ISSUES, CONSIDERATIONS, AND PLAN OBJECTIVES

Local Issues

In February and March 1995, public meetings were conducted in Irwin, Victor, Ririe and Idaho Falls to inform the public about preparation of a South Fork Snake River Comprehensive State Water Plan. The public was asked to identify issues, values and solutions. Comments were recorded for meeting participants' response to the following discussion topics:

- Identify values you would like to see protected, sustained or improved in the future. (Values may be lifestyle opportunities or experiences, or features found in the basin.)
- Identify specific concerns, problems or changes relative to water policy and management that need to be addressed in the South Fork Snake River Comprehensive State Water Plan.
- Suggest specific development, improvement, conservation and/or preservation actions to maintain values you have identified, or to address concerns and issues you noted.

The South Fork Snake Advisory Group reviewed the comments received and provided some additional suggestions. Over 200 comments were received. These comments were reviewed, consolidated and summarized under eleven categories. A summary of public comment received is contained in Appendix B.

To help focus the scope of the plan and set priorities for future public meetings, the advisory group reviewed the issues listed under the eleven categories, and ranked each on a scale of 1 to 5. Issues were ranked for how important they were, and how much effort the advisory group should devote in addressing the issue. The remainder of the planning effort for the basin focused on the top ranked issues for each category. These are summarized by category below.

WATER QUALITY

Water quality concerns focus mainly on potential threats from residential development in the corridor and basin. There is serious concern about the potential pollution of the shallow alluvial aquifer and river from increased densities of septic systems with new development. Soil surveys for Swan Valley, Conant Valley and Ririe identify high water tables and associated soils as a severe limitation for construction of sanitation facilities in some areas (SCS, 1979 and 1981a).

Development pressures have also resulted in removal of riparian vegetation along the river which can act as a filtering buffer. Concerns are that increased removal of vegetation and replacement with turf may lead to contamination to the river from fertilizers and herbicides used on the more manicured landscapes. Increased activities along the shoreline are feared to lead to increased sedimentation in waterways.

Other water quality issues include questions about current monitoring of water quality and communication with the public about the results. The public wants to ensure that water quality is regularly monitored to identify problems as they occur, and that they are kept apprised of the status of water quality in the basin. Concerns about sanitation management of recreation use in the canyon were also expressed.

FISHERIES

The South Fork Snake River has a significant cutthroat fishery as described in the *Fish and Wildlife* section. The river is considered one of the top 100 trout fisheries in the nation, and attracts anglers from around the world.

Commercial outfitters depend on the fisheries and have seen a 68 percent increase in business between 1990 and 1994 (IOGLB, 1995). Angling use by private individuals has also increased, resulting in concerns about the effects of increased pressures and over harvest.

The public expressed a desire to maintain the quality of the fishery and the fishing experience. Maintenance of the river fishery depends on spawning access to tributaries, recruitment of juveniles back to the river, and survival of juveniles through the fall and winter period (Wright, 1996). Threats to the future of the South Fork Snake River fishery include reductions in habitat quantity and quality.

One important issue is maintenance of winter habitat which is dependent on flows. Research conducted by Schrader and Griswold (1994) determined a flow of 1,500 cfs from October 1 to March 30 to be the biological minimum flow for sustaining the cutthroat fishery population in the South Fork Snake River Basin. In dry years, these flows have not occurred as water is stored in Palisades Reservoir to ensure the reservoir fills to provide irrigation water in the coming season.

RIPARIAN MANAGEMENT

The cottonwood riparian forest and other riparian vegetation along the South Fork Snake River and tributaries contributes to the wildlife and scenic values of the basin. The riparian forest along the South Fork Snake River is the largest stand of narrowleaf cottonwood in the Intermountain Region (Riggin and Hansen, 1992). Maintenance of this habitat is critical to the survival of the bald eagle, breeding bird diversity, and other wildlife values (Swenson, et al., 1986; Saab, 1991; and BLM and Forest Service, 1991).

Concerns focused on the decline in vigor and size of cottonwood stands. Cottonwood regeneration is dependent on flood events large enough to move sediment (Merigliano, 1996). Construction of Palisades Dam has changed river flows and reduced the volume of flood events. The need to explore options for improving cottonwood regeneration was expressed.

Development occurring along the river corridor poses additional threats to the viability of riparian habitat because of native vegetation removal. Bonneville County and Jefferson County require 80-foot and 75-foot setbacks from the highwater mark, respectively (Bonneville County Commissioners, 1995; Jefferson County Planning Commission, 1988). The setback applies to structures and does not prevent alteration to vegetation. Some are concerned that development along the river corridor would inhibit the possibility of providing flows to benefit riparian habitat.

WILDLIFE

Wildlife concerns involve maintaining the vitality of the bald eagle population and Canada geese nesting success. Potential threats to the bald eagle population include: loss of cottonwoods important for nesting habitat, increase in residential development and associated removal of cottonwood habitat, disturbance from increased recreational use, and winter flows and icing which hinder access to food.

The nesting success of Canada geese is dependent on the timing and magnitude of spring releases (Riggin and Hansen, 1992). Canada geese nest on islands on the main stem. Low flows result in predation of nests; high flows flood nests.

