consistency with national §319 guidance [0 - 15 points] _____
 - A. Controls difficult and serious problems including, but not limited to mining
 - B. Implements innovative methods or practices for NPS control
 - C. Implements groundwater protection controls for NPS
 - D. Controls interstate NPS problems
 - E. Addresses additional national priorities
 - F. Focuses on a priority watershed or groundwater area
 - G. Demonstrates long-term commitment to building institutionalized NPS control programs

Comments:

Overall Rating: _____

Review Team Member: _____ Date: _____

APPENDIX 3: CASE STUDIES OF SELECTED §319 PROJECTS

A. Washington §319 Projects

TFW/Forest Practices Assistance in Central Washington

Contact: Charlie McKinney, TFW Specialist, Department of Ecology Central Regional Office, (509) 575-2397

Problem: Decades of forest harvesting have significantly degraded water quality in the Upper Yakima River Basin in central Washington. In 1989, an unlikely mix of traditional adversaries -- large timber companies, small landowners, state and federal resource management agencies, concerned citizens, environmental groups, and the Yakima Indian Nation -- developed a basinwide Resource Management Plan (RMP) that embraces water quality issues in forest practices. The resource management plan identified heavy sediment loads as the greatest threat to water quality. Heavy sediment loads in the streams, which result from erosion caused by various forest practices, impair several beneficial uses including fish reproduction and survival, domestic and agricultural diversions, and recreation. A stream sediment monitoring project initiated in 1990 assessed fine sediment levels in spawning gravels in eighteen streams in the Upper Yakima Basin. The results of this monitoring form the cornerstone of the basin's water quality protection strategies.

Project Description: §319 supports a Department of Ecology (Ecology) staff member in the Central Regional Office who reviews timber harvest applications, participates in interagency site reviews of harvest applications in high priority areas, and provides individual on-site follow-up. The staff member also engages in water quality education and outreach to landowners and serves as a water quality advocate in a cooperative Resource Management Plan in the upper watershed of the Yakima River Basin.

Status: Funded in fiscal years 1990, 1991, 1992.

Comments on Project Effectiveness: This project allows Ecology to provide expert water quality impact review and maintain a presence in the interagency, pre-harvest site reviews. The project allows Ecology to emphasize watershed protection while at the same time advancing goals and objectives of the statewide Timber, Fish, and Wildlife agreement, adopted in 1986 to promote a consensus-based approach to forestry issues. It is also an example of how Ecology uses §319 funds to plug a gap in its existing nonpoint source control program. Forestry issues are a pressing concern, but CCWF restrictions on hiring state level staff members preclude Ecology from funding this position with CCWF funds.

The consensus-based approach used to evaluate potential water quality impairments from harvest applications appears to be working well in the area. Timber industry cooperation stems in part from sediment studies that document a specific water quality problem and help show a direct link between harvest practices and water quality impairment.

Best management practices (BMPs) recommended for individual harvest sites include increasing the number of trees left standing on the site, riparian zones that may be far larger than those required by statewide forest practices regulations, wetland protection, and other efforts designed to mitigate sediment loading from a harvest site. Throughout the basin, the interagency review teams have successfully incorporated BMPs into over 100 forest practice applications.

Monitoring efforts throughout the basin will measure the effectiveness of remedial action plans and BMPs developed to protect water quality. In addition, Ecology conducts public outreach campaigns to educate timber operators and recreational users on the effects of fine sediment in streams, use of a wetlands rating system, the relationship of water rights to forest practices, and mitigating erosion from forest roads.

To date, most recommendations have involved relatively minor modifications to a harvest application that, while increasing the cost of the harvest, did not drastically alter the yield. It is not clear if timber companies can make up differences in lost yield in other areas that do not have a management plan. Ideally, recommendations for reducing water quality impacts should be incorporated into companies' forest practices elsewhere in the state and region. However, this is difficult, if not impossible to measure.

As harvest applications reach into more sensitive areas of the Yakima basin, a pre-harvest review team will undoubtedly recommend more severe measures, possibly recommending that no harvest occur on a given site. The effectiveness of the consensus-based approach to resource management decision-making will be truly tested when more stringent restrictions are imposed on harvest applications. In addition, unregulated grazing activities may threaten more stringent timber harvest restrictions. The RMP only addresses forestry practices in the basin, and is backed up by a state Forest Practices Act and regulations. No equivalent regulations exist for grazing activities. In the upper Yakima Basin, grazing land is intermixed with the forest. If pre-harvest review teams recommend restrictions on timber cutting, the timber industry may press for concessions from the grazing industry.

Willapa Bay Watershed (Dairy Waste Implementation)

Contact: Thomas Hedt, USDA Soil Conservation Service (206) 875-9424

Problem: Willapa Bay, located in the southwest corner of Washington, is the second largest estuary in the state and home to one of the most pristine and productive estuaries on the West Coast. Half of Washington's commercial shellfish production occurs here. The surrounding watershed, which also supports a sizable timber industry, drains into this major oyster producing area. Recently, contamination from high fecal coliform levels resulted in a reclassification of one of the commercial shellfish beds to a restricted status. Livestock wastes from the surrounding dairies, together with failing, on-site sewage treatment systems, contribute to the fecal coliform contamination. Exceptionally high annual rainfall in the area

-- over 80 inches annually -- increases the nonpoint source pollution problem. Threats to the shellfish beds launched widespread community and agency efforts to develop local water quality protection policies.

Project Description: Ecology used §319 funds to re-open a Soil Conservation Service (SCS) office in Pacific County -- which includes the Willapa Bay watershed -- that had been closed for a number of years. The SCS staff member provides a variety of assistance to the county's dairy operators to improve the handling of dairy waste from commercial dairy and livestock operations in the Willapa Bay watershed. Assistance takes the form of conservation planning, technical design of manure collection systems, and water quality education.

Status: Funded in fiscal years 1990, 1991, 1992.

Comments on Project Effectiveness: This project provides a good example of the institutionalization objective visualized for the §319 program. The SCS staff member supported with §319 funds plays a vital role in the watershed's nonpoint source control efforts by working with dairy operators to develop conservation plans that improve handling and management of dairy waste. Manure containment systems help prevent contaminated runoff from reaching the bay.

