FINAL DRAFT

REVISED INSTRUCTIONS FOR THE PREPARATION OF WATER RESOURCES MANAGEMENT PLANS

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Water Resources Division
National Park Service
Fort Collins, CO

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PURPOSE

The Water Resources Management Plan (WRMP) supports the National Park Service's (NPS's) decisionmaking process related to the protection, conservation, use, and management of park water resources and is integral to the development of a water resources program for the park. The WRMP structures and uses information about the park's water resources and water-related environments to (1) identify water resources issues facing the park; (2) assist management in developing and evaluating alternative actions, as appropriate, concerning these issues; and (3) select a preferred course of action. The WRMP is a dynamic document which is revised periodically; however, in general, the WRMP provides a blueprint for the resolution of park water resources issues over a 5-10 year period. In addition, the WRMP is a means by which water resources accomplishments can be measured against short- and long-term objectives. As a component of the Natural Resources Management Plan, the WRMP also serves as a fundamental tool in preparing budgets and allocating funds and staff to parks.

INTRODUCTION

These "Instructions" revise "Instructions for Preparation of Water Resources Management Plans" which were originally published in 1979. A number of WRMP's have been prepared since the preceding Instructions were first issued. The present revisions reflect what the Water Resources Division and the parks have learned in preparing a number of WRMP's that differ in focus and depth. In addition, revisions to NPS's Management Policies and guideline for the preparation of Resource Management Plans also require significant changes to these Instructions.

The revised Instructions have been designed (1) to assist park professionals in deciding if a WRMP is needed and in identifying and assessing water resources issues in their parks, and (2) to provide direction on how to prepare a WRMP.

The water resources of a park may be complex, and the various interactions and interrelationships may not be readily apparent. The spatial extent of hydrologic resources rarely corresponds to a park's legal boundaries, often extending beyond the park depending on the geology and topography of the area. Water may originate within a park, or it may flow into a park. Waters arriving at park boundaries may be in pristine condition or they may be of poor quality. Water flows from the parks as well, where it may have been altered in quantity or quality.

Waters of concern to park management may include surface water (e.g., lakes, rivers, streams, and creeks) and groundwater. In addition, concerns may also exist with respect to water-related environments of the park such as wetlands, floodplains, and other riparian resources. Frequently, the relationship between groundwater and surface water poses the most difficult management issues. As a consequence, water resources management issues that park managers encounter may be complex.

In addition, water resources issues that park managers may need to assess may be natural or anthropogenic (i.e., man-caused) in origin. They may result from activities outside park boundaries or within park boundaries. There may be issues regarding problems which have been thoroughly studied and are well understood or regarding problems which are little-researched and poorly understood. The issue may have been present for years or it may be a newly documented problem. Water resources issues may also be related to policy or regulatory matters associated with the protection of water quality or the maintenance of water flows.

WHEN TO PREPARE A WATER RESOURCES MANAGEMENT PLAN?

No specific criteria can be given as to when a WRMP should be prepared for a park. However, consideration should be given to the preparation of such a plan when water is a significant resource of the park (e.g, in supporting natural systems or providing for visitor use); there are numerous water resources issues, problems, or needs facing the park; these concerns have not been addressed previously or comprehensively in the park's planning process; or a specific course of action needs to be determined with respect to protection, conservation, use, and management of water as well as to comply with all legal requirements.

WHAT IS A WATER RESOURCES ISSUE?

One of the most difficult questions in the development of a WRMP is which issues or problems should be considered and included in the plan. There is no simple formula or checklist to make such determinations. Generally, the list of water resources issues of importance to a park is formulated after "scoping" and in-depth discussions among park management and technical staffs, water management specialists, and other interested parties. The following list provides general guidance with respect to circumstances that may lead to the identification of pertinent water resources issues.

- Water is a significant resource in support of an ecosystem and water-related problems directly affect the existence and functioning of that ecosystem.
- Public health and safety concerns are associated with water resources of the park.
- Changes in water resources external to the park affect or may affect water resources within the park.
- A particular water-related problem of the park is controversial and of strong public interest.
- There is uncertainty about how current or proposed water resources management strategies within the park affect the park's water resources.

- o There is uncertainty associated with the condition of water resources in the park and various impacts to those resources.

- o Water resources problems involve water rights or other legal concerns.

In addition, guidance with respect to the identification of water resources issues may be gained through review of completed WRMP's for NPS units sharing similar hydrologic conditions or affected by similar internal and external influences.

RELATIONSHIP OF A WATER RESOURCES MANAGEMENT PLAN TO THE NPS PLANNING PROCESS

The WRMP is one part of NPS's planning process which involves a number of stages. The process begins with the formulation of broad goals and objectives, through decisions about what general management directions should be followed to meet those objectives, to developing detailed action plans. NPS-2, Planning Process Guideline explains the planning process in detail. Figure 1 depicts the basic relationship among NPS plans. A synopsis of each of these plans follows.

Statement for Management

The Statement for Management (SFM) begins the planning process by describing the park's purpose and how it is currently managed. The SFM analyzes factors which influence park management and use, and identifies major issues, problems, and management objectives. It serves as an assessment of conditions in the park that can be addressed by additional studies, research, or plans. The SFM describes conditions; it does not prescribe solutions or make decisions on management actions.