RECREATION

The South Fork Snake River offers a variety of quality outdoor recreation opportunities, including fishing, hunting, scenic boating, hiking, skiing, biking and camping. Recreation activity in the basin is increasing as the area population expands and the South Fork Snake River is discovered by people from outside the area. Increased use results in conflicts between different user types, including motorized and non-motorized users, commercial outfitters and the public, and resident and non-resident recreationists.

River flows are regulated by releases from Palisades Reservoir predominantly governed by irrigation and flood control objectives. Recreation opportunities and the quality of the recreation experience are dependent on the quantity and timing of these releases. The public has expressed concerns about changes to the quality of the outdoor recreation experience from increased recreational use and timing of river flows. Others believe construction of Palisades Reservoir and controlled releases have improved recreation opportunities and the experience.

Additional issues mentioned include boater safety near the Great Feeder. Several boaters have been swept through the head gates and injured. An irrigation storage project has been proposed in the past at Burns Canyon (also known as the Lynn Crandall Project) which would inundate the unroaded canyon reach of the South Fork Snake. This project was listed in the Board's 1992 *Idaho State Water Plan* as a potential storage reservoir site. Many citizens expressed concern about the effects to recreation opportunities and the fishery if Lynn Crandall dam were constructed.

GROWTH AND DEVELOPMENT

Land development in the basin raises many concerns. More than 50 platted subdivisions have been inventoried in the South Fork Snake River Basin at the end of 1995. Most of these are concentrated in Swan Valley, Irwin and the north perimeter of Palisades Reservoir. A few are above the canyon east of Ririe and a few are located along the Dry Bed. Local communities are concerned about the rising property taxes and the burden to provide fire and other services with increased populations.

Relative to water management, the public has significant concerns about water quality impacts. With increased housing densities and septic systems, there are concerns that ground water and eventually the river will become contaminated. Many expressed a desire to see a community sewage system built to minimize impacts to water quality. However, the costs associated with constructing a system are a limiting factor.

Most concerns involving land development focus on the river corridor, particularly private land development in the canyon. The effects to natural resource values described earlier in this plan are a concern. Many comments expressed a desire to restrict development to maintain riparian vegetation, wildlife and fishery habitat, recreation opportunities, and scenic values. Coupled with concern for controls on development adjacent to the river are concerns about restrictions to private property rights.

Some comments concerned additional water development options in the basin. Several sites have been investigated for potential hydro development or storage projects in the past. These include the Lynn Crandall site located on the South Fork Snake River at the Burns Creek confluence. Comments were expressed supporting and opposing construction of the Lynn Crandall Project.

AGENCY MANAGEMENT

Public comment focused on the numerous entities managing resources in the basin, frustration at the lack of coordination, and the desire for management decisions to be based on good science and information. The Board also received public comment supporting and opposing state protection designation for rivers and streams in the basin. Some comments mentioned support or opposition to wild and scenic designation for the South Fork Snake River.

WATER ALLOCATION

Water allocation concerns the distribution and use of water in the basin. Some members of the public are concerned about the possibility of zero flows below Palisades Dam and the resulting adverse effects. A desire was expressed to find more flexibility in management of the river and allocation of water to achieve a balance in meeting the needs of all water users. Suggestions were provided for ways to coordinate water management to ensure sufficient flows to protect all users. The need to protect existing water rights and diversions, and acknowledge other

legal constraints, is also an important consideration.

OPERATION OF PALISADES

Most comments addressed the desire to see some flexibility in the operation of the system to meet multiple demands. Some members of the public wanted to see adjustment to timing and flows to meet multiple needs, including irrigation, flood management, protecting private property, fisheries, wildlife, cottonwood regeneration and recreation.

IRRIGATION

Some individuals expressed the desire to see improved irrigation efficiency with the objective of making conserved water available for other uses and needs such as instream flows. Others noted that water conserved from irrigation may result in undesirable consequences such as reduction in recharge to the aquifer. Concerns were also expressed that actions and recommendations pertaining to irrigation issues must not impact existing water rights and access to maintain diversion structures.

FLOOD MANAGEMENT

Flood protection in the South Fork Snake River Basin is provided by two upstream reservoirs (Palisades and Jackson Lake) and flood control levees downstream of Heise. With the increased development occurring along the river corridor, the public expressed concern about development in floodplains. Development along the river encroaching into the flood area may reduce the volume of flood stage flows and affect the USBR's ability to manage floods without property damage. Damage from flooding might result in increased costs to taxpayers.

The levees constructed below Heise were designed to accommodate regulated flows of 30,000 cfs. However, deposition in the river channel raises the height of the river bed and reduces the capacity of these levees to accommodate floods. There is a concern that the current levee system will need to be raised or expanded to provide continued protection in this reach of the South Fork Snake River. This has become an expensive practice in the Jackson, Wyoming area where levees are expanded to protect residences. Many felt the current levee system should not be expanded to protect additional lands.

Institutional Constraints And Opportunities

Other state, federal, and local entities have major roles in the regulation and management of water and land use. Comprehensive plan consistency with other plans is one factor among several considered by the Board in its policy decisions. Several city, county, state, and federal planning documents produced in recent years concern the South Fork Snake River Basin. These have been taken into consideration in the development of the South Fork Snake River Basin Comprehensive State Water Plan. Some provide a framework for which actions and recommendations contained in the Board's plan must be compatible. Many present opportunities to implement actions and recommendations proposed by the Board for the South Fork Snake River Basin.

