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Division of
Environmental Quality

SOCL
Idaho Nonpoint Source Management

Idaho Nonpoint Source Management Program 1989



Idaho
Department of Health and Welfare

**Idaho
Nonpoint Source Management Program
1989**

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The Nonpoint Source Management Control Plan was completed by a coordinated effort of representatives of numerous organizations. These individuals worked on the Technical Advisory Committee and on one or more of five subcommittees. Special thanks is given to these individuals for their valuable contribution to the Plan. The committee and subcommittee list and organization are shown in Appendix D.

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TABLE OF CONTENTS

INTRODUCTION.....	1
Clean Water Act	1
State Nonpoint Source Program Objectives	1
Water Quality Assessment	2
State Nonpoint Source Management Program Plan	5
Agency Authority	7
STATE NONPOINT SOURCE PROGRAM AND SCHEDULE.....	8
Identification of BMP's	8
Program for BMP Implementation	10
Nonpoint Source Program Implementation and Schedule	12
Sources of Federal and Other Assistance and Funding	19
Federal Consistency	21
Development on a Watershed-By-Watershed Basis	28
Setting Priority of Program Components	31
Program Evaluation and Revision	32
NONPOINT SOURCE MONITORING PROGRAM NEEDS.....	34
Current Department of Health and Welfare Program	34
Purpose and Need for Statewide Monitoring Program	35
Specific Actions to Improve Monitoring	36
Data Management	37
Update of 319 Assessment	39
AGRICULTURE.....	42
Industry Description	42
Process for Development and Update of Best Management Practices	43
Existing Programs and Authorities	45
Evaluation of the State Agricultural Pollution Abatement Plan	53
Program Evaluation	56
FOREST PRACTICES.....	69
Industry Description	69
Best Management Practices and Revision Process	70
Existing Programs, Authorities and Resources	71
Opportunities for Program Improvement	76
MINING.....	82
Introduction	82
Existing Programs and Authorities	83
Best Management Practices	88
Opportunities for Program Improvements	90
Program Evaluation	97
HYDROLOGIC/HABITAT MODIFICATION.....	102
Hydrologic/Habitat Modification Description	102
Existing Programs and Authorities	102

TABLE OF CONTENTS

(Continued)

HYDROLOGIC/HABITAT MODIFICATION	102
Review of Existing Authorities	109
Categories of Nonpoint Source Pollution	111
Hydrologic/Habitat Modification Program Needs	113
GROUNDWATER.....	117
Introduction	117
Agriculture	120
Septic Systems	122
Urban Runoff	124
Industrial Chemicals	125
General Groundwater Projects	127
URBAN RUNOFF.....	130
Program Description	130
Program Needs and Recommendations	131
Funding Sources	135
Urban Runoff Bibliography	135
APPENDIX A	
NONPOINT SOURCE PROGRAM WORKPLANS.....	137
Surface Water Nonpoint Source Actions	138
Agriculture	139
Forest Practices	144
Mining	154
Hydrologic Modification	159
Groundwater	163
APPENDIX B	
TABLES FOR HYDROLOGIC/HABITAT MODIFICATION SECTION.....	172
APPENDIX C	
LIST OF NONPOINT SOURCE CATEGORIES.....	176
APPENDIX D	
TECHNICAL ADVISORY COMMITTEE MEMBERS.....	178
APPENDIX E	
LIST OF IMPAIRED WATERS.....	185
APPENDIX F	
CERTIFICATION BY ATTORNEY GENERAL.....	197

LIST OF TABLES AND FIGURES

LIST OF TABLES:

Table 1.	Agencies and Programs Addressing Agriculture Water Quality Impacts.....	46
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LIST OF FIGURES:

Figure 1.	Feedback Loop Process for Nonpoint Source Control.....	10
Figure 2.	Agricultural Land Use Comparison - Non-Federal Land Use.....	42
Figure 3.	Geographic Distribution of Forest Practices in Idaho.....	69
Figure 4.	BMP Mining Feedback Loop.....	84
Figure 5.	Contamination Potential Rating of Idaho's Major Aquifers.....	118
Figure 6.	Groundwater Vulnerability Ratings.....	129

LIST OF ABBREVIATIONS

ACP -Agriculture Conservation Program	IDFG -Idaho Department of Fish & Game
ARS -Agriculture Research Service	IDHW -Idaho Department of Health & Welfare
ASCS -Agriculture Stabilization and Conservation Service	IDL -Idaho Department of Lands
BIA -Bureau of Indian Affairs	IDWR -Idaho Department of Water Resources
BLM -Bureau of Land Management	IFOA -Idaho Forest Owners Association
BMP -Best Management Practices	ITD -Idaho Transportation Department
BOR -Bureau of Reclamation	NEPA -National Environmental Policy Act
CERCLA-Comprehensive Environmental Response Compensation & Recovery Act	NPDES -National Pollutant Discharge Elimination System
CES -Cooperative Extension Service	NPS -Nonpoint Source
CRP -Conservation Reserve Program	ORW -Outstanding Resource Water
DEQ -Division of Environmental Quality	PURPA -Public Utility Regulatory Policies Act
DOT -Department of Transportation (Federal)	RCRA -Resource Conservation Recovery Act
EPA -Environmental Protection Agency	RCWP -Rural Clean Water Project
FERC -Federal Energy Regulatory Commission	SARA -Superfund Amendment Reauthorization Act
FmHA -Farmers Home Administration	SCAA -Stream Channel Alteration Act
FOTG -Field Office Technical Guide	SCC -Soil Conservation Commission
FPA -Forest Practices Act	SCS -Soil Conservation Service
FS -Forest Service	TAC -Technical Advisory Committee
FTE -Full Time Employee	TEP -Tradeoff Evaluation Process
FY -Fiscal Year	TOC -Total Organic Carbon
GAO -Government Accounting Office	TOX -Total Organic Halogens
GIS -Geographic Information System	UIC -Underground Injection Control
IASCD -Idaho Association of Soil Conservation Districts	USGS -United State Geological Service
IDA -Idaho Department of Agriculture	

INTRODUCTION

I. Clean Water Act

The Water Quality Act of 1987 states: "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."

Section 319 of the Water Quality Act of 1987 (Clean Water Act) established a renewed emphasis on control of nonpoint source pollution. This section of the Act requires the states to prepare a Nonpoint Source Assessment Report and a Nonpoint Source Management Program. Significant federal financial assistance has been authorized by the Act, but has not been appropriated. The assessment has been completed for Idaho and provides the foundation for the management program.

II. State Nonpoint Source Program Objectives

The State's goal is to develop and implement effective nonpoint source control strategies to protect existing beneficial uses, restore impacted waters to the extent practicable, and maintain high quality waters. The approach to accomplish this goal is to build on existing programs and authorities, identify program needs, and list opportunities for federal financial assistance. Specific objectives for the four year period, July 1989 through July 1993, to meet this goal are:

A. Complete development of a coordinated nonpoint source monitoring program and data base support system.

B. Develop Best Management Practices (BMPs) for nonpoint source (NPS) categories not currently listed as approved in the Water Quality Standards.

C. Evaluate Best Management Practices to determine whether adequate consideration is given to groundwater quality protection.

D. Institute improvements to existing non-regulatory and regulatory programs to achieve adequate implementation of the nonpoint source pollution management feedback loop.

E. Assure federal agencies are implementing the nonpoint source pollution management feedback loop in a manner consistent with the 319 Nonpoint Source Management Program.

F. Identify high priority watersheds and implement nonpoint source controls in these areas to achieve water quality improvement.

G. Determine priority aquifers and portions of aquifers which are particularly vulnerable to contamination from nonpoint source activities.

H. Establish appropriate numerical water quality criteria and monitoring protocols for biological parameters, sediment, and nutrients to objectively evaluate the effectiveness of nonpoint source BMPs in protecting existing beneficial uses.

I. Evaluate the importance of nonpoint source activities as potential sources of contaminants to Idaho's groundwater.

III. Water Quality Assessment

The Idaho Water Quality Status Report and Nonpoint Source Assessment (Jan. 1989) presents information about nonpoint source impacts on surface and groundwater in Idaho. This information is based largely on professional judgement of natural resource workers. Monitored data was limited to less than 20% of the waters assessed. The results of the assessment have been condensed into an Executive Summary that is available from the Department of Health and Welfare.

The Management Program is based on the nonpoint source impacts identified in the assessment. To develop an effective management program, common nonpoint source activities were grouped into management categories; agriculture, forest practices, mining, hydrologic modification, and groundwater. Hydrologic modification includes channelization, dredging, dam construction, flow regulation, bridge construction, removal of riparian vegetation, and streambank destabilization. The groundwater section highlights the unique problems of pollutant identification, aquifer vulnerability, and source control associated with groundwater protection.

The definition of nonpoint source pollution used in the assessment and in this management program is listed below:

Nonpoint source pollution is caused by diffuse sources that are not regulated as point sources and normally is associated with agricultural, silvicultural and urban runoff, and runoff from construction activities, etc. Such pollution results in the human-made or human-induced alteration of the chemical, physical, biological, and radiological integrity of water. In practical terms, nonpoint source pollution does not result from a discharge at a specific, single location (such as a single pipe) but generally results from land runoff, precipitation, atmospheric deposition, or percolation. Pollution from nonpoint sources occur when the rate at which pollutant materials entering waterbodies or ground water exceeds natural levels (EPA, 1987. Nonpoint Source Guidance).

Nonpoint source categories for surface and groundwater that meet this definition were displayed in the assessment report. The application of this definition to surface water sources is generally understood and accepted among agencies and industry.

For groundwater a precise distinction between whether an activity is a point or nonpoint source is not always possible. Based on modifications to the definition above, the following concepts were used for groundwater in this report. Nonpoint sources are numerous, dispersed, and usually individually insignificant in generating groundwater contaminants. Nonpoint source impacts occur when the cumulative impact of these land uses located in high density situations exceed the ability of the soil to absorb and retain contaminants. In some cases, therefore, point sources may also be considered as nonpoint sources.

A. Surface Waters

Approximately 50% of Idaho's streams, 16,000 stream miles, were assessed for nonpoint source impacts. This includes all the major rivers and most of the perennial streams. Nonpoint source activities cause most of the impacts recorded for Idaho waters; 57% of the total assessed, compared to 7% for point sources. About one-half of the streams assessed were reported as only partially supporting or not supporting a beneficial use of water. The other half of the

streams were reported as fully supporting the beneficial uses or the status is unknown.

Agriculture was reported as the primary nonpoint source activity impacting beneficial uses in Idaho streams and lakes. Overgrazing, irrigated agriculture, and non-irrigated agriculture impact approximately 50% of the assessed waters. The second highest reported impact is in the category of hydrologic modification (30%). Hydrologic/habitat modification was reported primarily in conjunction with other nonpoint source activities including overgrazing, road building, and stream channel alteration. Other significant nonpoint source activities reported were forest practices, mining, and construction. The distribution of the different types of activities varies by regions of the state. Agricultural activities affect more streams in the central and southern regions, while forest practice impacts are more important in the northern region.

B. Groundwater

Idaho ranks in the top five states in the United States for volume of groundwater used. The greatest quantity used is for irrigation, although over 90% of Idaho's drinking water comes from its aquifers. Idaho's principal aquifers have been mapped, geology characterized, and ranked according to vulnerability or sensitivity to contamination. The Boise Valley, Snake Plain, and Rathdrum Prairie ranked highest in terms of vulnerability.

The quality of most groundwater in Idaho is good. Most groundwater is suitable for drinking, agricultural, and industrial uses. Naturally occurring contaminants such as dissolved solids, fluoride, and hardness restrict water use in some areas. Contamination from both point and nonpoint sources has occurred in localized areas.

The extent of impacts from nonpoint sources on groundwater is poorly understood in Idaho. Monitoring data are inadequate to determine the relative importance of nonpoint sources versus point source impacts or to identify and assess the importance of individual nonpoint sources. From the large variety of potential

contaminant sources, agriculture, septic systems, and urban runoff were individually reviewed in the assessment for their impact on groundwater. Where discernable, impacts were generally localized and not regional.

IV. State Nonpoint Source Management Program Plan

The State Program Plan is organized according to requirements of Section 319 of the 1987 Clean water Act which are listed below.

A. Specific Action Items of the Management Program Based on the Clean Water Act

The following actions are based on the language and provisions of the Clean Water Act. Copies of the language of the Act can be obtained from the Idaho Department of Health and Welfare.

1. Identification of the best management practices: measures which will be undertaken to reduce pollutant loadings resulting from each category, subcategory, or particular nonpoint source identified in the assessment taking into account the impact of the practice on ground water quality.

2. Identification of existing programs: including, as appropriate, nonregulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects to achieve implementation of the best management practices.

3. Develop a schedule containing annual milestones: specify time frames for completion of tasks associated with assessing program implementation methods, and utilization of the best management practices identified by nonpoint source categories.

4. Certification by the state attorney general: Determination by the state attorney general that the laws of the State provide adequate authority to implement the management program or, if there is not adequate authority, a list of additional authorities needed to implement the management program. The State commits to seek such additional authorities as expeditiously as practicable.

5. Identify sources of federal and other assistance: funding other than assistance provided under subsections of the Clean Water

Act which will be available in each fiscal year of the plan, 1990 through 1993, for supporting implementation of identified practices and measures. The purpose for the use of the assistance will be stated by fiscal year.

6. An identification of Federal programs for consistency review: The State will review Federal financial assistance programs and Federal development projects for their effect on water quality pursuant to the procedures set forth in Executive Order 12372 as in effect on September 17, 1983, to determine consistency with the management program. Identification may include any programs listed in the most recent Catalog of Federal Domestic Assistance which may have an effect on the objectives of the State's nonpoint source pollution management program. This identification is at the discretion of the State.

B. Utilization of Local and Private Experts

In developing and implementing a management program a State is to involve local public and private agencies and organizations which have expertise in control of nonpoint sources of pollution. A Technical Advisory Committee (TAC) was formed to develop the management program. The TAC for the overall assessment was subdivided into subcommittees based on specific NPS categories. Additional members representing federal and state natural resource agencies, citizen groups, and industry were recruited to help develop subsections of the report. Members of the TAC and subcommittees are shown in Appendix D. The following subcommittees were established by the TAC:

- Agriculture Subcommittee (and Working Groups)
 - Grazing
 - Irrigated
 - Non-irrigated
- Forest Practices Subcommittee
- Mining Subcommittee
- Hydrologic Modification Subcommittee
- Groundwater Subcommittee (and Working Groups)
 - Septic Systems
 - Agriculture
 - Urban Runoff
 - Industrial Chemicals

Interested publics have been fully involved in development of the management program through participation on the TAC and subcommittees. The management program was released for public review and comment, and changes were made to the program based on comments received.

C. *Development On Watershed-by-Watershed Basis*

A State shall, to the maximum extent practicable, develop and implement a management program under this subsection on a watershed-by-watershed basis within such State.

V. Agency Authority

Idaho Department of Health and Welfare - Division of Environmental Quality (IDHW) is the statewide designated management agency for implementation of Section 319. The Department's authority for the program is from the Environmental Protection and Health Act (Idaho Code, Title 39, Section 1). Other agencies have been identified as designated water quality management agencies for specific nonpoint sources as described in subsequent sections. The U. S. Environmental Protection Agency (EPA) has authority to review and approve or disapprove the state's nonpoint source assessment and management program.

STATE NONPOINT SOURCE PROGRAM AND SCHEDULE

I. Identification of BMP's

Definition of Best Management Practice

The State's current legal definition of best management practice listed below is taken from the Idaho Water Quality Standards:

Best Management Practice. A practice or combination of practices determined by the Department to be the most effective and practicable means of preventing or reducing the amount of pollution generated by nonpoint sources (IDHW, 1985. Idaho Water Quality Standards).

However, the definition does not provide guidance regarding its utilization for evaluating or implementing BMPs for nonpoint source activities. For example, in the current agricultural program, BMPs are designed using a systems approach to develop a site-specific farm conservation plan. This provides the farmer/operator with an overall management program, including crop rotation and tillage practices, to achieve the water quality objective. Also, the definition should include the concept of reducing nonpoint source pollution to a level compatible with water quality goals while balancing technical, social, and economic aspects. These additional criteria will be considered as part of the triennial revisions to the Water Quality Standards.

List and Status of Best Management Practices

A summary of the BMPs identified, their location, and status is listed below. More detailed information is found in the subject section of this report. The status column notes whether these practices are currently listed in the state water quality standards.

CATEGORY	RESPONSIBILITY	STATUS
AGRICULTURE	IDHW/SCC	- in Ag. Pollution Abatement Plan. - not in Idaho Water Quality Standards.
FOREST PRACTICES	IDHW/IDL	- in Forest Practices Act, Rules and Regulations. - in Idaho Water Quality Standards.

CATEGORY	RESPONSIBILITY	STATUS
CONSTRUCTION		
Roads	IDHW	- in IDHW report: BMPs for Road Activities (1982). - not in Idaho Water Quality Standards.
Land Development	IDHW	- No statewide BMPs identified.
URBAN RUNOFF	IDHW	- No statewide BMPs identified. - Some local city and county planning and zoning ordinances address sediment control.
MINING	IDL/IDHW	
	IDL	- in Surface Mining Act, Rules and Regulations
	IDL	- in Dredge Mining Act, Rules and Regulations not in Idaho Water Quality Standards.
	DHW	- Rules and Regulations for Ore Processing by Cyanidation.
	IDL	- general handbook of mining BMPs currently in preliminary stage of development.
LAND DISPOSAL	DHW	- Land disposal is subject to regulatory controls as listed below. Regulations are periodically revised as necessary.
Sludge		- Idaho Water Quality Standards require an approved sludge disposal plan. - sludge disposal is currently addressed under NPDES permit program.
Wastewater/ Industrial Land Treatment		- Land application of wastewater is covered by Waste Water Land Application Permit Regulations (1988) and Guidelines for Land Application of Municipal and Industrial Wastewater (1988).
Landfills		- Landfills are regulated by the Rules Governing Solid Waste Management. - in the Idaho Water Quality Standards.
On-site Wastewater Systems		- Septic systems are regulated by the Rules Governing Subsurface and Individual Sewage Disposal Systems. - in Idaho Water Quality Standards.
HYDROLOGIC/ HABITAT MODIFICATION	DWR	- Stream Channel Alteration Rules and Regulations and Minimum Standards implementing the Stream Channel Protection Act (1971). - in Idaho Water Quality Standards.

II. Programs for BMP Implementation

A. *Regulatory Programs*

1. *State Water Quality Standards*

The Idaho Water Quality Standards and Wastewater Treatment Requirements were revised substantially in March 1987 to address nonpoint source activities based on the feedback loop concept. The

feedback loop (Figure 1) describes a process of nonpoint source pollution management based on implementation of best management practices (BMPs). BMPs are identified through a planning process and applied by land managers for site-specific conditions. The effectiveness of the BMPs in protecting water quality is evaluated through instream water quality monitoring. The data is then evaluated against instream criteria developed to protect the existing beneficial uses of that water.

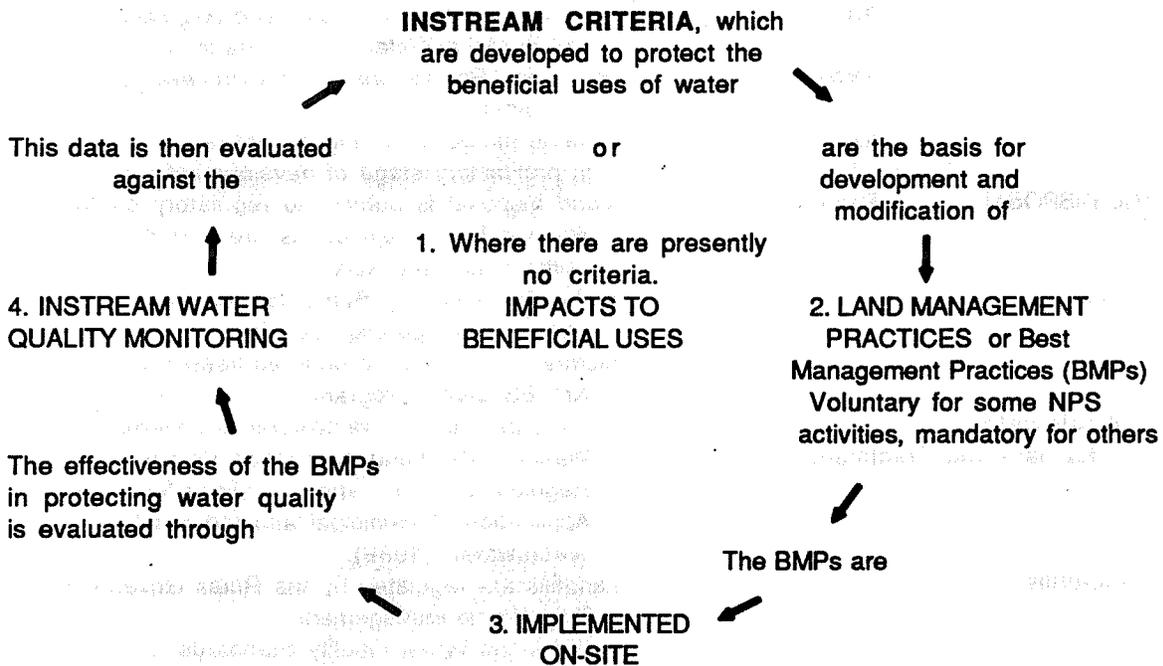


Figure 1: The feedback loop process for nonpoint source pollution management.

Highlights outlining the Water Quality Standards for nonpoint source activities are listed below (See the full text of the standards for the actual language):

2050,06. Policy on feedback loop process for nonpoint pollution management.

2200,07. Narrative water quality criteria for sediment.

2300,04. Limitations to nonpoint source restrictions.

a. Nonpoint source activities are not subject to legal action if approved BMPs or their equivalent are used. Injunctive relief is provided in case of imminent and substantial danger.

- b. When beneficial uses are impaired:
 - i. and BMPs are not used IDHW can take enforcement action.
 - ii. and BMPs are used -
 - a) for approved BMPs IDHW may request modification of BMPs.
 - b) where approved BMPs do not apply, IDHW recommends measures to the operator or land management agency.
 - c) if BMPs are not modified, or recommended measures are not followed, IDHW may take enforcement action.
- c. Review of proposed nonpoint source activities. Basis for review is compliance with BMPs, a monitoring plan, and a process for modification of BMPs.
- d. Revision of proposed activities which do not comply with section c. above.

2. Antidegradation Policy

States are required to have an antidegradation policy by regulations of the Clean Water Act; the intent of the policy is to maintain the high quality of State waters where it currently exists and restore degraded waters. An agreement in principle to implement the antidegradation policy for Idaho was completed in August, 1988 by individuals representing resource industries, conservation and sportsmen groups, and Indian Tribes. The antidegradation agreement sets forth a program dealing with the implementation of BMPs for timber, mining, and agriculture. Idaho Executive Order 88-23, dated November 14, 1988, adopts the antidegradation agreement and directs its implementation by relevant state agencies. Enabling legislation for the antidegradation policy was passed by the 1989 Idaho Legislature.

The policy provides for public participation in each hydrologic basin through Basin Area Meetings to be facilitated by IDHW. The meetings identify Stream Segments of Concern that will focus available state resources in those areas of highest public interest. The Policy places emphasis on the need for better monitoring programs to evaluate the quality of streams and the effectiveness of existing nonpoint source BMPs. A coordinated nonpoint source monitoring plan is under development by a technical advisory committee. Coordination of monitoring programs will occur through formation of an oversight committee. The Policy identifies specific actions for improvement of BMP application in the mining, agriculture, and timber industries.

3. Other Regulatory Programs

- a. Stream Channel Protection Act, 1971
(See Hydrologic/Habitat Modification section for details.)
- b. Idaho Forest Practices Act, 1974
(See Forest Practices section for details.)
- c. Rules Governing Sub-surface and Individual Sewage Disposal System, 1980 (See Groundwater section for details)
- d. Idaho Surface Mining Act (See Mining section for details)
- e. Dredge and Placer Mining Act (See Mining section for details)

III. Nonpoint Source Program Implementation Schedule

The schedule below summarizes the state's nonpoint source control program. Details of this program are described in the following sections of the report and in Appendix A. The schedule is divided into two sections for each category - Planned Actions With Current Funding and Program Needs. Planned actions are based on expectations of maintaining current or approved funding levels. Program Needs are activities which require additional funding beyond current levels and are shown to display needs under Section 319 of the Clean Water Act. The state will pursue these program actions as resources allow. This schedule does not include federal programs except for grants made to the state for water pollution control.

Level of effort is shown in budgeted amounts or number of Full Time Employees (FTE) required to carry out the task. An FTE costs the state approximately \$40,000 for salary, benefits, overhead, etc. Note that planned actions with current funding are shown as annual amounts, and program needs are displayed as four year totals.

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
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A. SURFACE WATER NONPOINT SOURCE ACTIONS

Planned Actions With Current Funding

- Develop coordinated monitoring program for high priority watersheds. IDHW Annual 1 FTE
- Institute on-site BMP effectiveness reviews. IDHW Annual 1 FTE
IDL Annual 1 FTE
DOT Annual 0.5 FTE
- Develop a computer based data management system. IDHW Annual 0.5 FTE
- Update the NPS Information Base IDHW Annual 0.5 FTE
- Conduct adequacy reviews of existing NPS programs. IDHW/IDL Annual 0.5 FTE/agency
IDWR/IDFG
SCC

Program Needs

- Develop sediment data base IDHW/IDFG Year 1-4 \$ 40,000
 - Sediment criteria and monitoring research needs. IDHW Year 1-4 \$ 200,000
- ADDITIONAL SURFACE WATER BUDGET NEEDS \$ 240,000**
-

B. GROUNDWATER NONPOINT SOURCE ACTIONS

Planned Actions With Current Funding

- Site specific groundwater monitoring (1-2 limited studies per year). IDHW/USGS Annual \$15-25,000/yr.
- Groundwater vulnerability mapping. IDHW/USGS Annual \$ 80,000/yr.
IDWR/SCS

Program Needs

- Comprehensive groundwater monitoring network and associated data base. IDHW/IDWR Year 1-4 \$2,400,000
USGS
- Groundwater vulnerability mapping/geographic information systems IDHW/IDWR Year 1-4 \$ 400,000
USGS/SCS

ADDITIONAL GROUNDWATER BUDGET NEEDS \$2,800,000

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
C.AGRICULTURAL WATER QUALITY PROGRAM			
<u>Planned Actions With Current Funding</u>			
- Continue implementation of the <u>State Agricultural Abatement Plan</u>	SCC/SCD/IDHW	Annually	3 FTEs
- Implement the State Agricultural Cost-Share Program	IDHW/SCC/SCD	Annually	3 FTEs
- Revise and update the State Agricultural Pollution Abatement Plan to address concerns identified through the 319 process and the State Anti-degradation Policy	SCC/IDHW/SCD	1990	2 FTEs
- Revise and update the Agricultural Water Quality Cost-Share Program rules and regulations to reflect changes in the Ag Plan	IDHW/SCC/SCD	1990	1 FTE
<u>Program Needs</u>			
1. Post implementation monitoring on three non-irrigated projects:	IDHW/SCC		
- Hangman Creek Watershed		Year 1-4	\$500,000
- Lapwai Creek Watershed		Year 1-4	\$500,000
- Willow Creek Watershed		Year 1-4	\$500,000
2. Post implementation monitoring on one irrigated project:	IDHW/SCC		
- Conway Gulch		Year 1-4	\$1,000,000
3. Re-direct State Agricultural Cost-Share Program to address riparian concerns: Implement Rock Creek Riparian Planning Project		Year 1	\$20,000
4. I & E Program on potential Agricultural impacts on surface and groundwater	SCC/IDHW/IDA/U of I/SCD	Year 1-2	\$200,000
5. I & E Program on livestock impacts on riparian areas, and alternative mgt. systems	SCC/BLM/FS/SCS/IDL	Year 1-2	\$200,000
6. Planning on selected priority watersheds that are contributing to surface and/or groundwater quality problems	SCC/IDHW	Year 1-2	\$1,200,000 (8 projects at \$150,000 per project)
7. Implement Rock Creek Riparian Plan	DEQ/SCC/SCD	Year 2-4	\$200,000
ADDITIONAL AGRICULTURAL BUDGET NEEDS			\$4,200,000

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
D. FOREST PRACTICES			
<u>Planned Actions With Current Funding</u>			
- Implement Forest Practices Water Quality Management Plan	IDHW/IDL	Annual	4 FTEs/11 FTEs
- Evaluate BMP effectiveness through water quality studies, field reviews, and comment on NEPA documents. (IDHW)			
- Continue development of monitoring methods. (IDHW)			
- Coordinate with designated management agencies, EPA, and Forest Practices Advisory Committee. (IDHW)			
- Administer Forest Practices Act including inspection and enforcement of rules and regulations. (IDL)			
- Provide training and education to operators. (IDL)			
- Make recommended changes to the FPA Rules. (IDL)			
- Conduct internal audits on state forests. (IDL)			
- Evaluate cumulative effects of forest practices. (IDL)			
<u>Program Needs</u>			
1. Problem Road Inventory and Demonstration	IDHW	Year 2-4	\$ 90,000
2. Demonstration: Coordinated Watershed Management	IDHW	Year 1-4	\$ 130,000/ project
3. BMP Effectiveness Inventory	IDHW	Year 1	\$ 20,000
4. Interdisciplinary Cumulative Effects Study Team	IDL	Year 1-4	\$ 490,000
5. Soil Hazard Interpretation	IDL	Year 2	\$ 25,000
6. FPA Stream Classification	IDFG/IDL	Year 1-4	\$ 244,000
7. BMP Demonstration Project	IASCD/IFOA	Year 1-4	\$ 172,000
8. BMP Techniques I&E	IDHW/IDL	Year 1-2	\$ 50,000
9. I&E Program Support	IDHW/IDL	Year 1-4	\$ 100,000
10. Nutrient Export Coefficients For Idaho Lakes	IDHW	Year 1-4	\$ 120,000
ADDITIONAL FOREST PRACTICE BUDGET NEEDS			<u>\$1,441,000</u>

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
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E. MINING

Planned Actions With Current Funding

- | | | | |
|--|----------|----------|--------|
| - Administer Surface Mining Act and Dredge and Placer Mining Act | IDL | Annual | 3 FTEs |
| - Administer Oil and Gas Wells Act | IDL | Annual | <1 FTE |
| - Administer Rules and Regulations for Ore Processing by Cyanidation and Water Quality Standards for all mining operations | IDHW | Annual | 2 FTEs |
| - Administer Rules and Regulations for Mine Tailings Impoundment Structures | IDWR | Annual | 1 FTE |
| - Continue on-site audit program | IDL/IDHW | Year 1-2 | <1 FTE |

Program Needs

- | | | | |
|--|-------------------|----------|------------------|
| 1. BMP Workshops | IDL/IDHW | Year 3-4 | \$ 100,000 |
| 2. Expanded Mining On-Site Audit Program (Compliance Strategy) | IDL/IDHW/
IDWR | Year 1-4 | \$ 200,000 |
| 3. Mining BMP Handbook and Permitting Information Pamphlet | IDL | Year 1-2 | \$ 100,000 |
| 4. Abandoned Mines - Inventory and Field Evaluation | IDHW/IDL | Year 1-2 | \$ 400,000 |
| 5. Abandoned Mine Demonstration Project | IDL/IDHW | Year 3-4 | \$ 400,000 |
| 6. Additional Personnel Needs to Complete Program | IDL
IDHW | | 4 FTEs
2 FTEs |

ADDITIONAL MINING BUDGET NEEDS

\$1,200,000

F. HYDROLOGIC/HABITAT MODIFICATION

Planned Actions With Current Funding

- | | | | |
|--|------|---------|--------|
| - Administer Stream Channel Protection Act | IDWR | Ongoing | 4 FTEs |
|--|------|---------|--------|

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
<u>Program Needs</u>			
1. Watershed/stream site description and testing	IDHW/BLM/ USFS/USGS/ SCS	Year 1-3	\$ 50,000
2. BMP effectiveness evaluation, grazing/riparian	IDHW/IDA	Year 2-3	\$ 100,000
3. Improve Stream Channel Alteration Act enforcement staffing	DWR	Year 1-4	\$ 300,000
4. I&E program support	DHW	Year 2-3	\$ 100,000
5. Develop enforcement training program	IDHW/IDWR/ ITD	Year 2-3	\$ 15,000
6. Review and improve existing rules and regulations	IDHW/IDWR/ ITD	Year 2-3	\$ 25,000
ADDITIONAL HYDROLOGIC/HABITAT MODIFICATION BUDGET NEEDS			\$ 265,000

G. GROUNDWATER

Planned Actions With Current Funding

Agriculture

- | | | | |
|---|------------------------|---------|---------------------------|
| - Revise Technical Guides with respect to agriculture BMPs for groundwater. Develop pesticide leaching index, provide field assistance. | SCS | Ongoing | 5 FTE |
| - Develop and implement chemigation program. Conduct user information program on pesticides and groundwater. | Id. Dept.
of Agric. | Ongoing | 0.25 FTE
\$ 15,000/yr. |

Septic Systems

- | | | | |
|---|--------------------------|---------|---------------------------|
| - Implement septic system regulatory program including issuing permits and responding to problems | Health
Districts | Ongoing | 11.6 FTE |
| - Coordinate statewide septic system program | IDHW | Ongoing | 0.5 FTE |
| - Occasional site specific studies in problem areas | IDHW/Health
Districts | Ongoing | \$ 10,000 -
20,000/yr. |

<u>Work Element</u>	<u>Responsible Agency</u>	<u>Schedule</u>	<u>Level of Effort (\$ or FTEs)</u>
<u>Urban Runoff</u>			
- Implement shallow injection well regulations as they pertain to drain wells	IDWR	Ongoing	0.33 FTE \$ 5,000/yr.
- Some city and county involvement in enforcement of building and zoning codes	Local Gov'ts.	Ongoing	No estimate available
<u>Industrial Chemicals</u>			
- Develop Community Right to Know and local emergency planning programs required by SARA III	Id. Emerg. Resp. Comm./ 6 LEPCs/ County Gov'ts	Ongoing	0.25 FTE No estimate available
- Conduct workshops on solvent reduction, waste minimization, recycling, household hazardous waste. Provide public information	DHW	Ongoing	0.25 FTE \$ 180,000/yr
<u>Program Needs</u>			
1. Public information and education program	IDHW	Year 1-4	\$ 240,000
2. Groundwater information clearinghouse	IDHW	Year 1-4	\$ 140,000
3. Expand Agricultural Pollution Abatement Plan and Water Quality Program regarding groundwater to meet requirements of EPA Agricultural Chemicals/Groundwater Strategy. (See also Agriculture section.)	IDHW/SCC/ SCDs/SCS/ Dept. of Ag.	Year 1-2	\$ 260,000
4. Evaluate existing septic systems	IDHW/ Health Districts	Year 2-4	\$ 120,000
5. Develop local urban runoff ordinances/BMPs	IDHW/Local Governments	Year 1-3	\$ 120,000
6. Develop local septic system density ordinances	IDHW/Health Dists./Local Governments	Year 2-3	\$ 80,000
7. Industrial chemical waste minimization/recycling program	IDHW	Year 1-4	\$ 280,000
8. Develop small volume waste disposal program	IDHW	Year 1-4	\$ 200,000
9. Local training/technology transfer for urban runoff	IDHW/Local Governments	Year 2-4	\$ 75,000
ADDITIONAL GROUNDWATER BUDGET NEEDS			<u>\$1,515,000</u>

IV. Sources of Federal and Other Assistance and Funding

Funding for nonpoint source programs derives from a number of state and federal sources. Existing funding sources used for nonpoint source control are identified within the specific category sections. Listed below are generic sources of potential funding:

A. Clean Water Act Sections

Although no new source of funds has been appropriated as a result of the Water Quality Act of 1987 there are a number of potential sources of grant funds.