Outline of Planning Requirements

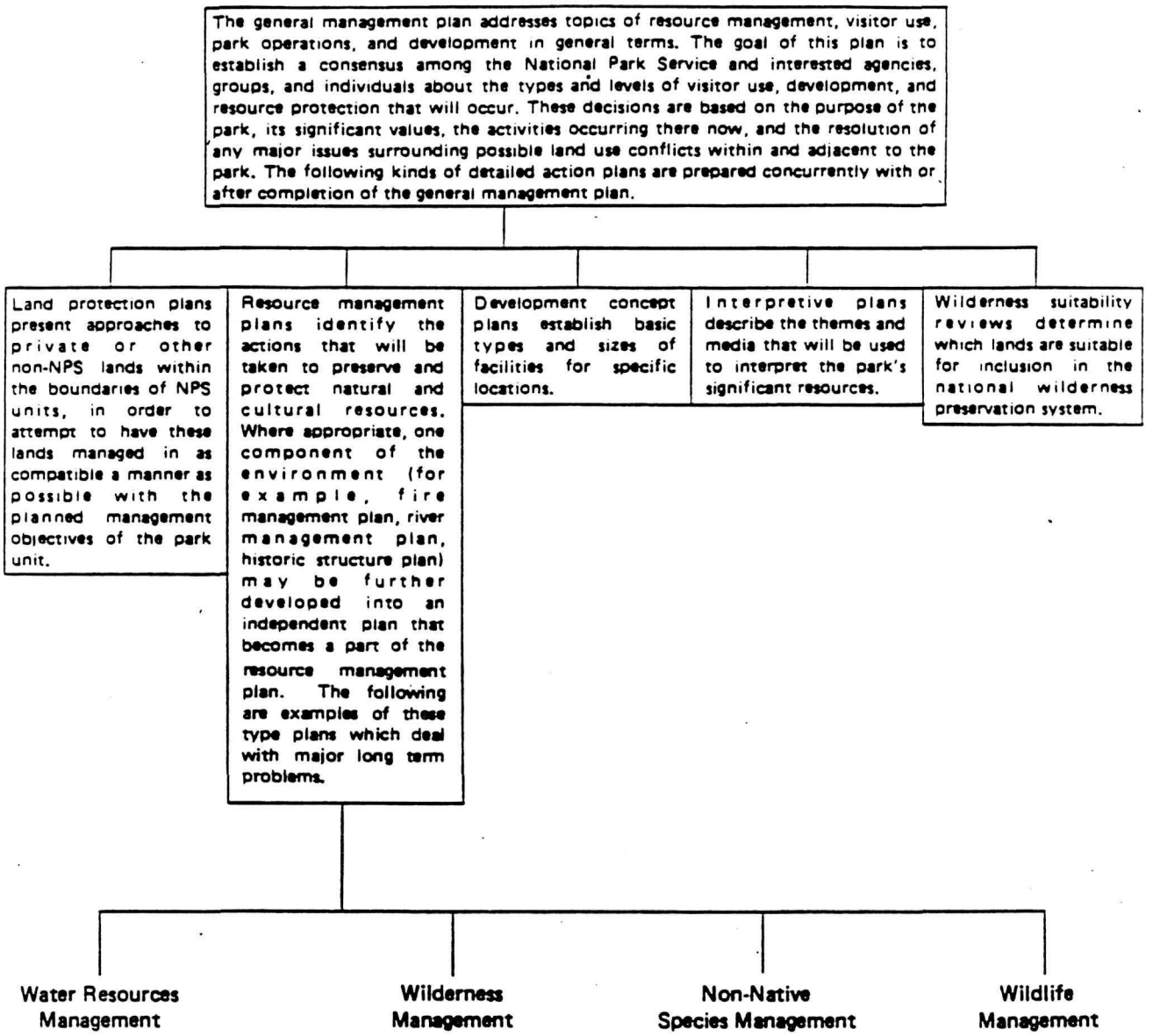
The assessment of conditions in the SFM leads directly to the development of the Outline of Planning Requirements (OPR). The OPR is developed by evaluating the plans and tasks that must be undertaken to achieve the objectives outlined in the SFM. It is a ranked list of projects, studies, and surveys that need to be conducted to provide the information base for the plans. Developed along with the OPR are development/study package proposals which request funding and programming for the five year period of the OPR and support and justify the requests.

General Management Plans

The GMP addresses strategies for such things as resource protection and management, interpretation, visitor use, park operations, and the location, size, and functions of physical developments. Differences in the size and complexity of parks result in GMP's that vary in size and level of detail.

Figure 1:
NPS PLANNING DOCUMENTS

The National Park Service planning process for each park (preserve, monument, or other unit of the system) involves a number of stages, progressing from the formulation of broad objectives, through decisions about what general management direction should be followed to achieve the objectives, to formulation of detailed actions for implementing specific components of the general management plan.



Depending largely on the complexity of individual planning efforts, action plans may or may not be prepared simultaneously with the general management plan. If they are prepared after the general plan, the NPS public involvement and cooperative planning efforts are continued until all of the implementation plans are completed.

Some GMP's provide general guidance on issues of concern while others include detailed information customarily part of an action plan, as described below.

Natural Resources Management Plans

Natural Resources Management Plans (NRMP's) identify specific actions that should be taken to preserve and protect the natural resources of parks. More specifically, the NRMP documents a park's natural resources, describes and evaluates the park's current natural resources management activities, and prescribes an action program based on legislation and executive mandates, NPS management policies, management zoning, and other provisions of related planning documents. In some parks, all natural resources issues of concern to management can be effectively addressed in the NRMP. In others, depending on a number of factors, more specific action plans, like the WRMP, may be initiated (see Figure 1). NPS has developed a Resource Management Plan (RMP) Guideline (March 13, 1989) for the preparation of NRMP's.

Water Resources Management Plans

In parks where water resources issues have been determined to be sufficiently important, complex, or controversial, a WRMP may be prepared. WRMP's identify water resources issues and, as appropriate, assess alternative actions and strategies for dealing with those issues. The purpose of such plans is to enable park managers to evaluate and make decisions and establish priorities with respect to the protection, use, conservation, and management of park waters and water-related resources. Recommended water resources management actions, as described in project statements, are incorporated into the NRMP for purposes of funding and programming.

WHO IS RESPONSIBLE FOR THE WATER RESOURCES MANAGEMENT PLAN?

Responsibility for preparation of the WRMP lies with the park. Specific direction, guidance, and technical support may be provided by the Regional Offices and WASO personnel.

WRMP's are best prepared by a small team or task force comprised of staff with varied academic and professional backgrounds. This interdisciplinary approach helps assure that water resources issues and activities are evaluated in the broadest possible context. Generally, the park's resource management staff coordinates the analysis and plan preparation. Involvement of staff from other park divisions is essential.

In establishing a water resources planning team, it is helpful if at least one of the key staff is a hydrologist, especially when the hydrologic environment is complex. Hydrologic expertise should be sought from other sources such as the Water Resources Division or Cooperative Park Studies Units when not available at the park. A resource management specialist with water resources training may be able to adequately support the team for issues concerning hydrologic resources that are not complex.