SNAKE RIVER REGULATION

Operation and Management of the Upper Snake System and Palisades Reservoir

Palisades Reservoir is one component of the Upper Snake Reservoir System operated by the USBR. The system includes five storage reservoirs in Idaho and two in Wyoming (Figure 20; Table 28). These seven reservoirs have a total storage capacity of 4.37 million acre feet, and supply 1.31 million acres of agricultural land with either a full or partial irrigation water supply (USBR, 1996). Operation of Henrys Lake, owned by the North Fork Reservoir Company, is coordinated with the USBR reservoirs. The Upper Snake Reservoir System is operated primarily for irrigation and flood control with power generation, recreation, fish and wildlife being secondary. Operation of Palisades

Figure 20

Upper Snake Reservoir System

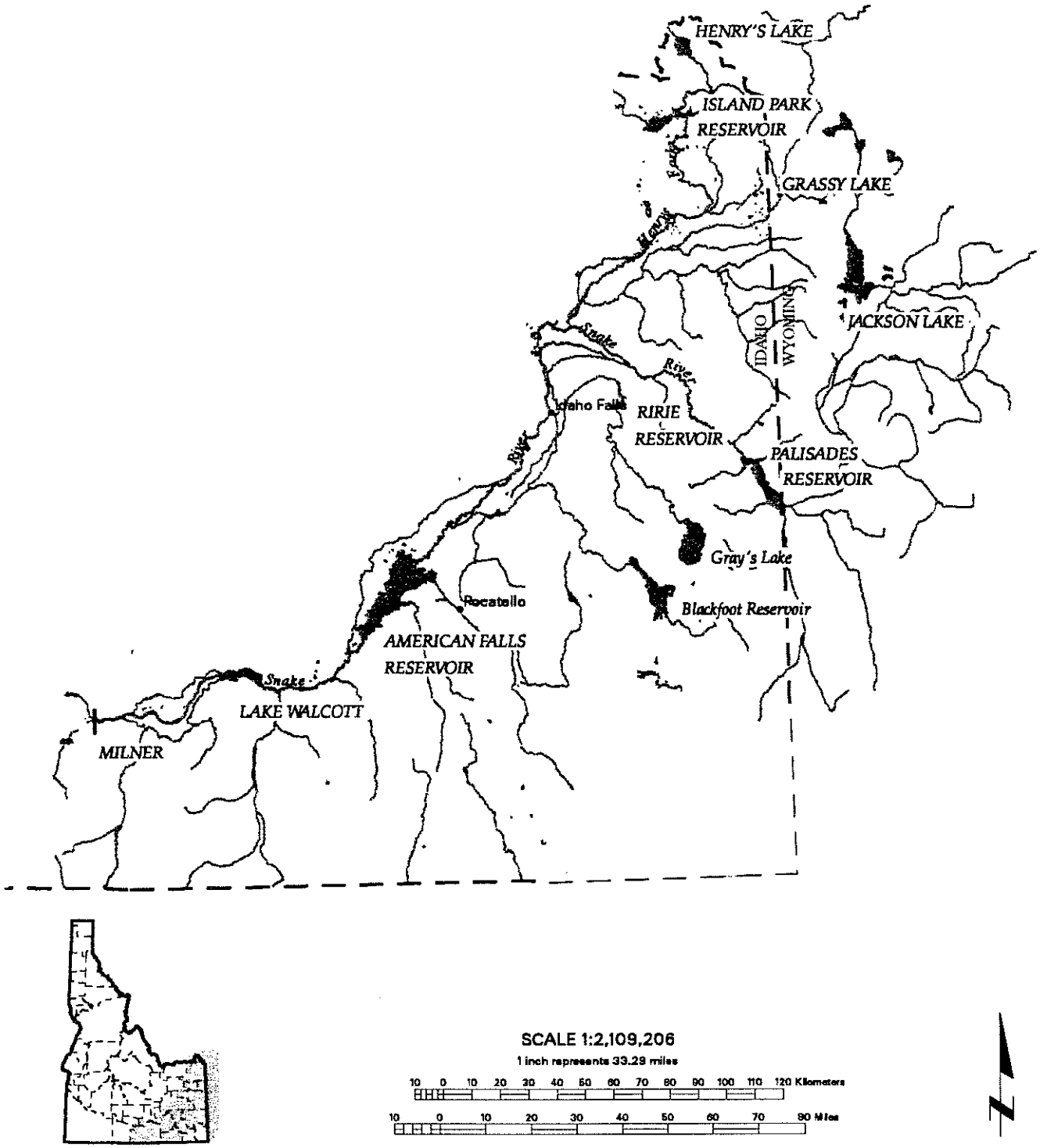

Table 28. Upper Snake System Federal Reservoirs

Reservoir	Total Storage (AF)	Active Storage(AF)	Storage Rights Priority Dates
Jackson Lake	847,000	847,000	1906, 1910, 1913
Palisades Reservoir	1,401,000	1,200,000	1921*, 1939
Ririe Reservoir	90,500	80,500	1969
Grassy Lake	15,470	15,200	1936
Island Park	135,586	135,205	1921, 1935, 1940
American Falls	1,672,590	1,672,590	1921*, 1921
Lake Walcott	210,200	95,200	1909

* Winter Water Savings Contracts, see page 79.
Source: USBR, 1996.

and the other Upper Snake reservoirs is controlled by several factors: 1) appropriation, use and distribution of water must comply with state water law; 2) contractual obligations to space holders must be fulfilled; and 3) projects must be operated in a manner consistent with congressional authorization for the project.