1) Section 205 (j)(1) ... Water quality management planning

IDHW receives \$100,000 annually for water quality planning and administration. A portion of these funds support ongoing water quality programs. The state is required to pass through 40% of its annual award to fund local or regional water quality management projects. Federal fiscal year 1990 will be the last year these funds are available.

2) Section 205 (j)(5) ... Construction grant set-aside.

One percent of the state's construction grant allotment can be used for the NPS assessment report and management program. These grant funds have been used by IDHW in developing this report and will continue to be used in implementing the management program.

3) Section 319 (h) ... Nonpoint source grants.

This section authorizes grant funds for implementation of the NPS Management Program. Completion of an approved NPS assessment report and management program is necessary for eligibility under this section. The Act authorizes \$ 70 million nationwide for FY 1988, \$ 100 million each for FY 1989 and FY 1990, and \$130 million for FY 1991. Allocation, funding preference, and eligibility requirements are listed in the Act and in EPA guidance. To date, no funds have been appropriated by Congress under this section.

4) Section 319 (i) ... Nonpoint source grants - groundwater.

This section authorizes grants to assist states in carrying out groundwater protection activities which may include research planning, groundwater assessments, demonstration programs, enforcement, technical assistance, and education and training. Authorization for this section is made under Section 319 (h) as shown above. To date, no funds have been appropriated by Congress to fund this section.

5) Section 201 (g)(1) ... Governor's set-aside

This section allows NPS control efforts to be financed through the Governor's discretionary set-aside of construction grant funds. The grants are subject to the same requirements as in Section 319.

6) Section 603(c)(2) ... State revolving fund - loans

The Water Quality Act adds a new section providing for capitalization for state revolving funds to be used for loans, primarily for municipal waste treatment. Loans may also be made for projects identified in the NPS Management Program.

7) Section 604 (b) ... Funds for planning

The state is allotted \$100,000 each fiscal year to carry out planning under section 205(j) and 303(e) of the Act. These funds support ongoing water quality programs. The state is required to pass through 40% of its annual award to fund local or regional water quality management projects.

B. Safe Drinking Water Act

1) Well Head Protection Program

This program authorizes grant funds to develop groundwater protection strategies for both point and nonpoint sources of contamination in the vicinity of public water supply wells. To date no funds have been appropriated by Congress for this program.

C. U.S. Department of Agriculture Programs

1) SCS River Basins

The River Basins program identifies problems with erosion and sedimentation in the watershed, examines alternatives, and may develop an implementation plan. Two to three projects are completed a year in Idaho.

2) SCS Small Watershed Program

The Small Watershed program is a planning and implementation program which has focused on flood control and water management. Water quality improvement has recently been included as an eligible objective.

3) Forest Service Soil and Water Improvement Program

This program includes inventory of needs and funds to complete improvement projects designed primarily to reduce erosion and sedimentation. Dollars are appropriated annually to National Forests to meet targets identified in the Land Management Plans.

4) Forest Service Challenge Cost-share Program

This program is oriented to fish and wildlife habitat improvements. Funds are cost-shared to any non-federal entity. State dollars could be used as match for water quality projects directed to fish habitat improvement.

5) The Agricultural Conservation Program (ACP)

This program is available for participation by all farmers and ranchers who establish the need for cost-share assistance in solving resource conservation and agricultural pollution problems. Funds are appropriated annually for ACP and they are administered locally by the County Committee in each county office. Annual, short-term, and long-term contracting arrangements are available for practices that result in long-term and community-wide benefits. Funds are also appropriated annually for Water Quality Special Projects. Project requests submitted to the National ASCS Office must place emphasis on improving water quality in surface and/or groundwater.

D. U. S. Department of Interior Programs

1. BLM Challenge Cost-share Program

This is a cost-share program for fish, wildlife, and riparian enhancement projects. The projects may be in cooperation with any non-federal entity and match local funds up to 50 percent.

2. USGS Cooperative Studies Programs

USGS has funds for cost-sharing projects with state agencies up to 50 percent for water quality and water quantity studies.

V. Federal Consistency

A. Requirements

Section 319 (b)(2)(F) requires states to identify federal financial assistance programs and development projects which will be reviewed for their effect on water quality consistent with the state NPS Management Program. The following assumptions were made in considering the approach to federal consistency review for Idaho:

- The states are required to submit a list of federal programs which will be reviewed for consistency; however, the state has discretion in choosing the federal programs which are listed.
- Because of the preponderance of federal public lands (63%) in Idaho, federal consistency review is an important aspect of the NPS Management Program.
- Section 319 refers to a state clearinghouse for facilitating review of federal projects. Idaho does not have a state clearinghouse process.
- Federal project review does occur at present on a selected basis, however, this is not applied consistently for all programs. Likewise federal agencies are not consistent in addressing impacts to water quality in the environmental analysis.
- IDHW does not have sufficient resources under current funding to implement a state clearinghouse.

- The state does not want to duplicate review or oversight which occurs under other ongoing review procedures.

B. Program Review

The proposed approach to federal consistency review involves two stages. The first stage is a programmatic review. This is a state level review which may occur at different frequencies (one-time, annually, every three years) depending on the program. The intent of the programmatic review is to answer the question, "Does the federal program process have components which satisfy the State 319 Management Program?"

List of Assistance Programs and Development Projects to be Reviewed

Department of Agriculture

- U.S. Forest Service
 - Engineering Program
 - Timber Management Program
 - Minerals Program
 - Watershed Program
 - Oil and Gas Leasing/Reclamation Plans
 - Range Allotment Management Plans
- Soil Conservation Service
 - PL 46 (SCS technical assistance to individuals and groups to plan and apply conservation systems)
 - Small Watershed Program
 - River Basin Program
 - Resource Conservation and Development Program
 - 1985 Food Security Act
 - Field Technical Guide (Groundwater BMPs)
- Agricultural Stabilization and Conservation Service
 - ASCS Long Term Agreements
- Farmers Home Administration
 - FmHA Conservation Loan Programs
- Cooperative Extension Service
 - Training and Certification Programs

Department of Interior

- Bureau of Land Management
 - Mineral Exploration and Development
 - Coal, Oil and Gas Leasing
 - Rangeland Management Program
 - Forest Management Program
 - Engineering Program
- Office of Surface Mining/SMRCA
 - Abandoned Mine Lands Program
 - Mineral Development
- Abandoned Mine Reclamation Program
- Bureau of Reclamation
 - Small Reclamation Projects Act 1956
 - Irrigation Development Programs initiated by Reclamation Act of 1902.
- Bureau of Indian Affairs
 - Grazing and Cropping Plans (leases)
 - Groundwater Monitoring on Reservations

Department of Army

- Corps of Engineers
 - Civil Works Program - Flood Control & Hydropower Projects

Department of Defense

- Installation Restoration Program

Department of Energy

- Idaho National Engineering Laboratory
 - RCRA/CERCLA Groundwater Cleanup Programs

U.S. Geological Survey

- Federal/State Cooperative Programs
- Groundwater and Surface water Monitoring
- Water Quality Special Studies
- Water Resource Studies

Department of Transportation

- Road Salting (groundwater impacts from runoff)
- Road Drainage Practices (groundwater impacts from runoff)

Environmental Protection Agency

- Sole Source Aquifer Program
- Pesticide Regulatory Programs including The Label Improvement Program, Restricted Use Rule, Special Review Program and The Agricultural Chemicals in Groundwater Strategy

Criteria for Programmatic Review

Review of the programs listed above will be completed using the following criteria:

- Meets requirements of Section 319 of Federal Clean Water Act.
- Meets the State Water Quality Standards.
- Is consistent with Idaho's 319 Management Program.
- Identifies BMPs or BMP process.
- Identifies process for on-site application of BMPs.
- Identifies a monitoring program to measure BMP effectiveness.
- Identifies a process for modification of BMPs.
- Is consistent with the implementation schedule and projects identified in Idaho's 319 Management Program.

C. Individual Assistance or Development Project Review

To implement state review of federal projects efficiently will require the development of a state clearinghouse process. The clearinghouse would route the project to the appropriate state agency for review. Idaho does not have a state clearinghouse; however, lead review of documents is often designated by the Governor's office. Both funding and executive direction would be

needed to designate a permanent lead state agency and establish the clearinghouse. In lieu of a clearinghouse, federal agencies will need to work individually with state agencies to solicit comments.

Generic criteria for federal consistency with the state Nonpoint Source Management Program Plan are listed below. These criteria are based directly on compliance with the Idaho Water Quality Standards and Waste Treatment Requirements. The state may develop more specific criteria for individual categories of nonpoint source activities.

Federal Consistency Checklist for Planned Projects:

(Pertinent sections of the Water Quality Standards are referenced and need to be used in conjunction with the checklist.)

1. Have you identified which nonpoint source activities regulated by the Idaho Water Quality Standards are within the project area?

IDAPA 16.01.2003,23. - Nonpoint source definition.

2. Have you identified the state approved BMPs for each nonpoint source activity?

IDAPA 16.01.2300,05. - List of approved BMPs.

3. For nonpoint source activities which do not have approved BMPs, have you identified practices that demonstrate a knowledgeable and reasonable effort to minimize resulting water quality impacts?

IDAPA 16.01.2300,04.a. - Nonpoint source restrictions.

(Note: BMPs identified in the Idaho Agricultural Pollution Abatement Plan (Id. Dept. of Health and Welfare, 1983) and the Best Management Practices for Road Activities (Levinski, 1982) constitute knowledgeable and reasonable effort for these activities.)

4. Have you provided a monitoring plan which, when implemented, will provide adequate information to determine the effectiveness of the approved or specialized BMPs in protecting the beneficial uses of water?

IDAPA 16.01.2300,04.c.ii. -Monitoring plan requirements.

5. Have you provided a process (including feedback from water quality monitoring) for modifying the approved or specialized BMPs in order to protect beneficial uses of water?

IDAPA 16.01.2300,04.c.iii. -Modification of BMPs.

6. Have you identified the "appropriate beneficial uses" of water for the waterbodies in the project area?

IDAPA 16.01.2300,01. -Definition of appropriate beneficial use.

IDAPA 16.01.2100, -Water Use Classification.

IDAPA 16.01.2101, -General Water Use Designation.

IDAPA 16.01.2102, -Special Resource Waters.

7. Have you determined if a Stream Segment of Concern has been designated within the project area?

IDAPA (Under Development) -Process for identifying stream segments of concern.

If a Stream Segment of Concern occurs within the project area additional monitoring and site-specific BMPs may apply.

(NOTE: The regulations have not been adopted at the writing of this document.)

8. Have you determined if an Outstanding Resource Water (ORW) has been designated in the project area?

IDAPA (Under Development)

If an ORW occurs within the project area, nonpoint source activities will be subject to BMP restrictions to ensure that water quality of the ORW shall not be lowered. No person shall be allowed to conduct a new or substantially modify an existing nonpoint source activity that can reasonably be expected to lower the water quality of that ORW, except for conducting short term or temporary activities which do not alter the essential character or special uses of a segment, allocation of water rights, or operation of water diversions or impoundments.

9. Have you identified the water quality standards and criteria applicable to protecting the "appropriate beneficial uses"?

IDAPA 16.01.2200, - 2280, - Water Quality Criteria.

10. Does pre-project planning and design include an analysis of water quality resulting from implementation of the proposed activity sufficient to predict exceedence of water quality criteria for the appropriate beneficial use(s), or in the absence of such criteria, sufficient to predict the potential for beneficial use impairment?

The analysis should include an evaluation of current status and predicted condition of beneficial uses in the subject watershed, and should address physiographic conditions such as land type, soils, and vegetation which influence erosion and mass wasting. The analysis should address changes in habitat which may impact the beneficial use as a result of nonpoint source activities. The analysis of beneficial use impairment shall utilize parameters and protocols outlined in the Statewide Coordinated Monitoring Plan (to be completed in 1989).

Administrative policies and standards of the State Water Quality Standards require protection for appropriate beneficial uses.

IDAPA 16.01.2050, - Administrative policy.
IDAPA 16.01.2300,02 - Limitation to discharge of pollutants.

VI. Development On A Watershed-By-Watershed Basis

A. Surface Water

Section 319 of the Clean Water Act says the state shall, to the maximum extent practicable, develop and implement a management program on a watershed-by-watershed basis. Water bodies that are impacted by nonpoint sources have been identified in the Nonpoint Source Assessment. It is important to note that this identification of impacted waters was based on a subjective best-professional-judgement evaluation. This information was useful for the purpose of identifying the relative importance and extent of nonpoint source pollution by category of nonpoint source. The information was used

to identify the major pollutant categories and pollutants that are addressed in the Nonpoint Source Management Program Plan.

319 Assessment

There are problems inherent in the type of information available during the Assessment which undermines confidence in individual watershed lists. Criticism of this approach includes: 1) The difference of opinion submitted on individual watersheds by different agency staff; 2) definitions of impaired or threatened waters were not adequately defined either in EPA guidance or state interpretation to provide the submitters with a uniform basis of judgement; and 3) there is a lack of comparable data with which to make these judgements. Therefore, any ranking of stream segments based solely on the 1989 Assessment is viewed as preliminary and will need further refinement. It will be important for the state to remedy the shortcomings of the Assessment and update the information as resources allow. A preliminary list of the top 25% of impaired segments based on degree of impairment and number of beneficial uses affected is shown in Appendix E as an example of the kinds of information that could be generated.

Antidegradation Agreement - Stream Segments of Concern

The Antidegradation Agreement includes a public process to identify Stream Segments of Concern. Public input on Stream Segments of Concern was solicited at the first set of Basin Area Meetings in July, 1989. The Stream Segments nominated by the public will be reviewed by the Water Quality Working Advisory Committee; this committee will then designate the initial list of Stream Segments of Concern. Information taken from the Assessment was provided to the public in Basin Status Reports. The identification of Stream Segments of Concern was not limited to high quality waters, but also included segments considered to be impacted or threatened by the public.

The list of Stream Segments of Concern can be used to focus the state monitoring efforts and nonpoint source controls. The outcome of the antidegradation agreement therefore provides the state with priority watersheds where program plans may be implemented. This accomplishes the Clean Water Act objective to the maximum extent practicable. Projects, including demonstration projects, in the Management Plan which address individual geographic areas or watersheds will be targeted in Stream Segments of Concern.

Interim Procedure

The Agricultural Nonpoint Source Pollution Abatement Plan (IDHW, 1983) identifies priority stream segments for implementation of best management practices. This list will remain the basis for state agricultural priorities until the Agricultural Plan is revised to reflect the information in the Assessment and the Stream Segments of Concern.

Coordinated Management for Impaired Waters: Strategy

A significant number of Idaho streams have been adversely affected by NPS pollution stemming from more than one kind of activity. Thus, simply modifying BMPs for one NPS category might reduce NPS pollution, but, it will not solve the overall NPS problem for many streams. A coordinated response will be necessary. An example mechanism for implementing basin nonpoint source controls is the USDA Coordinated Resource Management Planning process. This process provides the framework for bringing the various interests in a watershed together to develop an implementation plan. The interests include the landowners, state and federal agencies, and public interest groups.

The strategy to address improvement of impaired waters, therefore, consists of two parts - 1) completing the identification of impaired waters, and 2) establishing a process for implementing site-specific BMPs. It is important to note that this is a conceptual framework that will be expanded as other statewide water quality initiatives are resolved.

1. Identification of Impaired Waters

Completing a list of impaired waters is linked in part to the Antidegradation Agreement process. Stream Segments of Concern have been nominated at the Basin Area Meetings. The Water Quality Working Advisory Committee will review the nominations and designate Stream Segments of Concern. This list will then be used as a first cut to identify a list of impaired waters for use in the NPS Plan. The list of impaired waters will be verified, however, the method of verification has not been established. This list may be further ranked depending on the number of segments which result.

As with development of the NPS Plan, verification and ranking of segments if necessary will include a public participation process.

2. Implementing Site-specific BMPs

The verified list of impaired waters is based on a public participation process. This provides state and federal agencies information on where to target their program efforts. The USDA Coordinated Resource Management Planning process serves as a successful model for developing a basinwide solution to watershed problems. Establishing the list of waters should trigger the state and federal agencies to organize Coordinated Resource Management teams. Gaps in implementation can be addressed through memoranda of understanding. State lead agencies will work together to coordinate activities and establish annual priority lists based on program and statutory requirements.

B. Aquifers

To set priorities, Idaho's principal aquifers have been evaluated for potential for contamination (Whitehead and Parlman, 1979). This ranking was done on a large scale and local variability in sensitivity to contamination was not determined. Factors which were considered in the ranking were population density (as a measure of land use) and intensity of groundwater use. The highest ranked aquifers were the Boise Valley, Eastern Snake Plain and Rathdrum Prairie aquifers. In general, priorities for the Nonpoint Source Management Program have been developed around these aquifers. More detail on this ranking process can be found in the Groundwater Section of this plan.

VII. Setting Priority of Program Components

Components of the Nonpoint Source Management Program were ranked using a decisionmaking process called Tradeoff Evaluation Process (TEP) developed by the USDA Forest Service. Decisions made using TEP are based on the relative importance of advantages between the various program components.

The Technical Advisory Committee developed criteria for ranking the projects, and the Subcommittees applied the criteria using the TEP method to rank projects. Ranking of program needs are listed in priority order in the table starting on page 14. The TEP process was

used uniformly by Subcommittees as an aid in setting priority and not as an inflexible process. Priorities were adjusted based on public comment received on the draft. Criteria used by the Technical Advisory Committee included:

- Conformity with the feedback loop process
- Adequacy of existing programs to enforce/implement the feedback loop
- Improvement on existing programs
- Project cost
- Environmental benefits
- Economic benefits
- Number of beneficial uses enhanced
- Level of public support
- Degree of political feasibility
- Severity of existing pollution problem

Project ranking will be used to fund projects as federal or state dollars become available. If and when Congress appropriates funding under Section 319, the Technical Advisory Committee or other appropriate policy committee will assist in reevaluating the priority list and selecting projects for funding.

VIII. Program Evaluation And Revision

The Nonpoint Source Management Program Plan is an umbrella document that encompasses a number of agencies, state authorities, and individual state and federal programs. There are ongoing reporting requirements built into these programs. The state strategy for evaluating progress on the Management Plan is to build on these existing reporting requirements.

Existing reporting requirements which serve or will serve to provide a measure of water quality improvement or program progress are:

1. The biannual State Water Quality Status Report required under Section 305(b) of the federal Clean Water Act. This report includes an analysis of the status and trends in water quality as well as reporting on individual program progress.
2. Reporting requirements built into current Section 208 planning documents - for example, the Agricultural Pollution Abatement Plan,

the Forest Practices Water Quality Management Plan and associated ongoing monitoring efforts.

3. Results of the NPS Coordinated Water Quality Monitoring Program. This program is currently under development as a result of the Antidegradation Agreement. Standardization of monitoring methods and reporting by state and federal agencies will enhance the State's ability to evaluate status and trends in water quality and progress in nonpoint source controls.

4. A review of the Antidegradation implementation process three years after its initiation (1992). This was a major point of the Antidegradation Agreement, and allows for review and improvement of the participation process for targeting watersheds for management; 2) the implementation of BMPs, particularly on forestry activities; 3) implementation of the coordinated monitoring plan.

In addition to these ongoing measures the following actions are specific to the Management Plan.

1. Identification of BMPs. Progress in identifying BMPs for nonpoint source categories that are not currently identified and their inclusion in the State Water Quality Standards.
2. Progress on changes to existing programs identified in the Plan.
3. Progress on the implementation schedule identified in the Plan.
4. Progress on developing a state clearinghouse for review of federal programs or a similar process that provides for federal program consistency review.

NONPOINT SOURCE MONITORING PROGRAM NEEDS

I. Current Department of Health and Welfare Program

IDHW monitoring has been directed at assessing water quality impacts primarily from agriculture, forest practices, and mining on a short-term, intensive basis. Intensive surveys support the Agricultural Water Quality Program identifying the severity of water pollution and the critical problem areas within the watershed. In 1989 there were five intensive surveys in progress to support this program. Two surveys are also in progress to assess BMP effectiveness in watersheds where 50-90% of the prescribed agricultural BMPs have been implemented. The Rock Creek Rural Clean Water Project is in its ninth year of BMP effectiveness monitoring.

IDHW has initiated a major effort in the last year to provide leadership among the various agencies in developing an approach to monitoring forest practice impacts. Five ongoing water quality studies are being conducted in northern and southwest Idaho to gather baseline information and to develop reliable sediment monitoring techniques.

IDHW is conducting studies to assess the trophic status of lakes in cooperation with local lake associations. Cooperative studies with the U.S. Forest Service are in progress to monitor water quality trends at two large scale cyanide heap leaching operations.

Ambient or trend monitoring refers to long term collection of water quality data from major rivers and tributaries. This activity was dropped by IDHW in 1983 to place more effort on intensive surveys. Some trend monitoring has been reactivated through cooperative programs with other agencies and by IDHW for water year 1989. A joint funding agreement has been signed with the U.S. Geological Survey to conduct trend monitoring on a long term basis. Twenty-five sample stations will be monitored across the state each year and a total of 57 stations will be monitored every three years.

The degree to which nonpoint sources may be impacting Idaho's aquifers is not known. Consequently, monitoring of groundwater quality is a very high priority for the state's Nonpoint Source Program. Monitoring data are needed to investigate impacts,

identify sources and to define geographic areas for implementation of BMPs. Further monitoring will then be necessary to evaluate BMP effectiveness.

II. Purpose and Need For Statewide Monitoring Program

The need for establishing a statewide, coordinated water quality monitoring program is recognized as an important element for the future of Idaho's Nonpoint Source Management Program. This is also a requirement of the Idaho Antidegradation Agreement. Monitoring data are needed to assess water quality trends over time, to determine compliance with water quality standards, and to assess water quality impacts and their sources. Where a cause and effect relationship is probable, appropriate BMPs should be implemented. Then further monitoring is needed to provide a measure of BMP effectiveness. This is a key component of the nonpoint source feedback loop of the Idaho Water Quality Standards.

Four of five nonpoint source subcommittees have identified specific projects or program needs related to monitoring. The general lack of monitoring data statewide became evident during development of the Nonpoint Source Assessment report. Monitored data was limited to less than 20% of the waters that were assessed. This limits the reliability and use of this information in managing the state's nonpoint source programs. Monitoring data for groundwater was virtually non-existent for most nonpoint sources.

The nonpoint source monitoring program for surface water should build upon the coordinated monitoring program being developed as part of the state's antidegradation implementation strategy. A major element of the Antidegradation Agreement is the need for better information to assess protection of the state's high quality waters. IDHW was given the lead in developing a statewide coordinated monitoring program with oversight provided by a technical committee. This program is in the early developmental stage. An eight-member technical advisory committee has been established and has drafted a monitoring plan.

It is anticipated that the antidegradation monitoring program will be designed to meet three primary objectives:

- 1) to enhance monitoring where needed for collection of baseline information (trends);

- 2) to evaluate the effectiveness of best management practices in minimizing water quality and beneficial use impacts; and
- 3) to characterize the condition of beneficial uses.

The latter two objectives apply especially to Stream Segments of Concern which are identified through a public involvement process, the Basin Area Meetings.

In the groundwater program, two kinds of monitoring should be initiated. The first is long term trend monitoring to establish a baseline aquifer data base. This network should target high priority aquifers such as the Snake Plain and the Boise Valley. Seasonal cycles should be investigated so that the effects of irrigation recharge on groundwater quality can be evaluated. Data derived from this monitoring should be sufficient to statistically evaluate whether changes are occurring in groundwater quality over time. Collection of nitrate data should be a high priority because nitrate is a useful indicator of contamination potential and is relatively inexpensive to analyze.

Site-specific studies are also needed to provide information to better manage the groundwater programs. Intensive surveys should focus on known or potential problem areas. Potential problem areas are defined by groundwater vulnerability mapping and knowledge of land use. Detailed investigations should identify sources of impact and evaluate BMP effectiveness. An expanded list of parameters such as pesticides or industrial organic chemicals should be tested depending on the local use of these materials. To build an effective nonpoint source data base, 4 to 8 intensive surveys should be conducted each year.

III. Specific Actions to Improve Monitoring

Several monitoring projects have been identified by the subcommittees as high priority program needs as follows:

A. Develop a strategy to coordinate existing water quality monitoring programs and identify weaknesses in the sampling network.

B. Identify priority watersheds and focus monitoring efforts there. Develop a baseline water quality monitoring network for the surface waters of the State to include sediment and agri-chemicals.

C. Institute on-site feedback loop monitoring by IDHW staff or other company/agency staff. Request companies/agencies to conduct field reviews to assess BMP implementation.

D. Develop a groundwater monitoring program to evaluate groundwater quality in general. Identify areas of concern and priority potential contaminant sources. Determine long-term regional trends.

E. Develop a baseline groundwater monitoring network to include agri-chemicals. Develop a program to quantify agricultural impacts on groundwater. The program should be developed to identify both region-wide impacts (for given aquifer) and site specific impacts (for specific BMP's).

F. Develop a monitoring program to identify groundwater impacts of septic systems.

G. Monitor urban runoff and groundwater quality in priority urban areas.

H. Develop a ground water monitoring program for industrial chemical hot spots.

Each of these monitoring projects relate to implementation and strengthening of the feedback loop with the ultimate goal of maintaining or restoring beneficial uses of the state's surface and ground waters. For more detailed information on these projects see the work plans contained in Appendix A.

IV. Data Management

A. Purpose and Need

The data management needs for surface water are extensive at present and will increase significantly in the future. A data base system and resource library are needed to meet projected use requirements. The Antidegradation Agreement also recognized the need for a common data base.

As groundwater monitoring efforts are expanded, the associated data management capabilities will need to be expanded as well. At present, groundwater quality data are stored in many formats and in

many places. Some data are never stored in a data base which makes analysis and interpretation very difficult and time consuming.

B. Specific Actions for Data Base Development

1. Develop a computer based data management system with the following standards:
 - Maintains both surface and ground water data.
 - Stores and analyzes biological and aquatic habitat data not now available in STORET.
 - Contains enough space to hold current water quality data from IDHW, other sources in Idaho, future data generated by 319 and Antidegradation, and allow for complex analyses including statistical evaluation of the data.
 - Provides compatibility with systems used by other agencies collecting water quality data in the State, as well as STORET, WATSTORE, BIOS, and the State GIS system.
 - Is capable of handling biological and physical data in addition to water column chemistry data.
 - Is efficient and "user friendly".
2. Develop a resource library in IDHW staffed by a full-time librarian and containing all water quality related literature. The materials in the library should be accessible by computer search.
3. Develop standardized groundwater data reporting procedures and a minimum data set of associated parameters to ensure consistency. Since these are geographically referenced data, a geographic information system (GIS) for groundwater monitoring data should be used.
4. Develop for high priority aquifers a GIS-structured, support data base for soils characteristics, depth to groundwater, recharge, groundwater vulnerability maps, location of potential contaminant sources, and location of public and private drinking water supply wells.

V. Update of 319 Assessment

A. Surface Water

Updating and improving the surface water quality information base which is used to develop the basin descriptions should be the major task and focus of future reports. Improvements are suggested in four general areas.

First, several changes in soliciting new information from other sources should be adopted for improving the quality of the information. It will be important to clarify the key terms, and develop consistent criteria for the assessment of water quality impacts and the status of beneficial uses. Consistent application of criteria and definition by submitters of information will increase the public's confidence level in the information. Existing and new information that is received should be validated by investigating the source references and by verbal communication with the various submitters. Group discussions could be organized to further clarify and refine the information. This will also ensure more consistency and consensus in the final assessments. At minimum, submitters should be canvassed annually for verifying and updating current information. Information on which stream segments, lakes, and wetlands are fully supporting their beneficial uses should be requested. The existing data base cannot distinguish between fully supporting waters and those for which inadequate information exists to make an assessment.

Modifications should be made to the information base itself to improve data analysis and reporting in future updates. A method of compositing the information from multiple submissions on a stream segment is needed so that only one assessment exists for each segment. The best method to solve this data base problem may be through group discussions with the various submitters. The data input and reporting method for lake information needs to be modified to more accurately reflect the extent of assessed impacts. Currently, although only a portion of a lake may be impacted, the total acreage of the lake is reported as impacted. Any modifications that improve the efficiency of data manipulation and reporting would be beneficial to future updates.

Future updates should incorporate all new monitoring data, including not only water column chemistry, but also biological, physical, and aquatic-habitat data. Data that will be generated as a result of implementing the antidegradation policy should be included. In some cases, additional historical data can be incorporated by seeking out published reports not previously referenced. Existing monitoring data from the U.S. Forest Service should be obtained and incorporated. Much historical data is often lost or buried in agency reports and files.

Finally, an ongoing effort should be made to identify additional nonpoint sources as more monitoring data and land use data become available. For example, sources of toxic contaminants should be identified as they become increasingly prevalent in our society.

B. Groundwater

The groundwater portion of the 1989 Assessment targeted three main nonpoint sources: septic systems, agriculture and urban runoff. The scope of the assessment was limited to these sources because groundwater monitoring data are limited for these as well as other potential nonpoint sources. Existing data cannot be used to distinguish between sources in many instances where nitrate is a contaminant.

Future updates of the 319 Assessment should strive for improvements in several areas. First, all new monitoring data should be incorporated. Nitrate data as well as other constituents should be included. In many cases, additional historical data can also be added by utilizing published reports that were not referenced in the 1989 Assessment. Much groundwater quality data from localized studies is available in published reports. However, acquiring and analyzing these reports is a time consuming process.

Future updates should also strive to identify additional nonpoint sources. As more data become available, other potential sources may become apparent. For example, land uses that have resulted in widespread very low levels of pentachlorophenol in Idaho's groundwater should be identified.

Lastly, future updates should provide additional detail on the location of the most vulnerable groundwater systems in Idaho. The 1989 Assessment targeted large areas such as the Snake Plain and

Boise Valley aquifers. This degree of resolution is too gross to manage nonpoint sources to protect groundwater. As described in the Groundwater Section of this Management Plan, efforts to map local small scale variations in groundwater vulnerability are underway. As the more detailed maps are completed they can be used to promote the tailoring of land uses to groundwater sensitivity.

AGRICULTURE

I. Industry Description

Idaho is the 13th largest state with a land area of 52,910,000 acres. Federal ownership determines the use of about 33,445,000 acres (63%) with the Forest Service and the Bureau of Land Management being the largest land management agencies.

According to the 1982 National Resource Inventory conducted by the Soil Conservation Service, the remaining 19,449,400 acres (37%) of non-federal land in Idaho consists of:

Land use	Acres	Percent of Non-Federal	Percent of Total Land
Irrigated Cropland	3,561,500	18.3	6.8
Non-irrigated Cropland	2,828,600	14.5	5.4
Pasture and Range	8,007,100	41.3	15.1
Forest Land	3,977,100	20.4	7.6
Other Land	886,300	4.5	1.7
Urban	188,800	1.0	0.4

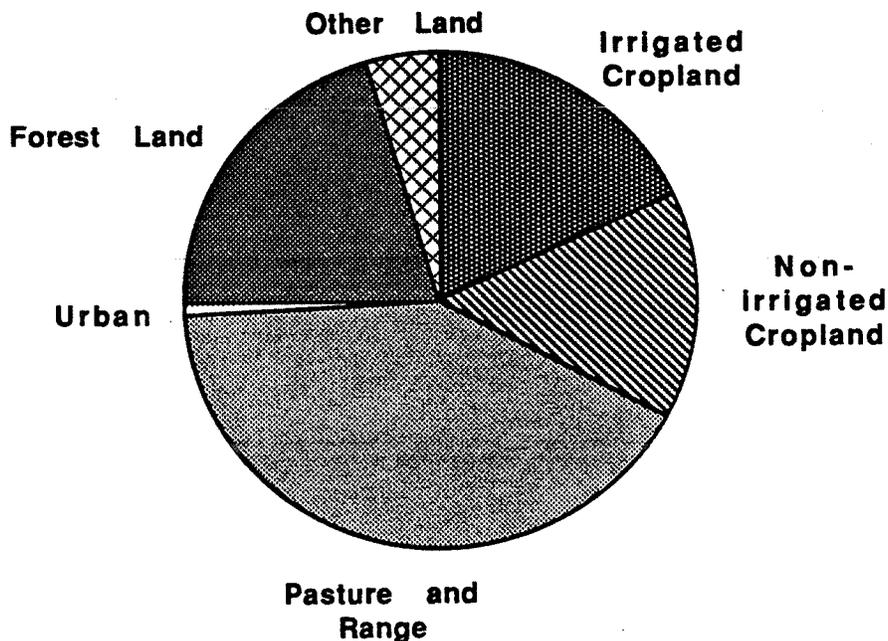


Figure 2. Agricultural land use in comparison to all non-federal land uses in Idaho

II. Process for Development and Update of Best Management Practices

A. *Initial Process for Formulating BMPs*

The process for identifying Best Management Practices (BMPs) for agricultural nonpoint source pollution of surface water was established during the development of the Idaho Agricultural Pollution Abatement Plan (Ag Plan), last revised in 1983. A list of approved BMPs is included in the appendix of the Ag Plan. This list is the product of a coordinated effort from the 51 Soil Conservation Districts (SCDs) in the state. Each SCD Board of Supervisors initially identified those management practices used locally which had been demonstrated as being effective in addressing nonpoint source pollution sources. The Soil Conservation Service Field Office Technical Guide (FOTG) was the primary reference cited. Each of the practices listed is supported by technical standards and specifications contained in the FOTG.

Lists submitted by each SCD were reviewed by an interagency team to determine the degree to which each BMP satisfied the objectives for BMPs listed in the Ag Plan. The Ag Plan states that each BMP must be: *effective in controlling nonpoint source pollution, economically feasible, and socially acceptable*. Those proposed BMPs satisfying these requirements were included in the List of Best Management Practices. A catalog of BMPs was developed which lists and provides a technical standard for each BMP. The catalog addresses irrigated and non-irrigated cropland, pastureland, hayland, and grazing land. The scope of the catalog is necessarily broad for application state-wide.

Over 100 meetings were held state-wide in 1977 and 1978 to gain input in the development of the original list of BMPs in the catalog. Following the development of a draft of the BMP catalog, each SCD and cooperating agency had the opportunity for review and comment prior to the issuance of the final draft.

After the BMP catalog was finalized, each SCD adopted those practices listed in the catalog which were appropriate for use in the District. The technical requirements (standards and specifications) for each of the practices are contained in the local SCS Field Office Technical Guide. New criteria for each of the practices is added to the FOTG by the SCS as technology becomes available through research or findings of demonstration projects. New practices are added in a similar manner, and those appropriate for addressing water quality issues in the District are adopted as BMPs.

The implementation of the State Agricultural Water Quality Cost-Share Program in 1980 set the stage for using *water quality management systems*. These systems are recognized as the performance requirement as opposed to the individual practices used in that system. Participants in the program are required to implement a combination of practices, which are interdependent in attaining the objectives on a given watershed. Many of the required practices would have little or no impact on water quality if applied independently. However, the combination of practices provides a synergistic effect to the system as a whole.

B. BMP Evaluation Process

There is seldom adequate monitoring data in the early stages of implementation to quantitatively tailor the treatment needed to specific water quality problems. In the absence of such data, the technical agency must draw from experience and the findings of research on areas having similar characteristics to prescribe state-of-the-art treatment. It is understood by both the technical agency and the producer that modifications may be needed over time in response to specific findings of water quality monitoring.