Due to the importance of this position, the CCWF -- Washington's well-endowed fund for nonpoint source control -- has taken over funding the position, with a four-year grant beginning in July 1993. The three years of seed money provided by §319 proved sufficient for the state to obtain another type of support. Without the initial impetus from §319, the project would not have been started. A four-year grant is among the most secure funding available in a time of fiscal constraints. This multi year commitment will help institutionalize nonpoint source control and advance Washington's dairy waste management priorities.

Although livestock waste contributes only a portion of the nonpoint source pollution in Willapa Bay, it is a portion that can be minimized. Farm conservation plans play an integral role in reducing dairy waste problems. Tangible water quality improvements from this project are difficult to measure in the short term, primarily because no direct monitoring is associated with this project. Instead, the state relies on the county's ongoing monitoring efforts to reveal long-term improvements in water quality.

One indicator of the effectiveness of public outreach efforts is the change in landowner behavior that results from increased public awareness of the problem. Farmers need assistance to develop waste management systems that minimize manure-contaminated runoff. Before the Pacific County SCS office re-opened with §319 money, this technical assistance came from an SCS office in an adjacent county and did not adequately meet farmers' needs. Now, SCS has contacted almost all of the 17 dairies in the watershed. To

date, three dairies have a manure management system in place. The SCS goal is to develop systems for three dairies each year.

Numbers alone do not tell the whole story. The limiting factor is the high cost involved in installing manure management systems, which can exceed \$50,000. The Agricultural Stabilization and Conservation Service (ASCS) provides cost-share money, up to 75 percent of project cost, but Pacific County has only enough cost-share money to cover two or three projects per year. SCS also relies on positive information from dairy operators that have manure management systems in place. Like all nonpoint source control projects, the local community is more willing to participate if recommendations come from peers rather than from the government. Eventually, farmers will need to install manure management systems to comply with a general NPDES permit for dairies that is being developed for Washington.

B. Oregon \$319 Projects

Malheur Experiment Station Best Management Practices Research and Development Program.

Contact: Clinton Shock, Agricultural Experiment Station Director, Oregon State University (503) 889-2174

Malheur County Soil and Water Conservation District (SWCD) Water Quality Coordinator

Contact: Kit Kamo, Water Quality Coordinator, Malheur County SWCD (503) 889-2588

Efficiency of Nitrogen Recovery for Groundwater Protection

Contact: John Miller, Associate Professor, Agricultural Experiment Station, (503) 889-2174

Problem: Along the Idaho border, Oregon's forested hills give way to the rolling plains of Malheur County. Irrigation transforms the arid landscape into one of Oregon's most productive agricultural regions, but decades of intensely managed agriculture have taken a toll on the region. Agricultural practices -- primarily heavy fertilizer and chemical application -- that have made Malheur County one of the nation's leading onion producers have, over the years, contaminated the shallow aquifer underlying the Malheur plains. Oregon DEQ found nitrate concentrations that exceeded EPA's maximum contaminant level in many private wells. Nitrogen fertilizers like ammonium and urea break down into nitrates, which pose a health risk, primarily to infants. Well sampling also detected metabolites of the herbicide Dacthal, but not at levels exceeding EPA's standard. DEQ designated the Malheur Basin a groundwater management area under Oregon's Groundwater

Management Act⁴¹. This designation confers special attention on the area and enables state agencies to focus resources on nonpoint source problems contributing to groundwater contamination.

Project Description: Oregon uses §319 funds to support multiple, inter-related projects in the Malheur Basin. Oregon State University's Agriculture Experiment Station is leading the research efforts. With grants from EPA and other sources, researchers are testing fertilizer rate and timing applications and new irrigation practices designed to reduce groundwater contamination. The SWCD Water Quality Coordinator coordinates and implements the effort to address the groundwater contamination, providing a vital link between the Experiment Station research and the local growers. The Nitrogen Recovery experiment is one portion of the Experiment Station's research that is designed to test the ability of sugar beets and small grains to recover subsoil nitrates.

Status: Funded in fiscal years 1990, 1991, 1992.

Comments on Project Effectiveness: The Malheur projects represent an outstanding example of a locally driven nonpoint source control effort. Confronted with a problem created by their livelihood for generations, residents banded together to develop solutions. At the research level, the Agricultural Experiment Station grows wheat, onions, and sugar beets under various conditions to determine the effects of lower nitrogen loading, crop rotation, and lower water use. Comparable yield and quality are the primary objectives. Growers will only adopt a new practice if it does not sacrifice crop quality or yield.

The Experiment Station also conducts annual field days for the local growers as its primary public education effort. Experiment Station researchers take growers on tours of the various experiment sites, explaining the objectives and results of each experiment. Most of the growers in the region are extremely supportive of the research. But more important, many growers are beginning to experiment with new techniques on their own farms. A true indicator of the success of this research and extensive public outreach efforts will be the number of growers that ultimately incorporate the research results into their own practices.

In addition to the research and information sharing conducted by the Experiment Station, several local agencies play a vital role involving local growers in the effort to reduce groundwater contamination and providing information on cost-share opportunities for various BMPs. The SWCD Water Quality Coordinator, funded by §319, bridges the gap between research efforts and the local community. Public outreach include publishing a weekly column called "Ag Hotline" in the local paper and offering free nitrate testing at the county fair. The Ontario Hydrologic Unit Area (HUA), an interagency cooperative effort designed to reduce nonpoint source pollution from nitrates, sediments and pesticides in northern Malheur County, recently received a "Certificate of Environmental Achievement" from the

⁴¹Oregon Groundwater Protection Act of 1989, HB 3515, Section 36.

Renew America program,⁴² and will be listed in the 1992 *Environmental Success Index*, a directory of environmental projects.

Nonpoint Source Monitoring/Applying Rapid Bioassessment Protocols

Contact: Rick Hafele, Oregon Department of Environmental Quality, (503) 229-5983

Problem: Biological monitoring is gaining increasing importance in gauging the health of ecosystems. With biomonitoring, biological organisms -- not chemical measurements -- determine a stream's environmental conditions. Biomonitoring involves both field and laboratory work to assess various organisms' responses to their surroundings. EPA has developed guidelines for using rapid bioassessment protocols (RBPs) to assess the overall health of streams. Due to the variability of landscapes, waterbodies, and terrain, RBPs need to be tailored to individual regions.