The Upper Snake Reservoir System is operated as a unified storage system, storing and releasing water to maximize the capability of the reservoirs. Two major system operation principals are followed: 1) water is stored as far upstream as possible, and 2) water is released first from the reservoirs that are easiest to refill (USBR, 1996). Palisades Reservoir is the second-highest storage reservoir on the main stem of the Snake River and is operated for a variety of purposes, including irrigation water storage, flood control, and power production.

Irrigation water is stored as far upstream as possible. Releases are made as needed through the summer and fall to meet irrigation demands, and to move water downstream to American Falls Reservoir. Water demand is determined by weather, crop consumptive use requirements, and cropping patterns. Irrigation releases are determined by the water rights available to meet the needs of approximately 50 canals (USBR, 1996).

The reservoirs act to hold flood waters upstream and release the water gradually over time. The required space needed for flood control storage is determined by rule curves which indicate how much space must be available in a reservoir based on date and runoff forecast. Forecasts are determined by observed precipitation and runoff, snowpack moisture, and historical conditions. During the fall, reservoirs are lowered and maintained to provide adequate storage for possible rain-on-snow events. After January, space is maintained according to the quantity of anticipated inflow from spring runoff.

Refilling the reservoir for irrigation is balanced with flood control objectives. Providing too much flood control space jeopardizes reservoir refill, and placing too much emphasis on reservoir refill jeopardizes flood control operations. Jackson Lake, Palisades Reservoir and Ririe Reservoir provide major flood control for the Upper Snake watershed above Milner Dam. Palisades Reservoir is managed in conjunction with Jackson Lake to limit flood flows to 20,000 cfs at the Heise stream gage (USBR, 1996). Jackson Lake provides 25 percent of the flood control space and Palisades Reservoir provides 75 percent of the needed flood control space (CoE, 1988). Ririe Reservoir, located to the south of the South Fork Snake Basin, is operated to limit Willow Creek flows to 1,200 cfs, providing additional flood protection to Idaho Falls, Ammon, Iona and Ucon (USBR, 1996; Federal Emergency Management Agency, 1981). Other reservoirs above Milner incidentally provide flood control space.

Power production at Palisades Reservoir is secondary to irrigation storage and flood control operations. Whenever possible, water releases for irrigation or flood control are diverted through the powerhouse, but water is not released

specifically for power production (USBR 1996). During the period of 1992 to 1994, the power plant was upgraded from the original 119.9 MW capacity to a 176.6 MW capacity, an increase of 49 percent. During the Federal Fiscal Year 1995, the Palisades Power plant produced 176,000 MW-hours of electricity (USBR, 1995).

Winter releases from Palisades Reservoir are established early in November based on carryover storage and fall inflow. The usual minimum winter outflow is 1,100 - 1,200 cfs, however, during drought years the winter flow has been as low as 550 cfs (USBR, 1996). If carryover storage is large, higher releases may be made around the end of the calendar year to create or maintain storage space for flood control operations. Average winter releases are 2,260 cfs (USBR, 1996).

The amount of water available in the entire Upper Snake System and the amount of carry-over from the previous year impact the timing and volume of flood control and irrigation releases. The management of the system and Palisades Reservoir is modified according to the amount of available water. If the spring runoff forecast is low, the amount of water drawn down for flood control will be less than normal, increasing the chance of refilling the reservoir. If the spring runoff forecast is higher than normal, the amount of flood control storage space must be increased to allow for flood control operations.

A water rights accounting system is maintained by the Water District 01 watermaster to ensure that the storage and use of water is properly accounted to the appropriate space holders, regardless of where the water is physically stored or actually released. This allows the system to be operated more efficiently than if water were physically stored according to the storage right priorities. A space holder contract is the purchase of a certain amount of reservoir storage space, not a contract to deliver a specific amount of water. Under this system, space holders can retain unused stored water from one year to the next, however, the total amount of water cannot exceed the volume of the contracted space. There are 52 entities with storage space contracts in Palisades Reservoir (USBR, 1996).

Some storage water rights in Palisades Reservoir are "winter water savings" rights. Water users ceased diverting water in the winter in exchange for an earlier storage priority date in the reservoir (USBR, 1996). Those entities with winter water savings rights must not divert water during the winter or they will lose their early priority date.

Water District 01 Water Rental Pool

The Idaho Legislature provided the Idaho Water Resource Board with the authority to operate a water bank in 1979. Water bank rules and regulations were adopted in 1980 and revised in 1991 and 1992. A water rental pool has been in existence in the Upper Snake River Basin since 1919. Prior to 1979 it operated on an informal basis. The Board designated the Committee of Nine as the local entity to operate the rental pool for Water District 01. The Committee of Nine is an advisory committee representing major irrigation entities in the district.