The evaluation of agricultural BMPs is a two-phased process. The first step in this two-phased evaluation process is that of ensuring the technical adequacy of each of the component practices. The Soil Conservation Service is recognized as the technical agency charged to provide assistance in the planning and implementation of BMPs on privately-owned land. (The State relies upon the SCS to ensure the technical adequacy of practices applied in the District through the use of a formal "spot check" procedure in which a representative number of practices are evaluated annually.) The Forest Service and Bureau of Land Management have been delegated to assure similar quality control on lands they administer.

The second step in the evaluation of BMPs involves the Feedback Loop process identified in State Water Quality Standards. This entails monitoring and evaluation to determine the extent to which the entire watershed has responded to the treatment. If such monitoring indicates that State Water Quality Standards are satisfied, it is assumed that the initial assumptions and recommended treatment were accurate. If, on the other hand, the Standards are not satisfied, the findings are used to fine-tune those components of the system having an adverse impact on water quality.

III. Existing Programs and Authorities

Numerous units of government have authorities and functions that contribute to the control of agricultural-nonpoint source pollution, either directly or indirectly. This review considers 29 governmental entities, including 16 federal, 9 state, and 4 local in nature. Information was gathered from publications and by consultation with representatives of each agency and organization.

The governmental units are grouped according to their primary functions as being regulatory, land-managing, service, or research-oriented. However, each unit may contribute to one or more general and specific roles (Table 1, Page 46).

A. Management Agencies

The following agencies have been designated management responsibility in the implementation of the Ag Plan:

- Idaho Department of Health and Welfare-Division of Environmental Quality (IDHW) is the overall state water quality management agency.
- Forest Service (FS) and Bureau of Land Management (BLM) are the management agencies for federal lands.
- Idaho Soil Conservation Commission (SCC) is the state management agency for private and state agricultural lands.
- Soil Conservation Districts (SCDs) are the local management agencies for private and state agricultural lands.

Department of Health and Welfare - Division of Environmental Quality

The IDHW is responsible for the maintenance of the quality of waters throughout the state. This responsibility involves the control and abatement of all sources of pollution to both surface and groundwater. Under authority of Title 39, Chapter 1 and Title 67, Chapter 52 of the Idaho Code, the Idaho State Board of Health has adopted state-wide Water Quality Standards which the IDHW is directed to implement.

USDI-Bureau of Land Management

The BLM is responsible for administration, management and protection of 12 million acres of public land in Idaho. The agency has statutory authority within its jurisdiction to regulate, license, and enforce land use

activities that affect nonpoint source pollution control. Activities include inventory, monitoring, land use and resource planning, guidelines, regulations and stipulations on permits and contracts to avoid or limit pollution.

AGENCIES AND PROGRAMS

LEVEL OF GOVERNMENT	ACTIVITIES	FUNCTION	Regulatory	Land Management	Service Oriented	Research Oriented	PROGRAMS	Grazing and Range Mgt.	Water Resource Management	Soil and Water Conservation	Water Supply	Water Pollution Abatement	SPECIFIC ROLES	Advisory	Planning	Technical Assistance	Financing	Monitoring	Regulatory Enforcement	Permit and License Review
FEDERAL		Environmental Protection Agency	X									X							X	X
		Bureau of Land Management		X				X	X	X		X			X	X			X	X
		Forest Service		X				X	X	X		X			X	X			X	X
		Bureau of Indian Affairs		X				X	X	X		X			X	X				
		Fish and Wildlife Service		X								X		X					X	X
		Bureau of Reclamation			X				X	X	X	X			X	X			X	
		Soil Conservation Service			X			X	X	X	X	X		X	X	X	X			
		Agricultural Stabilization and Conservation Service			X					X		X		X			X			
		Geological Survey			X							X		X					X	
		National Weather Service			X				X		X	X		X						
		Army Corps of Engineers			X						X	X							X	X
		Farmers Home Administration			X					X		X					X			
		Small Business Administration			X					X		X					X			
		Science and Education Administration - Ag Research				X		X	X	X		X		X						
		Intermountain Forest and Range Experiment Station				X		X	X	X		X		X						
STATE		IDH&W-Division of Environmental Quality	X									X							X	X
		Department of Agriculture	X									X		X					X	X
		Department of Water Resources	X						X		X	X		X	X				X	X
		Department of Lands-State Endowment Lands		X				X	X		X			X	X				X	X
		IDF&G-Fish and Game Lands		X					X		X			X						
		Soil Conservation Commission			X				X		X			X	X					
		Cooperative Extension Service-U of I			X				X	X	X			X		X				
		Agricultural Experiment Stations-U of I				X			X	X	X			X						
		ID. Water Resources Research Institute-U of I				X			X	X	X			X						
COUNTY AND LOCAL		County Commissions	X									X		X						
		Soil Conservation Districts			X			X	X	X	X	X		X	X	X				
		Watershed Improvement Districts			X			X	X	X	X	X		X	X	X				
		Irrigation, Drainage and Flood Districts			X			X	X	X	X	X		X	X	X				

Table 1: Agencies and programs addressing Ag. water quality impacts

Livestock grazing is the primary agricultural activity on BLM administered land, and is controlled and regulated through permit stipulations requiring permittees to comply with specific stocking rates and grazing management systems.

USDA-Forest Service

National Forest lands in Idaho are administered from two Regional headquarters. The Northern Region (Region 1) is based in Missoula, Montana and has jurisdiction over the Idaho Panhandle, Clearwater and Nez Perce National Forests. The Intermountain Region (Region 4) is based in Ogden, Utah and includes the Boise, Caribou, Challis, Payette, Salmon, Sawtooth, and Targhee National Forests in Idaho.

The Forest Service has three branches: Management and Administration, State and Private Forestry, and Research. The Regional Offices house the State and Private Forestry personnel and Research is divided into Stations. The Intermountain Research Station, with headquarters in Ogden, has Forestry Sciences Laboratories located in Moscow and Boise.

Forest Service authority is embodied in numerous laws and regulations. The Service is a State-designated management agency for nonpoint source pollution control. The Forest Service programs related to agricultural nonpoint source pollution control include the administration of livestock grazing permits, monitoring, and compliance, with regulations in all contracts and use permits. A Memorandum of Understanding with the State of Idaho provides for State input and coordination with Forest Service activities.

Soil Conservation Commission

The Idaho Soil Conservation Commission (SCC), Idaho Department of Lands has, by statutory direction, the responsibility to offer such assistance as may be appropriate to the supervisors of Soil Conservation Districts, organized as provided in the Soil Conservation District Law (Idaho Code 22, Chapter 27).

Soil Conservation Districts

The purposes, organization and authority of Soil Conservation Districts (SCDs) is vested in the Soil Conservation District Law, Idaho Code 22, Chapter 27. This law recognizes that improper land use practices have and are causing and contributing to serious erosion of farm, ranch, range, and forest lands in Idaho.

Fifty-one Soil Conservation Districts cover the 44 counties in Idaho. In some instances, more than one county is included in a Soil Conservation District. Other counties have more than one Soil Conservation District. The Soil Conservation District Law provides Districts with broad based natural resource responsibility. In part, the Law states that Districts will:

- Provide for the conservation of the soil and water resources by the control and prevention of soil erosion, floodwater and sediment damages.
- Further the conservation, development, utilization and disposal of water.
- Enhance and protect the quality of water within the State.
- Develop comprehensive natural resource management plans.

B. Technical Support To Agricultural Water Quality Activities

USDI Bureau of Indian Affairs (BIA)

The BIA administers federal programs on Indian Reservation lands. Reservations in Idaho are the Kootenai, Coeur d'Alene, Nez Perce, Duck Valley and Fort Hall. The BIA staff includes soil and water conservation technical personnel who prepare conservation plans and design conservation practices on crop, range and forest lands.

USDA Soil Conservation Service (SCS)

The SCS provides technical assistance to private landusers in an effort to utilize soil, water and vegetation resources in a manner consistent with their needs and capabilities. The SCS also conducts natural resource surveys and assists units of government in addressing rural resource conservation and rural economic development issues. Soil Conservation Districts rely upon the SCS as a principal cooperating agency to provide technical assistance as a means of implementing the resource management goals, objectives and priorities established at the local level. The SCS Field Office Technical Guide is recognized by the State as the technical basis for agricultural water quality measures.

USDA Agricultural Research Service (ARS)

The ARS conducts research on the cause and effect relationship between agricultural management practices and soil and water conservation. This information is used in evaluating existing management practices for use

on both irrigated and non-irrigated cropland, and developing new practices for improvement of surface and groundwater quality. An extensive research program on grazing management is also underway at the Reynolds Creek facility in southwestern Idaho.

USDI Bureau of Reclamation (BOR)

The BOR is responsible for planning, construction, operation, and maintenance of federal irrigation projects. Activities contributing to agricultural water quality efforts include:

- Technical assistance in irrigation BMP evaluation
- Water quality monitoring related to federal irrigation projects
- Coordinated resource management planning
- Implementation of structural and nonstructural water management programs
- Design, financing and construction of structural aspects of management plans

Under water management authorities, BOR has a direct interest in scoping of irrigation aspects of the Ag. NPS Management Plan. Participation in technical assistance, planning, financing and implementation projects are determined on a case-by case basis.

USDI Geological Survey (USGS)

The USGS Water Resources Division is primarily involved in collecting and analyzing general hydrologic data throughout the state. This activity encompasses surface water flow, groundwater observation wells and general surface water. The USGS also conducts special studies on water supply and quality in areas of changing land and water use patterns.

Idaho Department of Agriculture (IDA)

The Idaho Department of Agriculture's Bureau of Pesticides is designated by the Governor as the lead agency for pesticide matters. The Bureau mandates include the registration of all pesticides statewide, licensure and certification of all applicators, and the regulation of use and sale of all pesticides in the State. The Department also regulates the use of fertilizers through irrigation systems and registers fertilizer products statewide. The regulation of all uses of nutrient material is viewed as part of the Department's responsibilities since nutrient use is closely aligned with that of pesticides and requires similar expertise.

The Bureau can require altered use patterns, mandate product label changes, revise application techniques, alter licensure requirements, evaluate pesticides and their interaction with humans and their environment to reduce potential risks from pesticide use, including protection of water quality. Pesticide use is defined to include activities from the time the material enters the State until disposed of. The mandate of the Bureau is to protect man and his environment from possible adverse affects resulting from improper use. Nutrient management is viewed in the same context.

Idaho Department of Water Resources (IDWR)

The IDWR has authority to regulate stream channel alterations and the safety of all water impoundment structures, including irrigation and stockpond facilities. Irrigation wastewater disposal by injection wells is also regulated by the Department. The IDWR conducts water quality monitoring of groundwater and cooperates, under State Statutes with the Division of Environmental Quality on matters involving water quality. The Idaho Water Resource Board is charged with the development of a Comprehensive State Water Plan. The plan is to include provisions for a State Protected River System. Under this plan, the Department will evaluate future water allocations. In some instances, the diversion of water from protected streams may be limited or prohibited.

University of Idaho - Agricultural Experimental Stations

Soil, water and crop research is administered and coordinated by the Idaho Agricultural Experiment Station, College of Agriculture through the Home Station at Moscow. Research is conducted at six Research and Extension centers across the state. Activities relating to water quality include: various aspects of nutrient utilization and movement; pesticide mobility and degradation; impacts of agricultural pollutants on aquatic biota; evaluating the effectiveness of BMPs in addressing soil loss, sedimentation and agri-chemicals; water budgeting; and the handling and disposal of waste products.

The findings of this research are incorporated into recommendations for application of fertilizers and pesticides, and other agricultural management practices.

University of Idaho - Cooperative Extension System (CES)

The CES is the primary agency for agricultural water quality information and education programs. Research findings are disseminated for use by landusers, cooperating agencies and the general public. Extension

Specialists and County Extension Agents assist producers with recommendations for application of fertilizers and pesticides, based on the findings of research and field trials. Assistance is also provided in the calibration of equipment for application of agri-chemicals.

C. Programs

Federal Programs

1. USDA-Agricultural Stabilization and Conservation Service (ASCS)

- a) Annual ACP cost-share program to individual landowners/users; \$3,500 maximum cost-share limit per year.
- b) Special ACP Water Quality Project funds may be requested through the national ACP Program for targeting state water quality priorities. Funds are authorized for financial and technical assistance for implementation of BMPs. Projects must receive high priority from the IDHW and SCC.
- c) ACP Special Projects for groups of landowners/users for installation of group measures.
- d) Long Term Agreements with individuals providing \$3,500/year up to 10 years for practice application.
- e) Emergency Conservation Program to provide cost-share funds to individuals to repair or replace systems damaged or destroyed by natural events.
- f) Administrative portions of the Food Security Act, including Conservation Reserve Program (CRP), Sodbusting, Swampbusting, and Conservation Compliance.

2. USDA-Soil Conservation Service

- a) Provide technical assistance to individuals and groups to plan and apply conservation systems and measures on private lands, (PL-46). The FOTG is the basis of SCS technical expertise.
- b) Funding is available under the Conservation Operations (CO-01) Program for Special Water Quality Land Treatment Projects. Funds may be requested from the National Office with approval from the IDHW and the SCC that proposed watersheds are state priorities.
- c) Administers the Small Watershed Program (PL-566).
- d) Administers the Resource Conservation and Development (RC&D) program.
- e) Administers the River Basin Program (PL 89-90).
- f) Technical assistance to SCDs in planning and implementing the State Agricultural Water Quality Cost-Share Program.

- g) Technical portions of the Food Security Act, including CRP, Compliance Planning, Wetlands, and Sodbusting.
- h) Strong advocate of Coordinated Resource Management Planning.
- i) Administers the National Cooperative Soil Survey.
- j) Administers the Cooperative Snow Survey and Water Supply Forecasting
- k) Administers the Plant Materials Program.
- i) Completes flood plain management and flood insurance studies.
- m) Identification of prime and unique agricultural lands.
- n) Completes the National Resource Inventory on a 5-year basis.

3. USDA-Farmers Home Administration

- a) Agricultural conservation loans to individual farmers and legally organized groups of farmers.
- b) Loans to groups participating in project measures in PL-566 and RC&D programs, and to individuals participating within those measures.

4. USDA - Forest Service

- a) Range Improvement and use of Range Betterment Funds to improve range conditions resulting in reduction of erosion from rangelands. This includes both structural and non-structural range improvements designed to improve both upland range and riparian areas.
- b) Watershed Improvement programs are used to restore impaired watershed function and includes the restoration of riparian areas.
- c) Fish Habitat Improvement programs are used to improve and maintain quality fish habitat and often involve improvement of riparian area condition to enhance fish habitat features.
- d) Soil and Water Resource Inventories.
- e) Federal Facilities Compliance - This program, developed from the Clean Water Act, provides funding for Federal Facilities that are not in compliance with Clean Water Act objectives. This includes both point and nonpoint sources.
- f) Forest Service Research - A Riparian Research Project is located at the Forestry Sciences Laboratory in Boise, studying riparian/grazing interactions.

5. USDI - Bureau of Land Management

- a) The BLM's riparian management program is relatively new. In 1987 the Bureau issued its first "Riparian Management Policy". Emphasis on riparian values continues to build each year. Fiscal year 1989 was the first year that BLM received funding specifically targeted to riparian management.
- b) Each of the six BLM-Districts in Idaho have developed a riparian management demonstration area for evaluation and demonstration of various riparian management techniques.

State Programs

1. State Agricultural Water Quality Cost-Share Program (SAWQP)

- a) Legal Authority: State Legislation enacted by the 1980 Legislature modifying Section 39-3601, Idaho Code.
- b) Source of Funds: State Water Pollution Control Account.
- c) Administration of Funds: IDHW administers the program funds and makes grants to Soil Conservation Districts to assist in the development of water quality plans, and for cost-sharing with farmers who apply BMPs. The Idaho Soil Conservation Commission assists in program administration.

2. Resource Conservation and Rangeland Development Program (RCRDP).

- a) Legal authority: State legislation enacted by the 1985 Legislature, adding Section 22-2730, Idaho Code.
- b) Purpose: To provide long-term, low interest loans to farmers and ranchers for conservation improvements.
- c) Source of Funds: Section 14-425, Idaho Code, directs ten percent of funds remaining, after obligations are met, from the inheritance tax collections.
- d) Administration of Funds: Idaho Soil Conservation Commission, in cooperation with local Soil Conservation Districts.

IV. Evaluation of the State Agriculture Pollution Abatement Plan

The 1983 revision of the State Agricultural Pollution Abatement Plan (Ag Plan) identifies 98 critical stream segments. Of these, 31 segments have had water quality activities in them. Programs used to address water quality encompass both state and federal funding opportunities.

A. Planning and Implementation Program Accomplishments

1) State Agricultural Water Quality Cost-Share Program

PLANNING

Total number of planning projects	21
Number of livestock grazing projects	1
Number of irrigated projects	4
Number of non-irrigated projects	16
Total grant funds obligated	\$826,442
Projected match	\$419,928
Total match to date	\$369,800
Average project size (acres)	131,900

IMPLEMENTATION

Total number of implementation projects	25
Number of non-irrigated projects	20
Number of irrigated projects	5
Total watershed acres	585,412
Non-irrigated acres	524,768
Irrigated acres	60,644
Total critical acres	235,751
Non-irrigated acres	195,484
Irrigated acres	40,267
Acres under contract (BMPs being applied)	111,510
Non-irrigated acres	90,228
Irrigated acres	21,282
Obligations to date	\$6,333,550
Landuser match to date	\$2,693,236
Average project size (acres)	9,515

2) Rock Creek Rural Clean Water Program

IMPLEMENTATION

Total BMP allocation	\$2,204,720
Estimated landuser match	\$881,890
Total contracts	185
Total critical acres	28,159
Total acres under contract (BMPs being applied)	21,200
Total project monitoring cost	\$1,185,923

3) PL-566 Small Watershed Program

Nine land treatment PL-566 projects are located on priority stream segments. (Hazelton Butte, Upper Sand, Lower Sand, Sublet, Summit, Roy East, Big Canyon-East Fork, Houtz-Outlet, Tensed/Lolo)

PLANNING

Total number of projects (on critical stream segments)	9
Number of non-irrigated projects	8
Number of irrigated projects	1
Project planning costs	\$290,600
Average planning cost per project	\$32,288
Average planning cost per acre	\$0.96

IMPLEMENTATION

Total number of projects (on critical stream segments)	9
Number of non-irrigated projects	8
Number of irrigated projects	1
Estimated total Federal project costs	\$7,595,670
Estimated landuser match	\$7,323,780
Total acres in watersheds	302,504
Total critical acres under contract	54,811
Critical non-irrigated acres under contract	48,266
Critical irrigated acres under contract	6,545
Average project size (acres)	33,600

4) Conservation Reserve Program

IMPLEMENTATION

Total acres contracted to date state-wide	771,160
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5) BLM Riparian Management Program

INVENTORY AND PLANNING

Total acres riparian habitat	69,000
Percent in a degraded condition	80
Total acres in a degraded condition	54,000
Total FY 89 cost of inventory (low level IR photos)	\$35,000

IMPLEMENTATION

Total number riparian enhancement projects in 1985	11
Total number riparian enhancement projects by 1988	100
Total number demonstration projects in 1989	6
Total funding for riparian management in FY 1989 (All other programs emphasize riparian management)	\$105,000

B. RCWP Project Post-implementation Monitoring

The Rock Creek Rural Clean Water Program (RCWP) has demonstrated the degree to which serious nonpoint source water quality problems can be effectively addressed by the systematic application of BMPs. Rock Creek in Twin Falls County, Idaho, has long been recognized as one of the most severely degraded streams in the State. The major nonpoint source pollutants are sediment and associated materials contributed by irrigation return flows.

The watershed contains about 350 farm units. The basic crops grown are dry beans, dry peas, sugar beets, corn, small grains and alfalfa. All crops are irrigated because of the low annual precipitation in the area. Irrigation water is diverted from the Snake River and is delivered to the farms through a network of canals and laterals.

Water quality monitoring was recognized as an essential component of the project from the beginning. Monitoring was initiated by the IDHW in 1981, and is in its eighth year. The objectives of the water quality monitoring program are to determine the water quality of the irrigation drains in the sub-basins under study, as well as in the receiving stream, Rock Creek; and to quantify changes in water quality related to land management activities in the agricultural drains and in Rock Creek. Rock Creek is sampled for sediment, nutrients, bacteria, metals, minerals, pesticides, stream bank erosion, cobble embeddedness, stream bottom composition, macroinvertebrate populations, and fish populations to quantify the off-site impacts of the changes in irrigation drain water quality.

The results to date suggest that BMPs implemented under the RCWP in the project area have improved water quality in Rock Creek. The results show that BMPs have significantly reduced sediment and other pollutants to the agricultural drains studied. The sub-basins with the greatest percentage of BMPs implemented also show the greatest reductions in suspended sediment and other agricultural pollutants.

Fish populations in Rock Creek have increased since the beginning of the project. Game fish (trout) populations have increased significantly at most Rock Creek sample stations since 1981. Wild trout populations have increased at five of the six Rock Creek stations since the beginning of the project. Trout size (biomass) increased at four of those five stations.

In addition to demonstrating the ecological impacts which have taken place as a result of enhanced land treatment, the monitoring program has provided the opportunity to evaluate the individual and collective effectiveness of BMPs. This technical information has been used to modify, and/or develop new BMPs on a site-specific basis.

V. Program Evaluation

A. Program Strengths

The following aspects of the existing agricultural nonpoint source pollution management program, under provisions of the Ag Plan, have been identified as strengths in the effort to achieve State water quality objectives:

Public Involvement

- The broad cross section of publics directly involved in the development of the Ag Plan served to provide a strong foundation for the State agricultural nonpoint source pollution management effort.

Public involvement was achieved through a Policy Advisory Committee representing a variety of organizations and interest groups, local public meetings, and written comments.

Agency Cooperation

--The Idaho Department of Health and Welfare - Division of Environmental Quality, the Idaho Soil Conservation Commission, and Soil Conservation Districts administer the State Agricultural Water Quality Cost-Share Program. This close agency cooperation is essential to the continued success of Idaho's agricultural nonpoint source pollution management program.

Technical Assistance

--The quality control of BMPs installed under water quality implementation contracts as provided by the State Water Quality Cost-Share Program is excellent due to the technical expertise provided by the Soil Conservation Service.

Information and Education

--The emphasis on information and education, an integral part of all water quality planning and implementation projects funded under the State Agricultural Water Quality Cost-Share Program, has led to wide-spread acceptance of the Ag Plan by farmers, ranchers, cooperating agencies, State legislators, and the general public.

Soil Conservation District Leadership

--Soil Conservation Districts statewide have played a key role in creating an awareness among producers of the importance of managing agricultural nonpoint source pollution. This leadership and initiative is reflected by District Long Range Plans, in which priorities are established for critical stream segments and programs developed at the local level to address water quality concerns. Districts have done an outstanding job of expressing water quality needs to cooperating federal, State and local agencies. District information and education programs have provided a unique opportunity to inform producers of the needs and opportunities for agricultural nonpoint source water quality management.

The 1989 Legislature, with strong support from the Governor, provided the State Soil Conservation Commission with four additional positions with rangeland/riparian management and water quality emphasis.

State Commitment

- Funding of the State Agricultural Water Quality Cost-Share Program demonstrates a strong State financial commitment to achieving water quality objectives.
- The Water Pollution Control Account is the funding source for the State Agricultural Water Quality Cost-Share Program. The Account is reliant upon general sales, cigarette tobacco, tobacco products, and inheritance tax collections as sources of revenue.

Landuser Commitment

- Farmers and ranchers of Idaho have demonstrated their commitment to achieving State water quality objectives by matching State expenditures for BMP application under the State Agricultural Water Quality Cost-Share Program. Based on the success of BMPs installed in project areas, many farmers and ranchers are applying BMPs outside of project areas. This is being done at their own expense, by utilizing conservation loan opportunities, or other cost-share programs.
- Progress to date demonstrates that the existing program is well received by farmers and ranchers and is effective, given a strong information and education program, adequate technical assistance and financial incentives.

B. Water Quality Concerns and Program Needs

The State NPS Assessment Report identifies a number of impacts resulting from agricultural uses which are not adequately addressed by the State Agricultural Pollution Abatement Plan, developed in response to Section 208 of the 1972 Clean Water Act. The Assessment also points out several areas in which the concerns were covered by the Ag Plan but have not been addressed due to a low priority rating assigned at the time the Ag Plan was developed. The Ag Plan will be revised to address the findings of the Assessment and to reflect present State water quality objectives. The revised Ag Plan will outline a detailed strategy for attaining State objectives in the management of agricultural-related pollutants. The following water quality concerns and program needs will be addressed:

1. Water Quality Concerns

Soil Erosion and Sedimentation

- Sedimentation from soil erosion on cropland has been, and continues to be, the leading agricultural impact to Idaho's waters. Although

this is a major thrust of the 1983 Ag Plan, a continued effort is necessary to fully address this problem. The 1982 National Resource Inventory estimates soil erosion from Idaho's cropland to be about 55 million tons per year. Sedimentation studies in Idaho show approximately 30 percent of eroded soil is deposited in streams as sediment. This equates to an estimated annual sediment loading from cropland of 16,000,000 tons. Attached to this sediment is approximately 100 tons of nitrogen, 70 tons of phosphorus and 240,000 tons of organic matter.

Livestock Grazing/Riparian Management

--The impacts by livestock grazing on riparian areas was identified as a significant problem in the NPS Assessment. Grazing is covered in depth in the 1983 Ag Plan and BMPs developed. However, it was given a low priority since the objectives formulated at that time focused primarily on the management of soil erosion and the subsequent sedimentation. State water quality objectives now go beyond instream loading and also encompass the hydrological/habitat modification concerns. The revised Ag Plan will recognize livestock grazing as a top priority, with specific emphasis on riparian management.

Agri-chemical Management

--Impacts by agri-chemicals on surface and groundwater were also addressed in the 1983 Ag Plan and BMPs identified. However, standards and specifications for these practices had not been approved by the technical agencies for use by Districts. These tools are now being developed and will be available for use in agricultural water quality systems to protect both surface and groundwater from the impacts of both pesticides and nutrients. Agri-chemical management practices will address both leachable nutrients and pesticides, and those attached to soil particles and organic residue. The groundwater vulnerability mapping, outlined in the Groundwater section, will become a working part of the SCS FOTG and will be used in designing water quality management systems which specifically address concerns identified in the NPS Assessment.

Livestock Confinement Areas (Non-Permitted)

--Impacts by livestock confinement areas were not specifically addressed in the Ag Plan. At the time the Ag Plan was developed, it was felt that those confinement areas constituting a significant threat were point sources handled through the permit system. There is now a growing number of small livestock confinement areas which pose a significant water quality threat. This is particularly true in those geographic areas having a high density of such

operations. The revised Ag Plan will address this concern and provide a framework for an appropriate level of management.

2. Programmatic Concerns

Management and Technical agency Roles

--Several state and federal agencies are involved in implementation of the State Ag Plan. The role and responsibility of all state and federal agencies involved in the agricultural program will be reviewed in the process of updating the Ag Plan and appropriate action taken to clarify and facilitate an interagency approach in addressing State water quality objectives.

Best Management Practices

--Best Management Practices for agriculture are listed in the Ag Plan but are not presently defined in the Idaho Water Quality Standards. The need for such action will be evaluated as a part of the Ag Plan update and, if deemed necessary, a framework will be developed to accomplish the task.

--The concept of a BMP has been considered as a single management practice. This has led to confusion among both landusers and agencies. In most instances a combination of practices, designed around the specific characteristics of the site being protected, is required to produce the desired water quality results. The independent evaluation of the effectiveness of most individual practices is virtually impossible due to the cumulative effects of associated practices in the system. For example, the effectiveness of a vegetative filter strip in trapping sediment is dependent upon the treatment of the field contributing to the flow.

In contrast, the effectiveness of the entire "best management system", designed around the soil properties, slope and topography, climatic conditions, crops grown, etc. can be evaluated both quantitatively and empirically. A systems approach will be developed to replace recognition of individual practices in the definition and use of the term "Best Management Practice".

Evaluation of the Current Program

--The Ag Plan was approved in 1979 and modified in 1983, based on a voluntary approach to achieving State water quality objectives relating to agricultural nonpoint source pollution. To date, the State's efforts have been focused around a *watershed-by-watershed* approach in addressing agricultural impacts on priority stream segments identified in the State Ag Plan. The Ag Plan has been the

vehicle by which both State and federal funding has been directed at providing a combination of: aggressive information and education programs; technical assistance in the development of water quality plans; and incentives, provided through long-term contracts with producers, to offset a portion of the cost for implementation of those plans. (See Section IV A - State Program Accomplishments)

An evaluation of the extent to which water quality objectives were achieved under this approach was scheduled in the Goals section (IV-1) of the Ag Plan to be conducted in 1989. The Ag Plan calls for a back-up regulatory program to be developed if it is demonstrated that the voluntary program has not proven effective. This evaluation will be conducted in accordance with the criteria set forth in the Ag Plan. A regulatory back-up program will be developed if necessary.

Post-Implementation Monitoring

--Although baseline monitoring has been a component of all watershed planning projects administered under the State Agricultural Water Quality Cost-Share Program, there has been no post-implementation monitoring to evaluate the effectiveness of BMPs installed as a result of implementation projects funded by the Program. To date, the priority for conducting this monitoring has been superceded by that of implementing water quality programs on priority stream segments. The only detailed post-implementation monitoring project in the state has been in connection with the Rock Creek Rural Clean Water Program. Data collected on this project have been extrapolated to evaluate and strengthen BMPs on other irrigated cropland areas, but there has been no such effort on non-irrigated cropland or other agricultural land uses. The Feedback Loop, defined in the State Water Quality Standards, is dependent on this type of monitoring.

Post-implementation monitoring and evaluation is proposed in Appendix A of this Plan for the non-irrigated cropland of the Palouse region in northern Idaho and a similar effort for the non-irrigated cropland in the south-eastern part of the State. Due to the significant difference in soils, climate, and agronomic practices, a post-implementation monitoring project is also needed on irrigated cropland in the south-western part of the State to augment the data from the Rock Creek project.

Technical Assistance

--The Soil Conservation Service (SCS) has historically provided technical assistance for projects on a reimbursable and non-reimbursable basis. The SCS has also provided technical training

and supervision to personnel hired by the Idaho Soil Conservation Commission to carry out water quality planning and implementation under the State Agricultural Water Quality Cost-Share Program.

The availability of this assistance has become increasingly limited due to declining personnel at the federal level, combined with national priorities beyond the scope of water quality. Additional sources of funding or alternative sources of technical personnel must be evaluated to provide a more consistent level of technical assistance to the State Water Quality Cost-Share Program.

Financial Assistance

--The requests from Soil Conservation Districts for financial assistance to carry out water quality planning and implementation projects have outstripped the availability of funds in recent years. Grant applications have been submitted in several consecutive years for which funds were not available. Alternative funding sources will be explored during the update of the Ag Plan, and a realistic long-term implementation schedule will be developed based upon projected funding for the program.

Program Redirection

--Progress in achieving agricultural nonpoint source water quality objectives has been primarily limited to State funded project activities. Some federally funded projects have also resulted in considerable water quality benefits but have not had the specific objective of addressing State water quality priorities. Consideration will be given by federal, state and local agencies to redirect both on-going activities and project actions toward attainment of State water quality objectives and priorities.

Riparian Areas

--The State does not have a uniform system for use in the definition and classification of riparian areas, nor the mechanism to identify their status and trend. Several state and federal agencies are presently working independently to develop such guidelines. Numerous practices addressing riparian concerns are presently in use, and will continue to be used independently, by various state and federal agencies until a uniform system is available.

The NPS Assessment identifies grazing impacts on riparian areas as a significant problem statewide. There is a growing public perception that riparian areas on both private and public lands are not being effectively addressed. State leadership is needed in the adoption of a method for classification of riparian areas and a

uniform means of developing and approving BMPs for use in addressing these problems on all grazing land. The multi-agency involvement in grazing management necessitates the use of a coordinated resource management planning approach which keys on the following process:

- Use of a standardized method of resource inventory and classification to determine the potential and status of the resource.
- Identification of management alternatives (BMPs), based on the classification and resource needs.
- Selection and implementation of a system of practices in a site-specific manner designed to meet State Water Quality Standards.

The development of this framework for use in addressing grazing impacts, and a formal commitment among the involved agencies to implement that framework, will be a top priority element in the update of the Ag Plan.

Agricultural Wetlands

--The 1983 Ag Plan did not address wetlands. These areas will be addressed in several ways in the revised plan. The Idaho Priority Wetlands List, contained in the State NPS Assessment, will be used to identify and target appropriate management for all agricultural activities. The grazing management portion of the Ag Plan will address wetlands in conjunction with the riparian areas. Those portions of the plan relating to irrigated and non-irrigated cropland will utilize findings of the state-wide wetland determinations being conducted on private land by the Soil Conservation Service in response to the Wetland Conservation "Swampbuster" provisions of the 1985 Food Security Act. This information will be used in the development of water quality plans.

The Swampbuster provisions will have a tremendous impact state-wide in reducing the irreversible conversion of wetlands on lands used for production of commodity crops. All participants in USDA programs must be in compliance with these provisions in order to be eligible for benefits. It is estimated that in excess of 80 percent of the cropland acres in Idaho are addressed under these provisions. Programs covered by these provisions include the various commodity programs and price supports, FmHA loan programs and federal crop insurance, to name a few.

Water quality plans prepared under the State Agricultural Water Quality Program will contain wetland determinations and conditions

which prevent permanent alteration of areas designated as wetland. The quality of wetlands will be addressed by those BMPs designed to manage leachable nutrients and pesticides.

State Antidegradation Policy Compatibility

--Legislation for the State Antidegradation Policy was passed by the 1989 Idaho Legislature. This policy outlines specific procedures aimed at the identification of stream segments of concern in the State and the process by which public input will be utilized and water quality monitoring directed. The updated Ag Plan must accommodate the provisions of this policy. It will contain specific guidance to management and technical agencies regarding the use of monitoring data and public input, both of which are key aspects in the update of priorities for addressing agricultural nonpoint source pollution problem areas. Guidance will be provided for use of the Feedback Loop process as a means of assessing the effectiveness of agricultural BMPs.

State Groundwater Policy

--The Idaho Groundwater Quality Protection Act was passed in 1989. It requires that a Groundwater Quality Council be formed to draft a State Comprehensive Groundwater Quality Plan. The Chemigation Act was also passed during this Legislative session. It calls for specific actions to be taken to avoid contamination of surface and groundwater from activities relating to chemigation. The revised Agricultural plan will be consistent with these statewide programs.

Federal Agricultural Chemicals in Groundwater Strategy

--EPA released a strategy in 1988 to set federal policy on agricultural chemicals and groundwater quality. EPA's strategy requires states to develop management plans for leachable pesticides. State programs must include monitoring, groundwater vulnerability mapping and BMPs. The state-initiated programs addressed under the "Groundwater Policy" section (above) will be developed as an integral part of Idaho's strategy. The revised Ag Plan will be consistent with these new programs and will contain guidance regarding the development, implementation, and evaluation of BMPs for use in agricultural activities impacting groundwater.

State Agricultural Water Quality Cost-Share Program

--This program is the State's mechanism for implementation of the State Ag Plan. The rules and regulations for this program will be revised as needed to fully address the changes in the updated Ag Plan.

C. Management of the Existing Program in the Interim

Implementation of the existing Ag Plan will continue, utilizing those technical and financial resources identified earlier, until the revised Ag Plan is finalized. Provisions of the Ag Plan allow for the addition of BMPs as the need and technical feasibility arises. Accordingly, the State Agricultural Water Quality Cost-Share Program allows for modification of the grant agreements. Soil Conservation Districts with existing implementation grant agreements underway may modify those agreements as a means of providing opportunities for program participants to incorporate new BMPs addressing present priorities into water quality contracts.