The team preparing the WRMP is usually comprised of NPS staff. In some cases, representatives of other Federal agencies or State or local government may assist in preparation of the plan. The WRMP team may be directly supported by outside contractors or consultants.

Consideration should be given at the outset of the planning process to preparation of a Task Directive which identifies major tasks, participants, and schedules. Similarly, consideration should be given to the issuance of a notice of intent to prepare a WRMP which solicits information and concerns from outside entities (e.g., public interest groups) to assist in the identification of issues and alternative actions. A planning process that considers outside interests early has more credibility than one that ignores outside interests.

When a draft WRMP has been completed by the team, it should be forwarded to the Superintendent for review and approval. Upon approval, the Superintendent should transmit the draft plan to the Regional Office, the Water Resources Division, and other interested parties for review and comment. The WRMP team is responsible for responding to comments and preparing the final plan. The final WRMP should be recommended by the Superintendent and approved by the Regional Director.

FOR WHOM IS THE PLAN INTENDED?

The WRMP may be intended for a number of different audiences. As a part of the NPS planning process, the WRMP is designed to be used by the park Superintendent and staff to guide decisionmaking concerning water resources projects and activities. The WRMP also serves as a contract between the Superintendent and the Regional Director which outlines the park's water resources problems, identifies deficiencies in data or research, and delineates the park's course of action to address these problems and deficiencies.

Where parks are adjacent to Indian lands, national forest lands, wildlife refuges, or other Federal lands, tribal governments, the Bureau of Indian Affairs, the Forest Service, the Fish and Wildlife Service, and the Bureau of Land Management are likely to be concerned with the decisions NPS will make as a result of the WRMP. Where water projects such as dams are included in the park's boundaries, the Bureau of Reclamation, the Corps of Engineers, and power authorities like the Western Area Power Administration and the Tennessee Valley Authority may be interested in the outcome of issues that relate to their responsibilities.

States are responsible for implementing portions of the Clean Water Act, including establishing water quality standards, designating water uses, and implementing anti-degradation policies for water. States are also responsible for water rights administration and, in many cases, wildlife and fisheries management. Since these activities often relate to issues addressed in a WRMP, State water, natural resources, and fish and game agencies are likely to be interested in WRMP's for parks.

Local governments, landowners, and special interests that use or benefit from the park's resources (e.g., national or local public interest groups) are likely to be concerned with issues discussed and actions selected in the WRMP. In fact, anyone who is interested in the park's natural resources and their management is a likely audience for the WRMP.

The WRMP is part of the NPS planning process which requires opportunities for public participation. Therefore, careful consideration should be given to the need for public review and the appropriate intensity of that review.

RESPONSIBILITIES UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT

The WRMP recommends actions to be taken by NPS related to the protection, conservation, use, and management of park water resources which may affect the environment. As such, the water resources management planning process must comply with the requirements of the National Environmental Policy Act (NEPA). In accordance with the RMP Guideline, NEPA compliance may be carried out jointly with the WRMP or separately. If the latter approach is to be taken, the scope and timing of NEPA compliance should be indicated.

NEPA compliance for actions identified in the WRMP should rely to the extent possible on previous NEPA analyses conducted for the GMP and/or the NRMP. Thus, in some cases, the range of actions evaluated in previous documents should be adequate to permit full reliance on previous NEPA analyses. The responsible official must determine that:

(1) The proposed Federal action and range of alternatives are covered by an existing NEPA analysis, and

(2) That there are no significant environmental impacts affecting the human environment that have not been analyzed in the existing NEPA compliance documents.

When both of these conditions are satisfied, a Statement of Coverage in a Previous NEPA Document is approved and becomes part of the WRMP (see Appendix A). This statement documents that the environmental effects of the proposed plan have been considered by the responsible official.

In those situations where the above conditions are not met, an Environmental Assessment (EA) must be prepared. The EA needs to evaluate the environmental impacts of each of the reasonable alternatives under consideration to determine whether significant environmental impacts would occur. In those cases where the WRMP evaluates alternative courses of action, the analysis contained in the WRMP is similar to that required by NEPA in that the WRMP considers advantages and disadvantages of the various alternatives. The environmental impact analysis under NEPA includes consideration of both adverse and beneficial impacts. Thus, a recommended approach where the WRMP evaluates alternatives is for the WRMP team to prepare the EA as part of the WRMP process and to combine the WRMP and EA into one document.

The provisions of NPS-12, National Environmental Policy Act Guideline are to be followed regardless of whether the EA is prepared jointly with the WRMP or separately. Procedures for public review and comment should be followed throughout the process, and coordination should be carried out with the Regional Environmental Coordinator. The result of the EA process will be either a Finding of No Significant Impact (FONSI) (see Appendix B) approved by the responsible NPS official or a determination that significant environmental impacts would result from the proposal, requiring preparation of an Environmental Impact Statement (EIS).

INFORMATION BASE

A WRMP should address water quantity, water quality, and water-related environments associated with all water resources within the park. These may include, but are not limited to, surface water resources such as streams, rivers, lakes, ponds, floodplains, wetlands, and riparian resources; groundwater resources including aquifers, potable water supplies, springs, and seeps; and special features such as glaciers, water-pockets (tinajas), bogs, marshes, fens, and hydrothermal resources.

The scope of the information base utilized in a WRMP will likely vary from plan to plan, depending upon the site-specific characteristics of the park, its watersheds and groundwater resources, and the type and extent of water resources issues facing the park. For instance, a park, where its watersheds are entirely contained within park boundaries and thereby largely protected from external activities, will usually not require an assessment of water resources data available from sites located outside of the park boundary. On the other hand, another park, where portions of its watersheds lie outside of the boundary, may very well require an extensive analysis of upstream watershed management practices, water quality, water utilization, and point source and non-point source pollutant loadings.