The Upper Snake pool is the largest and most active water bank in Idaho. Since 1979, an average of 388,000 AF of space has been placed in the rental pool, and an average of 135,000 AF of yield has not been leased (Sutter, 1995). Of the total 2,252,921 AF of yield placed in the rental pool from 1987-1994, 28 percent has not been leased. However, in 1992, the sixth year of a continuous drought, only 4,652 AF of yield was placed in the Upper Snake Rental Pool, while requests for irrigation water far outstripped supply.

The primary purpose of the Upper Snake Rental Pool is to meet the needs of irrigation water users within Water District 01. First priority is given to irrigators with storage rights in USBR reservoirs. Secondary priority for irrigators using water in the USBR project area. Other beneficial uses are given a lower priority. The largest purchaser of District 01 rental pool water prior to 1991 was Idaho Power. Since then the USBR has been the largest purchaser, using

the water to meet salmon flow augmentation objectives. This is discussed in the next section.

The water bank provides flexibility in the system by allowing entities that are in short supply to lease water. Leasing water from the rental pool has been suggested as an opportunity to provide instream flows for fishery and other resources benefitting from instream flows. However, water rental for these purposes would be a low priority.

Endangered Species Act and Salmon Flow Augmentation

The USBR is directed by the biological opinion issued by the National Marine Fisheries Service on March 2, 1995 to provide water from storage to augment river flow during periods of downstream salmon migration. The Idaho Legislature passed a resolution in 1996 that opposes flow augmentation as a long-term solution for salmon recovery. However, the resolution set conditions under which the USBR may release up to 427,000 AF each year from its projects on the Snake River for flow augmentation through 1999.

The Governor has created an "Idaho Policy" that requires an annual assessment of whether water is available for flow augmentation. The policy seeks to balance the amount of water released from Idaho reservoirs with downstream actions that influence fish passage at Snake and Columbia River dams.

USBR operations at Jackson and Palisades dams impact the South Fork Snake River Basin. The USBR controls approximately 4,000 AF of uncontracted space in Jackson Reservoir and 10,500 AF of uncontracted space in Palisades Reservoir. In dry years the USBR has released water normally held to increase head for power generation. Palisades contains 200,000 AF of space reserved for this purpose. It is questionable whether salmon flow augmentation is a legal use of powerhead water. The USBR purchases water from the District 01 Water Rental Pool and uses powerhead to meet salmon flows objectives.

Water Rights

Water rights are administered by the Idaho Department of Water Resources. They are issued by date of appropriation, for specific quantities, diversion points, places of use, and purposes. Idaho follows the Prior Appropriation Doctrine, best described as "first in time - first in right." Changes in water rights such as diversion points must be approved by IDWR. River regulation and appropriation of water must comply with Idaho water law.

Water stored in USBR reservoirs have two separate rights - the right to store and release water, and the right to divert water. Storage rights are associated with the storage facility and are usually held by the facility owner. Diversion rights for irrigation are appurtenant to the land and are often held by an entity such as a canal company. Both types of rights have specifications for purpose, amounts, site, and date of priority. The USBR holds the storage rights for Palisades Reservoir. Reservoir storage rights are satisfied in order of priority. A reservoir may have several priority dates, indicating that storage at the reservoir has increased, or natural flow rights were exchanged for storage rights.

Instream Flows

Except for salmon flow augmentation water, the USBR does not release storable water over Milner Dam that can be controlled above the dam (USBR, 1996). A minimum flow of zero is allowed for the Snake River at Milner Dam in the *Idaho State Water Plan*. This is recognition that flows have sometimes been reduced to zero at the dam. In licensing the Milner hydropower project, the FERC has specific "target flows" for the Snake River at Milner Dam of 200 cfs. The target flow must be satisfied only when water in excess of irrigation needs is available (FERC, 1990). Target flow may be acquired from Idaho Power Company storage in American Falls Reservoir, or may be leased from the Upper Snake Rental Pool.

In 1905, a 10-mile reach of the Snake River at Blackfoot had no streamflow for several days,

indicating that water demands were exceeding natural flow (Kjelstrom, 1992). The Minidoka Project was initiated to store excess winter and spring flows to alleviate water shortages (USBR, 1996). Releases for irrigation from Jackson Lake (constructed in 1907 and reconstructed in 1910), and later Palisades Reservoir, now enhance summer flows in the river at Blackfoot.

Snake River Compact

Allocation of Snake River water to the states of Idaho and Wyoming is contained in the Snake River Compact signed in 1949, and approved by Congress in 1950. The compact allocates 96 percent of the natural flow to Idaho and the remaining 4 percent to Wyoming for storage or direct diversion. Wyoming's portion is estimated at 200,000 AF based on run-off at the Idaho-Wyoming line.

The Wyoming portion of Snake River water may be diverted or stored by the state with no restrictions for 100,000 AF. Use of the remaining 100,000 AF by Wyoming requires replacement storage to benefit existing Idaho water users. Wyoming has contracted 33,000 AF of storage in Palisades Reservoir from the USBR as replacement storage to meet its obligations under the Compact. Wyoming may use this space by exchange to maintain higher lake levels in Jackson Lake or supplement low fall and winter flows below the lake.