D. Program Priorities

A new system for identifying priority watersheds has been proposed as a part of this Plan. The current system for addressing agricultural water quality concerns on a priority watershed-by-watershed basis was developed under 208 planning and is included in the 1983 Ag Plan. A total of 98 stream segments are identified and prioritized. Funding, under the State Agricultural Water Quality Cost-Share Program, has been directed to those segments included in this list.

The proposed system incorporates stream segments of concern, identified through the Basin Area Meeting approach under the State Antidegradation Agreement, and findings of the NPS Assessment. The new system will not be fully functional until the stream segments of concern are formally adopted. As a means of maintaining continuity until the new system is in place, the priority stream segments from the Ag Plan will be used to set priorities for projects proposed for funding under the State Agricultural Water Quality Cost-Share Program and federally funded projects.

E. STATE AGRICULTURAL STREAM SEGMENT PRIORITY LIST

Bear River Basin

WQS# ^{1/}	PNRS# ^{2/}	Name	Boundaries
BB-40	231	Bear R	Highway 91 to Utah Line
BB-40	232	Bear R	Mink Cr to Highway 91
BB-40	233	Bear R	Oneida Dam to Mink Cr
BB-30	235	Bear R	Cove Power Plant to Oneida Res
BB-30	236	Bear R	Alexander Dam to Cove Power Plant
BB-20	253	Bear R	Wardboro to ALEXANDERS Res
BB-10	273	Bear R	Wyoming Line to Wardboro
BB-450	237	Cub R	Headwaters to Utah Line
BB-480	286	Deep Cr	Deep Cr Res to Malad R
BB-460	285	Malad R	Headwaters to Pleasant View
BB-410	244	Mink Cr	Headwaters to Bear R
BB-110	274	Thomas Fork Cr	Wyoming Line to Bear R

Clearwater Basin

WQS	PNRS	Name	Boundaries
CB-150	1162	Bedrock Cr	Headwaters to Clearwater R
CB-151	1164.1	Big Canyon Cr	Headwaters to Sixmile Canyon (IR)
CB-1322	1160	Cottonwood Cr	Headwaters to Clearwater R (IR)
*	1161	Pine Cr	Headwaters to IR Boundary
*	1161.1	Pine Cr	IR Boundary to Clearwater R
CB-152	1288	Cottonwood Cr	Headwaters to Clearwater R, S Fk
CB-155	1167	Lapwai Cr	Source to Winchester L
*	1147	Mission Cr	Headwaters to IR Boundary (T to 114)
CB-141	1180	Lawyer Cr	Headwaters to IR Boundary
CB-141	1180.1	Lawyer Cr	IR Boundary to Clearwater R
CB-170	1120	Palouse R	Meadow Cr to Washington line
*	1122	Deep Cr	Headwaters to Palouse R
CB-154	1149	Potlatch Cr	Bear Cr to Clearwater R
CB-1451	1193	Reeds Cr	Headwaters to Dworshak Res
CB-110	1311	Tammany Cr	Headwaters to Snake R
CB-1551	1143.1	Winchester L	

^{1/} Stream Segment Number identified in the State Water Quality Standards

^{2/} Pacific Northwest Rivers Study number

* Stream Segment Number not identified in the State Water Quality Standards

Panhandle Basin

WQS#1/	PNRS#2/	Name	Boundaries
PB-140S	1515	Coeur d'Alene R, S fk	Osborne (Town) to Coeur d'Alene R
PB-420S	1561.1	Twin Lakes	N of Rathdrum (Town)
PB-440S	1562.1	Hauser L	
PB-450S	1565	Hangman Cr	Source to Washington line

Salmon Basin

WQS	PNRS	Name	Boundaries
SB-10	1009	Salmon R	Redfish Cr to Salmon R, E Fk

Southwest Basin

WQS	PNRS	Name	Boundaries
SWB-280	726	Boise R	Notus (Town) to Snake R
SWB-270	727	Boise R	Star (Town) to Notus (Town)
SWB-421	840	Crane Cr	Crane Cr Res to Weiser R
SWB-421	842	Crane Cr	Headwaters to Crane Cr Res
SWB-271	734	Fivemile Cr	Headwaters to Boise R
SWB-3242	893	Gold Fork R	Flat Cr to Cascade Res
SWB-281	732	Indian Cr	Headwaters to New York Canal
SWB-30	664	Snake R	Boise R to Weiser R
SWB-20	668	Snake R	Swan Falls to Boise R
SWB-340	818	Snake R	Weiser (Town) to Brownlee Dam
SWB-331	642	Squaw Cr	Headwaters to Oregon Line
SWB-220	671.1	Succor Cr	Headwaters to Oregon Line
SWB-271	736	Tenmile Cr	Headwaters to Fifteenmile Cr
SWB-420	834	Weiser R	Galloway Diversion to Snake R
SWB-410	834.1	Weiser R	Little Weiser R to Galloway Diversion
SWB-410	835	Weiser R	Headwaters to Little Weiser R
SWB-413	845	Weiser R, Little	Indian Valley to Weiser R

1/ Stream Segment Number identified in the State Water Quality Standards

2/ Pacific Northwest Rivers Study number

* Stream Segment Number not identified in the State Water Quality Standards

Upper Snake Basin

WQS#1/	PNRS#2/	Name	Boundaries
USB-430	349.1	Bannock Cr	IR Boundary to American Falls Res
USB-430	349	BannockCr	Headwaters to IR Boundary
USB-950	161	Big Lost R	Moore Diversion to US 26 at INEL
USB-360	302	Blackfoot R	Main canal to Snake River
USB-330	302.1	Blackfoot R	Wolverine Cr to Main canal
USB-330	303	Blackfoot R	Blackfoot Dam to Wolverine Cr
USB-230	60	Henry's Fork	Warm Slough to Mouth
USB-411	335	Marsh Cr	Headwaters to Portneuf R
USB-410	327	Portneuf R	Chesterfield Canal to Lava Hot Springs
USB-410	328	Portneuf R	Chesterfield Res to Chesterfield Ca
USB-510	365	Rock Cr	Headwaters to Snake R
USB-30	348	Snake R	Bonneville County LN to Ferry Butte
USB-50	362	Snake R	Massacre Rocks to Lake Walcott
USB-80	369	Snake R	Bliss Bridge to King Hill Dam
USB-70	378	Snake R	Milner Dam to Murtaugh
*	378	Scott's Pond	
USB-234	114	Teton R	Teton Dam Site to Teton Fks
USB-234	115	Teton R	Birch Cr to Teton Dam Site
USB-320	35	Willow Cr	Ririe Dam to Snake R
USB-310	37	Willow Cr	Grays Lk Outlet to Ririe Res
USB-310	38	Willow Cr	Cellars Cr to Grays Lk Outlet
USB-310	39	Willow Cr	Headwaters to Cellars Cr
USB-861	531	Camas Cr	
*	532	Camas Cr	
*	543	Corral Cr.	
*	535	Elk Cr	
*	537	Soldier Cr	
*	534	Willow Cr	
USB-860	480	Magic Res	

1/ Stream Segment Number identified in the State Water Quality Standards

2/ Pacific Northwest Rivers Study number

* Stream Segment Number not identified in the State Water Quality Standards

FOREST PRACTICES

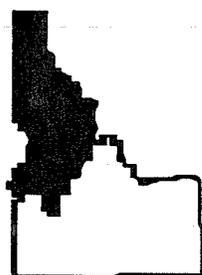
I. Industry Description

Forest products are an important segment of the economy in Idaho. Timber is harvested from federal, state, and private lands. Forests cover approximately 41 percent of the State's 52.9 million acres (Table 2). In 1987 the total harvest from these lands was 1.7 billion board feet. The majority of this harvest occurred on forests north of the Salmon River (Figure 3).

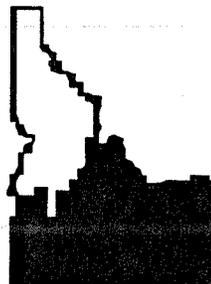
Idaho is the fourth largest producer of lumber in the western United States. The forest products industry employed approximately 15,000 workers in 1985 and supports 170 active primary wood product plants.

Forest Land by Principal Ownership	Millions of Acres	Percent
National Forest	16.2	74
Other Public	2.2	10
Industrial Private	1.2	5
Non-industrial Private	<u>2.3</u>	<u>11</u>
	21.9	100

Table 2: Land ownership. Total land area of Idaho - 52.9 million acres.



North Idaho
1,582,500 MBF
91.5 %



South Idaho
146,750 MBF
8.5 %

Note: Shown as the total volume cut during 1987 in million board feet (MBF).

Figure 3. Geographic Distribution of Forest Practices in Idaho.

II. Best Management Practices and Revision Process

A. Best Management Practices

BMPs for forest practices have undergone much scrutiny through institutional review and public interest. Silvicultural BMPs are identified in the Water Quality Standards as the Idaho Forest Practices Act, Rules and Regulations. These practices have been evaluated during the revision of the Idaho Forest Practices Water Quality Management Plan (1988) and two statewide Forest Practice Audits held in 1984 and 1988. BMPs must be designed to meet water quality standards and fully protect beneficial uses.

The 1988 audit found that compliance was generally high on federal, state, and industrial forests. Compliance was poor on non-industrial private land. BMPs were observed to be effective in preventing delivery of sediment when rigorously applied. Delivery of pollutants to stream channels occurred when BMPs were not used. Recommendations were made to improve implementation of BMPs on all land ownership categories. The cumulative effects of forest practices was not assessed. However, based on an ocular assessment of stream conditions, the team reported that 80% of streams had intermediate to high levels of sedimentation. The primary source of sediment were roads, many which were built prior to adoption of the Forest Practices Act. Recommendations were made to inventory existing sources of sediment and develop a means to stabilize these sources.

Because the FPA Rules have been identified as BMPs in the State Water Quality Standards, they become the minimum set of BMPs for federal lands as well. Federal agencies need to comply with the water quality BMPs in the FPA Rules of timber harvesting, stream protection and road building and maintenance. Federal agencies are not subject to the administrative requirements, i.e. notification and inspection by IDL, of the FPA Rules.

The Forest Practices Subcommittee suggested that a review of the Forest Practices Act enforcement mechanisms should be conducted. The review should include relevant state and federal agencies as well as affected interest groups. The review should determine the appropriateness of additional enforcement tools.

B. Revision Process

Statewide Process

BMPs are not a static process and are continually subject to revision. The procedure for revising the BMPs is dictated by state law and memorandum of understanding. The procedure for revising the Rules and Regulations is described in the Idaho Forest Practices Act and the Administrative Procedures Act. The Idaho Board of Land Commissioners have authority to adopt minimum standards for conducting forest operations based on the advice of a seven member Forest Practices Advisory Committee. Idaho Department of Health and Welfare's (IDHW) role in evaluating BMPs is described in the Water Quality Standards and a memorandum of understanding with Idaho Department of Lands (IDL). IDHW evaluates the adequacy of the Rules as BMPs through field audits and in-stream monitoring and makes recommendations for change to the Director of IDL.

Site-specific Application of BMPs

The Antidegradation Agreement addressed the review and revision of BMPs in Stream Segments of Concern. A local working committee of landowners, interested public, and agency staff will develop site-specific BMPs. These BMPs will be designed to protect or restore the beneficial uses of the designated segment.

III. Existing Programs, Authorities, and Resources

The Idaho Forest Practices Water Quality Management Plan (1988) was recently revised to be consistent with changes in agency programs and updates in the Water Quality Standards for nonpoint source activities. The Management Plan was certified by Governor Andrus and approved by EPA for compliance with Section 208 of the Clean Water Act. The following information describes the programs and authorities listed in the Management Plan.

A. Idaho Department of Health and Welfare

The Idaho Department of Health and Welfare -Division of Environmental Quality (IDHW) is responsible for developing and implementing water pollution control programs under state and federal law. IDHW's primary authority for controlling nonpoint

source pollution comes from the Environmental Protection and Health Act (Idaho Code, Title 39, Chapter 1). IDHW is delegated authority under the federal Clean Water Act to adopt water quality standards and develop programs for nonpoint source control. IDHW reviews BMPs for adequacy, conducts monitoring, develops water quality standards, reviews planned projects, and provides overall coordination of the Forest Practices Water Quality Management Plan.

IDHW's current forest practices program is funded primarily from the State Water Pollution Control Account. Four positions, three in field offices, carry out the program.

B. Idaho Department of Lands

IDL is the designated management agency for forest practice activities on state and private lands. IDL is charged with two different responsibilities, as a land manager responsible for timber harvest, and as a regulator of forest practice activities.

1) Idaho Forest Practices Act

The Idaho Forest Practices Act (FPA), Title 38, Chapter 13, Idaho Code, gives the Idaho Board of Land Commissioners the authority to adopt rules and regulations, to make repair orders, and to take enforcement action. About 2,500 forest practices are conducted annually on state and private lands in Idaho, creating the potential for environmental damage. Forest practices regulated by the FPA include harvesting, road construction, reforestation, chemical use, and slash disposal. The forest program addresses these practices through information and education activities, inspections, enforcement, and technical assistance.

Funding increased in 1987 to a level that provides minimum staffing of the program. A five cent per acre assessment on private forestlands now accumulates approximately \$150,000 per year. With general fund appropriation this supports ten full-time field staff, a Bureau Chief, and a Forest Practices Act Coordinator.

With additional responsibilities created by the Antidegradation Agreement, IDL will need additional staffing. Estimates of need for this program include two additional Forest Practice Act Advisors, a soil scientist, and one clerk/typist.

2) Forest Management Program

The state endowment trust contains more than 2.5 million acres of land including 880,000 acres of commercial timberland. The department manages its timber on a biological rotation basis with a sustained annual harvest target of approximately 200 million board feet. Authority for management of these lands is under the Idaho Admissions Act, the State Constitution, and State statutes. Administration is guided by the following mission statement:

"These lands shall be administered to maximize revenues over time to the endowment funds for the beneficiary institutions consistent with sound long-term management practices based on land capability."

Timber management staff are located at seven supervisory area offices. The program is managed by seven assistant area supervisors which are supported by 40 resource managers and technicians.

C. United States Forest Service

The Forest Service manages over 70 percent of the forested land in the state on ten National Forests. These lands supply an average of 45 percent of the timber harvest annually. Forest Service authority and responsibility for management is governed by a number of federal laws in addition to the Clean Water Act.

The Organic Act (1987)

The Multiple Use Sustained Yield Act (1974)

The Wilderness Act (1964)

Forest and Rangeland Renewable Resources Act (1974)

National Forest Management Act (1976)

National Environmental Policy Act (1969)

Wild and Scenic Rivers Act (1968)

As a designated management agency, the Forest Service is responsible for implementing a system of nonpoint source pollution control on National Forest system lands. Responsibility of federal agencies in complying with the Clean Water Act and State laws and regulations is addressed specifically in Section 313 and in Executive Order 12088.

The following Forest Service programs are designed and implemented to enhance watershed conditions and improve water quality.

Watershed Improvement Program: This program is carried out to rehabilitate Nation Forest System lands degraded to the point where natural recovery will not occur in time to meet specific social, economic, or environmental objectives. It also includes reclamation of mined lands on the National Forests. The objective is to restore hydrologic balance of degraded watershed lands by stabilizing soil, controlling surface runoff and erosion, reducing flood potential, and improving long-term soil productivity and water quality.

Burned Area Emergency Rehabilitation Program: The objective of this program is to provide for immediate rehabilitation of National Forest System watersheds following wildfire to help stabilize soil, control overland flow of water, reduce sediment, and prevent damaging debris movement. The purpose of emergency rehabilitation of burned areas is to minimize to the extent practicable, threats to life and property, loss of water control, deterioration of water quality, and loss of on-site soil productivity.

Timber Sale Area Improvement: The National Forest Management Act of 1976 (Sec. 18) amended the Knutson-Vandenberg (KV) Act to authorize the use of KV funds for the renewable resources of the forest lands on sale areas. This includes soil and water improvement projects which will protect and improve soil productivity and water quality. Proposed activities result from interdisciplinary input, are covered by the NEPA documentation for the timber sale, and must be included in the Sale Area Improvement Plan.

Rangeland Improvement Program: The objective of this program is to improve rangeland condition and forage production. Range improvement is defined as improvement to vegetative composition, density, or vigor. Other resource values such as soil productivity, water quality and fish & wildlife habitat often benefit from rangeland improvement projects. First priority for improvement projects is to arrest or rehabilitate deteriorated range, with emphasis in riparian areas.

Fish Habitat Improvement Program: This program is used to improve and maintain quality fish habitat and often involves improvement of riparian area condition and water quality.

Federal Facilities Compliance Program: This program, developed in response to the Clean Water Act, provides funding for Federal Facilities that are not in compliance with Clean Water Act objectives. This includes both point and nonpoint sources such as replacing underground storage tanks, improving sewage disposal systems, and erosion/sediment control on National Forest watersheds.

Emergency Watershed Protection Program: The objective of the Emergency Watershed Protection (EWP) program is to provide assistance for emergency measures to retard runoff and prevent erosion as necessary to safeguard lives and property from floods and the products of erosion created by natural disasters that cause a sudden impairment to a watershed. Although not specifically a water quality improvement program, implementation of an EWP project would prevent degradation of water quality following a natural disaster.

D. Bureau of Land Management

BLM manages a small percentage of the forested land in the state which supplies approximately 1 percent of the annual timber harvest. BLM's authority and responsibility to manage public lands is derived from a number of laws which include:

- The Federal Land Policy and Management Act (1967)
- The Wilderness Act (1967)
- The Taylor Grazing Act (1934)
- The National Environmental Policy Act (1969)

Responsibility for compliance with state law and the Clean Water Act is the same as described above for the Forest Service.

E. Other Authorities/Programs

- 1) Idaho Department of Fish and Game

IDFG functions as the State's technical experts in fisheries issues. Their role is to provide technical advice to the state and federal

agencies on the relationship between water quality and fisheries and impacts of specific projects. There is a need to increase staffing levels in the regional offices to provide the level of staff support requested by the regulatory and land management agencies.

2) Idaho Department of Water Resources

IDWR is responsible for administration of the Stream Channel Alteration Act (Title 42, Chapter 38, Idaho Code). This law applies to any forest activity which affects the stream bottom and banks, and is especially applicable to placement of bridges and culverts. Currently, IDWR has limited resources to carry out this program.

3) U. S. Soil Conservation Service (SCS)

The mission of the Soil Conservation Service is to provide national leadership in the conservation, development, and productive use of the Nation's non-federal soil, water, and related resources so that all Americans may enjoy the benefits of these resources. The SCS objectives for forests are concerned with quality in the resource base, the environment, and the standard of living. SCS provides service and technical assistance to forest land owners in developing conservation plans for woodlots, planning windbreaks, and general soils interpretations and erosion control information.

4) Soil Conservation Districts (SCD)

The role of the SCDs is described in the Idaho Association of Soil Conservation District's mission statement:

"The Soil Conservation District is to be the leading organization for providing action at the local level to promote wise and beneficial conservation of natural resources with emphasis on soil and water".

IV. Opportunities for Program Improvement

The following specific projects were considered by the 319 Forest Practices Subcommittee to be important in improving the application of best management practices or the understanding of forest practice impacts in the state. The projects are described here in conceptual terms and detailed as tasks in Appendix A.

A. Information and Education

Lead: IDHW/IDL

To implement the Forest Practices Water Quality Management Plan an interagency committee has recently reviewed existing information and education efforts and identified future needs for the state. These needs beyond existing resources are described below.

1) BMP Techniques

There is a need for better information materials to be used in training operators and sale administrators on the how-to's of BMP application. Also, the public needs better information on how the regulatory system functions in protecting water quality.

Materials prepared for operators will be a fieldbook and a hands-on video. The fieldbook will be a well illustrated, water-proof, pocket-sized booklet that includes implementation tips and suggested timber sale contract references.

Organization would be simple and easy to follow and cross reference the FPA rules. To complement the fieldbook a video illustrating the how-to's of BMP implementation will be prepared. The video will illustrate proper and improper application of BMPs and the resulting effectiveness in protecting water quality. These materials will be used by IDL in operator workshops, by IDHW and USFS in training national forest staff, and by industry associations and private companies in educating their members and operators.

An information brochure(s) will be prepared for general distribution to provide greater public awareness of how the regulatory system functions in protecting water quality. The brochure will present the use of BMPs, the FPA rules and regulations, and describe the regulatory process.

2) BMP Demonstration Projects

Lead: Idaho Assoc. of Soil Conservation Districts (IASCD) or
Idaho Forest Owners Association (IFOA)

Field demonstration projects can be used to illustrate innovative road construction and timber harvest practices. Field tours are a proven means of providing training to operators and landowners.

Landowner testimonials delivered on-site are an effective means of reaching the target audience. Soil Conservation Districts provide an established and experienced delivery system for this information.

The project will involve two stages, first an inventory of existing woodlots that can be used for demonstration tours, and second, development of projects which illustrate low impact and innovative practices. The first stage will involve minimal funding to identify the practices and willing landowners. The second stage will involve cost-sharing for landowners to illustrate how to conduct a timber harvest with minimal impacts from the planning stage to site preparation. These operations will be used to demonstrate good procedure throughout implementation of the forest practice.

3) Information and Education Program Support

The projects listed above result in information materials or tour sites that can be used in I&E programs. There is a need for staff funding to conduct the I&E programs. The program staffing could take place in a number of organizations (or combination of) - IDL, IASCD, IFOA, or through a private contractor. Training sponsored through an industry association or local conservation district is often the most effective method of reaching landowners.

B. Technical Assistance

1) Stream Class Mapping

Lead: IDL/ Idaho Fish and Game

The FPA Rules define two classes of streams which are the basis for different stream protection zones. A higher level of protection is required for Class I streams than for Class II streams. Agency audits have identified that misclassification of streams is a primary cause of noncompliance with the rules and consequently greater risk to the beneficial uses. There is a need to clearly identify stream class on maps for use by agency staff and operators.

2) Soil Hazard Mapping

Lead: IDL/ SCS

The Forest Practices Rules refer to soils that are highly erodible and easily compacted. Forest practices audits have observed that

problems with sediment delivery generally occur in areas with highly erodible soil. A plan needs to be developed to identify the costs of acquiring the necessary resource data needed to provide technical assistance and complete plan implementation. This includes acquiring new data and reformatting existing data for needed uses. Resource data needed includes soil survey, vegetative and other resource data.

The plan will identify the budget and staff requirements of resource agencies in order to be able to provide the basic resource data for writing and implement plans.

The plan will also provide a method to prioritize inspections and allow IDL to notify the operator of resource conditions prior to harvest activity. This information will provide IDL important resource information on which to base management decisions.

3) Problem Road Inventory / Repair Demonstration

Lead: IDHW/IDL

The 1988 Forest Practice Audit identified existing roads near stream channels as the most significant source of sediment leading to water quality impacts. Transportation networks have been built over a long history, but, are a continuing source of sediment to streams. This project proposes to work with the land management agencies and private landowners to identify and evaluate alternatives to existing problem roads. This would target roads which are outside of correction as part of the FPA or other existing programs. The project should also be targeted to impacted waters.

A second objective is to demonstrate cost-effective solutions to correct problems and identify programs and funding sources to correct the backlog of problem roads. Demonstration projects would be used as a means of developing accurate cost estimates. This project follows procedures similar to the USFS Watershed Improvement Needs Inventory program.

C. Technology Transfer

Lead: IDHW/IDL

1) BMP Effectiveness Inventory

The land management and research agencies have a lot of experience in applying and evaluating the effectiveness of BMPs in controlling erosion and mass wasting. However, this information is not readily available to operators and land managers. This project would compile existing data from agency files on effectiveness and costs of treatment, summarize the information, and display it in a way that is useful to the land manager.

2) Water Quality Information Base: Sediment Data

Water quality of forested streams is usually measured in terms of deposited sediment rather than standard water column parameters. For this reason this kind of data has not been compiled in a central location and is not amenable to existing data bases. This project would identify the needed hardware and software, develop statistical analysis and interpretation, compile existing data, and establish a system for continued entry and use. This project would also be the first step in identifying stream reaches which would be used to establish baseline conditions representative of various physiographic conditions.

D. Demonstration Projects

1) Coordinated Watershed Management in Mixed Ownership Drainage(s)

Lead: IDHW/IDL

There is currently no process to address the cumulative impacts in watersheds of mixed ownership. Federal agencies are required to evaluate cumulative effects to comply with NEPA; state and private landowners do not have similar requirements. This project will develop a coordinated watershed management plan, and establish a statewide cooperative of agencies/interests in mixed ownership drainages. The plan will be based on a cooperative approach to land management and will use the existing framework of Coordinated Resource Management Plans. Methods will likely include the following: Formation of an interagency/land owner working committee, inventory of land features and past/existing nonpoint

source activities, sediment modeling, inventory of problem sites and solutions, and evaluation of existing condition of water quality and beneficial uses, and treatment of identified watershed problems. Several different watersheds representing a variety of conditions, ownership patterns, and mix of nonpoint sources could be addressed in this process.

2) Interdisciplinary Study Team

Lead: IDL

IDL has initiated a study team to address cumulative impacts of forest practice activities on state and mixed ownerships. Initial projects have identified resource needs of personnel, data base information systems, and computer modeling capability. Funding will be used to staff an interdisciplinary team or provide contractual funds for specialized services. This will assist IDL in meeting their obligations for lead responsibility for cumulative effects in the Forest Practices Water Quality Management Plan.

E. Research

1) Nutrient Export Coefficients for Idaho Lakes

Lead: USGS

The effective management of nonpoint source pollution into Idaho's lakes will require knowledge of nutrient export coefficients from forested watersheds. Although nutrient export coefficients have been developed for numerous types of land-use practices the range of values for a particular coefficient can be quite broad because those values represent many different watershed types. Nutrient export coefficients could be applied more effectively to Idaho lakes if watershed studies were undertaken to determine coefficients unique to Idaho's forested watersheds. The experimental design of the studies might include geology, soils, vegetative cover, climate, and degree and type of disturbance by forest practices. The data collection program should include continuous-record streamflow measurements and periodic water-quality sampling for constituents of interest. A series of such studies has the potential to yield predictive models relating a watershed's export of nutrients to its characteristics.

MINING

I. Introduction

A. Industry Description

Mining and other facets of the mineral extraction industry have been an important segment of the state economy for over 100 years, beginning with gold discoveries in the Idaho City area in 1862. Other discoveries resulted in the Silver City, Elk City, Atlanta and Coeur d'Alene Mining Districts, and ended with the Thunder Mountain Gold Rush in 1902. Most of today's hard rock and placer mining continues in these same districts, primarily on public lands. Available economic resources include base and precious metals, phosphates, gemstones, building stone, sand, and gravel.

The estimated value of nonfuel mineral production for Idaho in 1988 was \$339 million, an increase of about 26% from 1987. Gains in the production of gold, lead, phosphate, and silver contributed substantially to the increase. The minerals antimony, copper, gold, lead, molybdenum, silver, vanadium, and zinc accounted for nearly 45% of the State's nonfuel mineral production value. While the State ranked 28th nationally overall for metallic production, Idaho ranked second in the nation for silver production in 1988 and gold production rose to a record high as new mines came into production.

B. Goals and Objectives

The primary goal of the mining nonpoint source management program is to maintain and, where possible, improve existing water quality that is or could be potentially impacted by mining nonpoint sources of pollution. The goal will be achieved by implementing the program objectives described below and in other portions of this plan.

- 1) Identify existing programs and intergovernmental coordination that can be used or expanded upon to implement the mining nonpoint source program.
- 2) Identify and incorporate mining BMP's, by reference, into the State Water Quality Standards.

- 3) Implement recommended program needs and action items using Clean Water Act funding sources as well as other funding sources unique to mining.
- 4) Use the nonpoint source feedback loop to evaluate progress and revise the program as necessary.

C. Areas of Concern

Water quality impacts of mining can originate from increased sedimentation to surface waters from areas that are cleared for construction or mining, roads built for access to the project area, stockpiles of topsoil, ore, and waste, and from stream channel alterations. Other impacts could result from transportation of hazardous materials such as petroleum and ore processing reagents, and from naturally occurring heavy metals or other elements that may be released during mining or mineral processing. Pathways resulting in nonpoint source pollution include overland runoff and leaching through the soil to groundwater. Of particular concern are the potential cumulative impacts to a watershed where more than one current and/or historical mining activity occurs. While many mine operations in Idaho have nonpoint source management schemes in place to address water quality goals, some projects, especially smaller ones, are currently operating without adequate nonpoint source measures in place. The following programs are beyond the scope of this plan and are not included: Superfund, Underground Injection Control, and the Uranium Mill Tailings Remedial Program.

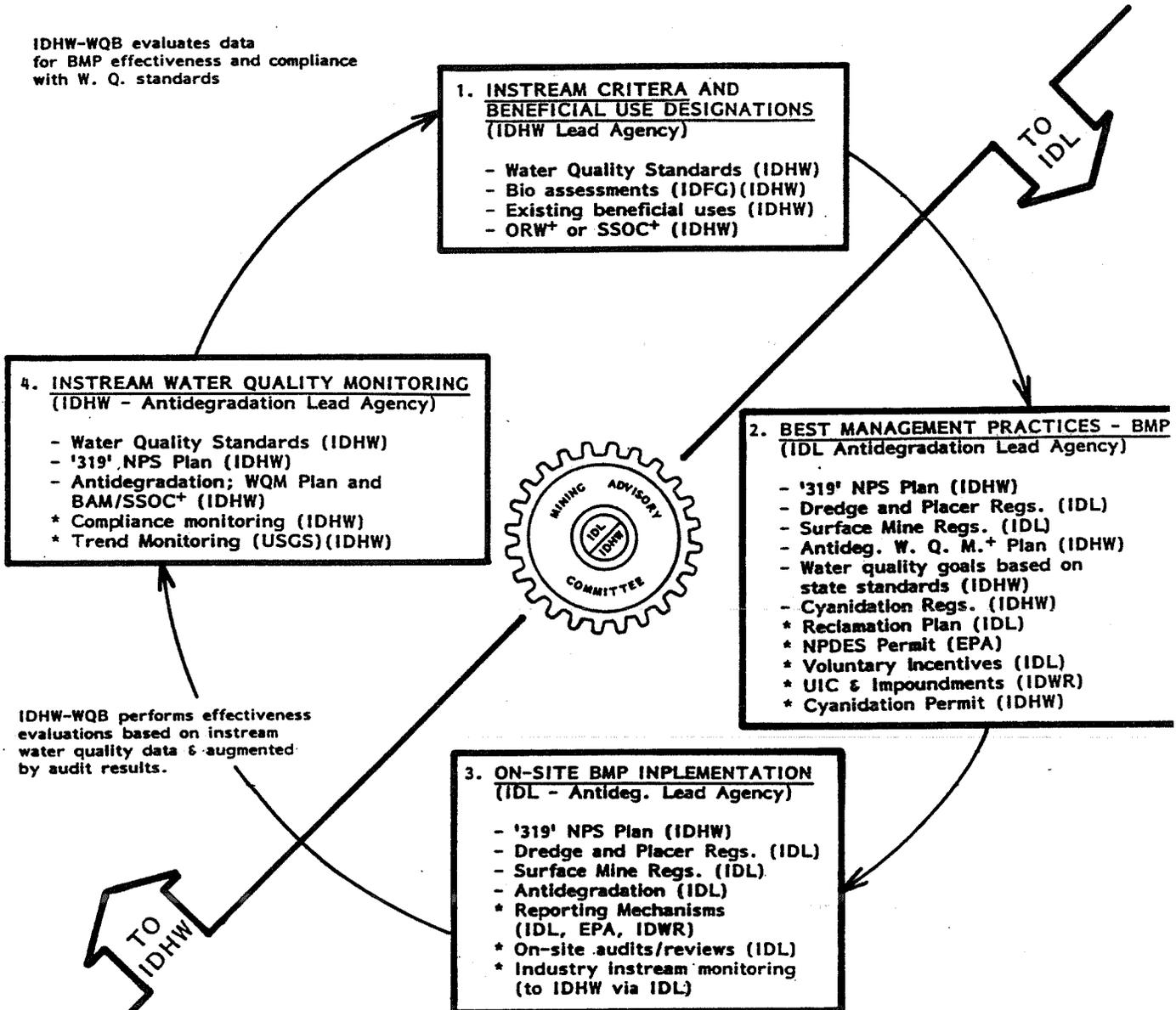
II. Existing Programs and Authorities

The following section describes existing programs and intergovernmental coordination of key state and federal agencies with authority to issue permits for new mining or mineral processing operations. These agencies would also have the authority to require BMP's or measures to control nonpoint sources of pollution from mining or mineral processing operations. The feedback loop is the primary mechanism for nonpoint source pollution management based on implementation of best management practices followed by instream monitoring. Figure 4 shows the feedback loop process for mining.

**STATE OF IDAHO
SURFACE WATER QUALITY PROGRAM
Figure 4 - BMP FEEDBACK LOOP: MINING**

- source of authority or guidance
* action items.

IDHW-WQB will recommend changes in BMP programs where indicated by monitoring data and/or results of IDL audits.



IDHW-WQB evaluates data for BMP effectiveness and compliance with W. Q. standards

IDHW-WQB performs effectiveness evaluations based on instream water quality data & augmented by audit results.

MINING ADVISORY COMMITTEE

Members Under IDL direction: IDHW-WQB, IDFG, BLM, USFS, USBM, IDWR: one representative each from underground, surface, phosphate mining and independent miners; and two members from Idaho's environmental community.

- * Review BMP selection guidelines for operators (using guidance from WQM-plan).
 - * Help compile BMP manual reflecting current technology from "approved" sources.
 - * Help produce a field handbook and workshops for technology transfer.
 - * Facilitate interagency coordination.
 - * Resolve issues using consensus approach.
- + Water Quality Monitoring Plan
 - + Outstanding Resource Water
 - + Stream Segment of Concern

Federal agencies are included below because a majority of surface mines are located on federal land. As a result, the federal surface management agency often takes the lead role in administering permitted mining activities on federal land. Also, Section 319 requires federal consistency with state nonpoint source management programs and provides for state review of federal development projects. This section reflects the regulatory situation as it exists at the present time and does not try to anticipate possible changes in this very dynamic area. Evaluation and updating during the annual program review is recommended.

A. Idaho Department of Lands - IDL

The IDL is the lead state agency for permitting surface mining operations. Several laws provide IDL with authority to require reclamation and appropriate sediment control measures to prevent water quality impacts.

- 1) Dredge and Placer Mining Act (Title 47, Chapter 13, Idaho Code). The Act sets out requirements for the submittal of an application for a permit. A bonded permit is based on regulations that require specific sediment control methods to be implemented during operation and at the close of each operating season to assure water quality protection. The reclamation permit outlines procedures to be used in reclamation and time limitations for reclamation.
- 2) Surface Mining Act (Title 47, Chapter 15, Idaho Code). The Act sets out requirements for the submittal of a reclamation plan. The bonded reclamation plan outlines procedures to be used in reclamation and time limitations for reclamation. Where water run-off from affected lands results in stream or lake siltation in excess of that which normally results from run-off, the operator shall prepare affected lands as necessary to meet water quality requirements. The Act does not apply to surface mining operations performed prior to May 31, 1972, nor to any pit or overburden pile as it exists prior to this date, unless reaffected. Regulations governing exploration and surface mining operations have recently been adopted.
- 3) Oil and Gas Wells-Geologic Information, and Prevention of Waste (Title 47, Chapter 3, Idaho Code). The Act created an

oil and gas conservation commission which has the authority to require practices that prevent the pollution of fresh water supplies by oil, gas, or salt water and to regulate the disposal of salt water and oil-field wastes (Section 47-319). A permit must be obtained prior to drilling. The director of the Department of Water Resources can recommend conditions necessary to protect fresh water supplies (Section 47-320). No regulations have been adopted.