Project Description: Oregon recognized the importance of developing RBPs to work in the Northwest. Protocols for field work are adapted from EPA's protocols, but must be refined at different sites. DEQ scientists are calibrating RBPs to ecoregions within the state. Once methods are worked out, the process will be less labor intensive to apply, and DEQ will try to spread its methods to other agencies. In 1990 and 1991, the project focused on method development. In 1992, the emphasis will shift to project effectiveness monitoring and development of an ecoregion reference site data base for the Coast Range.

Status: Funded in fiscal years 1990, 1991, 1992.

Comments on Project Effectiveness: Oregon is pioneering many new approaches in RBP development. By developing tools to assess streams based on characteristics affected by nonpoint source pollution, the project serves two primary purposes. First, it can identify a set of characteristics for healthy streams, which can be used as a comparison for degraded water bodies. This information can help agencies make more educated natural resource decisions. Next, these assessment techniques can be used to measure how well nonpoint source control projects improve water quality. This will help indicate whether or not BMPs work as expected. RBPs will eventually form the basis for biological water quality standards that will be used to determine water quality impairments from nonpoint source pollution.

At regional workshops, Oregon shares its new techniques with other state agencies in the region working to develop RBPs. One problem faced by this and other RBP projects is the lack of suitable sites to serve as reference sites. The impacts of widespread logging and other activities may reach into even the most remote regions of the state. Thus researchers have a difficult time locating streams in their natural condition. When good reference sites

⁴²*Renew America* is a national campaign to identify and recognize successful environmental programs that can serve as models for meeting environmental challenges.

are found, multiple agencies try to accomplish their work at these sites. DEQ is trying to serve as the lead agency in RBP development and coordinate RBP work at other state agencies.

In addition to developing an important research and monitoring tool, Oregon will use its RBP methodology to measure the impacts of nonpoint source control projects designed to improve water quality. For instance, several restoration projects, funded jointly by §319 and GWEB, will incorporate RBPs to monitor project effectiveness. Eventually, DEQ hopes to use RBPs to conduct widespread monitoring throughout the state.

C. Idaho §319 Projects

Project WET (Water Education for Teachers)

Contact: Dottie Shuman, Project WET Idaho Coordinator, Idaho Water Resources Research Institute, University of Idaho (208) 885-6429

Problem: Many teachers are not familiar with nonpoint source pollution and other water quality issues. Workshops and seminars for teachers introduce them to water quality problems and provide teaching aids that they can incorporate into school curriculums.

Project Description: Project WET is a statewide, interdisciplinary water education program that provides educators with current, scientifically-based information to incorporate into their K-12 curriculums. Administered through the Idaho Water Resources Research Institute at the University of Idaho, Project WET presents workshops and seminars that cover the basic Project WET curriculum, teaching educators strategies for teaching water quality awareness and water resources appreciation. Workshops cover water properties, groundwater concepts, surface water, point and nonpoint source pollution, water treatment, and conservation. Nonpoint source learning modules provide an important emphasis on groundwater and surface water nonpoint source pollution problems and issues.

Status: Funded in fiscal year 1990 and continued as a state-funded program.

Comments on Project Effectiveness: Project WET incorporates environmental stewardship as an integral part of its comprehensive water quality education program. It has developed a number of nonpoint source surface and groundwater teaching modules to facilitate teaching water resources appreciation. Teaching aids include a Groundwater Flow Model, Liquid Treasure History Trunk, Water Quality Testing Trunk, and a Water Use Simulator. Workshops train teachers in application of these modules. Project WET's flexible workshops can accommodate new ideas contributed by participating teachers.

Project WET presents its workshops throughout Idaho, promoting them through the curriculum coordinators in the different school districts. Only teachers who receive Project WET training can use the teaching modules, which can be easily transported to individual

schools for special projects. All Project WET workshops offer one graduate credit from the University of Idaho College of Education, which may be applied to the re-certification requirement for Idaho teachers. Project WET workshops are available to teachers, SCS staff, 4-H leaders and others that work with students.

By providing a forum to teach Idaho's teachers about water resources, Project WET helps to build water education into curriculums at all grade levels. Launched as a statewide pilot program, Project WET concepts will now be developed into a nationwide curriculum.

In addition to demonstrating a successful environmental education program, Project WET also illustrates a program that moved from §319 funding into state funding. For fiscal year 1992, Project WET will be state-funded and used to help meet Idaho's 40 percent match requirement for §319 grants.

Groundwater Vulnerability Mapping

Contact: Gerry Winter, Idaho Division of Environmental Quality (208) 334-5860;
Mary McGown, Idaho Water Resource Research Institute (208) 334-5860

Problem: Idaho identified 11 priority aquifers in its nonpoint source management program. Some of these are among the highest yielding aquifers in the world, and comprise an extremely important resource for domestic, agricultural, industrial, and other uses. Nonpoint sources of pollution from agriculture, forestry, mining and numerous other sources can contaminate groundwater. Groundwater vulnerability mapping can identify the areas most threatened by contamination, thereby enabling the state to target its groundwater protection resources.

Project Description: The groundwater vulnerability project involves development of maps that delineate aquifer characteristics, such as depth to water, recharge rates, and soil type, that are used to determine groundwater vulnerability to contamination. Superimposing these different data layers indicates relative vulnerability ratings for different areas. Groundwater vulnerability maps will be used to set statewide priorities for monitoring and groundwater management.

Status: Funded in fiscal year 1990 and continued as a state-funded program.

Comments on Project Effectiveness: Groundwater vulnerability mapping is an important tool in groundwater protection strategies. Section 319 provided seed money for the initial stages of the project. It is currently funded through the Water Pollution Control Account and contracted out to various agencies to perform the technical work.

The groundwater vulnerability mapping project provides the basis for prioritizing state and federal programs for sensitive aquifers. Initially, the project concentrated on the Snake

River Plain. Vulnerability maps developed for the Snake River Plain will now be verified against sample data to determine the accuracy of the rating system.