An early step in the planning process for a WRMP is the inventory, assembly, and evaluation of available information, including studies and databases, pertaining to the hydrologic environment of the study area. It is important to first gain a basic understanding of the scope and context of the water resources issues and to determine whether adequate data are available to support the water resources management planning process, prior to initiating a data collection effort. Planning processes, such as the development of a WRMP, often require less technical data than may be initially expected, and experience has shown that there is often a larger body of readily available information relating to the park's hydrologic environment than may be apparent at first glance.

After completing a thorough search of a park's data files and library and the files of the Water Resources Division, the district office of the U.S. Geological Survey (USGS) should be contacted for information relating to local hydrologic studies. Additional pertinent published studies are often located utilizing one of several commercial, automated computer search reference networks, available at a nominal cost at most university libraries.

Information on existing databases can also be provided from the USGS's WATSTORE database system or the Environmental Protection Agency's (EPA's) STORET system. Both of these systems can usually be accessed by contacting the district office of the USGS or the regional office of the EPA. Information on climate, soils, watershed development, etc. is often also available from a number of Federal, State, and local agencies.

A typical problem facing the park's resource management staff, then, is not the lack of available information, but rather, summarizing available information into a coherent assessment of the park's hydrologic environment, and identifying areas where present information gaps exist and additional monitoring or research may be necessary. NPS-75, Standards for Natural Resources Inventory and Monitoring may be of assistance in this analysis.

FORMAT AND CONTENT OF THE WATER RESOURCES MANAGEMENT PLAN

This section provides specific recommendations for preparing the three major parts of the WRMP -- Introduction; The Hydrologic Environment; and Project Statements. An example table of contents for a WRMP is included in Appendix C.

Introduction

Purpose of the Plan. The section should clearly state the purpose of the WRMP and identify the water resources issues or management decisions which have led to the plan's preparation. This section should also provide information which describes the geographic, legislative, policy, and historical context of water resources of the park.

Legislative and Regulatory Relationships. This section contains a brief summary of relevant laws, regulations, policies, and Executive Orders with special attention to any language that deals specifically with water resources or directs specific actions with respect to water or water-related resources.

The role of the States in implementing the Clean Water Act (e.g., developing water quality standards, classifying stream segments, and designating water uses) should also be described in this section. A short discussion of the requirement that Federal agencies comply with State laws with respect to water pollution (Section 313 of the Clean Water Act) should also be included. The State water use categories that are applicable to the waters of the park should be identified. When designated water uses for the park appear to be at variance with adequate protection of park water resources, that information should be noted here since it may be an important issue to be dealt with in the WRMP. This section may also require brief discussions of other Federal laws that may affect water resources management planning for the park such as the Safe Drinking Water Act, the Wild & Scenic Rivers Act, the Coastal Zone Management Act, the Endangered Species Act, the Comprehensive Environmental Response and Liability Act, and the Resource Conservation and Recovery Act.

Land Status, Uses, and Planning Relationships. This section should include information on political boundaries and the land status and uses of lands

adjacent to the park. A discussion of what types of activities occur or may be expected to occur outside the park's boundaries on adjacent lands that may affect the park's water resources should be included. This section should also include the history of water resources management or decisions affecting adjacent lands that may be relevant to actions under consideration in the plan.

This section should also contain a brief description of the status of current NPS planning activities for the park. When management zoning has been implemented as part of the GMP, the different zones should be delineated, and the types of activities that are permitted in each of the zones should be explained. Cooperative agreements or memorandums of understanding that exist with Federal, State, or local governments which may affect water resources should also be described in this section. A discussion of relevant areawide water-quality planning under Section 208 of the Clean Water Act should also be provided.

Management Objectives. NPS's Management Policies sets forth general objectives concerning the use and management of water in parks. There may be additional water resources management objectives for individual parks that are based on unique conditions or circumstances. This section should clearly delineate the water resources management objectives, both general and specific, that will guide the selection of actions in the WRMP.

Identification of Water Resources Issues. The final section of this part of the WRMP is a listing of the specific water resources issues that have been identified for evaluation in the plan. By listing the issues here, this section of the Introduction can function as a abstract of the plan for quick reference. Any person referring to the plan will know the range of issues that are addressed while simultaneously having a clear picture of the institutional and historical setting into which the plan fits.

Consideration should also be given to preparing an Executive Summary that can precede the Introduction and provide a summary of the background, analyses, and conclusions of the WRMP. Information included in the Introduction should not duplicate information previously presented in the NRMP.

The Hydrologic Environment

The Hydrologic Environment section describes the park's water resources. This section provides sufficient information to characterize the hydrologic setting of the park and to describe the current condition and status of park water resources. The nature and severity of external and internal threats to the water resources of the park should also be described. Historical water resources monitoring and research programs associated with the park should be discussed. It is important to focus on information directly relevant to the water resources management planning process and to avoid lengthy or detailed technical discussions not related to the water resources issues considered in the WRMP. Because each park is unique and the water resources issues are thus different, the Hydrologic Environment section will differ in format and

emphasis for each WRMP. The topics listed below are presented as a guide to preparers of WRMP's.

o Description of the Area

  - Physiography (delineate park watershed(s) and sub-basin(s), locate park water resources, and identify land uses).

  - Climate (present precipitation and evapotranspiration data and assess long-term trends).

  - Geology and Soils (describe geologic setting and soils related to surface water and groundwater).

o Surface Water Resources (rivers, streams, lakes, ponds)

  - Quantity (characterize surface water flows and lake levels and assess long-term trends).

  - Quality (characterize surface water quality, assess long-term trends, and evaluate compliance with applicable water quality standards).

  - Floodplains (identify 100-year and 500-year floodplains and high hazard floods and evaluate compliance with Executive Order 11988 - Floodplain Management and NPS's Floodplain Management and Wetland Protection Guidelines).

o Groundwater Resources (aquifers, springs, seeps, and hydrothermal resources)

  - Quantity (characterize groundwater aquifers and associated water levels, recharge areas, and flows of springs and seeps and assess long-term trends).

  - Quality (characterize groundwater quality, assess long-term trends, and determine suitability for use).

o Aquatic and Riparian Resources and Habitats

  - Biota (identify biota associated with water resources, describe related habitats, and assess historical trends).