IDL provides other state agencies the opportunity to review and comment on applications and reclamation plans. Pre-operational site reviews and subsequent site inspections are often conducted in coordination with other state and federal agencies.

B. Idaho Department of Health and Welfare - Division of Environmental Quality - IDHW

The Environmental Protection and Health Act (Title 39, Chapter 1, Idaho Code) provides the IDHW with broad authorities to protect and enhance water quality. Section 39-118 requires submittal of engineering plans and specifications for the review and approval of all waste treatment and disposal facilities and specifically, cyanidation operations. Two sets of regulations apply most frequently to mining operations:

- 1) Rules and Regulations for Ore Processing by Cyanidation (Title 1, Chapter 13). The rules describes minimum standards for design, operation, and closure to protect water quality.
- 2) Idaho Water Quality Standards and Wastewater Treatment Requirements (Title 1, Chapter 2). General water quality criteria and the feedback loop concept for control of nonpoint source activities are contained in these rules (IDAPA 16.01.2200, 2250, & 2300.04). (See Figure 4) . Also included are requirements for land application of wastewater, storage of hazardous and deleterious materials, and containment of spills (IDAPA 16.01.2600, 2800, 2850).

C. Idaho Department of Water Resources - IDWR

The Stream Channel Protection Act (Title 42, Chapter 38, Idaho Code) and the Dam Safety Act (Title 42, Chapter 17, Idaho Code) describe IDWR authorities that may affect mining operations. Rules for stream channel alterations and mine tailings impoundment structures are in place. Operation of vacuum and suction (i.e. recreational) dredges capable of moving two cubic yards of material per hour or less only requires a "one-stop" permit. Dredge operations moving greater than two yards per hour require a stream alteration permit and water quality certification.

D. U.S. Forest Service - USFS

The National Forest Management Act requires that all forest plans be in compliance with the Clean Water Act. The National Environmental Policy Act (NEPA) requires consideration for water quality protection in all federal development projects, including oil and gas leasing programs. In addition to NEPA requirements for environmental assessment of project impacts, the USFS requires a comprehensive mine operating plan. The plan must describe BMP's or measures that will be taken to protect water quality. The USFS and IDL have a Memorandum of Understanding to address coordination of plan, field inspection, reclamation and bond requirements.

E. U.S. Bureau of Land Management - BLM

The BLM manages surface operations on unpatented mining claims, federal mineral leases, and sand and gravel sale sites on all public domain lands. NEPA and operating plan requirements also apply as with the USFS, but the BLM has a five acre threshold before an operating plan requires approval. The BLM and IDL have an MOU to address coordination of plan, field inspection, reclamation and bond requirements. The operating plan must describe BMP's that will be implemented to protect water quality.

F. U.S. Environmental Protection Agency - EPA

The National Pollutant Discharge Elimination System or point source discharge permit program (NPDES), authorized under Section 402 of the Clean Water Act, is administered by the EPA with coordinated review and water quality certification by the IDHW. However, EPA also has authority under Section 319 of the Clean Water Act to

ensure that nonpoint source impacts to water quality are adequately addressed by the state. Section 309 of the Clean Air Act provides EPA the authority to review all environmental impact statements and other environmental documents to determine their environmental acceptability. EPA is currently developing rules under Subtitle D of Resource Conservation & Recovery Act (RCRA) to address mine wastes currently excluded from RCRA by the Bevill Amendment. EPA also administers actions taken under the Superfund provisions of Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

G. U.S. Corps of Engineers - COE

The COE has authority to permit dredge or fill activities associated with mining operations under Section 404 of the Clean Water Act. 404 permits generally cover the placement of dredged or fill material into a surface water for a specific purpose, such as road or dam construction. Currently, however, an MOU between the COE and the EPA requires issuance of a NPDES permit, pursuant to Section 402 of the Clean Water Act, for the disposal of mine wastes, such as tailings, into waters of the U.S.

H. Other Agencies with Review and Research Authority Only

These include the Idaho Department of Fish & Game (IDFG) and the U.S. Fish & Wildlife Service. The Fish & Wildlife Coordination Act mandates consultation between the developing agency and the fish and wildlife agencies. IDFG provides technical expertise on fisheries and wildlife issues.

III. Best Management Practices

A. Purpose

Nonpoint sources of pollution from mining are most commonly the result of activities which cause disturbance to stabilizing vegetation and the land surface. The pollutants may find their way to the receiving water from the surface through diffuse run-off or seepage from the area compared to a direct point source discharge from a discrete conveyance (pipe, ditch, etc.). Therefore, Best Management Practices, as described in a preceding chapter of the program plan, are designed to prevent or mitigate potentially

adverse effects to water quality resulting from mining activities that can create nonpoint source pollution.

B. Plan Development Process

A nonpoint source mining subcommittee was formed to develop a management program for implementing BMP's for mineral extraction operations. The subcommittee included representatives from state and federal agencies, conservation interests, and industry, that were also part of the larger nonpoint source technical advisory committee. The group received agency inputs and conducted a preliminary review of existing regulations and literature to identify existing BMP's and associated programs that were applicable to or currently utilized by mineral extraction operations in Idaho. This provided a basis for determining the direction of the four-year program.

C. Contributing Activities

The types of extraction related operations that can potentially create nonpoint source impacts include:

- 1) Surface Mining
- 2) Underground Mining-Surface Manifestations
- 3) Dredge and Placer Mining
- 4) Mineral Exploration
- 5) Oil, Gas, Water, and Geothermal Drilling
- 6) Orphaned and Abandoned Mine Lands

Each type of extraction operation has its own set of unique circumstances; however, they share many of the activities which can result in nonpoint source impacts. A bibliography of BMP references is included at the end of this chapter. The potential contributing sources are listed below:

- 1) Road construction and use
- 2) Open pits
- 3) Waste rock dumps or piles
- 4) Tailing impoundments
- 5) Beneficiation and processing facilities

- 6) Process, evaporation, and settling ponds
- 7) Orphaned and Abandoned mine lands
- 8) Transport of hazardous materials

Orphaned mine lands appear to play a disproportionate role in contributing to nonpoint source impacts (IDHW, 1980). These differ from abandoned mine lands in two characteristic ways: a) no owner of record can be located, and b) they are not associated with existing mine operations, which have water quality standards to meet through the use of BMPs. Many practices unacceptable today but routinely used in the past, such as unconfined discharge of tailings, construction of waste rock dumps or tailings piles immediately adjacent to stream channels, and uncontrolled mine drainage are key factors contributing to this situation.

IV. Opportunities for Program Improvements

The most crucial needs to be addressed are:

- 1) Funding for staff and program activities
- 2) Further review of existing regulatory framework
- 3) Integrate new state programs and enhance agency coordination
- 4) Implementation schedule with annual milestones

The first two needs are partially met at the present time. State and Federal agencies with regulatory authority over mineral extraction activities are already established and government appropriations have been provided for existing programs and staffing levels. However, the anticipated demands of the state mining program will require increased funding before the recommended actions can be fully instituted. The IDL anticipates the need for three additional full time positions and increased legal support.

Traditional funding sources, federal and state grants and appropriations, are expected to be inadequate, so new approaches may have to be considered. Legislation dealing with funding sources and enabling agencies to deal with certain potential nonpoint sources is expected to be required.

For a comprehensive mining nonpoint source management program to evolve, adequate support and guidance will be necessary. This will

require good communication between the agencies involved and other interested parties. To facilitate this, the formation of an advisory committee on mining, under the purview of the IDL, is recommended. The purpose of the Mining Advisory Committee (MAC) would be to enhance the coordination and partnership among agencies, industry and public interest groups that will be necessary to successfully implement the program. The MAC would provide a forum for building consensus regarding state mining policies and resolving technical issues. The mining subcommittee members could perform this function on an interim basis to provide continuity.

The IDL as lead state agency for mining, will guide MAC activities. Other participants would include, but not be limited to, two representatives of state environmental interests; and a representative from each of those agencies with significant involvement with mining activities: IDHW, IDWR, IDFG, USFS, BLM, EPA, and U.S. Bureau of Mines. Also included would be industry representatives associated with the different mining aspects: underground, open pit, dredge & placer, phosphate, and independent miners.

The MAC would be in a position to make program recommendations to the IDL. Any recommendations accepted by IDL may result in formal rulemakings, MOUs, or statutory changes to allow the recommended action to be legally implemented. Many program improvements could be accomplished through informal interagency agreements, policy changes or routine administrative processes and would not require formal adoption procedures. The rejection or acceptance of a proposal from the MAC would be at the discretion of the agencies involved.

Other opportunities for program improvements were also identified which will be addressed by implementing action items A, B, and C that follow. These suggested improvements are:

- 1) Review of recreational dredge & placer mining regulations to determine how the program can be enhanced, as directed in the Antidegradation Agreement.
- 2) Institute additional routine inspections of county sand and gravel operations to assure conformance with state requirements.

- 3) Develop an MOU or written agreement between IDL, IDHW, and EPA addressing the need for state review of BMPs and monitoring requirements incorporated in NPDES permits for consistency with the state nonpoint source program.
- 4) Incorporate approved mining BMPs into state Water Quality Standards within 12 months of EPA approval of the NPS Management Plan. Approved BMPs would be incorporated by reference to IDL documents or regulations.

To implement the mining nonpoint source program and obtain the necessary feedback to assure water quality protection, the following action items are recommended:

A. *Coordinate Audit and Monitoring Programs*

The IDL is responsible for coordinating necessary interagency activities. On-site audits and implementation of BMP programs will be the primary areas of concern for IDL. Although multi-agency audits are generally conducted at the larger operations, current agreements may need to be revised or new operations added to the audit circuit to accommodate recent or proposed program changes. One purpose of the MAC is to help facilitate coordination efforts by the IDL and dissemination of BMP information to all cooperating agencies and mining operations.

Good coordination between IDL and IDHW, lead agency for instream water quality monitoring, is also important to assure that feedback loop requirements are fulfilled. Existing water quality monitoring programs commonly associated with mining activities, include surface, subsurface and NPDES sampling done by the operators, EPA or IDHW. This information should be integrated with other available water related data pertaining to a given watershed by IDHW. The ability to retrieve this information from a common data base would allow better coordination with other existing state and federal programs on local, watershed, and regional levels.

Improvement in federal and state monitoring is expected to be necessary and will require an expanded sampling point network and prioritization of watersheds via stream segments of concern designations to best utilize available resources. Resulting analysis should allow conclusions to be drawn regarding current water quality status, trends, BMP effectiveness, and cumulative effects, if

any. The IDHW monitoring program will be guided by the Nonpoint Source Water Quality Monitoring Plan (currently under development) and should be referred to for additional details.

B. Review Existing Mining Programs and Regulations

Further review of existing programs, statutes and regulations should be undertaken by IDL with the assistance of the MAC to locate weaknesses and recommend improvements to the existing structure. The process of integrating the various program elements, such as newly developed MOUs, the recently developed Surface Mining Regulations, and provisions of the Idaho Antidegradation Agreement, may reveal certain gaps that should be addressed. This action item should be tracked to assure that solutions are developed in a timely manner. Tasks related to this type of fine-tuning are expected to be identified and underway early in 1990 and resolved before the end of the year.

C. Institute a Compliance Strategy

On projects where there is a reasonable expectation for nonpoint source impacts to occur, monitoring will be stipulated as part of the approved permit or reclamation plan. To increase awareness of how the nonpoint source program will be implemented, a letter from the IDL will be sent informing all mine and dredge and placer operators of the following:

- 1) Implementation of BMPs, including an appropriate level of water quality monitoring, at all sites with reasonable potential for contributing to nonpoint sources is called for by the Antidegradation Agreement and Policy.

- 2) All existing operations are requested to conduct environmental audits to confirm that suitable BMPs have been implemented and are functioning properly, or to determine what measures, if any, may be needed at their location.

- 3) Technical assistance is available from the IDL and IDHW to help operations meet program goals.

- 4) Informal on-site reviews are expected to take place in 1990 at all operations covered by IDL surface mining (currently being adopted) and dredge and placer mining regulations, by IDWR mine

tailings impoundment regulations, or by IDHW cyanidation regulations.

5) The Idaho Nonpoint Source Management Plan identifies the use of incentives, information, education, and technical assistance in addition to regulatory programs to achieve Section 319 objectives. The cooperation of all parties is necessary to achieve water quality goals while avoiding less flexible approaches.

D. Develop Technology Transfer Sources

A handbook of mining BMPs should be assembled by IDL staff in consultation with the MAC. The handbook should be especially useful to smaller operations which often lack the resources or expertise necessary to develop a comprehensive BMP program. Larger companies would also benefit by using the handbook to guide field personnel responsible for day-to-day activities. The handbook should be well illustrated, waterproof and pocket-sized. It should contain a list of existing reference materials and names and phone numbers of contacts as an aid to developing effective site specific BMP programs. The handbook, agency personnel, and the advisory committee could be used to actively disseminate BMP information through education programs supplemented with visual aids and video tapes.

To further assist mine developers and the general public in determining possible permit requirements for a mineral extraction operation, the IDL will develop an informational pamphlet for general distribution. This should consist of a complete checklist of the agencies involved in permitting mineral operations, the types of approvals or permits they may require, and who to contact for more detailed information. State requirements would be described in some detail, others would be included in a checklist. A more comprehensive and detailed booklet would provide additional benefits and could be developed at a later date if the need is there and funding is made available.

E. Reduce Impacts from Orphaned and Abandoned Mine Lands

A program should be established to undertake corrective action at problem orphaned mine lands. Where abandoned mine lands occur

near existing or proposed operations, these operations should be encouraged to stabilize or otherwise mitigate a historic water quality problem.

A preliminary review of existing studies and information would be conducted first, in order to determine the scope and extent of the problem. An inventory of abandoned mines would be developed and mine site evaluations conducted to develop a priority list of problem sites based on the sensitivity of affected waters, severity of pollution, and cost effectiveness of a given clean-up effort. This project should be a joint effort between IDHW and IDL in cooperation with the federal land management agencies, USFS and BLM. Once a priority list is developed one or more sites would be evaluated for a demonstration project for BMP implementation. However, for the three potential sources of funding identified, (USDA Rural Abandoned Mine Program, USDI Abandoned Mine Reclamation Program, and EPA-State Mining Waste Cooperative Agreement) it appears that Idaho would not qualify or there is insufficient funding in the program. This project, if funded, is outlined in further detail in Appendix A.

F. Implementation Schedule

The recommended implementation schedule is presented below. Item letters refer to recommendation headings above. Implementation of 1989 activities began during the Nonpoint Source Program Plan development period and is expected to be completed as scheduled. Any actions which would advance the program schedule or goals are not precluded by the following schedule.

- 1989 -A) IDL forms the Mining Advisory Committee (MAC); develop a strategy to coordinate existing IDL on-site audits and IDHW water quality monitoring program.

- B) Further review existing regulatory programs to identify BMPs for incorporation into state Water Quality Standards and identify possible remaining weaknesses and their solutions in the state mining program.

- C) Continue on-site feedback loop monitoring; IDL develops and distributes information letter on the nonpoint source program to all mining operations.

D) IDL begins research on BMPs to develop a draft handbook with guidance from the MAC.

E) Review literature and develop inventory list of orphaned mine lands to scope the problem.

1990 -A) Identify priority watersheds and implement IDHW monitoring programs based on stream segment of concern designations and the state Nonpoint Source Water Quality Monitoring Plan.

B) Amend regulations or modify existing programs, as needed, to fully integrate program elements; adopt approved mining BMPs in the Water Quality Standards.

C) Amend or develop inter-agency M.O.U.'s, as necessary, pertaining to BMP field audits and water quality sampling; conduct informal interagency BMP audits; continue interagency on-site reviews and instream data collection.

D) Publish and distribute handbook of mining BMP's and permitting information pamphlet.

E) Develop and issue priority list from inventory, following field visits to confirm which sites are impacting water quality or existing beneficial uses.

1991 -A) Implement any remaining elements of the monitoring program; conduct comprehensive data review and analysis; coordination of interagency water quality monitoring activities completed.

B) Review existing mine related programs to determine if changes are necessary due to new federal regulations anticipated to take effect about this time, e.g. EPA mine waste and stormwater regulations.

C) Active operations will be subject to formal BMP audits led by the permitting agency or per MOU terms.

D) IDL conducts workshops to provide more comprehensive training for both mine and agency personnel on implementing effective BMP programs using handbook examples, with special emphasis on smaller mine operations.

E) Plan orphaned mine land demonstration project(s) and obtain necessary funding.

1992 -A) IDHW and IDL review monitoring network and data for adequacy, and relationship of BMPs to water quality trends.

B) Evaluate success of nonpoint source program to date; propose remedies for significant deficiencies in mining nonpoint source program identified or confirmed through monitoring results and other feedback loop mechanisms.

C) Continue BMP audits at all operations, stressing documentation of the effectiveness of those BMPs which were previously identified to be less effective than anticipated.

D) Evaluate and revise BMP handbook and workshop content, as needed, based on feedback loop information and comments from interested parties and the MAC.

E) Conduct orphaned mine land demonstration projects (utilization of abandoned inactive mine sites to take advantage of in-kind funding sources is compatible with the goals of this program); request funding for other priority sites.

V. Program Evaluation

At the end of each year, progress towards completion of the scheduled annual milestones should be reviewed, reported, and amended, as necessary. Program recommendations under Section IV relate to enhancing implementation of the NPS feedback loop concept, so one objective of the evaluation is to improve and strengthen the feedback loop process.

A. Monitoring

Review data from water quality monitoring programs instituted at or in the vicinity of mining operations to determine effectiveness of BMP's and analyze trends. Identify gaps or weaknesses in the monitoring programs.

B. New Technologies

The Mining Advisory Committee (MAC) should be convened on a quarterly basis until the program is mature, and at least annually after that, to assist in the review and suggest improvements to the mining NPS management plan. Adequacy of current BMP's would be determined by evaluating data collected from the monitoring network and IDL audit reports. IDL will solicit input from the MAC during the evaluation process. Ongoing literature searches and field experience will be used to identify new technologies and innovations that should be considered for addition to the BMP handbook when it is updated. Demonstration projects should be conducted in cooperation with mining operations to test the effectiveness of new BMPs and their applicability to other sites.

C. Orphaned Mine Lands

Progress of any demonstration projects initiated on orphaned or abandoned mine lands should be reviewed annually by the IDL and IDHW. The results should be disseminated to interested parties and provide recommendations for future projects.

D. Public Input

Public input pertaining to stream segments of concern and related monitoring priorities obtained biannually at basin area meetings should be considered when reevaluating and revising monitoring programs. Additional opportunities for public input will be available when the nonpoint source program is reviewed, when reclamation plans are submitted for approval to the IDL, and as state regulations are amended.

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HYDROLOGIC/HABITAT MODIFICATION

I. Hydrologic/Habitat Modification Description

Hydrologic/Habitat modification includes those nonpoint source impacts resulting from changes to in-channel hydrologic functioning, channel and aquatic habitat condition, and adjacent riparian habitat condition. The subcategories of impact include channelization, dredging, dam construction, flow regulation, bridge construction, removal of riparian vegetation, and streambank destabilization.

Hydrologic modification has been identified as the second most significant nonpoint source of pollution in Idaho (after agriculture), according to the "Idaho Water Quality Status Report and Nonpoint Source Assessment, 1988". It occurs primarily as a secondary impact in conjunction with other nonpoint source activities such as grazing and forest practices.

Of the total stream miles assessed in 1988, 6100 miles or 38 percent are reportedly impacted by hydrologic and habitat modifications. The greatest impacts occur in conjunction with agricultural activities where the subcategories of range and pastureland are associated with riparian vegetation removal and streambank modification on over 4000 miles of streams. Forest practices are associated primarily with streambank modification and riparian vegetation removal with almost 1500 miles related to forest road construction alone. Fewer but significant miles of hydrologic impacts are related to highway road or bridge construction and mining activities.

II. Existing Programs and Authorities

The following regulatory programs and authorities have been identified as relating to Hydrologic/Habitat modification.

1. **Stream Channel Protection Act, 1971:** The Idaho Department of Water Resources Stream Channel Alterations Rules and Regulations and Minimum Standards are cited as "approved BMP's" in the Idaho Water Quality Standards for nonpoint sources

(IDAPA 16.01.2300,04d). These BMP's implement provisions of the Stream Channel Protection Act passed by the Idaho Legislature in 1971.

Chapter 38, Title 42, Idaho Code directs the Idaho Water Resource Board to adopt rules and regulations protecting the stream channels of the state and their environs from alterations which would adversely affect fish and wildlife habitat, aquatic life, recreation, aesthetic beauty or water quality. The code further suggests that the Board adopt minimum standards and procedural regulations so that any proposed action meeting these minimum standards could be excused from most procedural requirements.

After review and comment by all interested parties, the Idaho Water Resource Board adopted such rules and regulations. These rules are readopted by the Water Board every two years. Proposed changes are advertised and public comment sought pursuant to the Idaho Administrative Procedures Act.

Under the Stream Channel Protection Act, a permit is required for most stream alterations including those requiring machinery to operate in the stream. The rules and regulations specify procedures for reviewing applications submitted for all types of stream channel alterations except: construction of dams and reservoirs, construction and maintenance of canals and ditches, and in some instances, removal of obstructions and debris from a stream channel. The rules and regulations do not apply to work done on intermittent streams nor for construction work on any existing or proposed reservoir project, including the dam. No permit is required for removal of debris from a stream channel, provided that no equipment will be working in the channel and that all material removed will be disposed of outside the channel. A water user can clean, maintain, construct, or repair any diversion structure, canal, ditch or lateral and remove any obstruction from a stream channel which interferes with the delivery of their water without a permit.

The provisions specify a set of standards which in most cases prescribe the minimum conditions for approval. These minimum standards describe construction procedures and designs for rip rap, dikes, levees, jetties, culverts, bridges, pilings, and pipe crossings. They also specify methods for removal of sand and gravel deposits, and requirements for operating suction dredges.

Approximately 300 stream channel alteration permits are processed by the Department each year. Although regulation is by permit, these activities are not considered as point sources.

If a proposed alteration is not designed in accordance with the adopted minimum standards, a copy of the application is sent for review to those State agencies requesting notification. At this time the Department of Water Resources routinely notifies the Idaho Departments of Lands, Fish and Game, and the Department of Health and Welfare, DEQ field Offices.

The Department of Water Resources is charged with administering the stream channel alteration program. As of January 1989, the department will devote four employees to the program. Because of the overlap between the state program and the federal 404 permit process, the Department works closely with the Corps of Engineers. A concerted effort is made by both agencies to avoid conflicting decisions or permit conditions.

2. Idaho Transportation Department Regulations and Authorities: The implementing cooperative agreement between Idaho Departments of Health and Welfare - Division of Environmental Quality and Transportation recognize the following documents: "Best Management Practices for Road Activities"; Idaho Transportation Department internal rules, guidelines, and practices; and the Federal Highway Administration directives for control of soil erosion, water pollution, and sedimentation as reasonable effort to satisfy nonpoint source control requirements of the Idaho Water Quality Standards.

"Best Management Practices for Road Activities" was developed by IDHW in 1982. It is a two volume document that provides policy, guidelines, and recommended measures for road location, construction, and maintenance. The guidelines are intended to minimize impacts to water quality from nonpoint source road activities.

Prior to development of the document, it was required that nonpoint source road building activities be accomplished "in a manner that demonstrates knowledgeable and reasonable effort to minimize resulting adverse water quality impacts." The document clarifies nonpoint source requirements and serves as the basis to determine compliance with Idaho Water Quality Standards.

Because of limited IDHW staffing, no formal effort has been made to review for consistency the various directives used by the Idaho Transportation Department and the "Best Management Practices for Road Activities". Any conflicts between these are currently resolved by mutual agreement between the ITD and IDHW.

3. Section 10, Rivers and Harbors Act, Section 401, Water Quality Certification, and Section 404, Clean Water Act:

The Corps of Engineers is responsible for administering two federal laws which regulate certain activities in water and wetlands. Under Section 10 of the Rivers and Harbors Act of 1899, permits from the Corps are required for all construction activities in navigable waters of the United States. In Idaho these waters include the Snake River (upstream to river mile 445.5), Clearwater River (upstream to river mile 40), North Fork Clearwater River (upstream to river mile 57.9), Clark Fork River (upstream to river mile 4), Kootenai River (from Bonners Ferry to the Canadian border), Pend Oreille River, Pend Oreille Lake, and Bear Lake. Activities in these waters requiring Section 10 permits include construction of structures such as piers, docks, retaining walls, riprap, jetties, weirs, transmission lines and irrigation facilities, and instream work such as dredging, disposal of dredged material, filling and channelization.

Under Section 404 of the Clean Water Act, permits from the Corps of Engineers are required to discharge dredged or fill material into waters of the United States, including wetlands. Waters of the United States include most, if not all lakes, ponds, rivers, streams (including intermittent streams) and wetlands within Idaho. Activities requiring Section 404 permits include site development fills for recreational, industrial, commercial and residential uses; road fills; dams and berms; artificial islands; property protection and/or reclamation devices such as riprap, seawalls, groins, breakwaters and revetments; levees; and disposing of dredged or excavated material in waters or wetlands.

The Corps of Engineers is obligated by its own regulations and by the National Environmental Policy Act to consider the impact of proposed projects on water quality. Applications for permits are to be evaluated for compliance with State water quality standards during the construction and subsequent operation of the proposed

activity. The State agency (IDHW) certifies water quality standards compliance directly with the applicant. This evaluation is to consider both point and nonpoint sources of pollution.

For Section 10 permits, the Corps makes the determination of compliance with water quality standards based on coordination and comments from state and federal resource agencies and the Corps' own evaluation. For Section 404 permits, certification of compliance with applicable effluent limitations and water quality standards is the responsibility of the State of Idaho pursuant to Section 401 of the Clean Water Act. The decision by the State on Section 401 water quality certification is considered conclusive with respect to water quality considerations unless the Regional Administrator of EPA advises of other water quality aspects to be taken into consideration. Such advice can be given on a case-by-case basis.

In addition to applications for Section 404 permits, any applicant for a federal license or permit to conduct any activity that may result in a discharge of pollutants into waters of the United States is required to obtain a Section 401 water quality certification from the state. A water quality certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility.

4. Public Utility Regulatory Policies Act, 1978 (PURPA) : Under its authority as the licensing agency for hydropower projects, the Federal Energy Regulatory Agency (FERC) places certain requirements on methods of construction and operation to minimize hydrological impacts and nonpoint source pollution as conditions of a license. These conditions are prescribed in License Articles, or Terms and Conditions for projects exempted from licensing. They are based on recommendations by state and federal fish and wildlife agencies on a case by case basis. The Electric Consumers Protection Act of 1986 gave fish and wildlife agencies authority to set mandatory terms and conditions to prevent significant loss of fish and wildlife habitat on any projects which involve the construction of a new dam and sell the power generated to a utility under PURPA.

These conditions may include such things as minimum stream flows, bank stabilization measures, facility siting, limits of vegetation removal, and revegetation measures. Where specific measures are not recommended, the FERC requires the licensee to prepare written

plans for the control of erosion, sediment and other pollutants prior to construction and submit those plans for approval to the fish and wildlife agencies.

Hydropower projects located on federal lands are also subject to mandatory special use or right-of-way provisions prescribed by the land management agency and the NEPA process, and include measures to control nonpoint source pollution.

The FERC may not issue a license for any hydropower project which has not received certification by the Idaho Department of Health and Welfare under Section 401 of the Clean Water Act. Certification may be issued only if in that agency's judgement the project will not result in significant impacts to water quality.

5. Comprehensive State Water Plan: Legislation mandating the development of a comprehensive state water plan and providing for a state protected rivers system became effective July 1, 1988. The law directs that all the resources of a drainage basin or river reach be described and considered in developing a comprehensive water plan. The Idaho Water Resource Board must balance all factors relevant to the formulation, adoption and implementation of a comprehensive state water plan.

The Idaho Water Resource Board is now authorized to "protect" rivers. If, as part of the comprehensive water planning process, the Board determines that the value of preserving a waterway for particular uses outweighs that of developing the waterway for other uses, it can designate the waterway as either a natural or recreational river. If designated as a natural river, the Board must prohibit the construction or expansion of dams or impoundments, the construction of hydropower projects, the construction of water diversion works, dredge or placer mining, alterations of the stream bed, and mineral or sand and gravel extraction within the stream bed. When designating a waterway a recreational river, the Board may prohibit any or all of the above listed activities. The Board, however, may not limit, restrict, or conflict with approved applications for the appropriation of water or with vested property rights existing on the date a waterway is designated for interim or permanent protection.

As a part of the legislation, the Water Resource Board was required to provide interim protection to portions of the Priest, Henry's Fork, Boise, Payette, and Snake rivers. In these instances, the Water Board chose to apply all prohibitions provided for by the legislation to each of the interim reaches. Interim protected status applies for up to two years while a component of the comprehensive state water plan is prepared for the affected waterway. The Board may designate additional waterways as interim protected rivers upon their own initiative or as the result of petitioning by a state agency.

6. Lake Protection Act: The Idaho Lake Protection Act establishes a permit program for "encroachments ... on, in or above the beds of waters of navigable lakes..." (Idaho Code Section 58-144). Encroachments are defined to include docks, piers, pilings, channels or basins, landfills, and other similar structures. The Lake Protection Act lists water quality among the interests to be considered in acting on a permit application. Other interests include protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, and aesthetic beauty.

The Land Board has promulgated regulations under the Lake Protection Act. The regulations permit the Director of the Department of Lands to include measures to protect water quality as permit conditions.

7. National Flood Insurance Program: The Idaho Department of Water Resources coordinates activities of the Federal Emergency Management Agency's National Flood Insurance Program in Idaho. While the program is administered by the Federal Insurance Administration, the State Flood Coordinator of the Department of Water Resources is charged with providing assistance to local governmental entities in all phases of program participation.

The National Flood Insurance Program is based on an agreement between local communities and the federal government which states that if a community will implement measures to reduce future flood risks to new development, the government will ensure that flood insurance is available within the community. Basically, this means that the appropriate public body must adopt floodplain management regulations for its flood-prone areas.

The preservation of life and property is the key feature of a floodplain management plan. Plans are expected to include provisions regulating land use in the floodplain. Communities are encouraged to adopt plans which favor open space uses such as recreation or agriculture within the floodplain.

The existing program clearly impacts on water quality in several ways. Many types of development (i.e., hydrologic modification) which have the potential to negatively affect water quality are discouraged or precluded. New development in enrolled communities must not alter flood flow characteristics.

Approximately 90 percent of the floodplain area in Idaho has been assessed for its flooding potential. Of the 153 counties and communities eligible for enrollment in the flood insurance program, 144 have decided to participate. As of December, 1988 the Idaho Department of Water Resources has slightly more than one full time employee of effort dedicated to the program.

III. Hydrologic/Habitat Modifications Not Adequately Regulated or Protecting Water Quality Under Existing Authorities

The following list is not, nor is it intended to be, all inclusive. The listed modifications are those identified by the Hydrologic/Habitat Modification Subcommittee as needing further review and improvement (see Appendix A).

A. Releases from impoundments have not been adequately regulated. Examples include: Effects of flow modifications downstream of the impoundment, bottom sediments delivered as a result of reservoir level fluctuation, lake bed erosion, and others. Current regulations generally address chemical parameters such as dissolved oxygen. Development of BMPs for the non-regulated nonpoint sources would facilitate regulation through the feedback loop process.

B. Dam construction. BMP's are inadequate under existing authorities.

C. Bed stability of forested streams is not adequately protected under the Idaho Forest Practices Act. Research has shown the need for natural levels of large organic debris recruitment from

streamside forests to maintain proper functioning of stream channels in this ecosystem. A proposal is currently before the Forest Practices Committee for inclusion of this item in the Rules and Regulations.

D. Stream channel straightening and stream bed stability are inadequately addressed in the existing regulations. Additional rules covering these activities in the Stream Channel Alteration Act, for example, would be desirable.

E. Operation and maintenance of diversion structures is not adequately regulated by the Stream Channel Alteration Act or Section 404. This is primarily concerned with entering the stream to clean out, repair, and otherwise control efficient operation of the diversion structure, which commonly results in generated pollution to the stream.

F. The water quality impact of flow modification is not addressed under existing regulations. Water quality is a factor which needs to be considered in administering existing consumptive water uses. Essentially no consideration is made at present. In addition, more water quality protection emphasis is needed in granting future water rights.

G. Certification under section 401 for federal 404 permits and FERC licenses has not been applied in all cases. Wetland and riparian issues, for example have not traditionally been considered due to inadequate authority.

H. Grazing practices affecting hydrologic modification are not regulated, except perhaps under existing authorities of federal land management agencies, and those appear to be inadequate, as indicated by the conclusions of a GAO report on federal riparian management activities. Several of the land management agencies are currently working to improve these practices as they affect riparian areas.

I. Enforcement of the Stream Channel Alteration Act is inadequate due to lack of staff. Current staffing includes 4 full time employees (FTE's) in the field, .5 FTE lawyer, and .5 FTE secretary. According to the Department of Water Resources, staffing adequate to fully regulate the SCAA would include 8 FTE's in the field, 1 FTE technician, 2 FTE's secretarial, and 1 full time

lawyer to provide quality input to legal actions. Task 7, shown in Appendix A, would fund 2 FTE's in the Department of Water Resources to improve enforcement especially in the area of nonpoint source controls and BMP application. The two positions would include 1 water quality specialist, and 1 fisheries biologist, which would provide needed expertise and more efficient interagency review and cooperation between Departments of Water Resources, Health and Welfare, and Fish and Game on individual permit actions.

J. Existing model floodplain management ordinances are in need of improvement. They do not address water quality related factors such as riparian modification and channel destabilization.

K. There is a need to develop a State strategy for minimizing nonpoint source impacts on wetlands. Wetlands are not now adequately protected under existing regulatory programs. Several programs that could be expanded to include wetland nonpoint source controls or approved BMP's are the Forest Practices Act, and the Stream Channel Protection Act. The strategy should include both expansion of existing regulatory authorities and development of new regulations to fill existing program gaps. There may be a need to develop statutory authority in the Department of Health and Welfare.

L. There is a need to add intermittent stream channels to the SCAA. Stream channel alterations in major intermittent tributaries of perennial streams can have as drastic impact on downstream water quality as alterations on the perennial streams themselves. The Forest Practices Act (FPA) addresses BMP's for such streams for this reason. Most sediment transport occurs during high springtime runoff in Idaho when the intermittent streams are flowing. It might be desirable to address only the "major" intermittent streams using the language in the FPA (Class 2 streams).

IV. Hydrologic/Habitat Modification Program in Relation to Other Categories of Nonpoint Source Pollution

As stated above, hydrologic modification occurs primarily as a secondary impact in conjunction with other nonpoint source activities. The agriculture program may address BMP's for grazing and other agricultural impacts on such things as, riparian vegetation removal and streambank stabilization. Likewise the forest

practices and mining programs may address BMP's related to the same or other hydrologic modification subcategories. This program will address construction activities such as channel straightening, dam construction, and activities not covered by other programs. The Hydrologic Modification Program will need to be coordinated with other programs potentially affected. In addition, projects proposed and implemented under other program components should be reviewed for compatibility with projects under this program.

To determine which nonpoint source categories are most directly associated with hydrologic modification, all impacted stream segments in the assessment data base were sorted by categories. By this procedure, the total number of miles of streams for any given nonpoint source pollution category was identified when it occurred together with a stream segment associated with hydrologic modification. Results of the sort are presented in Appendix B; agriculture in table 1, forest practices in table 2, construction in table 3, and mining in table 4.