Fort Hall Indian Water Rights Agreement

The Idaho Water Resource Board entered into negotiations with the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation in 1985 concerning the extent of water rights of the Tribe. The negotiations led to ratification by Congress of the Fort Hall Indian Water Rights Act of 1990, adopted by the Idaho Legislature in 1991. The agreement quantifies the Tribes' water right claims above Hells Canyon Dam. Tribal water rights were quantified at 581,030 AF annually for present and future irrigation, DCMI, hydropower and stock water uses.

The agreement authorizes the Shoshone-Bannocks to operate a tribal water bank pursuant to state law. The Bank will be operated by a Tribal Rental Pool Committee. Only water accruing to the Tribes' 83,900 AF of space in Palisades Reservoir and 46,931 AF in American Falls Reservoir may be placed in the water bank. Rental of this storage space is subject to the terms of the Michaud Contract. Water users in the Fort Hall Indian Irrigation Project have a right of first refusal for any storage water available from the rental pool. Water that accrues to the Tribal storage space in Palisades may not be released for use past Milner. The Tribal water stored in American Falls Reservoir may be used below Milner Dam without refill penalties being incurred by the Tribe. The right to contract storage rights is the only Tribal water right located within the South Fork Snake River Basin.

Additionally, 100,000 AF of rental water from Palisades and Ririe reservoirs was allocated as mitigation water to non-Indian water users to compensate for impacts to existing water rights from the agreement. These water users have incorporated as Mitigation Inc. to manage this water. Water not leased by the water users is added to the water bank.

Snake River Resource Review

The USBR is currently conducting a comprehensive review of its operations and the resources in the Snake River Basin above Brownlee Dam. The main objective is to develop a decision support system to analyze operation of the system. The decision support system can help to explore how the system might respond to different management scenarios to meet traditional uses while responding to additional demands for water. The review is scheduled for completion in the year 2000. The resource review provides an opportunity to coordinate the information and recommendations developed during the Board's state water planning activities in the South Fork Snake River Basin with other agencies.

BUREAU OF LAND MANAGEMENT AND FOREST SERVICE MANAGEMENT

Snake River Activity/Operations Plan

The Snake River Activity/Operations Plan is a plan prepared jointly by the Idaho Falls District BLM and Targhee National Forest to ensure maintenance of the natural resources on federal lands along the South Fork Snake River (BLM and Forest Service, 1991). The plan was developed with the help of a fifteen-member Task Force to identify issues and problems, and provide ideas and suggestions. Management actions contained in the document are proposed to prevent degradation of resources, perpetuate the cottonwood ecosystem, and maintain current land uses. The objectives and goals contained in the Snake River Activity/Operations Plan and the South Fork Snake River Comprehensive State Water Plan support each other in maintaining the outstanding fish, wildlife, recreation and scenic values identified in the basin.

Targhee National Forest Plan Revision

The Targhee National Forest manages almost 65 percent of the lands in the South Fork Snake River Basin. The first Forest Plan for the Targhee National Forest was completed in 1985. A draft Environmental Impact Statement and Forest Plan Revision were released for public comment in early 1996. A final plan is expected in 1997. The Forest Plan Revision will guide all natural resource management activities, and establishes management standards, guidelines and prescriptions for the Forest over the next ten to fifteen years.

The draft plan proposes management goals and objectives that can lead to implementation of recommendations in the Board's South Fork Snake River Water Plan. Some of the goals and objectives proposed within the South Fork Snake River Basin include:

- continued implementation of the Snake River Activity/Operations Plan
- continued cooperation with other agencies to ensure cottonwood regeneration along the South Fork Snake River;
- silvicultural management to improve wildlife habitat;
- providing a variety of recreational activities ranging from motorized to primitive;
- maintaining scenic values in the South Fork Snake River Canyon;
- maintaining recreation values from Palisades Dam to Conant Valley;
- maintaining or enhancing bald eagle habitat, big game habitat, and improve goose nesting opportunities on the South Fork Snake River (Targhee National Forest, 1996b).

Wild and Scenic River Studies

The Targhee National Forest and Idaho Falls District BLM have conducted wild and scenic river studies for reaches in the South Fork Snake River Basin. The wild and scenic river study process involves two steps: 1) an eligibility analysis to determine if a river reach possesses the minimum criteria for further study as a potential wild and scenic river; and 2) a suitability study to evaluate if a river should be recommended for inclusion into the National Wild and Scenic River System. Three designations are possible, indicating the degree of development along the reach -- wild, scenic or recreational.

The Draft Forest Plan Revision prepared by the Targhee National Forest contains the results of a tentative eligibility determination. This analysis identified free-flowing river or stream reaches with "outstandingly remarkable" geologic, scenic, recreational, fish, wildlife, historic and/or cultural values. Additionally, the Medicine Lodge Resource Management Plan, completed by the BLM in 1985, conducted an eligibility study for the main stem from Palisades Dam to the Henrys Fork confluence (BLM, 1985). The results of the eligibility findings are summarized in Table 29.

The reaches found eligible will be managed to preserve those values contributing to eligibility. The agencies need to complete a suitability study prior to recommending

Table 29. Eligible Wild and Scenic Reaches in the South Fork Snake River Basin.