From the Snake River Plain, the mapping work is being extended to major intermountain valleys including the Rathdrum Prairie, Birch Creek, and other areas. Several changes will need to be made as the research techniques cover different areas. For instance, recharge calculations for the Snake River Plain factor in irrigation, but in the northern part of the state dryland farming is commonplace. Thus, recharge rates used in irrigated areas will need to be modified to accommodate only natural recharge rates in dryland farming areas.

Ultimately, the results from the mapping project will allow DEQ to employ differential management approaches based on relative vulnerability of different aquifers. The results of this research will also be used to implement the state's groundwater plan and will serve as a tool for aquifer protection.

In addition to developing a primary tool for resource management decisions, the project incorporates environmental stewardship activities that compliment the technical basis of the program. Through mass groundwater sampling events across the state, DEQ and the Farm Bureau collected and tested rural domestic well samples for nitrate contamination. Mass sampling provides a service to rural communities and provides data to DEQ and other agencies concerned with groundwater resources.

D. Alaska §319 Projects

Alaska Water Watch

Contact: Bill Janes, Program Coordinator, Alaska Department of Environmental Conservation, (907) 465-5307

Problem: Water quality protection efforts require a joint effort between governmental programs and citizen initiated activities. Alaska Water Watch is designed to provide a coordinating link for ongoing citizen stewardship efforts and to expand similar programs to new communities. Citizen stewardship of water resources provides an important complement to governmental water quality protection efforts.

§319 project: Alaska Water Watch is an interagency public participation and education network that promotes comprehensive stewardship of Alaska's aquatic resources. Citizen volunteers carry out the program's objectives of water quality monitoring, pollution prevention, and water quality restoration activities. Section §319 funds a program coordinator who manages the Water Watch program, conducts monitoring training and quality assurance sessions, and works to expand the number of communities with Water Watch programs.

Status: Funded in fiscal years 1990, 1991, 1992.

Comments on Project Effectiveness: Alaska Water Watch, initiated by \$319 funds, incorporates a multi-faceted approach that links government agencies and citizen monitoring in this unique stewardship program. Essentially an umbrella program for a diverse mix of activities, Alaska Water Watch includes projects that take many shapes. Water Watch is primarily a statewide citizen steward program that actively involves the public to protect aquatic resources. A network of citizen stewards throughout the state undertakes monitoring projects and works to enhance community waterbodies.

Four central themes guide the Water Watch program: (1) data collection and monitoring; (2) aquatic education; (3) pollution prevention; and (4) restoration activities. Projects that meet Alaska Water Watch criteria may participate as cooperating projects. By using the Water Watch label, the program successfully integrates several independent citizen steward programs throughout the state. The Alaska Water Watch label develops a uniform theme and name recognition for numerous statewide citizen stewardship efforts.

Alaska Water Watch activities have expanded dramatically since the program first began in 1990. Schools and community groups are the primary focus of Alaska Water Watch. Initiatives now include groundwater models, stream water quality studies, habitat assessment and watershed assessment efforts. Data collection and monitoring form the core of Water Watch activities. A database developed from citizen monitoring data will be available to groups participating in Alaska Water Watch and will supplement professional water quality databases. Monitoring data can help assess nonpoint source pollution problems and identify trends in water quality.

The Water Watch program began as an ADEC effort to promote and expand citizen monitoring activities. Other agencies are now joining ADEC as Water Watch partners. Agency participation in Water Watch requires a commitment to initiate and support public involvement, develop a group of volunteers to lead projects, follow standard methodology in data collection, and develop programs compatible with school curricula. Currently, Alaska Water Watch activities concentrate on urban nonpoint source problems. In the future, the program may reach into other areas such as rural nonpoint source problems and drinking water concerns.

In addition to numerous public involvement activities, Alaska Water Watch administers pass-through grants for water quality restoration efforts, such as streambank revegetation and shoreline stabilization. As Alaska Water Watch programs become more commonplace, and more agencies lend their expertise to the program, Water Watch activities will have even more far-reaching effects.

BMP Monitoring in Tongass National Forest

Contact: Jim Ferguson, Forest Practices Program Coordinator (Southeast Region), Alaska Department of Environmental Conservation, (907) 465-5365

Problem: The Tongass National Forest is a remote forest spreading throughout southeast Alaska. Decades-old timber sale contracts, designed to maintain high yields, govern management decisions made on the forest. These contracts, written before BMPs and forest practices regulations were commonplace, essentially divided the forest between two large timber companies and did not take into consideration the potentially adverse water quality impacts caused by timber harvest practices. The 1990 Tongass Timber Reform Act helped factor water quality issues into harvest practices. However, nonpoint source pollution is still a relatively new concern in Alaska, and does not receive the broader support of some of the more traditional environmental programs.

§319 project: Alaska DEC (ADEC) combined §319 money with state funds to develop and implement a Tongass National Forest BMP implementation and effectiveness monitoring program. The project is one of four parts of Alaska's Forest Practices workplan, outlined in its Nonpoint Source Pollution Control Strategy. In this project, ADEC provides technical direction to the Forest Service BMP monitoring program, and helps the Forest Service establish procedures for routine BMP implementation monitoring.

Status: Funded in fiscal years 1991, 1992.

Comments on Project Effectiveness: This project has greatly strengthened the working relationship between ADEC and the Forest Service, which has primary responsibility for meeting state water quality standards for all activities on Forest Service lands that may affect water quality. Traditionally, the Forest Service has not recognized other agencies' authorities over fisheries and water quality standards in the Tongass. Now, a growing awareness of the water quality problems caused by unregulated logging has generated a clash between past attitudes and current management tools.

Prior to this project, the Forest Service managed the Tongass primarily to meet timber harvest obligations to the two powerful timber companies that have long-term timber sale contracts on the forest. However, several recent events have given water quality issues a growing voice in forest management decisions. First, the Tongass Timber Reform Act includes provisions that direct the Forest Service to apply BMPs in timber harvest applications. For instance, the Act requires 100-foot streamside buffers on all anadromous fish streams. Second, §319 requires states to identify best management practices that reduce pollutant loadings from categories of nonpoint sources,⁴³ and identify programs that will

⁴³§319(b)(1)(A), 33 U.S.C. §1329(b)(1)(A).

achieve BMP implementation.⁴⁴ Armed with some form of regulatory back-up, ADEC has worked to institutionalize BMP implementation and monitoring into routine Forest Service activities.