Those agricultural activities most significantly associated with hydrologic modification in order of severity are rangeland, pastureland, non-irrigated crop production, and irrigated crop production. Rangeland and pastureland are primarily associated with removal of riparian vegetation and streambank modification, and represent the single greatest association in the database. This correlation indicates the significance of streamside livestock grazing impacts on water quality.

Forest practices activities most commonly associated with hydrologic modification include harvesting, and road construction and maintenance. These forest practices were correlated primarily with removal of riparian vegetation and streambank modification. This probably reflects the effects of past logging and old roads located within riparian corridors.

Construction activities occur less frequently in association with hydrologic modification. Streambank modification is most significantly associated with construction activities, particularly highway construction.

Mining occurs in association with hydrologic modification on less than 700 miles of streams. Most of these are related to stream channelization, removal of riparian vegetation, and streambank

modification. Interestingly, only about 100 miles of streams were identified as having mining and dredging in combination.

V. Hydrologic/Habitat Modification Program Needs

(Note: Project description for these needs are shown in Appendix A.)

A. Watershed/Stream Site Description

The Clean Water Act states "A State shall, to the maximum extent practical, develop and implement a management program under this subsection on a watershed-by-watershed basis within such state." It is clear that nonpoint source management requires an understanding of watershed processes at the upland level and at the stream level. To fully understand the potential for preventing and/or correcting nonpoint source problems, the watershed processes require examination. To better examine watershed processes, it is necessary to realize that different land units behave differently in their response to erosional processes, surface and ground water hydrology and contaminant transport, resistance to physical change, and in their resiliency or ability to recover. Through understanding the potential response and existing condition of a land unit and the processes affecting it, the land manager's ability to authorize use, select best management practices, or design remedial measures is greatly enhanced.

Watershed/stream site description would provide a tool to help the manager categorize or box units of land that appear to behave in a similar fashion.

The site description should go beyond simply describing appearances to be useful in nonpoint management, it also must relate to how and why the land and stream responds and interacts. This relation of land and stream responses is called watershed/stream site description. To be useful to nonpoint management a site description should:

- Identify what is there today.
- Identify important processes affecting the unit of land.
- Estimate what might or could be there tomorrow.
- Provide a reference for information exchange.
- Provide a framework with which to evaluate land use impacts.
- Enable transfer of knowledge to similar units of land.
- Provide a means for predicting effectiveness of management.

Many site description procedures have been developed for use with wetland/riparian vegetation (Daubenmire, 1968; Cowardin and others, 1979; Brown and Lowe, 1973; Youngblood and others, 1985) and at least one for physical attribute (Rosgen, 1985). The most recent procedures have attempted to classify vegetation and describe physical attributes together (Kovalchik, 1987; Platts and others, 1987, 1988; Hansen and others, 1988; Swanson and others, 1988; Hann and Jensen, 1988). One procedure (Rickert and others, 1978) was developed solely for analyzing nonpoint source problems related to erosion. None have attempted to integrate all the important watershed characteristics.

Building on this array of procedures and ideas, the Bureau of Land Management and Soil Conservation Service (National Soils and Range Team) have established a Riparian Site Description Taskforce. The objective of this national effort is to integrate as many existing approaches as possible to allow a universal application. This team has been testing the approach nationally and a report will be available by late 1989. This site description procedure should allow managers to better understand their resources, particularly in the area of nonpoint source management. The purpose of Task 1, in Appendix A, would be to review the report and hopefully integrate some or all of the proposed process into Idaho's nonpoint source program.

B. Test and Application of Watershed/Stream Site Description

If a site description procedure is adapted in the nonpoint source program, it would be tested on high priority areas determined through the 319 review process. Procedures would be tested in conjunction with this and other subcommittees in hopes of building a system to help managers and land users select the most effective and efficient BMP's for a particular area.

Testing would consist of describing a high priority basin, reviewing existing practices within the basin, and correlating the effectiveness of the practices.

Much of the testing and application is and would be done on federal and state lands at a minimum cost since many agencies are in the process of planning or conducting such inventories. This information

would be channeled into this task and made available to land managers and regulators. It is anticipated that between 25 and 50 major site descriptions will adequately describe most sites in Idaho.

C. Improved Enforcement for Existing and Potential BMP's and Regulations

There is a need to review existing rules and regulations, authorities, and enforcement to evaluate adequacy in protecting water quality as identified in **Section III** above. This project will address all of the regulatory program shortcomings cited in that section, and propose practical alternative solutions. There is a need for resources to properly review and certify permits (404 and SCAA), and monitor reviewed projects for compliance with permit conditions. The IDHW estimates a need for three FTE's annually to carry out this program.

D. Public Information and Education

Public information and training were also identified by the subcommittee as a need in the Hydrologic/Habitat Modification Program. Information transfer needs have been identified for field level practitioners, particularly in the areas of construction and land management where most of the activities creating hydrologic modification impacts are occurring.

E. Stream Channel Protection Act Enforcement Staffing

One of the major inadequacies of the stream channel alteration program is lack of personnel to facilitate comprehensive water quality review and processing of permit applications, and to enforce permit provisions. This project would fund 2 additional full time positions to serve as SCAA enforcement coordinators in the Department of Water Resources. The two positions would include 1 water quality specialist, and 1 fisheries biologist, which would provide needed expertise and more efficient interagency review and cooperation between Departments of Water Resources, Health and Welfare, and Fish and Game on individual permit actions.

F. Effectiveness of Riparian/Grazing BMP's

This project is only one segment of the overall State strategy for developing grazing/riparian BMP's. A more detailed description of the total strategy is contained in the Agriculture section.

The sorting of stream segments in the nonpoint source assessment database indicated that improper grazing was the most significant pollutant category associated with hydrologic modification. This project would evaluate and document the effectiveness of several grazing practices in protecting water quality. Information would be obtained primarily from existing monitoring and research data. The purpose would be to propose the most effective practices as "best management practices" for grazing in riparian areas correlated to the Watershed/Stream site description. Coordination with current BMP development efforts of agencies and user groups would be required.

GROUNDWATER

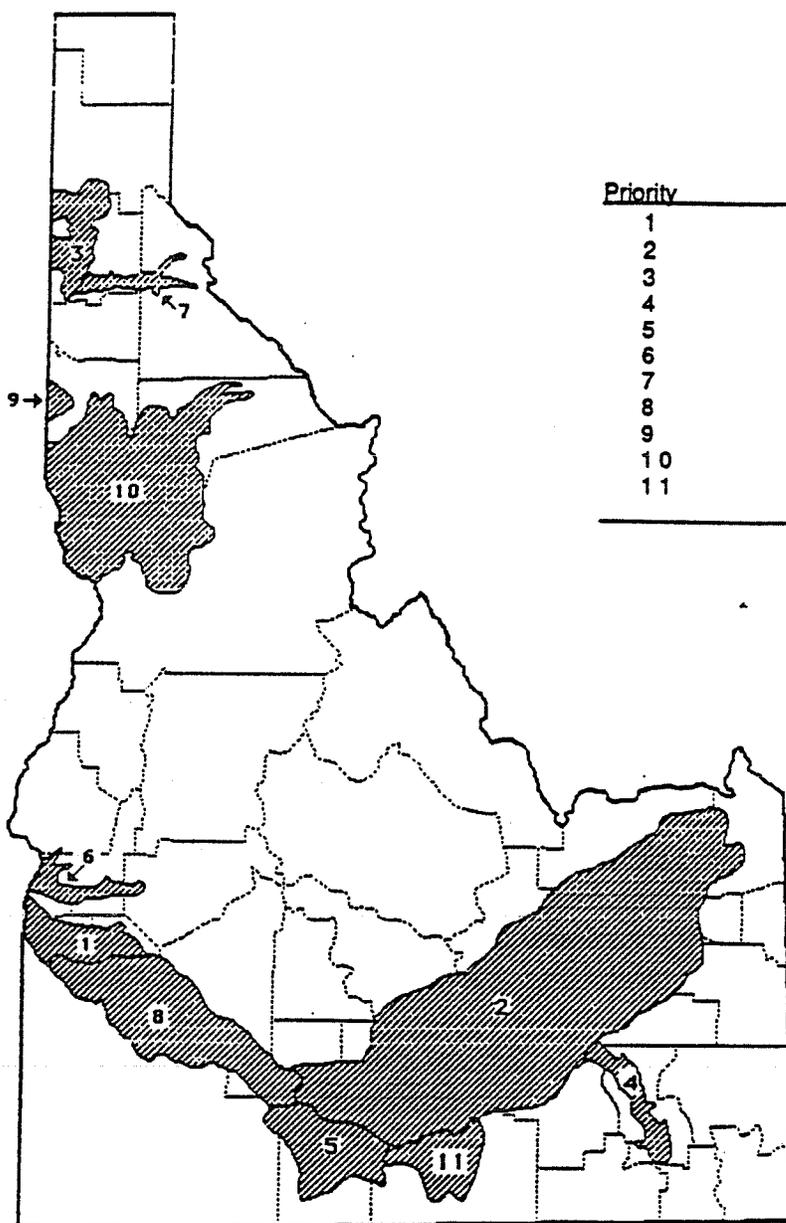
I. Introduction

Idaho ranks in the top five states in the United States in terms of volume of groundwater used. In 1980, approximately 6,400 million gallons per day were withdrawn from Idaho's aquifers. The principal uses are for irrigation (64% of total usage) and industrial purposes (33%). Idaho also ranks high among the top 10% of the states for percentage of drinking water supplied by groundwater. Over 90% of Idaho's drinking water comes from its aquifers.

Groundwater contamination results when the ability of the soil to absorb and immobilize or break down contaminants is exceeded. Under such conditions, contaminants applied at the land's surface can leach downward and may eventually reach the aquifer. Areas where groundwater is shallow or where soils are thin or very permeable are particularly vulnerable. Also where considerable water is applied to the land surface in the form of precipitation or irrigation water, the potential is greater because additional water is available to leach contaminants below the root zone.

To set priorities, Idaho's principal aquifers have been evaluated for potential for contamination (Whitehead and Parlman, 1979). This ranking was done on a large scale and local variability in sensitivity to contamination was not considered. Figure 5 shows the aquifers which this study found to be the most vulnerable. Factors which were considered in the ranking were population density (as a measure of land use) and intensity of groundwater use. The highest ranked aquifers were the Boise Valley, Eastern Snake Plain and Rathdrum Prairie. In general, priorities for the Nonpoint Source Management Program Plan have been developed around this aquifer ranking.

Point sources of groundwater contamination are those sources which are individually identifiable in terms of point of release and zone of impact in the aquifer. Examples are surface spills, leaking underground tanks and landfills. Nonpoint sources are those land uses which are numerous, dispersed, and are usually individually insignificant in generating groundwater contaminants. It is the



Priority	Name
1	Boise
2	Snake Plain
3	Rathdrum Prairie
4	Marsh Creek-Lower Portneuf
5	Salmon Falls Creek-Rock Creek
6	Payette Valley
7	Coeur d'Alene River-Silver Valley
8	Mountain Home Plateau
9	Moscow Basin
10	Clearwater Uplands and Plateau
11	Goose Creek-Golden Valley

CONTAMINATION POTENTIAL RATING OF IDAHO'S MAJOR AQUIFERS

cumulative impact of these land uses when located in high density situations that results in groundwater contamination. Examples are septic tanks and agriculture.

Point sources of groundwater impacts generally result in localized contamination. Typically, the area of impact from a point source is on the order of acres or tenths of a square mile. Exceptions to this rule have been noted in Idaho, but generally point sources do produce localized impacts. In contrast, nonpoint sources can impact larger portions of an aquifer. Land uses spread over large areas can potentially degrade groundwater quality over many square miles.

Groundwater monitoring data in Idaho is limited. Most of the monitoring that has been done has been conducted in relation to known or suspected point sources such as spills or industrial point sources. Monitoring for nonpoint sources is much less frequent because of the expense of the widespread network that is needed. Consequently, we are in the earliest stages of understanding the role of nonpoint source impacts on groundwater. The relative importance of nonpoint sources versus point sources of groundwater contamination is not known in Idaho.

Four potential nonpoint sources are addressed in the groundwater portion of the Nonpoint Source Program Plan. These were chosen by the Groundwater Subcommittee because the extent of these activities or land uses in Idaho is significant. These sources are (not in priority order):

1. Agriculture
2. Septic Systems
3. Urban Runoff
4. Industrial Chemicals

Although there are undoubtedly other potential nonpoint sources in the state, the limited monitoring data make it fruitless to attempt to evaluate the extent of impact of other sources. In actuality, the available monitoring data are of limited value in distinguishing between the sources that were selected.

The groundwater portion of the Nonpoint Source Program Plan addresses each of the four selected sources individually. To do this, the Groundwater Subcommittee was divided into four work groups, each being responsible for a source. The subcommittee noted that several program components such as monitoring and public education were present in the work plans that were developed for each source. These common elements have been collected in a fifth and final

section that addresses nonpoint source impacts to groundwater in general. Where these sections overlap with others in the Program Plan, they have been cross-referenced.

II. Agriculture

A. *Program Description*

Background on the state's agricultural water quality programs can be found in the agriculture portion of this management program plan. It is suggested that that section be read prior to the following information which pertains to groundwater.

This portion of the plan describes those aspects of the agricultural program which are specific to groundwater. Contamination of groundwater from agricultural activities can occur in several ways. Included are:

1. Mixing and handling of chemicals before application.
2. Disposal of excess chemicals after application.
3. Cleaning of equipment after application.
4. Injection wells.
5. Field application of agricultural chemicals under circumstances that result in movement of water and chemicals through the soil to the aquifer.

These activities involve the use of pesticides (including herbicides and insecticides) as well as fertilizers. The potential exists for both kinds of agricultural chemicals to impact groundwater. The programs that are developed should address the full spectrum of agricultural chemicals that are in use today.

B. *Program Needs and Recommendations*

1) Monitoring data are currently inadequate to evaluate the extent to which agricultural practices may be impacting groundwater. Pesticide data are very limited. Impacts from fertilizer have been noted, but the extent is difficult to evaluate because nitrate can be derived from a variety of sources. A comprehensive monitoring program should be developed and implemented. Monitoring design should include long term trend monitoring as well as localized intensive surveys in areas of concern. Seasonal trends should be

investigated so the mechanisms of groundwater impacts can be more clearly understood. Data should be entered into a database that is available to all potential users.

2) Mapping of local groundwater vulnerability has been started for the eastern Snake Plain aquifer. Data on aquifers, recharge and soils are combined on a geographic information system. Maps depict where groundwater is particularly sensitive to impact. This mapping should be expanded to other priority aquifers so that this tool is available for future management efforts. Maps should be made available to all interested parties to assist in identifying areas where additional precautionary measures may be required to prevent groundwater impacts.

3) As monitoring and mapping data become available, a central clearinghouse is needed to archive data and disseminate it to the public. The agency acting in the coordinating role should ensure that all available data are included and that all data that are collected adhere to minimum collection and analysis procedures to ensure accuracy and compatibility. A priority should be placed on making data available to all potential users including the public.

4) A comprehensive information and education (I & E) program is needed to teach growers, irrigators, agricultural chemical distributors and others about groundwater issues. To the maximum extent possible, this I & E effort should utilize the expertise of agricultural and industrial associations for development and presentation of material.

5) Existing BMPs need to be evaluated to identify ways in which existing practices should be modified to address groundwater protection. Where necessary, new information about BMPs related to groundwater, fertilizer management, and pesticide application should be provided to irrigators and growers to promote application of these BMPs. To the extent possible, BMP implementation should be further promoted through financial incentive and cost-share programs.

6) EPA's recently released Agricultural Chemicals/Groundwater Strategy requires states to develop programs to tailor the application of leachable pesticides to groundwater vulnerability. All of the recommendations above are required to ensure that Idaho is prepared to meet the requirements of the strategy.

C. Existing Funding

Currently, the Soil Conservation Service is revising their Field Office Technical Guides to add BMPs related to groundwater. BMPs are being included for groundwater. SCS has also developed a pesticide leaching index and provides field technical assistance with respect to groundwater. The current annual level of effort is approximately 5 FTE. The Idaho Department of Agriculture is developing and will implement a chemigation program to ensure that proper backflow prevention equipment is installed. The Department of Agriculture also conducts an ongoing user information program on pesticides. Groundwater protection is a component of these programs. Approximately 0.25 FTE and \$15,000 are expended annually by the Department of Agriculture on groundwater related activities.

The Division of Environmental Quality has made contributions in this area by conducting limited site-specific monitoring studies and by mapping groundwater vulnerability. Monitoring for agricultural chemicals is very limited, due to limited funding and staffing. Several studies have been carried out in cooperation with USGS. Funding for the studies is contributed equally by USGS and IDHW. The vulnerability mapping is a cooperative effort between IDHW, USGS, Idaho Department of Water Resources and the Soil Conservation Service. Approximately \$80,000 is spent annually among all of these agencies.

III. Septic Systems

A. Program Description

Standards for subsurface sewage disposal systems were first developed in Idaho in 1964 and were revised in 1970. The original standards were prepared primarily as BMPs and were not regulatory. A regulatory program was first approved by the Legislature in 1971. A 208 report on septic systems recommended rule changes with respect to standard and alternative septic systems to address surface water and groundwater impacts. These recommendations were incorporated into the 1985 revisions to the regulations. A Technical Guidance Manual is continually being updated to reflect changes in BMPs on design, construction, alteration, operation and maintenance of conventional and alternative systems. Soils

characteristics are a major parameter in determining system siting and design criteria.

Since 1971, the seven District Health Departments have been the major regulatory authority for issuing permits for septic system installation. The specific division of responsibilities between the Idaho Division of Environmental Quality and the health districts is delineated in a Memorandum of Understanding for Environmental Services which is updated periodically.

B. Program Needs and Recommendations

Approximately 58% of Idaho's citizens rely on septic systems. Current funding only allows for permitting of the initial installation of systems and does not provide for post installation monitoring and oversight. Given the large number of systems in use in the state, a public information program is needed to promote adequate long term management and maintenance. Numerous opportunities could be utilized to supply citizens and civic leaders with this information.

Additional monitoring efforts are needed to determine whether the existing regulatory approach and BMPs are adequately protecting groundwater. Special studies should focus on approved alternative systems and large on-site systems. Monitoring of systems in general could be efficiently conducted by the collection of a water sample from private wells during routine mortgage surveys. Analysis for common parameters such as nitrate would greatly expand our existing database.

Recently EPA has interpreted the federal Underground Injection Control (UIC) regulations to be applicable to multiple dwelling septic systems that utilize drainfields. The impact of this interpretation must be evaluated in the future by the Idaho Department of Water Resources which is the state lead agency for the UIC program.

Lastly, current regulations do not control septic system density in vulnerable groundwater settings. Technical data on system density is available from other states. Testing of its applicability in Idaho should be conducted. If appropriate, local units of government should be assisted in developing ordinances that address permissible system density as determined by groundwater vulnerability mapping.

C. Existing Funding

Approximately 11.6 FTE are devoted annually by the seven District Health Departments in the septic system program. Activities include issuing permits, ensuring compliance with design and siting requirements and working with land developers when alternative systems are needed due to soil and groundwater constraints. 0.5 FTE is allocated annually by the Division of Environmental Quality to coordinate the state's program and to provide technical assistance to the Districts. Occasionally, site specific intensive studies are done by the Division and/or the District in problem areas. Funds are limited for these studies.

IV. Urban Runoff

A. Program Description

Urban runoff quantity and quality is dependent on the use and intensity of the development of the land. Groundwater impacts can potentially occur where certain practices are used to manage urban runoff. Included are dry wells (shallow injection wells), infiltration pits, infiltration swales, recharge basins (percolation ponds) and porous pavements. Contaminants found in urban runoff include nutrients, synthetic organics, oil and grease, and toxic metals. In addition, in areas where salt is applied during snow removal, sodium and chloride may reach groundwater.

There is no comprehensive program to manage urban runoff in Idaho. Shallow injection wells are regulated by the Idaho Department of Water Resources. Decisions on other management options are made by the Idaho Transportation Department, city and county governments and developers. An intensive survey of dry wells and an assessment of improved management options is currently in the initial stages for the Rathdrum Prairie aquifer as a cooperative effort between the Department of Water Resources and the Panhandle Health District. In most areas the magnitude of potential or actual impacts on groundwater is unknown.

B. Program Needs and Recommendations

The first step in addressing urban runoff is to evaluate the extent to which groundwater impacts may be occurring. A monitoring program in urban areas located over the Snake Plain, Boise Valley and

Rathdrum Prairie aquifers would provide initial data. Monitoring should be concentrated in recharge areas and zones of greatest aquifer vulnerability.

Because of the dispersed nature of runoff and the variability in the degree to which it may be a threat to groundwater, local approaches offer the greatest opportunity for success. Both regulatory and non-regulatory programs can be used to promote acceptable methods of drainage disposal in sensitive groundwater areas. Training and technology transfer opportunities should be provided for local jurisdiction representatives to promote the incorporation of runoff controls in county and city building permits, planning documents and ordinances.

Lastly, public education programs are needed to discourage disposal of wastes such as used oil and antifreeze on the ground or in storm drainage systems. Increased citizen awareness of the potential for contamination of drinking water supplies can provide an incentive for improved waste disposal.

C. Existing Funding

No formal program on urban runoff exists in the state. The Department of Water Resources administers the Underground Injection Control (UIC) Program which has specifically permitted 167 drain wells and authorized another 3200 shallow wells by rule. About 0.33 FTE and \$5,000 are expended annually on this portion of the UIC program. Cities and counties are also involved in the design of roadway drainage systems as part of building and zoning code enforcement. No estimate is available on the resources that are expended by these local governments.

V. Industrial Chemicals

A. Program Description

In the past decade the statutes and regulations applicable to industrial chemicals have been expanded greatly at both the state and federal levels. The Resource Conservation and Recovery Act (RCRA) and the regulations promulgated under it address the generation, storage, treatment, transportation and disposal of hazardous and solid wastes. An industrial chemical becomes a hazardous waste when it is no longer suitable as a commercial

product (i.e., it is a waste) and it is sufficiently ignitable, corrosive, caustic or toxic or it is specifically so designated in the statute or regulation. These wastes are extensively regulated under RCRA and the analogous state law, the Idaho Hazardous Waste Management Act. The federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) provides the means to pay for the cleanup of hazardous waste sites when responsible parties cannot be found or are unwilling or unable to pay to clean up a site. It also provides the EPA with the authority to take legal action to force responsible parties to clean up sites or to pay back the federal government for the cost of cleanup.

The Superfund Amendments and Reauthorization Act (SARA) provided new authorities for addressing industrial chemicals that are not wastes. Title III of SARA requires that inventory records be kept. Prevention of accidents and local emergency preparedness is promoted through the establishment of local emergency planning committees. Information on chemical storages is made available to emergency response personnel. Current funding and staffing of these programs is inadequate. An additional staff person is being requested to work with local emergency planning committees in developing contingency plans for hazardous materials.

Individual classes of potentially hazardous chemicals such as pesticides, radioactive substances and petroleum are regulated under additional programs.

B. Program Needs and Recommendations

The extent to which industrial chemicals have impacted groundwater quality is unknown. Monitoring efforts in the state are limited and generally do not include analysis for common industrial chemicals. The potential for contamination exists as evidenced by the widespread very low levels (parts per trillion) of pentachlorophenol found in groundwater in many parts of the state. A monitoring program for selected industrial chemicals should be developed in conjunction with other groundwater monitoring efforts. Information being collected on storage and use of industrial chemicals through the SARA Title III program could be used to identify priority areas for monitoring. Analysis for aggregate indicator parameters such as

total organic carbon (TOC) or total organic halogens (TOX) could serve as a cost effective method for initial screening. Where problems are identified, follow up sampling for additional parameters will be necessary.

Most hazardous wastes which are generated by large facilities are currently regulated. However, there are many small users and disposers of industrial chemicals that do not have access to or do not utilize the best available disposal procedures. In particular, household generators of hazardous waste are in need of better disposal options. Program efforts should focus on providing convenient opportunities for waste collection and disposal such as local collection days. A public information program is also necessary to encourage participation. Waste minimization and recycling should be encouraged to the maximum extent possible. Innovative approaches to provide incentives for waste minimization should be researched and implemented.

C. Existing Funding

There is no comprehensive integrated program in the state for industrial chemicals with respect to groundwater. The Idaho Emergency Response Commission is working with six Local Emergency Response Commissions and county governments to implement the Community Right to Know and Emergency Planning requirements of SARA Title III. About 0.25 FTE and \$35,000 are expended annually by the state Commission. Estimates of the local levels of effort are not available.

The Idaho Hazardous Materials Bureau is involved in several grant programs that are important for groundwater protection. These grants are enabling the state to build programs on waste minimization, recycling, source reduction and household hazardous wastes. A key component of these developing programs is public information including workshops, brochures and directories. About 0.25 FTE and \$180,000 are available annually for these efforts.

VI. Groundwater Projects Applicable to Several Nonpoint Source Categories

Several groundwater program components were identified as being necessary for more than one nonpoint source category. This section

summarizes these general nonpoint source program needs. Further detail can be found in the sections on specific nonpoint sources.

A. Groundwater Monitoring

Monitoring was identified in all of the groundwater nonpoint source sections. Monitoring should include sampling for long term regional trend identification as well as localized investigation of groundwater areas of concern or "hot spots."

B. Data Management

Monitoring data from all agencies and entities should be collected in a central data base that is accessible to all participants as well as the public to the maximum extent possible. This central collection point is needed to prevent duplication of sampling efforts and to ensure that data are readily available to support groundwater management decisions. At present, data are stored in many formats and in many places. Some data are never stored in a data base making analysis and summary very difficult and time consuming.

C. Groundwater Vulnerability Mapping

Mapping of local vulnerability using soils and aquifer data has been initiated in the Snake Plain aquifer. A sample map is shown in Figure 6 (Page 129). Extension of this mapping to other high priority aquifers such as the Rathdrum Prairie and Boise Valley is needed. Better information on local variability is needed to set priorities on monitoring, BMP implementation and facility siting decisions.

D. Public Information Program

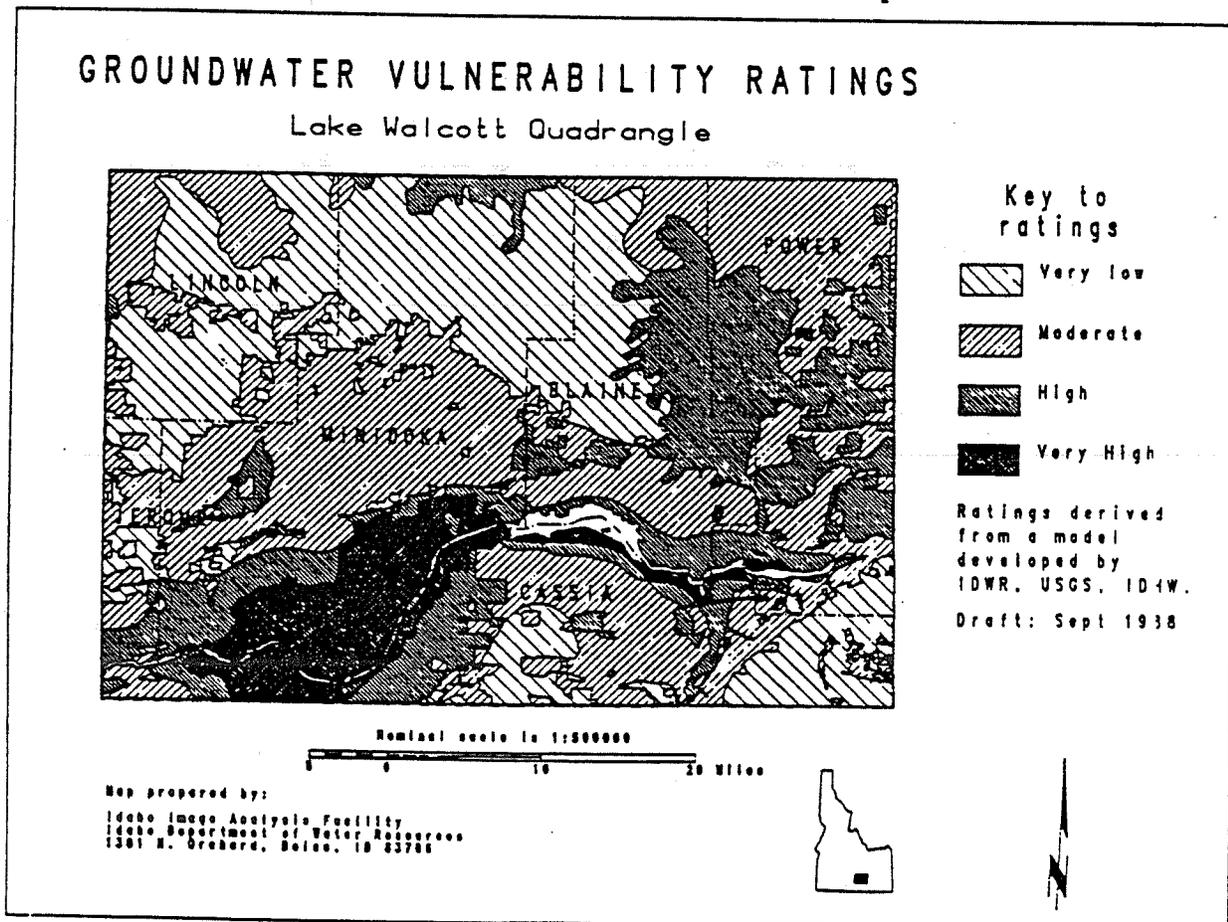
A public information program is needed to promote a better understanding of groundwater quality and potential contaminant sources. Results of the monitoring and vulnerability mapping programs can be conveyed to the public via this program. Development and presentation of materials by industry associations should be utilized to the maximum extent possible.

E. Groundwater Information Clearinghouse

Programs that impinge on groundwater quality are numerous and diverse. A central clearinghouse for groundwater information is needed to assist the public and agencies to efficiently obtain information. This will promote coordination and prevent duplication and overlap among programs.

Bibliography

Whitehead, R.L. and D.J. Parlman, 1979. A Proposed Ground Water Quality Monitoring Network for Idaho. U.S. Geological Survey Water Resources Investigations Open-File Report 79-1477, 67 pp. plus maps.



URBAN RUNOFF

I. Scope

Urban runoff is a minor nonpoint source when viewed from a statewide perspective. Twenty eight stream segments were identified in the Nonpoint Source Assessment as impacted by urban runoff - less than 3% of stream miles reported as impacted by nonpoint source activities. Impacts occur locally in the Coeur d'Alene, Boise, Twin Falls, and Pocatello urban areas. The magnitude and extent of these impacts have not been adequately assessed. The following discussion is considered a cursory summary of the current status, and is not intended to be complete or comprehensive.

II. Program Description

Urban runoff quantity and quality is dependent on the use and intensity of the development of the land, as well as topographic features and soil characteristics. There is potential for impacts to both surface and groundwater quality, depending how the flows are managed and their source. Contaminants which may be present in urban runoff include sediment, nutrients, synthetic organics, oil and grease, and heavy metals. In addition, the effects of sodium chloride can be a concern in those areas where salt is applied to roads during the winter months for safety reasons.

Currently, drainage responsibility for urban runoff is shared by a diverse group which includes irrigation districts, highway districts, cities and towns, the counties, and by individual businesses under Idaho Department of Water Resources (IDWR), Underground Injection Control Program (UIC) or surface impoundment provisions. The emphasis has traditionally been on managing water quantities rather than water quality. On the regional level, drainage management is usually aimed at flood control and conducted through the Federal Emergency Management Agency and the Army Corps of Engineers. Area wide or major drainage basin control is usually guided by the county comprehensive plans.

A. *Local Programs*

Control of sediment loading in runoff is primarily regulated by city or county planning and zoning ordinances. While water quality is a stated goal of such ordinances, sediment control was originally

incorporated to protect engineered drainage structures and minimize required maintenance. The functional equivalent of BMPs are normally specified in these types of ordinances and are commonly included under hydrologic criteria, hillside development planning, or design standards headings.

The following are typical of the guidelines and basic principles for control of drainage and resulting erosion required by the cities and counties which have applicable ordinances:

- Reduce the area and duration of soil exposure;
- Limit development or disturbance of land on soils that are susceptible to erosion and on steep slopes;
- Protect the soil with mulch and vegetative cover;
- Erosion control is categorized into three distinct but related activities:

- 1) temporary soil stabilization;
- 2) permanent slope stabilization;
- 3) revegetation.

B. State Programs

At the present time, a comprehensive statewide program to manage urban runoff in Idaho is not in place, although state agencies do play a role. Shallow injection wells (dry wells), typically used to manage flows from parking lots, are regulated by the IDWR. The Idaho Transportation Department is often involved in decisions on managing road drainage. Urban runoff is considered in developing NPDES permits for point source discharges. EPA and IDHW are phasing these requirements into NPDES permits over time. Requirements for urban runoff, sediments retention basins, and skimming basins have been set on a case-by-case base under Section 39-118, Idaho Code, relating to plan and specification review.

An intensive survey and assessment of dry wells over the Rathdrum Prairie aquifer is in the initial stages. This is a cooperative effort between the IDWR and the Panhandle Health District to develop improved management options. In most areas of the state groundwater quality has not been quantified, so the degree of potential risk or magnitude of actual impacts is unknown.

III. Program Needs and Recommendations

Many urban runoff concerns can be addressed through the state NPS Management Plan. The ubiquitous nature of surface runoff and the variability in the degree to which it may affect surface and groundwater mandates the use of site specific approaches appropriate for the locale and compatible with existing institutions and authorities. Both regulatory and nonregulatory programs will be needed to promote public acceptance and allow drainage flows to be managed in a way that minimizes adverse impacts to water quality, either from infiltration or discharge.

A. Monitoring

To properly focus available resources and identify possible unmet needs, a systematic monitoring program is necessary. This would allow an evaluation of the nature, location, and extent of impacts to ground and surface waters. The monitoring need is greatest for groundwater resources since the state has never had a statewide program. Subsequently, the data base is limited to those areas where a specific water quality concern arose. Priority should be given to urban areas located over the Snake Plain, Boise Valley, Rathdrum Prairie, and Lewiston basin aquifers. Special attention should also be paid to recharge areas and zones where an aquifer may be particularly vulnerable. Surface water quality monitoring also needs to be improved. This aspect is addressed in other sections of the NPS Program Plan and in the Water Quality Monitoring Program Plan currently under development by IDHW.

B. State Agency Authority To Manage Runoff Programs

The current process for managing runoff discussed in Section A above, is inadequate for meeting the challenges of the future. The traditional methods of handling runoff drainage, through public or private districts and local ordinances, have well served the public interest. However, they were never intended to function as a water quality control authority, so they do not have the necessary expertise and the jurisdictions are too fragmented to deal with the problem effectively on a statewide basis. Although a new approach is needed, much of the existing system can be incorporated since implementation will occur at the local level. The establishment of runoff drainage districts would facilitate the transition process.

The logical boundary for the local unit of responsibility would be along county lines.

State agencies, such as IDHW and IDWR, will need to work together to provide guidelines, help set standards, and coordinate activities between the local jurisdictions to assure the consistency necessary to achieve program goals. These agencies will also need to promote effective planning and problem identification. This includes drainage basin master planning which will be used as a guidance tool for prioritizing construction of runoff control facilities and related NPS programs. The adoption of facilities criteria and guidelines at the local level will provide consistency in the application of runoff controls, reduce drainage problems, and minimize operation and maintenance requirements. Facilities and BMPs for which criteria should be adopted may include, but not be limited to, the following:

- pipe systems;
- open ditches and channels;
- curb and gutter;
- street grades;
- inlets, catch basins, and inlet piping;
- detention basins;
- control structures;
- cut-off or interception trenches;
- hydraulic structures; and
- erosion control methods for construction sites.