Reach	Location	Potential Classification	"Outstandingly Remarkable" Values
Forest Plan Revision*			
South Fork Snake River	Palisades Dam to Conant Valley power line	recreational	recreation, fish and wildlife
South Fork Snake River	Conant Valley power line to Lufkin Flat	scenic	recreation, scenic values, fish and wildlife
South Fork Snake River	Lufkin Flat to Riley Diversion	recreational	recreation, fish and wildlife
Big Elk Creek	Main stem and lower 2 miles of the 3 forks	wild	wildness, scenic values
McCoy Creek	Lower 3.5 miles	recreational	fisheries
Bear Creek	Main stem and North Fork and Deadman Creeks	recreational	fisheries
Palisades Creek	Confluence with North Fork Palisades Creek and Corral Canyon to Palisades Campground	wild	wildness, scenic values
Waterfall Canyon	Source to Upper Palisades Lake	wild	wildness, scenic values
Pine Creek	Tie Canyon to Forest boundary	recreational	fisheries
Burns Canyon	Crystal Lake to confluence with S Fk Snake River	recreational	fisheries
Medicine Lodge RMP			
South Fork Snake River	Palisade Dam to Conant Valley power line	recreational	
South Fork Snake River	Conant Valley power line to Riley Diversion	scenic	
South Fork Snake River	Riley Diversion to Henrys Fork confluence	recreational	

* Results of a tentative eligibility determination.

designation of eligible reaches as wild and scenic. Congressional approval is also needed for a river to become a part of the National Wild and Scenic River System. The Board encourages the Forest Service and BLM to work within the state planning process rather than pursuing federal protection of waters within the South Fork Snake Basin.

PALISADES WILDLIFE MITIGATION PLAN

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 requires the Bonneville Power Administration (BPA) to mitigate for wildlife losses caused by hydropower dam construction and operation. Palisades Dam, constructed in 1956, inundated nearly 16,000 acres of wildlife habitat, including cottonwood forests, wetlands, agricultural lands and shrub-steppe (Riggin and Hansen, 1992). The BPA and IDFG prepared a South Fork Snake River /Palisades Wildlife Mitigation Project in 1986, identifying opportunities to compensate for loss of wildlife and habitat from construction and operation of Palisades Dam. BPA prepared an Environmental Assessment for the project, making a final decision to fund implementation of the project in 1995. Estimated total costs to implement mitigation for all components of the plan including big game, upland game, and waterfowl habitat is about $28 million (Ragotzkie, 1996).

The mitigation project focuses on habitat protection and enhancement measures to protect riparian habitat along the South Fork Snake, lower Henrys Fork, and Snake River upstream of Idaho Falls. Habitat is protected through acquisition of conservation easements or land from willing landowners through voluntary participation. Habitat enhancements would occur on public lands, including fencing riparian areas, grazing management, managing cottonwood forests for improved bald eagle nesting and winter habitat, revegetating areas for wildlife food and cover, supporting noxious weed control, and erosion control.

Currently, conservation easements are being pursued through 5 landowners covering about 2500 acres on the South Fork Snake River and

Pine Creek. Fee-title acquisition is being explored for about 150 acres on the South Fork Snake River (Ragotzkie, 1996). Coordination is also occurring with the BLM, Natural Resource Conservation Service, the Shoshone-Bannock Tribes and county weed supervisors to develop a biological noxious weed program on BLM and other public lands adjacent to the South Fork Snake River to control leafy spurge. This program provides opportunity to address some of the concerns about development and loss of wildlife habitat in the South Fork Snake River Basin.

IDAHO DEPARTMENT OF FISH AND GAME MANAGEMENT

In addition to its role in implementing the Palisades Wildlife Mitigation Plan, the IDFG is mandated to preserve, protect, perpetuate, and manage the fish and wildlife resources of Idaho. The Department's Fisheries Management Plan (1996-2000) contains several objectives that will support the Board's desire to protect the outstanding fishery in the basin. These include: preserving genetic integrity and population viability of native cutthroat trout; working cooperatively to obtain winter flows to enhance long-term population stability; and improving recruitment to the South Fork Snake River from tributary streams.

Additionally, the IDFG has the technical capability to conduct studies providing information necessary for the Board to pursue minimum stream flows for some important spawning tributaries in the basin. The IDFG responsibility in implementing the Palisades Wildlife Mitigation Plan will help in maintaining outstanding wildlife values identified in the basin.

SOIL CONSERVATION AND WATER QUALITY MANAGEMENT

Soil and water conservation districts are sub-units of state government managed by a local board of supervisors elected by local voters. The districts work with landowners on a voluntary basis addressing natural resource management in a site specific manner. Their activities help landowners and operators control soil erosion, and improve water quality and wildlife habitat. These objectives are accomplished with the aid of several partners including Natural Resources Conservation Service, Idaho Soil Conservation Commission, Idaho Association of Conservation Districts, and the Idaho Division of Environmental Quality.

The Natural Resources Conservation Service, an agency of the U.S. Department of Agriculture, provides on-site technical assistance to private landowners. Range and riparian improvements may be implemented through loans and grants available through the Idaho Soil Conservation Commission.

The Division of Environmental Quality (DEQ) maintains and enforces water quality standards. The DEQ makes grants to the soil and water conservation districts to assist in water quality plans, and for cost-sharing with farmers who apply Best Management Practices (BMPs). The East Side Soil and Water Conservation District has received funding for two State Agricultural Water Quality Program projects in the basin for agricultural land in the Antelope Creek and Granite Creek watersheds.