  - Threatened & Endangered Species (identify threatened and endangered species inhabiting the park and dependent on park water resources).

  - Wetlands (identify wetlands and evaluate compliance with Executive Order 11990 - Protection of Wetlands and NPS's Floodplain Management and Wetland Protection Guidelines).

o Consumptive and Non-Consumptive Water Uses within the Park (identify water uses including, but not limited to, public water supply, full-body contact recreation (e.g., swimming and water skiing), non-contact recreation (e.g.,

fishing and boating), agriculture, maintenance of ecosystems, and disposal of sewage effluent).

- o Water Rights (identify existing park water rights (reserved, appropriative, and riparian) and assess water requirements to support park purposes).

- o Man-made Hydrologic Structures with the Park (e.g., identify riprapping, channelization, and protective dikes).

- o External and Internal Threats to Park Water Resources (e.g., identify water quality effects of development activities upstream of the park and water resources impacts of a new visitor center within the park).

Project Statements

This section constitutes the action program of the planning effort. Project statements describe the park's ongoing and anticipated management undertakings, including ongoing, day-to-day operational activities and special projects to address water resources issues facing the park (see Appendix D, Example Project Statement). As used here, "activities" are those routine, ongoing day-to-day operations that are expected to continue indefinitely and include management, monitoring, interpretation, law enforcement specifically directed toward water resources protection, program administration, and other related undertakings. "Projects" are generally one-time actions that have a distinct beginning and end and are usually between one and five years in duration. Examples include research, management studies, and treatment actions.

Each water resources management activity or project must be addressed in a separate project statement which should be sufficiently detailed to allow incorporation of the project statement into the NRMP for funding and programming purposes. Project statements should include the following:

1. Park Code, Project Number, and Project Title: (see RMP Guideline for appropriate terminology.)

2. Servicewide Issue: (see RMP Guideline for Servicewide Natural Resources Issue codes.)

3. Problem Statement: This section describes the water resources issue, problem, or need which will be addressed. The description must clearly identify and characterize the affected water resources and the relationship of these resources to park mandates and objectives. The condition of the affected water resources, the extent of known impacts (including impacts on the health and safety of park employees and visitors), current park or external activities affecting the water resources, and the efficacy of current management activities should be discussed. The relationships between the affected water resources and community, governmental, and other public concerns should be addressed.

4. Description of the Recommended Activity or Project: Each component of the recommended activity or project should be fully described, explaining how the proposal and its components will contribute to addressing the water resources issue, problem, or need and what specific products or results are expected. The relationship of the recommended activity or project to other projects or plans should be discussed and expected duration, costs and probable funding sources, and required staffing/technical skills and positions associated with each component should be estimated.

5. [OPTIONAL SECTION] Alternative Actions/Solutions and Their Probable Impacts: In accordance with the RMP Guideline, alternatives do not have to be described in the WRMP. However, at the option of the park, there may be reasons to address alternatives in the WRMP. Such reasons may include identification of the analysis process by which the recommended action was selected, preservation of good ideas (particularly if an EA or EIS will subsequently be done), and providing options if funding levels change. Where alternatives are included in the WRMP, alternative actions should be described that could reasonably be considered for addressing the issue, problem, or need. A "no action" alternative should be included. Each alternative should be evaluated considering the park's water resources management objectives, legislative mandates, environmental impact(s) (including cumulative impacts), resource requirements (including personnel and funding requirements), and other consequences.

6. Compliance: The need for or status of compliance of the proposal with the National Environmental Policy Act (NEPA), various Executive Orders (e.g., floodplains management and wetland protection), and other laws and regulations (e.g., the Clean Water Act, the Endangered Species Act, the Coastal Zone Management Act, the National Historic Preservation Act, and State and local requirements) should be addressed. When the responsible official determines that the proposal is categorically excluded, the specific exclusion should be identified. For those situations where compliance has been satisfied previously, the relevant document (e.g., an EIS on the GMP or EA on the NRMP) should be referenced. Care should be taken to insure that documentation being relied upon is not outdated. When additional compliance is required, the scope and timing of the compliance action should be identified.

As indicated previously, the WRMP can in some cases rely on NEPA analyses carried out earlier in the NPS planning process. However, it is envisioned that in many cases, the WRMP will be a combination document, containing both the plan and an associated EA. If potentially significant effects are found through the EA but can be mitigated below the significance threshold, then it is essential that mitigation is clearly stated in the EA and reiterated in the Finding of No Significant Impact. In addition, it should be noted that the Courts have been looking carefully at EA's to see whether the best information available has been used and if a "hard look" was taken at the information. It is important that environmental documentation be performed as an integral component of planning and that it is done fully and professionally. (See RMP Guideline and NPS-12, National Environmental Policy Act Guideline for further information on NEPA compliance.)

Bibliography of References Cited in Water Resources Management Plan

A list of references cited in the WRMP should be included. The bibliography should include related plans, technical reports, research studies, monitoring data, and other pertinent documents.

Consultation and Coordination

The final section of the WRMP should provide a list of agencies, institutions, organizations, and individuals that participated in the planning process. The Consultation and Coordination section assists in compliance with NEPA and demonstrates to readers the extent of participation by groups or individuals not directly associated with the park. The list should be as comprehensive as possible. The following categories are provided to assist with preparation of this section:

- o Agencies -- Federal, State, or local.
- o Institutions -- Universities.
- o Organizations -- Public interest groups, water resources districts, research groups, etc.
- o Individuals -- Local citizens who were contacted or who provided comments.
- o Principal Contributors -- Staff from the park, other parks, region, Water Resources Division, etc.

The Consultation and Coordination section can also be used to acknowledge the contributions of other individuals who helped review or prepare the WRMP or who have generally provided support to the overall planning effort.

Water Resources Programming Sheets and Annual Project Status and Accomplishment Reports

As indicated in the RMP Guideline, programming (funding) sheets should be prepared to provide summary information on both funded and unfunded water resources activities and projects. Separate funded and unfunded programming sheets should be prepared listing (in priority order) water resources activities and projects using the same project titles as used in the project statements of the WRMP. Instructions for filling out these sheets are provided in Attachments N and P of the RMP Guideline. These sheets may be included as a separate appendix to the WRMP to allow for easy updating on an annual basis.