As part of this project, ADEC completed a Memorandum of Agreement (MOA) with the Forest Service regarding its obligation to promote BMP implementation and effectiveness monitoring on the Tongass. This MOA helped institutionalize BMP implementation monitoring, and greatly increased rapport between ADEC and the Forest Service.

The §319 grant provides travel money to supplement a state-funded position. Travel is a vital component of this position. The Forest Practices program coordinator is the only ADEC staff member assigned to monitor timber harvest and road construction activities on the 17 million-acre forest, which the Forest Service manages as three separate forests. Increasing public awareness of the need for BMPs requires the program coordinator to conduct numerous meetings with Forest Service staff throughout this remote and expansive area.

What began as an upward struggle, is taking shape as a major breakthrough in Forest Service attitudes toward the importance of water quality issues. ADEC has observed noticeable improvement of Forest Service awareness and promotion of BMPs. Forest Service district rangers, timber planners, and engineers in two of the three forests within the Tongass now actively cooperate with ADEC to implement BMPs in timber sales.

The Forest Service recognized the importance of the BMP implementation project by awarding its *Stewardship First* award to ADEC's Forest Practices Program Coordinator. This award recognizes important contributions in land stewardship, and represents one of the few times the Forest Service presented the award to someone outside the agency.

Section 319 provided the impetus for ADEC to become intimately involved with forestry issues in Alaska. With BMP development gradually becoming institutionalized within the Forest Service, ADEC will begin to develop a BMP effectiveness monitoring program, although limited funding currently exists for monitoring. ADEC will use its success with the current project to help make BMP effectiveness monitoring an integral part of Forest Service activities.

⁴⁴§319(b)(1)(B), 33 U.S.C §1329(b)(1)(B).

APPENDIX 4: DESCRIPTIONS OF §319 PROJECTS IN REGION 10 STATES

Within Region 10, §319 funds a wide variety of projects under the umbrella of nonpoint source control activities. Since Congress first appropriated money for §319(h) grants in 1990, EPA has funded over 80 projects totalling \$7,795,202 in the Region 10 states.

The tables that follow describe all projects funded by §319 in Region 10 since the initial round of §319 grants in fiscal year 1990.⁴⁵ As revealed by the tables, each state uses §319 money differently. But each uses §319 grants to broaden the scope of its nonpoint source control programs.

The project descriptions are intentionally brief, intended to provide only a sampling of the type of work made possible by §319 funds. For each §319 project, states submit a detailed work plan that describes the project and outlines specific tasks and objectives. These tasks form the basis for quarterly status reports submitted to EPA.

⁴⁵Grants to the Colville Tribe are not included.

Washington §319 Projects

TITLE	PROJECT DESCRIPTION	YEAR
Watershed Planning and Implementation in Yakima River Basin/Moxee Sub-basin Demonstration Project⁴⁶	Fund demonstration project that implements irrigated agriculture BMPs in a selected sub-basin of lower the Yakima River Basin; provide technical planning and design assistance, educational workshops, BMP demonstrations, technology transfer and cost-sharing for BMP implementation on irrigated hops fields, orchards, and hay fields. Project designed to reduce erosion and tailwater quantity from furrow irrigated crops.	1990
Dairy Enforcement in Puget Sound	Staff position in Northwest Regional Office to improve complaint response resolution; provide regulatory backup for successful nonpoint source control program for dairy operations in King, Snohomish, Skagit and Whatcom counties.	1990 1991 1992
Aquifer Vulnerability	Develop preliminary, site-specific method to determine groundwater vulnerability for specific site or activity; investigate applicability of area-based groundwater susceptibility models; prepare statewide map using methodology developed for pilot areas.	1990 1991
Dairy Waste Management Follow-up	Individual on-farm follow-up with dairy operators in targeted area of Puget Sound; encourage proper management of existing dairy waste facilities; update dairy conservation management plans and evaluate success of farm plans written to protect water quality.	1990 1991 1992
Whatcom County Animal Waste Management	Control water pollution from commercial dairy production through implementation of local initiatives; organize dairy operators to effectively address local nonpoint source concerns; evaluate and develop recommendations on education, permits, fines, regulations, and minimum voluntary standards.	1990 1991

⁴⁶Monitoring effort is listed as a separate §319 project.

TITLE	PROJECT DESCRIPTION	YEAR
Willapa Bay Watershed Technical Assistance (case study included in report)	Improve handling and management of dairy and livestock waste; hire SCS staff member to provide technical assistance, education, and technology transfer focused on improving dairy waste management and reducing impact to water quality.	1990 1991 1992
Nonpoint Source Statewide Education Project	Implement education program to address surface and groundwater priorities and problems; publish and distribute materials; identify nonpoint source educational role of Ecology.	1990
NPDES Permits for Dairies	Coordinate permit development and implementation, including drafting permit, conducting public workshops, and initial implementation (general permit for dairy farms throughout state to meet federal definition of confined animal feeding operations.	1990
TFW Cooperative Monitoring, Evaluation and Research (CMER)	Design and conduct technical studies to evaluate the effectiveness of forest practices BMPs for stream water temperature protection, herbicide and insecticide application, and sediment control; develop recommendations for changes to BMPs as necessary.	1990 1991 1992
TFW Forest Practices Assistance in Central Washington (case study included in report)	Support planning and monitoring activities associated with development of Resource Management Plan in Upper Yakima River Watershed; review forest practices; provide technical assistance in support of forest practices implementation within central region, including participation in TFW site reviews, timber harvest application reviews, onsite follow-up and outreach to forest landowners.	1990 1991 1992
TFW Forest Practices Support at Ecology's Southwest Regional Office	Participate in TFW interdisciplinary teams, assist in evaluation and coordination of forest practices, provide follow-up with landowners, ensure compliance with Forest Practices Act; develop and implement resource management plans and informational watershed plan.	1990 1991
Conservation District Water Quality Program Enhancement	Strengthen ability of local conservation districts to carry out water quality programs; increase coordination between local water quality implementation projects and statewide water quality programs, enhance local participation in waterbody assessment process.	1990 1991 1992