When district wide project priorities are being developed, there should be an adequate level of public involvement to validate agency selection and avoid costly mid-program changes.

C. Compatibility With EPA Stormwater Discharge Rules

The EPA is in the process of promulgating new rules directed at expanding NPDES requirements to some forms of stormwater runoff, especially those associated with urban centers. The new program combines aspects of source and nonpoint source control approaches. For example, a permit will be required but the goal is to meet effluent limitations through effective implementation of BMPs and elimination of inappropriate waste disposal practices so that costly treatment facilities can be avoided. Since BMP requirements are an

important part of this program, IDWR and IDHW will need to develop criteria compatible with this unique set of circumstances.

Anticipated requirements of the EPA Stormwater Regulations pertinent to Idaho include:

- Medium size cities with populations between 100,000 and 250,000 will have to comply; therefore, Boise/Ada County will need to submit Part I application information by November 4, 1990 and Part II materials, which include demonstrating legal authority to control discharge to Boise River, by February 4, 1992
- Smaller cities and towns would benefit from a urban runoff control program, but do not need to meet the same requirements as larger communities (should a water quality problem become apparent, the EPA has the authority to request corrective action)

D. Technology Transfer And Education

Increasing the awareness of the public of the positive role they can play in managing this problem is crucial if program expenses are to be minimized. Practices which are still common among the general population, such as disposal of waste oil or antifreeze on the ground and in storm sewer drainage systems, must be discouraged. The potential for contamination of water supplies and the attendant cost for additional treatment, if brought to the attention of the citizenry, should provide ample incentive to properly dispose of liquid waste. The development of a concise, candid flyer for insertion with water and sewer district bills explaining the situation is recommended. A theme of "Good Housekeeping Today or Higher Bills Tomorrow" could effectively make the point without being alarmist or threatening. Helpful hints and agencies or individuals to contact for further information should be included.

Technology transfer opportunities will need to be provided to local jurisdiction representatives, who will be responsible for the day-to-day implementation of the program. Through the dissemination of written materials and by conducting workshops, the state will be able to provide guidance to city and county planners, and drainage district staffs on how to structure master plans, building related ordinances, and field activities to meet the program requirements.

IDWR and IDHW should develop a joint program to provide these opportunities.

IV. Funding Sources

The IDWR, which administers the Underground Injection Control Program (UIC), expends about \$5,000 and 0.33 FTE annually on urban runoff control activities. The IDT and local highway districts also commit funds for maintenance of drainage structures. City and county governments are involved in design reviews and onsite inspections as part of building and zoning ordinance administration, but no figures are available. An estimate on the resources committed by private interests also could not be developed. However, though unquantified, funds are being expended which will still be available under a restructured program. Research into what these funding levels are should be done during 1990 under the guidance of the state. There has been federal funding through FEMA or the Corps in the past for regional planning and some NPS control projects, which should still be available.

V. Urban/Surface Runoff Bibliography

Considerable effort has been expended to address concerns which have arisen in the City of Boise and surrounding Ada County from a wave of development which began in the early 1970's. Several excellent sources, heavily relied on for this preceding section, containing proven BMP methods are listed below.

1. Hillside Regulations, Ada County Ordinance 8-10B-1: through 10:, as amended, Ada County Development Services, Boise, Idaho, 1982
2. "Policy Considerations", Report to the Ada County Drainage Committee by James M. Montgomery Consulting Engineers, Boise, Idaho, 1985
3. "Sediment and Erosion Control Guide for the Boise Front-Urban Area, Part I - General", Ada Soil Conservation District, Ada County, Idaho, 1972
4. "Sediment and Erosion Control Guide for the Boise Front-Urban Area, Part II - Standards and Specifications", Ada Soil Conservation District, Ada County, Idaho, 1972

5. City of Boise Subdivision Ordinance, Title 9, Chapter 20, Boise City Code, revised April 13, 1981, which includes the Hillside Ordinance.

Time constraints prevented identification of other sources of potential BMPs for urban runoff which may be available; however, the five items listed appear to be relatively comprehensive.

APPENDIX A - NONPOINT SOURCE PROGRAM WORKPLANS

These workplans describe projects to implement Nonpoint Source control programs beyond current funding levels. Additional state or federal dollars, e.g. appropriation under Section 319, will be needed to implement these programs. Refer to the section, State Nonpoint Source Program and Schedule, to see the relationship to current nonpoint source programs.

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Water Quality Information Base:</u> <u>Sediment Data</u></p> <p>The purpose is to evaluate/develop data base for sediment parameters not in STORET. This may include percent fines from core samples, cobble embeddedness, and other deposited sediment measures.</p> <ol style="list-style-type: none"> 1. Coordinate centralized data base development with appropriate agencies. 2. Develop hardware and software for data storage and retrievals. 3. Develop statistical analysis, interpretation, and information display programs. 4. Compile existing data. 5. Identify future information/data needs for the system. 		<p>To improve Forest Practices related water quality status assessment.</p> <p>To interpret water quality conditions relative to sediment criteria.</p> <p>To refine recently developed sediment criteria.</p> <p>To provide a central location for storage and interpretation of water quality data, not now available in STORET.</p>	<p>DEQ</p> <p>IF&G</p>	<p>Program \$ 20,000</p> <p>Computer Products \$ 20,000</p>	12	

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING (\$)	DURATION (months)	STARTING YEAR
<p>Revise the <u>State Agricultural Pollution Abatement Plan</u></p> <p><u>Outputs:</u> (Resource Issues)</p> <ul style="list-style-type: none"> • <u>Livestock grazing</u> - Grazing impacts, with specific emphasis on riparian areas, will be recognized as a top priority action item. - A uniform system for definition and classification of riparian areas will be adopted by the State - A formal agreement will be developed among management and technical agencies to clarify responsibilities and procedures for development, approval, and evaluation of grazing BMPs. • <u>Agri-chemical Management</u> - Agri-chemical (pesticides & nutrients) impacts to both surface and ground-water will be addressed by BMPs developed specifically for this purpose. - A formal agreement between the SCC, DEQ, IDA, U of I College of Ag, and SCS will be developed outlining specific responsibilities and procedures. 	1	Provide clearly defined State leadership in addressing agricultural impacts to water quality.	SCC/DEQ	WPCA/Fed 106 and 319	18	1

AGRICULTURE

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING (\$)	DURATION (months)	STARTING YEAR
<ul style="list-style-type: none"> - The State's Groundwater Vulnerability Mapping will be used to focus emphasis on application of agricultural BMPs in accordance with State groundwater priorities. • <u>Livestock Confinement Areas</u> <ul style="list-style-type: none"> - Non-permitted operations will be addressed by the development of appropriate BMPs. - A framework will be developed to evaluate the impact of high densities of small confinement areas. <p>(Programmatic Issues)</p> <ul style="list-style-type: none"> • <u>Best Management Practices (BMPs)</u> <ul style="list-style-type: none"> - Modify the concept of AG. BMPs to encompass a "systems" approach to managing agricultural impacts. - Evaluate the need to define Ag. BMPs in the State Water Quality Standards. • <u>Voluntary Agricultural Program</u> <ul style="list-style-type: none"> - Evaluation of the effectiveness of the voluntary program in achieving State water quality objectives. - A back-up regulatory program will be drafted if it is deemed necessary. 						

AGRICULTURE

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING (\$)	DURATION (months)	STARTING YEAR
<ul style="list-style-type: none"> • <u>Program Redirection</u> <ul style="list-style-type: none"> - A formal framework will be developed to ensure State water quality priorities and objectives are considered by federal and state management and technical agencies in those on-going programs with a potential of addressing water quality. - A formal agreement will be developed to ensure federal water quality projects will be in keeping with State priorities. • <u>Agricultural Wetlands</u> <ul style="list-style-type: none"> - State water quality plans will contain Ag. wetland determinations and provisions to protect these areas from permanent alteration. 	2	<p>Gather in-stream water quality data in areas protected by agricultural BMPs to fully implement the Feedback Loop process.</p> <p>Utilize the findings of monitoring to evaluate BMP effectiveness, and fine tune existing practices and/or identify new ones as needed.</p>	IDHW SCC/IDHW/SCS			
<p><u>Outputs:</u></p> <ol style="list-style-type: none"> 1. Hangman Creek Watershed 2. Lapwal Creek Watershed 3. Willow Creek Watershed 4. Conway Gulch 		<p>(Non-irrigated cropland) (Non-irrigated cropland) (Non-irrigated cropland) (Irrigated cropland)</p>		\$500,000 \$500,000 \$500,000 \$1,000,000	48 48 48 48	1 1 2 1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING (\$)	DURATION (months)	STARTING YEAR
<p>Redirect State Ag. Water Quality Cost-Share Program to address riparian and groundwater concerns</p> <p><u>Outputs:</u></p> <p>1. Fund Rock Creek Grazing/Riparian Mgt. Planning Project</p>	3	<p>To date this program has been used primarily for cropland issues. This change will address new objectives identified in the NPS Assessment and this Plan</p>	IDHW/SCC	\$20,000	24	1
<p>2. Fund implementation of the Rock Creek Plan for use as a riparian management demonstration area.</p>		<p>Utilize this planning project as an opportunity evaluate classification techniques, condition and trend of riparian areas, and select BMPs on the basis of this information.</p>	SCC/DEQ/SCDs	\$200,000 (est.)	36	2
<p>I & E Program on Agri-chemical impacts on surface and groundwater</p> <p><u>Outputs:</u></p> <p>Develop and implement a state-wide I&E effort, involving cooperating agencies, ag-chem. groups, and producers</p>	4	<p>Evaluate the effectiveness of BMPs, identify costs vs water quality benefits. Provide an example of proper riparian management for in I&E activities.</p> <p>Inform producers of potential hazards and facilitate the adoption of agri-chem. BMPs</p>	SCC/IDA/DEQ/SCS	\$200,000	24	1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING (\$)	DURATION (months)	STARTING YEAR
<p>I & E Program on livestock grazing impacts on riparian areas areas, and alternative management systems</p> <p>Outputs: Develop and implement a state-wide I&E effort, involving cooperating agencies, ag-chem. groups, and producers</p>	5	Inform producers of the benefits of good riparian management and facilitate the adoption of riparian mgt. BMPs	SCC/BLM/FS/SCS/SCDs	\$200,000	24	1
<p>Project planning on priority watersheds that are contributing to surface and groundwater quality problems.</p> <p>Outputs: Accelerate planning on priority watersheds.</p>	6	Identify specific water quality needs and implement appropriate BMPs	DEQ/SCC	\$1,200,000 (6 projects @ \$200,000 ea.)	48	1

FOREST PRACTICES

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p>Problem Road Inventory and Demonstration Locate problem road segments in impacted watersheds. Document severity of impact and prioritize segments for treatment. For each problem road segment, evaluate alternative solutions and determine through trade-off evaluation the most effective means of treatment. Demonstrate treatment of representative road segments and through this process recommend changes to the BMPs.</p> <p>A. Inventory</p> <ol style="list-style-type: none"> 1. Form working committee. 2. Develop definitions, identification process, and generic treatment list. 3. Collect information from land owners and managers via working committee representatives. 4. Use field audits to assure quality control and consistency. 5. Compile list of segments for future comparison of progress. <p>B. Demonstration Areas</p> <ol style="list-style-type: none"> 1. Select representative historic road segments and make repairs as a demonstration project. 2. Based on experience in demonstration areas, recommend changes to BMPs. 	<p>1</p>	<p>To identify major existing road-related sediment problems and recommend methods of treatment and restoration. Existing roads near streams have been identified as the major source of sediment in forested areas. This project is oriented toward orphan roads which are not covered under existing programs.</p>	<p>IDH-W - Coordinator Workgroup - USFS IDL BLM Private & Industrial Reprs.</p>	<p>A: \$ 40,000 B: \$50,000</p>	<p>36</p>	<p>Year 2</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p>Demonstration Project: Coordinated Watershed Management in Mixed Ownership Drainages</p> <p>Management plans will be based on the existing framework of Coordinated Resource Management Planning and Associated Memorandum of Understanding.</p> <ol style="list-style-type: none"> 1. Identify candidate watersheds and select representative projects. 2. Form an interagency/landowner working committee for selected projects, identify objectives, and scope of work. 3. Inventory land features, nonpoint source problem areas, and water quality and beneficial use status. 4. Develop a Coordinated Resource Management Plan which outlines solutions, schedule, and evaluation criteria. 5. Implement watershed treatment and measure project success. 	2	<p>To provide examples of how to solve cumulative watershed impacts through cooperative management in mixed ownership drainages.</p> <p>To demonstrate application of BMPs and mitigation measures to solve cumulative impacts in a watershed.</p>	<p>IDHW in cooperation with IDL BLM USFS SCC SCD CES</p>	<p>Items 1 - 4 \$30,000/ Plan</p> <p>Item 5: Based on plan approx. \$100,000/ Project</p>	6 3 6 6 24	1

FOREST PRACTICES

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>BMP Effectiveness Inventory</u></p> <ol style="list-style-type: none"> 1. Gather existing effectiveness data on Forest Practices BMP's from research and agency files. 2. Compile data, publish results, and distribute widely to landowners and managers. 3. Provide results to FPA Advisory Committee, for potential changes to BMPs. 	<p>3</p>	<p>To improve BMP application.</p> <p>To educate specialists and non-specialists in the application results of BMP's.</p> <p>To provide a technical basis for evaluating BMP effectiveness through on-site monitoring and audits.</p>	<p>IDHW</p>	<p>\$20,000</p>	<p>6</p>	<p>1</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Interdisciplinary Cumulative Effects Study Team</u></p> <ol style="list-style-type: none"> 1. Conduct field reviews to respond to technical questions in problem drainages. 2. Evaluate alternative solutions. 3. Develop site-specific BMPs to aid in the decision-making process. <p>Core Team: Silviculturalist Forest Hydrologist Soil Scientist</p> <p>Other Specialists: Forest Entomologist Engineer Fisheries Biologist</p>	4	<p>IDL has the lead in the 208 plan to address cumulative impacts on watersheds that are primarily state and private lands. This project will provide resources to establish a watershed team to address cumulative impact analysis and recommend solutions.</p>	IDL	<p>Core: \$100,000/ Year</p> <p>Specialists: \$20,000/ Year</p> <p>Equipment: \$10,000</p>	48+	1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Soil Interpretation</u></p> <p>The Forest Practices Rules refer to soils that are highly erodible, easily compacted, or saturated and require different practices. There is a need to identify and display this information for staff and operators.</p> <ol style="list-style-type: none"> 1. Identify areas of the state where maps are needed, standardize map scale and information layers, and determine available sources of soil information. 2. Prioritize areas and develop maps according to identified priority. 	5	<p>Audits have identified that problems with sediment delivery occur in areas with highly erodible soils. Maps which identify hazardous soils are needed to help staff and operators design BMPs to prevent problems. Basic geology and soils information is readily available for the state; what is needed is an organized effort to interpret and display the information in easily understood terms.</p>	IDL in cooperation with SCS USFS	\$25,000	12	2

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>EPA Stream Classification</u></p> <ol style="list-style-type: none"> 1. Maps displaying Class I and Class II streams will be generated from the IDFG existing data base. This covers a small part of the stream miles that need classification. 2. Stream segments for which information does not exist will be surveyed in the field to determine stream class. <p>Outputs:</p> <ol style="list-style-type: none"> 1. Maps with sufficient detail to be used in the IDL Forest program. 2. Information on distribution of fish in headwater areas. 	6	<p>Identifying stream class in the field is a major obstacle to compliance with the FPA. This project would identify stream class based on fishery values. Maps will assure that landowners and regulators know which set of regulations apply on a stream segment.</p>	IDFG/IDL	<p>Stage 1: \$4,000</p> <p>4 FTE's \$60,000/ Annually</p>	48	1

FOREST PRACTICES

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>BMP Demonstration Projects</u></p> <p>The target audience is operators and landowners on non-industrial private lands.</p> <ol style="list-style-type: none"> Identify existing or ongoing forest practices that represent different phases and geographic locations available for demonstration tours. The list will be maintained by IDL FPA Advisors or SCS District Conservationists. Work with landowners to plan and carry out a timber harvest operation which illustrates low-impact and innovative management practices. The project may be cost-shared to encourage use of innovative methods. Conduct tours in cooperation with landowner and operator to illustrate environmentally sound timber harvest. <p>Outputs:</p> <ol style="list-style-type: none"> Lisits for IDL Supervisory Areas and selected SCD offices. Geographically distributed demonstration areas. Tours conducted to reach landowners/operators within the geographical area. 	7	<p>Identify existing operations which illustrate BMPs.</p> <p>Educate landowners on practices that protect water quality when harvesting timber.</p>	<p>IASCD or IFOA in cooperation with SCS IDL IDHW</p>	<p>\$12,000</p> <p>\$30,000/ Annually</p> <p>\$10,000/ Annually</p>	48	1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>BMP Techniques I&E</u></p> <ol style="list-style-type: none"> 1. Develop a fieldbook displaying FPA and other Forest Practices BMP's complete with illustrations, implementation tips and reference to contract clauses. 2. Develop a video program illustrating the why's and how-to's of BMP's in the FPA. 3. Develop an informational brochure describing in narrative and color photo format accomplishments in Forest Practices water quality management. 	8	<p>To achieve better BMP implementation and educate non-specialists in Forest Practices water quality protection.</p> <p>These materials will be used by IDL in operator work-shops, by IDHW and USFS in training National Forest staff, and by industry associations and private companies in educating their members and operators.</p>	IDHW/IDL	\$ 50,000	24	1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Information & Education Program Support</u></p> <p>To provide basic funding for an I & E campaign for non-industrial private landowners/operators.</p> <ol style="list-style-type: none"> 1. Target geographical centers and develop description of work. 2. Request proposals from SCDs, IFOA, or private contractors. 3. Conduct training on FPA compliance and BMP installations. 	9	<p>Thirty thousand private forest owners manage small parcels in the state. This project will increase landowner's knowledge of the FPA Requirements and BMPs.</p>	<p>IDHW in cooperation with IASCD IFOA IDL SCS</p>	<p>\$25,000/ Annually</p>	48	1

FOREST PRACTICES

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Nutrient Export Coefficients for Idaho Lakes</u></p> <ol style="list-style-type: none"> 1. Choose sampling sites based on availability of continuous-record streamflow data and type of forest practices in basin upstream of gaging station. 2. Gather supportive data, i.e. climate, geology, soils, vegetative cover, history of forest practices. 3. Collect streamflow and constituent concentration data. 4. Prepare interpretive report. 	10	<p>Develop experimental design to relate loadings to forest practices and watershed characteristics.</p> <p>Input data for multiple regression model.</p> <p>Data required for computation of loadings and export coefficients.</p> <p>Discussion of:</p> <ol style="list-style-type: none"> 1. Experimental design 2. Methods 3. Data 4. Models 5. Application of models 	<p>IDHW in cooperation with: IDL USFS USGS</p> <p>IDHW</p> <p>USGS</p> <p>USGS IDHW</p>	<p>\$ 2,500</p> <p>\$ 7,500</p> <p>\$100,000</p> <p>\$ 10,000</p>	<p>3</p> <p>6</p> <p>24</p> <p>9</p>	<p>1</p> <p>1</p> <p>1</p> <p>3</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>General/Coordination of Programs</u></p> <ol style="list-style-type: none"> 1. Form Mining Advisory Committee (MAC) 2. Develop strategy to coordinate existing IDL on-site audits and IDHW monitoring programs. 3. Identify priority watersheds and implement monitoring programs based on stream segments of concern and state Water Quality Monitoring Plan. 4. Conduct comprehensive data review and analysis, implement any remaining elements of monitoring program. 5. Review monitoring network and data for adequacy and relationships of BMPs to water quality trends. 	1	<p>To provide a forum for building consensus on state mining policies and help resolve technical issues.</p> <p>To provide a more coordinated state mining program; improve efficiency and enhance monitoring</p>	<p>IDL</p> <p>IDL/IDHW</p> <p>IDHW</p> <p>IDHW</p> <p>IDHW</p>	-State General Fund	Ongoing	<p>1</p> <p>2</p> <p>2</p> <p>3</p> <p>4</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Adequacy Review of Mining Programs</u></p> <ol style="list-style-type: none"> Further review existing regulatory programs to identify BMPs for incorporation into state Water Quality Standards. Formulate options for dealing with remaining weaknesses of the state mining program. Amend regulations or modify existing programs to fully integrate program elements; adopt approved mining BMPs in the Water Quality Standards. Review existing mine related programs to determine if changes are necessary due to new federal regulations anticipated to take effect about this time; e.g. EPA mine waste and stormwater regulations. Evaluate success of mining nonpoint source program; and propose remedies for significant deficiencies identified through the feed back loop. 	1	To fill regulatory program gaps and meet legal requirements.	IDL/IDHW/IDWR IDL/IDHW/IDWR IDL/IDHW IDL/IDHW	- State General Fund	12 12 12 6	1 2 3 4

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Compliance Strategy</u></p> <ol style="list-style-type: none"> 1. Continue on-site feedback loop monitoring. 2. Develop and distribute NPS program information letter to all mining operations. 3. Amend or develop inter-agency MOU's pertaining to BMP field audits and water quality sampling; conduct informal interagency BMP audits. 4. Conduct formal BMP audits led by the permitting agency or per MOU terms. 5. Continue BMP audits at all operations stressing documentation of the effectiveness of those BMPs which were previously identified to be less effective than anticipated. 	2	To improve implementation of appropriate BMPs and enhance water quality protection.	<p>IDHW IDL IDL/IDHW/IDWR IDL/IDHW/IDWR IDL/IDHW/IDWR</p>	\$200,000	<p>Ongoing 3 12 Ongoing Ongoing</p>	<p>1 1 2 3 4</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Technology Transfer</u></p> <ol style="list-style-type: none"> 1. Begin developing a BMP Handbook for Idaho, with guidance from the MAC when formed. 2. Publish and distribute handbook of mining BMPs and permit information pamphlet. 3. Conduct workshops for industry and agencies on implementing effective BMP programs using handbook examples, with special emphasis on smaller mine operations. 4. Evaluate and revise handbook and workshop content based on feedback loop information and comments from interested parties and the MAC. 	1	To enhance utilization of most recent technology.	IDL/IDHW IDL IDL IDL	\$100,000 \$100,000	12 6 12 12	1 2 3 4

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Abandoned Mine Lands Program</u></p> <ol style="list-style-type: none"> 1. Review literature and develop inventory list of orphaned mine lands to scope the problem. 2. Develop and issue priority list from inventory, following field visits to confirm which sites are impacting water quality or existing beneficial uses. 3. Plan demonstration project(s) and request funding. 4. Conduct orphaned mine land demonstration project(s) and request other priority site funding. 	3	Rehabilitate priority abandoned mine land to reduce water quality impacts from such lands.	IDHW/IDL IDHW/IDL IDHW/IDL IDHW/IDL	<p>\$800,000 Potential Sources:</p> <ul style="list-style-type: none"> -Hardrock mine waste fundings - Minerals Policy Committee - USDA Rural Abandoned Mine Program - USDI Abandoned Mine Reclamation Program - USDA-Resource Conservation and Development Program 	6 12 12 12	2 3 4 5

Hydrologic Modification

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING DATE (FY)
<p>1. <u>Watershed/Stream Site Description</u></p> <p>Review existing stream and watershed site description systems including those from other states working on the NPS Programs as well as the system currently being developed by the BLM/SCS riparian Site Description Task Force.</p> <p>Select best procedures to be used in Idaho.</p>	<p>1</p>	<p>To improve BMP effectiveness.</p> <p>To determine appropriate intensity and scope of BMP application (Priority).</p> <p>Provide a reference for information exchange relative to streams.</p> <p>Provide a framework with which to evaluate hydrologic modification impacts.</p> <p>Enable transfer of knowledge to similar streams or units of land.</p> <p>Provide a means for predicting effectiveness of management.</p>	<p>IDHW/BLM/ USFS/USGS SCS</p>	<p>Primarily through existing agency funds \$5,000</p>	<p>12</p>	<p>Year 1</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING DATE (FY)
<p>2. <u>Test and Application of Watershed/Stream Site Description</u></p> <p>Test the site description procedure on high priority area determined through the 319/antidegradation programs.</p> <ul style="list-style-type: none"> - Apply to a high priority basin. - Review existing practices in the basin. - Correlate practices effectiveness with described units. <p>Prepare presentation document outlining management interpretations for each site, and procedures for use of the system.</p>	1	To document BMP application and effectiveness for future application to similar areas.	IDHW/BLM/ USFS/USGS SCS	\$ 5,000 - Cost is low since a large proportion of this program is already in planning by Federal agencies.	12	Year 2
		To display results of test and provide a means to apply the system in the field.		1 FTE , \$40,000	12	year 3

Hydrologic Modification.

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING DATE (FY)
<p>3. <u>Improved Enforcement for Existing and Potential BMP's and Regulations</u></p> <p>Review existing rules and regulations and implementing programs pertaining to Hydrologic/Habitat modifications.</p> <p>Identify those agencies that need better enforcement of existing regulations and better training of enforcement personnel in evaluating hydrologic modification impacts.</p> <p>Make recommendations for strengthening existing regulations and make them more consistent with State Water Quality Standards.</p> <p>Make recommendations for adding "Approved BMP's" to the State Water Quality Standards.</p>	<p>1</p>	<p>Improve BMP effectiveness and application.</p> <p>Better control of Hydrologic Modification sources of pollution.</p>	<p>IDHW</p>	<p>\$ 25,000</p>	<p>24</p>	<p>Year 2</p>
<p>4. Develop training packages and materials for enforcement personnel and other key agency personnel.</p>	<p>4</p>	<p>Improve BMP effectiveness and application</p>	<p>IDHW</p>	<p>\$15,000</p>	<p>24</p>	<p>Year 2</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING DATE (FY)
<p>5. <u>Public Information and Education</u></p> <p>Develop programs and materials for various target publics to explain Hydrologic Modification, the sensitivity rating for Idaho streams, BMP's, regulatory programs, etc.</p> <p>Target field level employees, construction workers and practitioners in development and land management agencies, as well as the general public.</p> <ul style="list-style-type: none"> - 1 Handbook (field level) - 30 minute video program - Outline for training session 	3	<p>To improve understanding of the program and BMP application.</p> <p>Improve BMP implementation and effectiveness.</p> <p>To gain better public support and understanding of program.</p>	DEQ	\$100,000	24	Year 2
<p>6. <u>Document Grazing/Riparian BMP effectiveness.</u></p> <ul style="list-style-type: none"> 1 - Compile existing information. 2 - Develop guidebook. 	2	To improve riparian BMP implementation as related to livestock grazing.	IDEQ/IDA/ICL	\$100,000	24	Year 2
<p>7. <u>Increase enforcement of the Stream Channel Alteration Rules and Regulations by adding staff. Includes:</u></p> <ul style="list-style-type: none"> 1 - Review applications. 2 - Enforce permit conditions. 	3	Improve stream channel alteration controls through better enforcement	IDWR	2 FTE's \$300,000	48	Year 1

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p>Agriculture*</p> <p>1. Develop a comprehensive monitoring program to identify and quantify agricultural impacts on groundwater. The program should be developed to identify both region-wide impacts (for given aquifer) and site specific impacts (for specific BMP's).</p> <p>Pursue funding to fully implement the designed program.</p> <p>2. Complete the mapping of local groundwater vulnerability for the high priority aquifers of the state.</p> <p>3. Establish a central clearinghouse to summarize monitoring data and make available to interested parties. The clearinghouse would establish minimum standards for documentation of data, organization and dissemination. Data collection should include results of both groundwater and surface water monitoring efforts.</p>	<p>2</p>	<p>a. To identify groundwater quality problem areas and determine the kind and severity of pollutants.</p> <p>b. To determine the effectiveness of BMP application.</p> <p>To assist in setting priorities for monitoring, BMP implementation and other groundwater program components.</p> <p>To provide a central source of all monitoring data generated in the State.</p>	<p>IDHW/ IDWR/ USGS/ IDOA</p> <p>IDHW/ IDWR/ USGS/ IDOA</p> <p>IDHW</p>	<p>See Project Summary Table on page 12</p> <p>See Project Summary Table on page 12</p> <p>\$140,000</p>	<p>48</p> <p>48</p> <p>48</p>	<p>Year 1</p> <p>Year 1</p> <p>Year 1</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p>Agriculture (continued)</p> <p>4. Develop a comprehensive information and education program to inform public of the State's agriculture related groundwater problems and needed corrective actions.</p> <p>Public includes:</p> <ul style="list-style-type: none"> a. Agricultural Community b. Urban c. Legislators d. Agency/Departmental-technology transfer e. Special interest groups 	1	To inform the public of the State of existing and potential ground-water quality problems and provide solutions.	IDHW/ CES/ IDOA	\$240,000	48	Year 1
<p>5. Expand the existing State Agricultural Water Quality Program to assist the agricultural community in planning and applying BMP's which address both surface and ground water concerns. Assistance should be directed toward additional personnel for technical assistance and incentive payments for cost-share assistance.</p>	3	To accelerate the application of BMP's in priority problem areas.	IDHW/SCC/ SCDs/SCS/ IDOA	\$260,000	24	Year 1
<p>6. Conduct demonstration projects to evaluate effectiveness of new BMP's developed for groundwater by SCS.</p> <p>*All of the tasks listed above will enable Idaho to meet the requirements of EPA's Agricultural Chemicals in Groundwater Strategy.</p>		To determine BMP effectiveness.	SCS	See Project Summary Table on page 12	36	Year 3

GROUNDWATER

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p>Septic Systems (continued)</p> <p>3. Evaluate existing systems to determine if current regulatory approach is appropriate.</p> <p>a. Conduct a post-installation survey of existing standard and alternative systems. Determine system failure rate and reasons for failure.</p> <p>b. Monitor groundwater and vadose zones below and near four large soil absorption systems in a variety of soils to evaluate workability of large systems.</p> <p>c. Recommend modifications to regulations if needed.</p> <p>4. Promote development of local ordinances that relate allowable system density to groundwater vulnerability.</p>	<p>4</p>	<p>To evaluate whether existing approach and BMPs are adequate.</p>	<p>Health Districts, IDHW</p>	<p>\$120,000</p>	<p>36</p>	<p>Year 1</p>
<p>4. Promote development of local ordinances that relate allowable system density to groundwater vulnerability.</p>	<p>6</p>	<p>To prevent groundwater impacts from septic systems in high density settings.</p>	<p>Technical Guidance Committee Local Units of Government/ IDHW/ Health Districts</p>	<p>\$80,000</p>	<p>24</p>	<p>Year 2</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Urban Runoff</u></p> <p>1. Monitor runoff and groundwater quality in three priority urban areas.</p> <p>2. Develop regulatory/non-regulatory control guidelines for implementation by local jurisdiction.</p> <p>3. Develop a public education program including audio-visual programs, brochures, etc.</p> <p>4. Develop training and technology transfer program for local jurisdiction representatives.</p>	5	<p>To establish credible link between urban runoff quality and control practices to the existence of groundwater quality problems.</p> <p>To provide technical guidance as to acceptable runoff control program/methods that can reduce groundwater pollution potential.</p> <p>To develop media tools to inform/educate public on problems, acceptable practices and maintenance issues.</p> <p>To train responsible local regulatory personnel as to appropriate urban runoff disposal practices/aquifer impacts.</p>	<p>IDHW/IDWR</p> <p>IDHW/Local Governments</p> <p>IDHW</p> <p>IDHW/Local Governments</p>	<p>See Project Summary Table on page 12</p> <p>\$120,000</p> <p>\$240,000</p> <p>\$75,000</p>	<p>48</p> <p>24</p> <p>48</p> <p>36</p>	<p>Year 1</p> <p>Year 1</p> <p>Year 1</p> <p>Year 2</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Industrial Chemicals</u> (continued)</p> <p>3a. Develop small generators education programs, similar to the solvent program done by DEQ and BSU, for other widely used industrial chemicals.</p>	8	To promote compliance with regulatory programs through increased public awareness.	IDHW	\$200,000	48	Year 1
<p>3b. Develop a voluntary disposal program to assist small generators with disposal of non-regulated wastes such as used oil.</p>		To provide practical and conventional disposal opportunities to promote improved practices.	IDHW		48	Year 1
<p>3c. Develop and conduct regional collection opportunities for homeowners to dispose of household wastes.</p>		To assist homeowners in dealing with toxic substances that might otherwise be disposed of in sanitary landfills.	IDHW, Cities, Counties		48	Year 1

GROUNDWATER

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Groundwater Projects Applicable to Several Nonpoint Source Categories</u></p> <ol style="list-style-type: none"> 1. Develop groundwater monitoring program to evaluate groundwater quality, identify areas of concern and priority potential contaminant sources. Sampling should include long term regional trend identification as well as localized investigation of hot spots or areas of concern. a. Coordinate agencies/entities that have sampling programs to ensure consistency in parameters collected, analysis methods, QA/QC protocols. 2. Develop a central geographic information system data base for archival of groundwater quality and related data. Include groundwater vulnerability parameters (soils and aquifer characteristics) as well as land use data bases where possible. 3. Complete mapping of groundwater vulnerability in high priority aquifers. 		<p>To provide adequate understanding of groundwater quality and potential impacts to enable reasonable management approaches to be implemented.</p> <p>To ensure that all data are collected and made available for management decisions and public information.</p> <p>To assist in setting priorities for monitoring, BMP implementation and other groundwater programs.</p>	<p>IDHW/ IDWR/ USGS</p> <p>IDHW/ USGS/ IDWR</p> <p>IDHW/ SCS/ USGS/ IDWR</p>	<p>See Project Summary Table on page 12</p>	<p>48</p> <p>48</p> <p>48</p>	<p>Year 1</p> <p>Year 1</p> <p>Year 1</p>

TASK AND OUTPUT	PRIORITY	PURPOSE	LEAD RESPONSIBILITY	FUNDING(\$)	DURATION (months)	STARTING YEAR
<p><u>Groundwater Projects Applicable to Several Nonpoint Source Categories</u></p> <p>4. Develop and implement a public information program on groundwater vulnerability and potential contaminant sources.</p> <p>5. Develop central clearinghouse to ensure that all information sources on groundwater are readily and efficiently available to the public (including hazardous chemicals, SARA III, agricultural chemicals, monitoring information).</p>	1	To promote public participation in groundwater protection efforts.	IDHW	\$240,000	48	Year 1
	2	To promote efficient dissemination of information and prevent program duplication.	IDHW	\$140,000	48	Year 1

APPENDIX B - TABLES FOR HYDROLOGIC/ HABITAT MODIFICATION SECTION

Tables show number of stream miles where hydrologic modification is attributed to a nonpoint source activity. Information was derived from the Idaho Water Quality Status Report and Nonpoint Source Assessment, 1988.

Table 1. Miles of streams where both Agriculture and Hydrologic modification nonpoint source pollution subcategories occur together.

	Channelization	Dredging	Dam Construction	Flow Regulation	Bridge Construction	Removal of riparian veg	Streambank modification
AGRICULTURE	941	201	274	2606	74	3259	4024
Non-Irrigated crop production	579	47	79	435	50	938	1229
Irrigated crop production	149	23	50	1064	70	293	846
Specialty crop production	0	0	0	22	0	0	0
Pastureland	468	70	179	1630	0	2015	2738
Rangeland	655	78	116	1412	47	2484	2509
Feedlots	49	49	11	607	21	124	441
Aquaculture	0	24	14	222	0	45	167
Animal holding areas	38	0	0	176	0	21	244

Table 2. Miles of streams where both Forest Practices and Hydrologic modification nonpoint source pollution subcategories occur together.