The WRMP should also contain annual project status and accomplishment reports, as specified in the RMP Guideline, which summarize the status of projects and, for funded projects and activities, the products completed, funds obligated, accomplishments, and the work remaining to be done. These reports should be updated annually and should be cumulative so that an historical

record of progress is maintained. Instructions for preparation of these reports may be found in Attachment O of the RMP Guideline. Again, these reports may be included as a separate appendix to the WRMP to allow for easy, annual updating.

APPENDIX A: Example Statement of Coverage by Existing Environmental Impact Statement or Environmental Assessment

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Statement of Coverage by Existing
Environmental Impact Statement
or
Environmental Assessment

For

Water Resources Management Plan

This Water Resources Management Plan has been evaluated to determine whether the potential individual and cumulative impacts on the quality of the human environment, as provided in Section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), are covered adequately by the environmental impact statement (EIS) prepared by the National Park Service (NPS) titled "[Insert title and identifying information for EIS]" [or insert other relevant existing EIS or environmental assessment (EA)]. This evaluation leads to the conclusion that the proposed action and alternatives are covered adequately by the [analysis or analyses] and that there are no substantial changes in the proposed action or significant new circumstances or information relevant to environmental concerns that are not covered by the existing NEPA document as provided by the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA.

Date	Responsible Official	Title/Position

APPENDIX B: Example of Finding of No Significant Impact (FONSI)

FINDING OF NO SIGNIFICANT IMPACT

WATER RESOURCES MANAGEMENT PLAN
GLEN CANYON NATIONAL RECREATION AREA

U.S. Department of the Interior
National Park Service

Recommended by: _____ Date: _____
Superintendent
Glen Canyon National Recreation Area

Approved by: _____ Date: _____
Regional Director
Rocky Mountain Region

DESCRIPTION OF THE PLAN

A Water Resources Management Plan (WRMP) was prepared for Glen Canyon National Recreation Area to guide management action for the next ten years on the most significant water resource issues facing the park unit. Issues evaluated in the document include the following:

Identification of Outstanding National Resource Waters
Water Rights
Floodplain Identification and Management
Shoreline Water Quality
Gray Water
Water Quality of Rivers for Recreation Use
Springs, Seeps, and Waterpockets
Water Resources of Riparian Ecosystems
Water Resources as Habitat for Fish
Heavy Metals in Fish
Range Management Practices
Mineral Extraction
Tar Sand Operations
Energy-Related Wastes
Management of Hazardous Materials Spills

The Plan identifies preferred alternatives for dealing with each issue, which together constitute a comprehensive program of water resource monitoring, research, and management action. This program is the National Park Service's proposed action under the Plan.

PUBLIC REVIEW

On May 22, 1987, the National Park Service issued the Water Resources Management Plan and Environmental Assessment for public review and comment. The Document was distributed to approximately 140 individuals, organizations, and government agencies; its availability was announced by press release on the same day. A 60-day comment period was provided.

Comments were received from 13 reviewers. Commentors included the Bureau of Land Management, U.S. Department of the Interior; the States of Utah and Arizona; Canyonlands National Park; the Five County Association of Governments (St. George, Utah); the Six-County Commissioners Organization (Richfield, Utah); and one citizen. Several departments of the two state governments commented separately.

NATIONAL PARK SERVICE RESPONSE TO PUBLIC COMMENTS

Five commentors either supported the document without making additional suggestions or said they had "no comment".

The other comments contained suggestions, elaborated on concerns with certain issues, or supplied additional information. Virtually all of them supported the Plan as a whole. Among the issues over which concerns were expressed,

four were mentioned by several different commentors: gray water, water rights, trace elements in fish, and grazing effects on water resources.

Gray water was a particular concern of the Utah Department of Health and the Arizona Department of Environmental Quality. Utah noted that graywater discharges may be unsanitary, particularly in areas of concentrated houseboat use; but endorsed the NPS preferred alternative as the most appropriate means of addressing the issue now. Arizona commented that "retention of all liquid wastes until an onshore disposal facility is reached" would be the only acceptable alternative at present. This alternative was evaluated in the WRMP, and it was concluded that the NPS preferred alternative (problem assessment monitoring of Lake Powell houseboat anchorages, a boat inspection program, and coordination with the states on regulation) should precede any prohibition of gray water discharges, although the latter "may become necessary based on monitoring results". The National Park Service continues to believe that the problem-assessment approach to gray water regulation will be the most effective in the long run. The potential economic effects of prohibition are significant for the public, the Federal government, and the businesses offering recreational services at Lake Powell; such regulatory action should therefore be based on adequate documentation. Should water quality monitoring and watercraft inspections determine that gray water discharges are unsanitary and degrade water quality, then the discharges would be prohibited on Lake Powell. The National Park Service therefore adopts the preferred alternative presented in the WRMP, with the additional proviso that it will enter into consultation with the states immediately to coordinate gray water issues.

Water rights were discussed by several commentors, primarily in support of the NPS position to participate in adjudication proceedings and to document Federal water rights claims as needed for such proceedings. In response to the Bureau of Land Management Utah State Office, several clarifications are in order. Outlaw Spring, French's Spring, Big Water Spring, and Clyde's Spring were filed for as Federal reserved water rights in the San Rafael River adjudication. This fact was inadvertently omitted from the WRMP. The NPS general claim of 13.38 cubic feet per second for authorized livestock grazing is indeed sufficient for the licensed grazing use in the NRA, based on state criteria for water consumption per head of cattle. Wildlife uses are included in all of the NPS water rights filings for the Recreation Area as part of the Federal reserved water right on the Federal land reserved from the public domain for recreation area purposes. Arizona's Department of Environmental Quality emphasized the need to conduct instream flow studies to quantify claims for water for recreation and riparian and aquatic habitat. We concur with this comment and consider such studies part of the documentation potentially needed in support of claims. Utah expressed concern that quantification of instream flows needed for NRA purposes and subsequent water rights claims might adversely affect future water development in adjacent drainages. This issue is an important one which should be resolved during water right adjudication proceedings; in any event, the National Park Service has no choice as an agency managing public lands but to claim all of the water needed to comply with its legislative mandates.