TITLE	PROJECT DESCRIPTION	YEAR
Puget Sound Pesticide Guidelines Manual	Develop pesticide management guidelines and reference document for certified pesticide applicators.	1990
Evaluate Groundwater BMPs for Eastern Washington Irrigated Agriculture	Evaluate surface water BMPs for irrigated agriculture east of the Cascades for effectiveness in protecting groundwater; identify BMPs to specifically protect groundwater; update BMP manual for irrigated agriculture.	1990 1991 1992
Timber Harvest/Agriculture Field Inspector Eastern Washington	Respond to water quality problems in Palouse River Basin; assist landowners in solving problems; improve nonpoint source program targeted towards small, private forest owners; enhance forest BMPs for non-industrial forest landowners.	1990 1991
Monitoring Yakima Demonstration Project	Implement monitoring program to document water quality improvements in Yakima demonstration project; evaluate effectiveness of BMP implementation in Moxee sub-basin.	1990 1991 1992
Coordinating Groundwater Vulnerability with Wellhead Protection and Groundwater Management Areas	Increase protection of groundwater from nonpoint source pollution by ensuring consistency between Ground Water Management Area Plans, Wellhead Protection Areas and state groundwater quality policies, guidance, and rules; verify accuracy of hydrologic susceptibility assessments; increase resolution of statewide groundwater vulnerability map.	1991 1992
Wellhead Protection Program with Washington Department of Health	Involve local community in development of wellhead protection program; provide link between local governments and individual facilities; maintain database of potential sources of nonpoint source pollution for outreach and technical assistance program.	1991
Chehalis River Basin TMDL study	Investigate fecal coliform contamination and dissolved oxygen depletion to establish TMDL for fecal coliform in Chehalis and Black Rivers. Funds support nonpoint source TMDL component.	1991 1992
Washington Conservation Corps Surface Water Action Team	Implement nonpoint source mitigation projects to curtail water degradation and increase public awareness of BMP benefits; SWAT team will be used to install on-the-ground projects that correct nonpoint sources of pollution.	1991 1992

TITLE	PROJECT DESCRIPTION	YEAR
Sub-Regional Mapping of Coast Range Ecosystem	Develop rapid bioassessment capability for tracking changes in water quality. Pilot project to produce sub-regional maps of Coast Range ecosystem (coordinated with Oregon).	1991
National Monitoring Project	Monitoring to determine effectiveness of BMP implementation, education, and enforcement carried out under a special state-funded implementation project in a defined watershed where shellfish production is a major beneficial use	1991
Water Quality Stewardship in Eastern Washington	Ground and surface water quality educational programs for the general public and agricultural community designed to instill a stewardship ethic that will support voluntary implementation of nonpoint source pollution prevention practices or nonpoint source pollution controls to reduce pollution.	1990 1992
Puget Sound: Accelerated Watershed Management Plan Implementation (4 projects)	Implement water quality elements of existing state-approved watershed management plans in this nationally significant estuary. Projects will stabilize and restore riparian zone habitat; establish a demonstration non-commercial farm; enhance and protect an existing wetland; and fund establishment of a local shellfish protection district.	1992
TFW Special Project (Pysht Fish Habitat Enhancement)	Demonstration project to re-establish anadromous fish habitat through placement of large woody debris, and develop natural sources of large woody debris from along the stream corridor for long-term habitat stability.	1992

For more information on §319 projects in Washington, contact Kahle Jennings, Washington Nonpoint Source Coordinator, (206) 438-7528

Oregon §319 Projects

TITLE	PROJECT DESCRIPTION	YEAR
Water Quality Coordinator, Oregon Department of Agriculture	Provide coordination for individual §319 project implementation; monitor and evaluate project achievement and identify program needs; implement agriculture-related activities for Tualatin TMDL Program.	1990 1991 1992
Malheur County Experiment Station BMP Research and Development (case study included in report)	Hire coordinator and provide funding for series of BMP development and demonstration projects; design alternative fertilizer and irrigation management experiments and demonstration projects. ⁴⁷	1990 1991 1992
Cull Onion Disposal BMPs	Demonstration, field evaluation, and monitoring of BMP effectiveness.	1990
Malheur SWCD Coordinator (part of Malheur case study included in report)	Coordinate local involvement in planned and ongoing water quality projects; assist local growers design farm management plans using BMPs in accordance with Northern Malheur County Groundwater Management Plan.	1990 1991 1992
Nonpoint Source Monitoring/Applying Rapid Bioassessment Protocols (case study included in report)	Collect useful information on beneficial use support levels; calibrate RBP to one or more ecoregions; develop monitoring strategy; begin to use RBP to assess nonpoint source-related impacts on beneficial uses in forested watersheds; update and verify 1988 statewide nonpoint source assessment; 1992 focus is project effectiveness monitoring and developing ecoregion reference site database for Coast Range.	1990 1991 1992
Efficiency of Nitrogen Recovery for Groundwater Protection (part of Malheur case study included in report)	Field experiments and demonstration of BMPs to protect groundwater in Malheur County; determine ability of sugar beets and small grains to recover subsoil nitrates and improve N fertilization efficiency; develop guidelines to utilize these crops to extract top and subsoil nitrates.	1990
Improved Farm Management Practices for Fertilizer and Irrigation Scheduling (part of Malheur case study included in report)	Develop BMPs to provide groundwater protection during onion cultivation in north Malheur County; complete field experiments to monitor nitrate levels.	1990

⁴⁷Research conducted through this position is related to other §319(h)-funded groundwater projects in Malheur County.