	Channelization	Dredging	Dam Construction	Flow Regulation	Bridge Construction	Removal of riparian veg	Streambank modification
FOREST PRACTICES	663	158	82	450	0	1477	1326
Harvesting, Reforestation	436	104	41	212	0	1208	1013
Forest Management	54	54	0	86	0	132	132
Road construction/Maintenance	419	91	41	199	0	1175	1010

Table 3. Miles of streams where both Construction and Hydrologic modification nonpoint source pollution subcategories occur together.

	Channelization	Dredging	Dam Construction	Flow Regulation	Bridge Construction	Removal of riparian veg	Streambank modification
CONSTRUCTION	391	98	98	591	57	543	884
Highway, Road, Bridge const	265	25	36	420	51	425	633
Land development	204	73	78	232	47	275	365

Table 4. Miles of streams where both Mining and Hydrologic modification nonpoint source pollution subcategories occur together.

	Channelization	Dredging	Dam Construction	Flow Regulation	Bridge Construction	Removal of riparian veg	Streambank modification
MINING	449	107	18	207	6	584	624

**APPENDIX C - LIST OF NONPOINT
SOURCE CATEGORIES**

Major Nonpoint Source Pollution Categories and Subcategories

The following codes for the major nonpoint source pollution categories and subcategories were used to assess Idaho's streams, lakes and wetlands. These codes are based on U. S. EPA Guidelines for the Preparation of the 1988 State Water Quality Assessment (305(b)) Report, April 1, 1987, p. 19.

1 NONPOINT SOURCES

10 Agriculture

- 11: Non-irrigated crop production
- 12: Irrigated crop production
- 13: Specialty crop production (truck farming, orchards, etc.)
- 14: Pastureland
- 15: Rangeland
- 16: Feedlots - all types
- 17: Aquaculture
- 18: Animal holding/management areas

20 Forest Practices

- 21: Harvesting, reforestation, residue management
- 22: Forest management
- 23: Road construction/maintenance

30 Construction

- 31: Highway/road/bridge
- 32: Land development

40 Urban Runoff

- 41: Storm sewers
- 42: Combined sewers
- 43: Surface runoff

50 Mining

- 51: Surface mining
- 52: Subsurface mining
- 53: Placer mining
- 54: Dredge mining
- 55: Petroleum activities
- 56: Mill tailings
- 57: Mine tailings

60 Land Disposal

- 61: Sludge
- 62: Wastewater
- 63: Landfills
- 64: Industrial land treatment
- 65: On-site wastewater systems (septic tanks, etc.)
- 66: Hazardous wastes

70 Hydrologic/Habitat Modification

- 71: Channelization
- 72: Dredging
- 73: Dam construction
- 74: Flow regulation/modification
- 75: Bridge construction
- 76: Removal of riparian vegetation
- 77: Streambank modification/destabilization

80 Other

- 81: Atmosphere deposition
- 82: Waste storage/storage tank leaks
- 83: Highway maintenance and runoff
- 84: Spills
- 85: In-place contaminants
- 86: Natural
- 87: Recreation

90 Source Unknown

Primary Pollutant Codes

- a. nutrients, including nitrate
- b. pH
- c. siltation/sedimentation
- d. organic enrichment/DO
- e. salinity
- f. thermal modification
- g. flow alteration
- h. other habitat alterations
- i. pathogens

- j. radiation
- k. oil and grease
- l. unknown toxicity
- m. pesticides
- n. synthetic organics
- o. metals
- p. ammonia
- q. chlorine
- r. other

**APPENDIX D - TECHNICAL ADVISORY
COMMITTEE MEMBERS**

TECHNICAL ADVISORY COMMITTEE

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Hagerman Valley Citizens Alert

Walton Low
U.S. Geological Survey

Sherl Chapman
Idaho Water Users Association

Dave Mabe
Idaho Petroleum Council

Ervin Cowley
Bureau of Land Management

Tom Markland
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Idaho Conservation League

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**APPENDIX E - LIST OF
IMPAIRED WATERS**

APPENDIX E - LIST OF IMPAIRED WATERS

The stream segments in this list are the top 25% of waters impaired by nonpoint source activities based on the Nonpoint Source Assessment. The information in the assessment report was based on best professional judgement at the time the data was obtained. This list is therefore considered an initial assessment and is subject to revision based on refinement of the data base.

Stream segments are listed alphabetically by major hydrologic basin. The top 25% of segments were derived by a ranking system developed by the Technical Advisory Committee (TAC). Ranking is based on a combination of the sensitivity of the beneficial use and the degree of impairment. The degree of sensitivity and beneficial use impairment was assigned by the TAC. These values are comparable to the values used in the Agricultural Pollution Abatement Plan which has been derived from public input over several years. The assigned values are:

Beneficial Use Value

Domestic water supply	10
Agricultural water supply	1
Cold water biota	7
Warm water biota	7
Salmonid spawning	15
Primary contact recreation	7
Secondary contact recreation	7

Degree of Impairment Value

Beneficial use not supported	3
Beneficial use partially supported	2
Beneficial use potentially at risk	1

The beneficial use value was multiplied by the value of the degree of impairment. The resulting products were summed for each stream segment. If there were multiple submittals, the highest score was used for the ranking. The resulting list shows the top 25% of stream segments in the state with the greatest degree of beneficial use impairment.

NONPOINT SOURCE ASSESSMENT

Bear River Basin

WQS#	PNRS#	Name	Boundaries
*	255	Bailey Cr	Headwaters to Bear R
BB-40	231	Bear R	Highway 91 to Utah Line
BB-40	232	Bear R	Mink Cr to Highway 91
BB-40	233	Bear R	Oneida Dam to Mink Cr
BB-30	235	Bear R	Cove Power Plant to Oneida Res
BB-30	236	Bear R	Alexander Dam to Cove Power Plant
BB-20	253	Bear R	Wardboro to ALEXANDERS Res
BB-10	273	Bear R	Wyoming Line to Wardboro
*	259	Coop Cr	Headwaters to Stauffer Cr
*	245	Cottonwood Cr	Headwaters to Bear R
BB-450	237	Cub R	Headwaters to Utah Line
BB-480	286	Deep Cr	Deep Cr Res to Malad R
*	249	Denmore Cr	Headwaters to Bear R
*	290	Devil Cr	Headwaters to Malad R
*	276	Dry Cr	Headwaters to Thomas Fk
*	256	Eightmile Cr	Headwaters to Bear R
*	277	Giraffe Cr	Headwaters to Wyoming Border
BB-461	292	Little Madad R	Headwaters to Malad R
BB-460	285	Malad R	Headwaters to Pleasant View
BB-410	244	Mink Cr	Headwaters to Bear R
*	262	Montpelier Cr	Headwaters to Bear R
*	1449	Pack R	Hwy 95 to Pend Oreille Lk
*	257	Pearl Cr	Headwaters to Bear R
*	1500	Pritchard Cr	Headwaters to Coeur d'Alene R
*	289	Samara Cr	Headwaters to Malad R
BB-310	254	Soda Cr	Headwaters to Bear R
*	258	Stauffer Cr	Headwaters to Bear R
*	266	Taris Cr	Headwaters to Bear R
BB-110	274	Thomas Fork Cr	Wyoming Line to Bear R
*	247	Trout Cr	Headwaters to Bear R
*	238	Weston Cr	Headwaters to Bear R
*	248	Whiskey Cr	Headwaters to Bear R
*	246	Williams Cr	Headwaters to Bear R
BB-462	294	Wright Cr	Headwaters to Daniels Reservoir

* Segment not designated in the State WQS

NONPOINT SOURCE ASSESSMENT

Clearwater Basin

WQS#	PNRS#	Name	Boundaries
*	2001	American L	American R drainage
*	1162	Bedrock Cr	Headwaters to IR Boundary
*	1162.1	Bedrock Cr	IR Boundary to Clearwater R
CB-151	1164.1	Big Canyon Cr	Headwaters to Sixmile Canyon (IR)
*	1172.01	Big Cr	Headwaters to IR Boundary
*	1292	Burcher Cr	Headwaters to Clearwater R, S Fk
*	1165	Canyon Cr, Little	Headwaters to Big Canyon Cr
*	1148	Catholic Cr	Headwaters to Clearwater R
*	1315	Corral Cr	Headwaters to Snake R
CB-1322	1160	Cottonwood Cr	Headwaters to Clearwater R (IR)
CB-152	1288	Cottonwood Cr	Headwaters to Clearwater R, S Fk
*	1122	Deep Cr	Headwaters to Palouse R
*	1190	Elk Cr Reserv.	
CB-1421	1172	Grasshopper Cr	Headwaters to Jim Ford Cr
*	1229	Gravey Cr	Headwaters to Cayuse Cr (T to 1222)
*	1142	Hatwai Cr	Headwaters to Clearwater R
*	1140.01	Holes Cr	Headwaters to Little Canyon
*	1163	Jacks Cr	Headwaters to Clearwater R
CB-142	1171	Jim Ford Cr	Headwaters to IR Boundry
CB-155	1167	Lapwai Cr	Source to Winchester L
CB-141	1180	Lawyer Cr	Headwaters to IR Boundary
CB-141	1180.1	Lawyer Cr	IR Boundry to Clearwater R
*	2002	Lucas L	American R Drainage
*	1280	Maggie Cr	Headwaters to Clearwater R, M Fk
*	1147	Mission Cr	Headwaters to IR Boundary (T to 114)
*	1215	Orogrande Cr	Headwaters to Clearwater R, N Fk
CB-170	1120	Palouse R	Meadow Cr to Washington line
*	1161	Pine Cr	Headwaters to IR Boundary
*	1161.1	Pine Cr	IR Boundary to Clearwater R
CB-154	1149	Potlatch Cr	Bear Cr to Clearwater R
*	1289	Red Rock Cr	Headwaters to Cottonwood Cr
CB-1451	1193	Reeds Cr	Headwaters to Dworshak Res
*	1181	Sevenmile Cr	Headwaters to Lawyers Cr
*	1179	Sixmile Cr	Headwaters to Clearwater R
*	674	Squaw Cr	Headwaters to Snake R
*	1145	Sweetwater Cr	Headwater to IR Boundary (T to 113)
*	1145.1	Sweetwater Cr	IR Boundary to Lapwai Cr
*	1311	Tammany Cr	Headwaters to Snake R
*	1146	Webb Cr	Headwaters to IR Boundary (T to 114)
*	1170	Whiskey Cr	Headwaters to Orofino Cr
*	1180.01	Willow Cr	Headwaters to Lawyers Cr
CB-1551	1143.1	Winchester L	

* Segment not designat ed in the State WQS

NONPOINT SOURCE ASSESSMENT

Panhandle Basin

WQS#	PNRS#	Name	Boundaries
*	1499	Beaver Cr	Headwaters to Coeur d'Alene R
*	1391	Blue Joe Cr	Headwaters to Copeland Boundary F
*	1620	Bruin Cr	Headwaters to St Joe R
*	21	Canuck Cr	Headwaters to Moyie R
*	1371	Caribou Cr	Headwaters to Snow Cr
*	1538	Carlin Cr	Headwaters to Coeur d'Alene R
*	1591	Carpenter Cr	Headwaters to St Maries R
*	1542	Cedar Cr	Headwaters to Wolf Lodge Cr
PB-140S	1515	Coeur d'Alene R, S fk	Osborne (Town) to Coeur d'Alene R
*	1545	Cougar Cr	Headwaters to Coeur d'Alene L
*	1604.01	Daveggio Cr	Headwaters to Marble Cr
*	1398	Deer Cr	Headwaters to Moyie R
*	1505	Downey Cr	Headwaters to Coeur d'Alene R
*	1501	Eagle Cr	Headwaters to Pritchard Cr
*	1415	East R	Headwaters to Priest R
*	1593	Emerald Cr	Headwaters to St Maries R
*	1504.01	Falls Cr	Headwaters to Shoshone Cr
*	1543	Fernan Cr	Fernan L to Coeur d'Alene L
*	1544	Fernan Cr	Headwaters to Fernan L
PB-350S	1543.1	Fernan L	
*	1608	Fish Hook Cr	Headwaters to St Joe R
*	1507	Flat Cr	Headwaters to Coeur d'Alene R
*	1533	Fortier Cr	Headwaters to Kilarney L
PB-440S	1562.1	Hauser L	
*	1546	Kid Cr	Headwaters to Coeur d'Alene L
*	1419	Lamb Cr	Headwaters to Priest L
*	1489	Leberg Cr	Headwaters to Coeur d'Alene, N Fk
*	1604	Marble Cr	Hobo Cr to St Joe R
*	1547	Mica Cr	Headwaters to Coeur d'Alene L
*	1557	Mokins Cr	Headwaters to Hayden L
PB-110K	1395	Moyie R	Moyie Falls Dam to Kootenai R
*	1604.03	Norton Cr	Headwaters to Bussel Cr
PB-30P	1436	Pend Oreille R	Pend Oreille L to Washington Line
PB-330P	1407	Priest R	Priest R, W Br Upper to Pend Oreilli
*	1618	Quartz Cr	Headwaters to St Joe R
*	1424	Reeder Cr	Headwaters to Priest L
*	1548	Rockford Cr	Headwaters to Coeur d'Alene L
*	1613	Sisters Cr	Headwaters to St Joe R
*	1539	Turner Cr	Headwaters to Coeur d'Alene R
*	1373	Twentymile Cr	Headwaters to Deep Cr
PB-420S	1561.1	Twin Lakes	N of Rathdrum (Town)
PB-360S	1541	Wolf Lodge Cr	Headwaters to Coeur d'Alene L
*	1506	Yellowdog Cr	Headwaters to Coeur d'Alene R

* Segment not designat ed in the State WQS

NONPOINT SOURCE ASSESSMENT

Salmon Basin

WQS#	PNRS#	Name	Boundaries
SB-441	1110	Big Cr	Forest Boundary to Pahsimeroir
*	1086	Big Eightmile Cr	Forest Boundary to Lemhi R
*	1090	Big Timber Cr	Forest Boundary to Lemhir
*	977	Blackbird Cr	Headwaters to Panther Cr
*	1065	Bohannon Cr	BLM Boundary to Lemhi R
*	995	Carmen Cr	Freeman Cr to Salmon R, N Fk
*	1013	Challis Cr	Forest Boundary to Salmon R
*	1013	Challis Cr	Forest Boundary to Salmon R
*	1321	China Cr	Headwaters to Salmon R
*	1324	Cottonwood Cr	Headwaters to Salmon R
*	912	Deep Cr	Wilderness Boundary to Snake R
*	912.1	Deep Cr	Headwaters to Wilderness Boundary
*	1323	Deer Cr	Headwaters to Salmon R
*	1331	Deer Cr	Headwaters to Salmon R
*	989	Dump Cr	Headwaters to Salmon R, N Fk
*	1093	Eighteen Mile Cr	Forest Boundary to Lemhir
*	1017	Garden Cr	Forest Boundary to Salmon R
*	1063	Geertson Cr	BLM Boundary to Lemhi R
*	1622	Gold Cr	Headwaters to St Joe R
*	1329	Grave Cr	Headwaters to Rock Cr
*	1095	Hawley Cr	Forest to Eighteenmile Cr
*	991	Hughes Cr	Headwaters to Salmon R, N Fk
SB-5111	940	Johnson Cr	Ice Hole Campground to Salmon R, SI
SB-5111	941	Johnson Cr	Halfway Cr to Ice Hole Campground
SB-5111	942	Johnson Cr	Headwaters to Halfway Cr
*	1072	Kenny Cr	BLM Boundary to Lemhi R
*	1061	Kirtley Cr	BLM Boundary to Lemhi R
*	1143	Lapwai Cr	Headwaters to Clearwater R (R)
*	1084	Little Eightmile Cr	Forest Boundary to Lemhir
*	1077	McDevitt Cr	BLM Boundary to Lemhi R
*	1078	McDevitt Cr	Headwaters to BLM Boundary
*	1082	Mill Cr	Forest Boundary to Lemhi R
SB-4411	775	Monumental Cr	Headwaters to Fall Cr
*	1106	Morse Cr	Forest Boundary to Pahsimeroir
SB-210	1099	Pahsimeroi R	Downton Lane to Salmon R
SB-210	1100	Pahsimeroi R	Headwaters to Downton lane
SB-430	967	Panther Cr	Blackbird Cr to Salmon R
*	1102	Patterson Cr	Forest Boundary to Pahsimeroir
*	1336	Race Cr	Headwaters to Salmon R
*	1327	Rice Cr	Headwaters to Salmon R
SB-810	1328	Rock Cr	Headwaters to Salmon R
SB-30	964	Salmon R	Pahsimeroi R to Samon R, N Fk
SB-10	1009	Salmon R	Redfish Cr to Salmon R, E Fk

* Segment not designat ed in the State WQS

NONPOINT SOURCE ASSESSMENT

Salmon Basin

WQS#	PNRS#	Name	Boundaries
SB-10	1010	Salmon R	Hellroaring Cr to Redfish Cr
SB-10	1011	Salmon R	Headwaters to Hellroaring Cr
SB-510	918	Salmon R, S Fk	Buckhorn Cr to Secesh R
SB-510	919	Salmon R, S Fk	Rice Cr to Buckhorn Cr
SB-510	920	Salmon R, S Fk	Headwaters to Rice Cr
SB-110	1035	Salmon R, Yankee Fk	Jordan Cr to Salmon R
SB-110	1036	Salmon R, Yankee Fk	Headwaters to Jordan Cr
*	1070	Sandy Cr	BLM Boundary to Lemhi R
*	1334	Slate Cr, Little	Headwaters to Slate Cr
*	1042	Stanley Lake Cr	Headwaters to Valley Cr
*	1040	Valley Cr	Stanley Cr to Salmon R
*	1019	Warm Springs Cr	Headwaters to Salmon R
*	1067	Wimpey Cr	BLM Boundary to Lemhi R

* Segment not designated in the State WQS

NONPOINT SOURCE ASSESSMENT

Southwest Basin

WQS#	PNRS#	Name	Boundaries
*	972	Big Deer Cr	Big Deer Cr, S FK to Panther Cr (Tt
*	559	Big Flat Cr	Nevada Line to Bruneau R, E FK
*	684	Birch Cr	Headwaters to Snake R
*	695	Bissel Cr	Headwaters to Payette R
*	690	BlackCanyon Res	
*	628	Blue Cr	Headwaters to Blue Cr Reservoir
*	627	Blue Cr Res	Res
SWB-280	726	Boise R	Notus (Town) to Snake R
SWB-270	727	Boise R	Star (Town) to Notus (Town)
SWB-260	729	Boise R	Lucky peak Dam to Barber Diversion
*	895	Boulder Cr	Headwaters to Cascade Res
*	682	Browns Cr	Headwaters to Pickett Cr
SWB-120	549	Bruneau R	Hot Cr to C J Strike Res
SWB-112	558	Bruneau R, E Fk	Headwaters to Bruneau R
SWB-110	550	Bruneu R	Nevada Line to Hot Cr
*	680	Castle Cr	T5SR1ES28 to Snake R
*	683	Castle Cr, S Fk	Headwaters to Castle Cr
*	560	Cherry Cr	Nevada Line to Bruneau R, E FK
*	685	Corder Cr	Headwaters to Snake R
*	567	Cougar Cr	Headwaters to Jarbidge R
*	839	Cove Cr	Headwaters to Weiser R
SWB-421	840	Crane Cr	Crane Cr Res to Weiser R
SWB-421	842	Crane Cr	Headwaters to Crane Cr Res
SWB-271	734	Fivemile Cr	Headwaters to Boise R
*	659	Flint Cr	Headwaters to Jordan Cr
SWB-3242	893	Gold Fork R	Flat Cr to Cascade Res
*	899.01	Granite L	
*	675	Hardtrigger Cr	Headwaters to Snake R
*	829	Hog Cr	Headwaters to Snake R
*	557	Hot Cr	Headwaters to Bruneau R
SWB-281	732	Indian Cr	Headwaters to New York Canal
*	551	Jacks Cr	Little Jacks Cr to C J Strike Res
*	831	Jenkins Cr	Headwaters to Snake R
*	625	Juniper Basin Res	
*		Long Hollow Cr	Headwaters to Little Canyon
*	660	Louse Cr	Headwaters to Jordan Cr
SWB-422	837	Manns Cr	Spangler Res to Weiser R
*	733	Mason Cr	Headwaters to Boise R
SWB-252	743	Mores Cr	Headwaters to Lucky Peak Res
*	898	Mud Cr	Headwaters to Cascade Res
*	618.1	Nickel Cr	Headwaters to Mud Flat Rd
SWB-231	632	Owyhee R, S Fk	Nevada Line to Owyhee R
*	681	Pickett Cr	T5SR1WS32 to Castle Cr

* Segment not designat ed in the State WQS

NONPOINT SOURCE ASSESSMENT

Southwest Basin

WQS#	PNRS#	Name	Boundaries
*	568	Poisen Cr	Headwaters to Jarbidge R
*	687	Poison Cr	Headwaters to Shoefly Cr
*	677	Rabbit Cr	Headwaters to Snake R
SWB-210	676	Reynolds Cr	Diversion to Snake R
*	696	Robie Cr	Headwaters to Morse Cr
*	420	Sailor Cr	Headwaters to Snake R
*	830	Scott Cr	Headwaters to Snake R
*	630	Shoefly Cr	Headwaters to Blue Cr (T to 611)
SWB-10	415	Snake R	King Hill to Hwy 51 Bridge
SWB-30	664	Snake R	Boise R to Weiser R
SWB-20	668	Snake R	Swan Falls to Boise R
SWB-10	669	Snake R	Castle Cr to Swan Falls
SWB-10	670	Snake R	C J Strike Res to Castle Cr
SWB-340	818	Snake R	Weiser (Town) to Brownlee Dam
*	662	Soda Cr	Headwaters to Cow Cr (T to Oregon)
SWB-331	642	Squaw Cr	Headwaters to Oregon Line
SWB-220	671.1	Succor Cr	Headwaters to Oregon Line
*	552	Sugar Cr	Headwaters to Jacks Cr
SWB-271	736	Tenmile Cr	Headwaters to Fifteenmile Cr
*	561	Three Cr	Headwaters to Bruneau R, E FK
*	828	Warm Springs Cr	Headwaters to Snake R
SWB-420	834	Weiser R	Galloway Diversion to Snake R
SWB-410	834.1	Weiser R	Little Weiser R to Galloway Diversion
SWB-410	835	Weiser R	Headwaters to Little Weiser R
SWB-413	845	Weiser R, Little	Indian Valley to Weiser R
*	576	Wood Cr	Headwaters to Willow Cr (T to 741)

* Segment not designated in the State WQS

NONPOINT SOURCE ASSESSMENT

Upper Snake Basin

WQS#	PNRS#	Name	Boundaries
USB-40	346	American Falls Res	
*	6	Antelope Cr	Headwaters to Snake R, S Fk
*	125	Badger Cr	R45ET6NS10 to First Tributary (T to
USB-430	349.1	Bannock Cr	IR Boundary to American Falls Res
*	349.02	Bannock Cr, W Fk	Headwaters to IR Boundary
USB-430	349	BannockCr	Headwaters to IR Boundary
USB-911	193	Beaver Cr	Duboise to Camas Cr
USB-911	194	Beaver Cr	Spencer to Dubois
*	335.02	Bell Marsh Cr	Headwaters to Marsh Cr
USB-950	161	Big Lost R	Moore Diversion to US 26 at INEL
*	32	Birch Cr	Headwaters to Snake R
USB-930	42	Birch Cr	Headwaters to Willow Cr
USB-930	154	Birch Cr	Reno Ditch to Sinks
*	338	Birch Cr	Headwaters to Marsh Cr
USB-360	302	Blackfoot R	Main canal to Snake River
USB-330	302.1	Blackfoot R	Wolverine Cr to Main canal
USB-330	303	Blackfoot R	Blackfoot Dam to Wolverine Cr
*	370	Bliss Res	
*	47	Brockman Cr	Headwaters to Grays Lk Outlet
USB-910	190	Camas Cr	Highway 91 to Mud Lake
USB-910	191	Camas Cr	Spring Cr to Highway 91
*	121	Canyon Cr	Pincock Hot Spg to Teton R
*	339	Cherry Cr	Headwaters to Birch Cr
*	395	Clear Springs	Headwaters to Snake R
*	379	Clover Cr	Pioneer Res to Snake R
*	66	Conant Cr	Forest Boundary to Falls River
*	403	Cottonwood Cr	Headwaters to Rock Cr
*	87	Crane Cr Res	
*	30	Dry Bed	Headgate to Snake R
USB-710	146	Dry Cr	Diversion to Wet Cr (T to 140.1)
USB-710	409	Dry Cr	Headwaters to Medley Cr
*	210	Eddie Cr	Headwaters to Medicine Lodge Cr
*	399	Ellison Cr	Headwaters to Snake R
*	523	Fish Creek Res	
*	336	Garden Cr	Garden Cr Gap to Marsh Cr
*	336.1	Garden Cr	Headwaters to Garden Cr Gap
*	332	Gibson Jack Cr	Headwaters to Portneuf R
*	335.03	Goodenough Cr	Headwaters to Marsh Cr
USB-610	447	Goose Cr	Headwaters to Oakley Res
*	43	Grays Quiet Outlet	Falls R42ET35S3 to Willow Cr
*	44	Grays Quiet Outlet	Grays Lk to Above Falls (T to 42.00)
*	337	Hawkins Cr	Headwaters to Marsh Cr
*	337.1	Hawkins Res	

* Segment not designat ed in the State WQS

NONPOINT SOURCE ASSESSMENT

Upper Snake Basin

WQS#	PNRS#	Name	Boundaries
*	45	Hell Cr	Headwaters to Grays Lk Outlet
USB-230	60	Henry's Fork	Warm Slough to Mouth
*	50	Homer Cr	Headwaters to Grays Lk Outlet
*	211	Irving Cr	Headwaters to Medicine Lodge Cr
*	372	L. Salmon Falls Res	
*	128	Leigh Cr	Wyoming line to Teton R
*	515	Little Wood Res	
USB-411	335	Marsh Cr	Headwaters to Portneuf R
*	40	Meadow Cr	Headwaters to Ririe Res
*	359	Milner Res	
*	333	Mink Cr	Headwaters to Portneuf R
*	119	Moody Cr	Forest Boundary to Teton R, S Fk
*	349.01	Moonshine Cr	Headwaters to IR Boundary
*	539	Mormon Res	
*	446	Oakley Res	
*	380	Pioneer Res	
USB-410	327	Portneuf R	Chesterfield Canal to Lava Hot Springs
USB-410	328	Portneuf R	Chesterfield Res to Chesterfield Ca
USB-520	431	Raft R	Utah Line to Malta
*	12.1	Rainey Cr	Forest Boundary to Snake R, S Fk
*	334	Rapid Cr	Headwaters to Portneuf R
*	350	Rattlesnake Cr	Headwaters to IR Boundary
USB-510	365	Rock Cr	Headwaters to Snake R
*	463	Roseworth Res	Or Cedar CR Res
*	57	Seventy Cr	Headwaters to Willows Cr
*	466	Shoshone Cr	Magic Hot Springs to Nevada Line
*	467	Shoshone Cr	Big Cr to Magic Hot Springs
*	468	Shoshone Cr	Cottonwood Cr to Big Cr
*	375	Shoshone Falls Res	
USB-30	348	Snake R	Bonneville County LN to Ferry Butte
USB-50	362	Snake R	Massacre Rocks to Lake Walcott
USB-80	369	Snake R	Bliss Bridge to King Hill Dam
USB-70	378	Snake R	Milner Dam to Murtaugh
*	434	Sublett Res	
*	73	Succor Cr	Oregon Line to Snake R
*	132	Teton Cr	Highway 33 to Teton R
USB-234	114	Teton R	Teton Dam Site to Teton Fks
USB-234	115	Teton R	Birch Cr to Teton Dam Site
USB-235	113	Teton R, N & S Fk	Teton Fks to Henry's Fk
*	41	Tex Cr	Headwaters to Willow Cr
*	342	Twentyfourmile Cr	Headwaters to Portneuf R
*	176	Twin Bridges Cr	Headwaters to Big Lost R

* Segment not designated in the State WQS

NONPOINT SOURCE ASSESSMENT

Upper Snake Basin

WQS#	PNRS#	Name	Boundaries
*	373	U. Salmon Falls Res	
*	215	Warm Springs Cr	Headwaters to Birch Cr
USB-320	35	Willow Cr	Ririe Dam to Snake R
USB-310	37	Willow Cr	Grays Lk Outlet to Ririe Res
USB-310	38	Willow Cr	Cellars Cr to Grays Lk Outlet
USB-310	39	Willow Cr	Headwaters to Cellars Cr
*	306	Wolverine Cr	Headwaters to Blackfoot R

* Segment not designat ed in the State WQS

**APPENDIX F - CERTIFICATION BY
ATTORNEY GENERAL**



STATE OF IDAHO

OFFICE OF THE ATTORNEY GENERAL

JIM JONES
ATTORNEY GENERAL

CURT A. FRANSEN
JOHN C. McCREEDY
SUSAN A. BURKE
DEPUTY ATTORNEYS GENERAL

DIVISION OF ENVIRONMENTAL QUALITY
DEPARTMENT OF HEALTH AND WELFARE
450 W. STATE, 10TH FLOOR
BOISE, IDAHO 83720
TELEPHONE: (208) 334-5537

M E M O R A N D U M

DATE: November 2, 1989

TO: Al Murrey, Chief
Water Quality Bureau

FROM: Susan Burke *SB*
Deputy Attorney General

RE: Nonpoint Source Management Program

In response to your request, this office has reviewed the Clean Water Act, the Idaho environmental statutes and regulations, and the Nonpoint Source Management Program Plan (Plan); and it is our opinion that the laws of the state of Idaho provide adequate authority for the Water Quality Bureau, Division of Environmental Quality, Department of Health and Welfare (Department) to implement the Plan.

REGULATORY AUTHORITY

Statutes:

The Idaho Legislature, in enacting the Environmental Protection and Health Act (EPHA), Idaho Code § 39-101 et seq., has delegated to the Director of the Department of Health and Welfare (Director) broad powers to safeguard water quality. Idaho Code § 39-105(k) states that the Director's duties include:

The supervision and administration of a system to safeguard the quality of the waters of this state, including but not limited to the enforcement of standards relating to the discharge of effluent into the waters of this state and the storage, handling and transportation of solids, liquids, and gases which may cause or contribute to water pollution.

Additionally, the Director has been authorized to administer the Water Pollution Abatement Act, Idaho Code § 39-3601 et seq., whose stated purpose "is to enhance and preserve the quality and value of the water resources of the state of Idaho and to assist in the prevention, control, abatement and monitoring of water pollution." Idaho Code § 39-3601. Through the Water Pollution Abatement Act, the Department may make grants and loans to municipalities and soil conservation districts to assist in the construction of sewage treatment works or application of best management practices.

The Director is also empowered to enforce "all laws, rules, regulations, codes and standards relating to environmental protection and health." Idaho Code § 39-105(n). In enforcing environmental laws, the Director may commence an administrative action by issuing written notices of violation to any person determined to be in violation of water quality laws. Idaho Code § 39-108(3)(a). Civil enforcement actions may be brought and penalties of up to \$10,000 per violation or \$1,000 for each day of a continuing violation may be levied against those violating environmental laws, rules, regulations, permits, or orders. Idaho Code §§ 39-108(3)(b) and 39-108(5). Criminal penalties and injunctive relief are also available. Idaho Code §§ 39-109 and 39-108(8).

The Board of the Department of Health and Welfare (Board) is authorized by the Legislature to adopt any regulations necessary and feasible to carry out and enforce environmental laws, and such regulations have the force and effect of law. Idaho Code § 39-107(8). All rule making proceedings conducted by the Board must be in compliance with the Idaho Administrative Procedure Act, Idaho Code § 67-5201 et seq.

Regulations:

In compliance with the Idaho Administrative Procedure Act, the Board has promulgated the following regulations concerning water quality.

Water Quality Standards and Wastewater Treatment Requirements, IDAPA § 16.01.2001 et seq. were adopted to "designate uses which are to be protected in and of the waters of the State and establish standards of water quality protective of those uses. Restrictions are placed on the discharge of wastewaters and on human activities which may adversely affect water quality in

the waters of the State" IDAPA § 16.01.2002.02. These regulations provide for water quality monitoring and surveillance of nonpoint source activities of best management practices. IDAPA § 16.01.2200. Such practices are those means most effective and practicable to prevent or reduce the amount of pollution generated by nonpoint sources. IDAPA § 16.01.2003,02. The monitoring of instream water quality in regard to best management practices is known as the "feedback loop." IDAPA § 16.01.2050,06. The process provides for the Director to review plans for proposed nonpoint source activities to determine whether the beneficial uses of state waters will be maintained and protected. IDAPA § 16.01.2300,04.c. Storage of hazardous and deleterious materials is also regulated by the Department to ensure that such materials do not enter state waters. IDAPA § 16.01.2800.

The Rules and Regulations for Individual/Subsurface Sewage Disposal Systems, IDAPA § 16.01.3001 et seq., and Idaho Code § 39-118 authorize the Department to approve or disapprove plans for wastewater treatment and disposal facilities as another means of ensuring that water quality standards are met.

Land application permits are issued by the Department pursuant to Wastewater-Land Application Permit Regulations, IDAPA § 16.01.17000 et seq., for certain types of wastewater and require groundwater monitoring to protect water quality.

The Rules and Regulations for Ore Processing by Cyanidation, IDAPA § 16.01.13001 et seq., and Idaho Code § 39-118A provide the Department with authority to permit specific mining operations for the protection of water quality.

The Department, via the above statutes and regulations, has adequate authority to implement the Nonpoint Source Management Program Plan.

INTER-GOVERNMENTAL AGREEMENTS

The proposed nonpoint source management program includes inter-agency agreements. The powers and duties of the Director include "[t]he establishment of liaison with other governmental departments, agencies and boards in order to effectively assist other governmental entities with the planning for the control of or abatement of environmental and health problems." Idaho Code §39-105(3)(h). Additional powers and duties include "[t]he supervision and administration of administrative units

whose responsibility shall be to assist and encourage counties, cities, other governmental units, and industries in the control of and/or abatement of environmental and health problems." Idaho Code § 39-105(3)(1). Inter-agency agreements are a means or a culmination of establishing liaison with other governmental units. Such agreements appear to encourage and assist other governmental units in controlling and abating pollution including that from nonpoint sources. Entering into inter-agency agreements is within the power and duties of the Director and may be implemented in the Plan.

FUNDING

Sources of funding for the implementation of the Plan include federal funding. The Director of the Department, when designated by the governor, is authorized to receive and utilize "any federal aid, grants, gifts, gratuities, or moneys made available through the federal government, including but not limited to the federal water pollution control act, for use in or by the state of Idaho in relation to health and environmental protection." Idaho Code § 39-105(4). Nonpoint source management falls within the purview of environmental protection. Accordingly, the Department is authorized to receive and utilize federal funds in implementation of the Plan.

EDUCATIONAL ACTIVITIES

Many of the activities described in the Nonpoint Source Management Program Plan focus on educational efforts to reduce nonpoint source pollution. The Legislature has declared the policy of the EPHA to be "to provide for the protection of the environment and the promotion of personal health and to thereby protect and promote the health, safety and general welfare of the people of this state." Idaho Code § 39-102. Educational activities aimed at the reduction or control of nonpoint source pollution would appear to promote public health and welfare and serve to protect the environment. The Department has authority to provide educational activities in the implementation of its nonpoint source management program.

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