Several reviewers commented on the issue of trace elements in fish, suggesting that any public health risks be evaluated as soon as possible and public notice be provided as appropriate. We agree with these comments; the Plan's preferred alternative recommends, interagency coordination for monitoring objectives, and public education should a potential health problem be documented (at present there is no evidence there are health risks associated with fish from Lake Powell). The National Park Service obtained samples of striped bass for analysis in 1987 as an initial step in this monitoring, and will continue to work cooperatively with other agencies to assess the issue and coordinate interagency monitoring programs.

Reviewers commenting on the Plan's proposed water resource management guidelines for grazing were evenly divided between support and criticism. The State of Utah and Bureau of Land Management Utah State Office felt that the proposed guidelines were too stringent and implied a total exclusion of cattle from water sources. This is not the case. Two of the guidelines ("livestock will not be permitted to foul natural water sources...". and "wildlife and recreationist access to water sources must not be impaired...") bear on the issue. These guidelines are intended as statements of water resource management objectives for the Recreation Area as related to grazing, and do not presuppose an exclusion of cattle from water. Range improvements would be required to have a design that would meet the objectives; as, for example, diverting part of the flow from a source to a through to tank outside of the sensitive area. Both guidelines are entirely consistent with the purposes of the Recreation Area and with the spirit of the legislation reserving the area for public recreational use while providing for grazing to continue. The objectives would essentially require the use of "best management practices" in the design and construction of water-related range improvements in the NRA. Should a case arise where an improvement could not reasonably meet the guidelines, it could not be approved; however, from experience, we do not believe such cases would occur very often.

One reviewer commented that the proposed guideline for plugging abandoned oil and gas wells in the NRA is unnecessary because State and Federal requirements already exist for the protection of water resources. Nevertheless, in many areas of the country the existing requirements have proven insufficient to protect aquifers and surface waters from contamination by inadequately sealed abandoned oil and gas wells. A well recently leaked brine near Natural Bridges National Monument after being abandoned three years, damaging surface vegetation and soils. This well had to be reentered and plugged to its total depth. To reduce the possibility of additional such cases occurring on Recreation Area land, the NPS believes the plugging requirement is a reasonable lease stipulation.

FINDING

Based on the Environmental Assessment and analysis of alternatives for Glen Canyon National Recreation Area's Water Resources Management Plan, together with analysis of public response, it is concluded that adoption of the preferred alternatives presented in the Plan would not constitute a major Federal action affecting the human environment. Therefore, an environmental impact statement will not be prepared.

APPENDIX C: Example Table of Contents for a Water Resources Management Plan

COVER SHEET

TABLE OF CONTENTS

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APPENDIX D: Example Project Statement for a Water Resources Management Plan WRMP.

[This example project statement illustrates the format provided in the instructions. The extent of detail is unique to the example issue and is not necessarily representative of other issues which may be encountered in the preparation of a WRMP. The length, specificity, and technical approach will vary. It should also be noted that this project statement serves as an example where the WRMP evaluates alternative actions and is a combination document, containing both the plan and an EA.]

Park Code, Project Number, and Project Title: LAPO-N-007, Maintain shoreline water quality suitable for full-body contact recreation.

Servicewide Issue: N20 (Lack of Basic Data: insufficient understanding of park ecosystems and threats to them); N24 (Other Issues: Degradation of park water quality due to internal activities).

Problem Statement: Lake Pocasset is the most important recreational resource of Lake Pocasset National Recreation Area (LAPO). With 255 square miles of surface and more than 1800 miles of shoreline, it is the second largest man-made lake in North America, and its clear, high quality waters offer outstanding recreational opportunities. The management objectives of LAPO include the encouragement of "water-oriented recreation ... (and) maintenance of high water quality ..." Excessive recreational use, however, by swimmers, waders, boaters, boat-campers, house-boaters, campers, and recreational vehicles all may threaten shoreline water quality by increasing turbidity and encouraging unhealthful levels of pathogenic bacteria.

Because techniques are not available to detect the full range of possible disease-causing organisms in water, the Environmental Protection Agency has established health standards for recreational waters based on the occurrence of easily monitored fecal coliform bacteria. The presence of these organisms indicates contamination of the waters by mammalian feces (often human) and the possible presence of pathogens. State standards for fecal coliform in recreational waters applicable to LAPO are:

- Full-body contact: 200 colonies / 100 mL (log mean for 30 days)

At Lake Pocasset, the management objectives state that recreational waters should be kept well within the State standard for full-body contact recreation (swimming).

In 1975, a problem-assessment study of bacterial contamination was published for Lake Pocasset (Smith, 1975). Following lake-wide water sampling over several seasons, Smith found the waters were "generally safe for human body contact," although contamination sometimes exceeded State standards. Continued water quality monitoring was recommended. A similar study in 1976 (Brown, 1977) found water along the shoreline at heavily used sites to have very low bacterial concentrations, and the sanitary quality of the lake was characterized as "excellent," with a few sites in the "good" range. Problem-

assessment monitoring was again carried out lake-wide in 1985 by Jones et al. (1985). In this study it was found that lake waters generally were of excellent quality, but that individual samples sometimes exceeded the standards at heavily used shoreline sites. At Lone Rock Beach, a heavily used swimming site, and two other lesser used sites, the geometric mean of samples was high enough to cause concern about the long-term bacterial water quality trend, though the bacterial levels still met State standards. Based upon these studies it is believed that water quality standards for recreational activities are presently attained in Lake Pocasset, but that the growth of recreational use has led to increased bacterial levels at high-use beach sites.

Another aspect of this problem requiring clarification is the source(s) of the fecal pollution and its longevity in beach waters and sediments. Possible sources include illegal discharges from vehicles and watercraft on a beach; people's bodies; defecation by humans on shoreline areas that are subsequently inundated by rising lake waters; pets; or runoff from upslope areas around camps where further human defecation occurs. At some sites, the source of fecal pollution may be cattle or wildlife. A better understanding of pollutant origins clearly will be necessary in order to develop proper mitigative measures, should bacterial contamination levels continue to increase.