TITLE	PROJECT DESCRIPTION	YEAR
Malheur County/SCS BMP Field Monitoring and Farm Plan Evaluation	BMP application, monitoring, and demonstration; public education; hire SCS groundwater specialist.	1990
Governor's Watershed Enhancement Board (GWEB) projects	Grant funds various GWEB in-stream enhancement projects or statewide watershed condition assessments for areas identified in statewide nonpoint source assessment as having serious nonpoint source pollution problems.	1990 1991 1992
Stormwater Demonstration Pollution Reduction	Assist in construction of demonstration project to pretreat urban stormwater before it enters Fanno Creek, a Tualatin River tributary. Project utilizes constructed wetland and other BMPs that will be monitored for effectiveness.	1991 ⁴⁸
Oregon Forest Practices Rule Effectiveness Study, Phase 1	Investigate and measure how representative regulated forest harvest operations are changing the vegetative characteristics and associated stream pool depths of forest riparian areas across the state.	1991
Volunteer Coordinator for Nonpoint Source Program, Groundwater Section, DEQ	Hire a coordinator to organize and encourage volunteer efforts related to groundwater.	1991 1992
Sub-Region Maps	Develop rapid bioassessment capability for tracking changes in water quality. Pilot project to produce sub-regional maps of Coast Range ecosystem (coordinated with Washington).	1991
Coastal Zone Management Act Demonstration Project	Implementation of forestry BMPs in coastal basin forests.	1992
Soil Moisture and Fertility in Lower Umatilla Basin	Evaluate soil nitrate levels after fertilization and irrigation to develop strategies to improve nutrient utilization and reduce leaching.	1992
Irrigation Scheduling for Drip-Irrigated, Polyethylene-Mulched Vegetable Production	Develop BMPs vegetable crop production in arid environment to optimize water and fertilizer uptake; increase water use efficiency for irrigated crop production and reduce groundwater contamination from fertilizer leaching.	1992
Lane County Groundwater Monitoring	Develop and demonstrate cost-effective method to address public concern regarding groundwater contamination from agricultural sources.	1992

⁴⁸This project was never initiated. Funds will be redirected.

TITLE	PROJECT DESCRIPTION	YEAR
National Watershed Monitoring Program in Grande Ronde Basin	Intensive monitoring work that is part of long-term watershed monitoring program to assess biological communities and physical and chemical factors that affect them; determine reaction of fish and macroinvertebrate communities to habitat restoration work and new management practices.	1992
Grande Ronde Watershed Implementation	Implement BMPs to protect water quality in areas monitored by the National Monitoring project.	1992
Nonpoint Source Implementation and Monitoring Network Coordinator	Establish coordinated statewide network to assess aquatic resource conditions, identify and locate causes of nonpoint source problems, organize public/private efforts to control nonpoint source problems and rehabilitate aquatic resources.	1992
Compost Filtration of Surface Runoff	Construct four leaf compost filtration facilities to reduce pollutants in surface water runoff from industrial, agricultural, and suburban sources; analyze effectiveness of this technique.	1992
Small Farm Animal Waste Handling	Inventory small non-commercial animal enterprises along selected creeks; identify waste handling procedures; calculate potential nonpoint source loads; identify elements of practical and affordable system of waste handling.	1992
Soil Bioengineering Workbook and Workshop	Produce workbook and provide training in basic soil bioengineering techniques for land managers in Oregon.	1992
HUA Effectiveness Monitoring	First year of multi-year project to collect and evaluate water quality data in small sub-area of Dairy-McKay Hydrologic Unit Area (HUA) in Tualatin Basin.	1992

For more information about §319 projects in Oregon, contact Roger Wood, Oregon Nonpoint Source Coordinator, (503) 229-6893.

Idaho §319 Projects

TITLE	PROJECT DESCRIPTION	YEAR
Program Management/Implementation	Implement nonpoint source controls with land management agencies and private landowners; bring federal lands into compliance with state nonpoint source management program (federal facility compliance (§313) and federal consistency (§319)); develop and institutionalize watershed priorities; provide administrative support for technical staff implementing §319 work programs.	1990 1991 1992
Nonpoint Source Monitoring and Evaluation	Nonpoint source pollution monitoring and program evaluation. Implementation of feedback loop for water quality standards and nonpoint source controls; implement nonpoint source coordinated monitoring program on selected Stream Segments of Concern through interagency participation.	1990 1991 1992
Groundwater Vulnerability Mapping (case study included in report)	Assess and map relative vulnerability to contamination of Idaho's high priority aquifers; extend regional mapping; begin pilot project vulnerability mapping for land use/contaminant loading potential layer.	1990 1991
Agricultural Program Management and Enhancement	Implement revised Agricultural Pollution Abatement Plan focused on high priority agricultural pollution sources including grazing practices on federal lands; update, revise, and develop BMPs for agriculture; coordinate watershed approach to management; incorporate monitoring and evaluation into agricultural watershed projects to implement nonpoint source feedback loop.	1990 1991 ⁴⁹
Agricultural Chemicals in Groundwater	Develop statewide management strategy for prevention of groundwater contamination by agricultural chemicals.	1990 1991 1992
Confined Animal Feeding Operations (CAFO)	Improve design and monitoring of CAFO facilities to reduce cumulative impacts on groundwater.	1990 1991

⁴⁹This project was state-funded. Section 319 funds were redistributed to other §319 projects.

TITLE	PROJECT DESCRIPTION	YEAR
Riparian Area Nonpoint Source Controls	Accelerate acceptance and application of effective and practical livestock grazing management systems for riparian areas in state agriculture water quality program; demonstrate effectiveness of new and emerging technologies in riparian area management; select and monitor two demonstration areas.	1990 1991
Road Inventory and Stabilization	Identify poorly located and unstable forest roads in stream corridors and establish priorities for relocation.	1990 ⁵⁰
Big Sand Creek Demonstration Project	High profile forest road restoration pilot project using paired watershed approach for streams severely impaired by forest haul roads.	1991 ⁵¹
Forest Land Soil Erosion Hazard and Stream Mapping	Compile soils information and develop useable maps locating Class I streams and high erosion hazard soils on state and private lands.	1990
Mining - BMP Technology Transfer and Evaluation	Educate and inform industry and other agencies on BMPs for controlling sediment and runoff from mining operations; track compliance and effectiveness of BMPs.	1990 1991
Local Working Committee Workshops	Familiarize participants with basics of water quality and fishery protection.	1990
Environmental Education (Project WET) (case study included in report)	Facilitate and promote awareness, appreciation and knowledge of Idaho's water resources through development of classroom teaching aids.	1990
Adopt-A-Stream	Provide cost-share funds to local entities for water quality restoration, enhancement, and volunteer monitoring programs.	1990
Coordinated Resource Management (CRM)	Apply CRM process on selected high priority streams to assist in application of nonpoint source controls.	1990 ⁵²

⁵⁰This project was never initiated. Funds were redirected to other §319 projects.