Description of the Recommended Project, Alternative Actions, and Their Probable Impacts:

Alternative A: No action

This alternative would continue the present system of monitoring water quality through special-funding projects every five to ten years. Its disadvantage lies in the possibility that a monitoring project may not be funded at the time that it is needed. Also, because investigators frequently use different techniques, results of various studies would continue to be difficult to compare. Personnel and funding requirements for the implementation of Alternative A would be approximately 0.15 FTE GS-11 per year and a contracting cost of approximately $25,000 each five to ten years.

Because the risk of not detecting unhealthful water quality conditions is relatively great under this alternative and could result in cases of gastroenteritis and other water-borne diseases among park visitors, this alternative is not reasonable. Therefore, the no action alternative is no longer considered in this analysis because the potential risk to visitor health would be unacceptably high.

Alternative B: Establish a regular monitoring program and responsive management action plan (preferred alternative)

This alternative would allow LAPO staff to closely monitor bacterial levels in beach waters during high-use seasons and to identify potential health

problems before they occur. If problems occur, a responsive management action plan would then be implemented.
A monitoring plan would be designed specifically for LAPO, outlining sites, sampling methods and schedules, and analytical methods. The monitoring could be conducted by LAPO staff, State officials, or by contract to a private laboratory, but would be base-funded to occur on a regular basis. The monitoring would not only identify problem areas, but also would help identify pollution sources by allowing a direct comparison of the dominant uses of contaminated sites with clean sites.

If the monitoring program showed a continued decrease in water quality, a wide range of management actions exists that could benefit the shoreline water quality. Some options include the following, ordered from least to most intrusive:

- Place signs on problem beaches warning of potential health hazards.

- Increase enforcement of existing regulations prohibiting the discharge of sewage. This measure would pertain to houseboats and cruisers with sewage holding tanks. Boats could be inspected, either on a routine or an incident basis, to determine whether they are properly fitted to discharge only into designated pumpouts. This action would affect private craft the most because the rental fleet is standardized with approved, closed-sewage systems.

- Institute educational programs emphasizing the need for proper sanitation and providing information on proper sanitation practices for Lake Pocasset recreation.

- Designate swimming-only zones at certain of the heavily used beaches experiencing water quality problems. The water quality standards are use-specific; this alternative would provide areas where only swimming would be permitted (e.g., no boat-camping), making it easier to meet water quality standards for swimming.

- Promulgate a regulation requiring all watercraft to have either closed-system sewage holding tanks or portable toilets aboard while on Lake Pocasset. The inspection for these items would become a part of regular procedures that include inspecting for personal flotation devices and fire extinguishers.

- Temporarily close beaches or parts of beaches where water quality does not meet State standards until monitoring shows a return to acceptable conditions.

- Develop the heavily visited beaches to control use, providing suitable toilets and, if needed, sewage treatment. Designated parking might also be used to keep vehicles away from the beach. Facilities and zoning to organize the use of watercraft could be included.

Under this alternative, the risk to public health would be minimal because the monitoring program would provide adequate, timely information to permit

management actions should conditions deteriorate below acceptable levels for full-body contact recreation. Such approaches are routinely used in other popular swimming areas and have proven to be successful in protecting public health. Therefore, the potential environmental impact from this alternative would not be significant. Environmental impacts associated with major management actions identified in the above options (e.g., construction of sewage treatment facilities) would be considered prior to implementation.

The implementation cost of Alternative B would be approximately $32,000 in the first year, which includes personnel services of a 0.4 FTE GS-5 Hydrologic Technician, and 0.15 FTE GS-11 Natural Resource Management Specialist. Recurring costs in subsequent years are estimated to be approximately $25,000 per year.

Alternative C: Fund research on the origin and longevity of bacterial contamination

This alternative would result in detailed field and laboratory studies to determine the sources of pollution and the progress of contamination over the course of a season. An intensive sampling program would be required to achieve the objectives of such a study. The one-time cost of this study would be approximately $80,000, with contract oversight provided by park personnel (0.05 FTE GS-11 Natural Resource Management Specialist).

This alternative would provide long-term research information on the sources and longevity of contaminating bacteria. The alternative would not, however, provide the routine monitoring at the spatial extent necessary to provide for the protection of public health. Thus, while this alternative provides a higher level of protection to park visitors than the no action alternative, it could result in potentially significant environmental impacts to park visitors who participate in full-body contact activities in these areas. Therefore, this alternative is no longer considered in this analysis.

Comparison of alternatives:

Alternative A would not adequately protect the public health, in view of the rising levels of bacterial contamination of certain Lake Pocasset beach areas. Alternative C would improve the effectiveness of management programs aimed at water quality, but it is not actually necessary for justifying management action and would be expensive to implement. Alternative B will reveal whether contamination exists, and if so, where. If it does exist, corrective action is needed regardless of research on contamination sources. Alternative B further lists these management actions. Alternatives B thus is the most direct way to address the problem. The effect of Alternative B would be to enhance the protection of public health and recreational values of Lake Pocasset.

Recommendation: Alternative B.

Alternative B would moderately increase the cost of boating sports and may substantially increase controls over shoreline use. Implementation of Alternative B would require certain capital equipment and personnel. Continuation of monitoring and management activities would also require certain recurring costs. Personnel and funding requirements are as follows:

Personnel Requirements:

Natural Resource Management Specialist (GS-11 0.15 FTE, presently funded in park base)

Hydrologic Technician (GS-5 0.4 FTE)

Funding Requirements:

	Thousands of Dollars		
	YR01	YR02	YR03
Personnel Services	$12.0	$12.4	$12.8
Capital Equipment	14.0	4.0	4.0
Expendables	6.0	6.0	6.0
Other		2.0	2.0
TOTAL	$32.0	$24.4	$24.8
Base funds available	$12.0	$12.4	$12.8
Funds requested through Region	$20.0	$12.0	$12.0

Compliance:

Based on the analysis provided above, implementation of Alternative B would result in no significant environmental impacts. Environmental impacts associated with major management actions identified in the above options (e.g., construction of sewage treatment facilities) would be considered prior to implementation.