⁵¹This project was never initiated. Funds were redirected to other §319 projects.

⁵²This project was never initiated. Funds were redirected to other §319 projects.

TITLE	PROJECT DESCRIPTION	YEAR
Groundwater Monitoring - Minidoka and Cassia Counties	Collect pesticide and nitrate data to characterize groundwater and verify vulnerability maps.	1990 1991 1992
Nonpoint Source Metals Contamination of Surface Waters in Coeur D'Alene Basin	Develop comprehensive database from existing records to provide locations of mine and smelting spoils, mine drainage sites, and determine water quality of Coeur d'Alene basin.	1991 1992
Forest Audit	Interdisciplinary teams conduct onsite evaluations of randomly selected forest practices to determine if land management agencies are using BMPs, and if designated BMPs provide adequate water quality protection.	1991
Forestry Practices	Revise Forest Practices Water Quality Management Plan; develop and coordinate statewide training program for forest practice operators.	1991
Geotechnical Training and Forest Development Design Assistance	Provide training and technical assistance to state foresters and private timber landowners; develop geotechnical handbook of engineering principles for road construction.	1992

For more information on §319 projects in Idaho, contact Donna Rodman, Idaho Nonpoint Source Coordinator, (208) 334-5860.

Alaska §319 Projects

TITLE	PROJECT DESCRIPTION	YEAR
Alaska Water Watch (case study included in report)	Implementation of statewide, interagency water quality stewardship program; maintain and improve water quality through citizen stewardship of surface water and groundwater systems; focus on water quality monitoring, pollution prevention, and water quality restoration activities with volunteer network of citizen "stewards;" provide pass-through grants for water quality restoration.	1990 ⁵³ 1991 1992
Nonpoint Source Pollution Control Position in Northern Regional Office	Implement Alaska's nonpoint source pollution strategy in interior Alaska and the North Slope; conduct review and inspections of forest practices; provide technical assistance and education; respond to nonpoint source pollution complaints.	1991 1992
Forest Practices Training Workshops on Forest Practices Act	Conduct a series of workshops for Alaska's resource agencies (ADEC, Department of Fish and Game, and Department of Natural Resources) to provide training for agency staff on requirements of 1990 Forest Resources and Practices Act.	1991
Operator Education Workshops and BMP Handbooks	Conduct a series of workshops for timber operators and the public to explain Forest Resources and Practices Act; develop BMP handbooks and regulation handbook for field staff and timber operators.	1991
Effectiveness of state BMPs in meeting water quality standards	Evaluate effectiveness of state BMPs in meeting state water quality standards; determine if BMPs are being implemented and if they adequately protect water quality.	1991
BMP Implementation Monitoring on Tongass National Forest (case study included in report)	Develop BMP implementation program for Tongass National Forest; provide technical direction to Forest Service to monitor implementation and effectiveness of timber harvest and road construction BMPs.	1991 1992

⁵³In fiscal year 1990, the project was funded as part of Alaska's §205(j)(5) grant.

TITLE	PROJECT DESCRIPTION	YEAR
Protection of Drinking Water Supplies	Develop wellhead protection areas to protect public drinking water supplies; provide grants to municipalities to identify diffuse sources near public drinking water aquifers; develop local groundwater protection ordinances.	1991
Statewide Nonpoint Source Public Outreach and Information Program	Develop and implement a statewide nonpoint source public outreach and information program integrating surface water and groundwater protection.	1991
Oil and Gas Development Project	Develop a consistent set of design and installation standards for cross drainage structures for fish stream crossings on the North Slope.	1991
Pass-Through Grants for Improved Stormwater Control	Provide local water quality grants for improved stormwater control to sustain statewide community grant program.	1991
Water Quality Monitoring of Eyak Lake in Cordova	Monitor and assess water quality in Eyak Lake in Cordova.	1991
Water Quality Monitoring of Selected Placer Mining Streams	Provide initial quantification of effects on turbidity for selected drainage system to confirm whether current mining practices attain water quality standards for turbidity; develop automated, continuous data collection for reliable, long-term water quality monitoring.	1991
Water Quality Monitoring in Delta-Clearwater Watershed	Evaluate effects of pesticide runoff and domestic sewage disposal in Delta-Clearwater River.	1991
Nonpoint Source Pollution Control Coordinator/Program Manager	ADEC staff member to fully implement Alaska's nonpoint source pollution control program and §319 projects; supervise Alaska Water Watch coordinator and Forest Practices coordinator	1992
Best Management Practices Implementation and Effectiveness Monitoring on Chugach National Forest	Initial cooperative venture with Forest Service to implement Chugach portion of Alaska Regional Water Quality Management Plan	1992

TITLE	PROJECT DESCRIPTION	YEAR
Alaska Aquifer Vulnerability Mapping Program	Begin process of statewide aquifer vulnerability mapping using interagency work group	1992
ADEC Pollution Prevention Program	Institutionalize pollution prevention tasks into work plans; expand traditional approaches to nonpoint source control	1992
Abandoned Placer Mine Site Reclamation	Reclamation of abandoned placer mine site and development of water quality and hydrologic monitoring	1992
Development of Systems for Composting Dog Waste in Interior Alaska	Develop systems for processing animal waste on-site to produce organize fertilizer and soil amendment	1992
Restoration of Water Quality and Fish Habitat in Timber Harvest-Impaired Streams in Southeast Alaska	Cooperative interagency project to conduct long-term, watershed-level evaluation of effectiveness of methods to restore water quality and anadromous fish habitat in streams impaired by timber harvest activities	1992
BMP Effectiveness Monitoring in Lake Florence Watershed, Admiralty Island	Monitor effects of forest harvest activities on stream water quality and downstream beneficial uses within the Lake Florence watershed in order to validate efficacy of Alaska's forest practices BMPs	1992
Validation of Rapid Bioassessment Techniques on Prince of Wales Island	Evaluate EPA Rapid Bioassessment Protocols for use as screening procedures to identify stream impairment and requirement for further and more rigorous investigation into degree and sources of impact.	1992

For more information on §319 projects in Alaska, contact Drew Grant, Alaska Nonpoint Source Coordinator, (907) 465-5304.