The DEQ has identified stream reaches in the South Fork Snake River Basin that are water quality limited (all beneficial uses are not being met) pursuant to Section 303(d) of the Clean Water Act. This designation requires development of Total Maximum Daily Loads (TMDLs) standards to control point and nonpoint pollution sources. Reaches are prioritized for development of TMDLs based on risks. All reaches in the South Fork Snake River were assigned a low priority, meaning although designated uses are not fully supported, the risk to human health and aquatic life, or recreational, economic and aesthetic values of the water body are minimal.

In 1995, the Idaho Legislature adopted water quality statutes to respond to 303d listings. The statutes implement a process to prioritize watersheds needing pollution management, and to develop water quality action plans through

community-based advisory committees. The approach was two-tiered, with Basin Advisory Groups (BAGs) developing recommendations to the Division of Environmental Quality regarding water quality standards and monitoring, pollution budgets and prioritization of impaired waters. Watershed Advisory Groups (WAGs) would develop and implement watershed action plans that would fulfill the TMDL requirement. The Upper Snake BAG covers the area including the South Fork Snake River Basin. The Upper Snake BAG has considered designating a South Fork Snake WAG to develop a TMDL plan for the South Fork Snake River Basin, but has not formally designated such a group.

The programs administered by the above-described entities offer opportunities to maintain water quality and other related goals in the basin. Availability of funding and personnel are important in the timeliness of the program implementation.

COUNTY LAND USE PLANS

Portions of three counties are located in the basin -- Bonneville, Jefferson and Madison counties. Each county has adopted, or is in the process of adopting, comprehensive land use plans and zoning ordinances. The comprehensive plans contain goals and policies directing the desired land use and activities in the county which are implemented through the ordinances.

Bonneville County adopted a comprehensive land use plan in 1995. The plan contains specific strategies for the Swan Valley area. Goals include maintaining existing agricultural lands; protecting water quality; permitting low density residential development that avoids sensitive areas; and preserving natural amenities (Bonneville County Commissioners, 1995). Buildings must be setback 75-feet from the highwater mark of waterways.

Jefferson County completed its comprehensive land use plan and zoning ordinance in 1988. Policies applicable to the South Fork Snake River Basin include the desire to preserve prime agricultural land; promoting housing development in areas capable of providing the utilities and services needed; preserving unique areas; encouraging compatible land uses in floodplains; and promoting development of floodways into linear parks and river access areas (Jefferson County Planning Commission, 1988).

Zoning is based on the size of the parcel. Parcels 20 acres or larger are zoned agricultural. The zoning category is intended to preserve agricultural and related uses, discouraging suburban development. Parcels from 5 to 20 acres in size are zoned agricultural residential. This zoning category was established to accommodate the transition from rural to low-density urban uses while maintaining agricultural uses. Parcels less than 5 acres are zoned residential. This zoning category requires a request for zoning change from commissioners. The minimum lot is 10,000 square feet. The zoning category provides minimum standards for residential single-family development. The county area in the South Fork Snake River Basin is predominately zoned agricultural (Smith, 1996). The zoning ordinance requires a 80-feet setback from the highwater mark of streams.

Madison County is currently conducting planning studies. The plan is comprised of three components -- a comprehensive land use plan, a zoning ordinance and subdivision ordinance. Public comment received at hearings for the comprehensive land use component are being evaluated. A hearing on the subdivision ordinance is scheduled in the immediate future. After hearings are conducted for a component of the plan, sections are submitted to the commissioners for review. A final set of hearings will be held before adoption by the county commissioners.

Depending on how these goals are interpreted and implemented, land use decisions made by counties can achieve some of the recommendations made by the Board in the South Fork Snake River Water Plan. Local citizens must continue to actively participate in hearings and make known their desires to county commissioners just as they have in helping the Board develop this plan.

Goals and Objectives

In adopting a comprehensive state water plan, the Board is guided by these criteria from the Idaho Code 42-1734A:

1. Existing rights, established duties, and the relative priorities of water established in the Idaho Constitution shall be protected and preserved.

2. Optimum economic development in the interest of and for the benefit of the state as a whole shall be achieved by integration and coordination of the use of water, the augmentation of existing supplies, and the protection of designated waterways for all beneficial purposes.

3. Adequate and safe water supplies for human consumption and maximum supplies for other beneficial uses shall be preserved and protected.

4. Minimum stream flow for aquatic life, recreation, aesthetics, and water quality, and the protection and preservation of waterways shall be fostered and encouraged. Consideration shall be given to the development and protection of water recreation facilities.

5. Watershed conservation practices consistent with sound engineering and economic principles shall be encouraged.

Specific goals and objectives for the South Fork Snake River Basin Plan reflect current local issues, current and future uses of water, and the natural resources of the basin. The top ranking issues identified by the public led to identification of a list of wants and needs, or desired outcomes, for the South Fork Snake River Basin. The South Fork Snake Advisory Group reviewed the desired outcomes at the March 1996 meeting, and developed a list of goals for each of the eleven issue categories. Goals are general statements about the outcome or desired future for the basin. Goals agreed to include:

Water Quality

1. Protect water quality of the South Fork Snake and all tributaries.
2. Accumulate data to allow monitoring and verification of water quality impacts.
3. Monitor and manage activities in the river corridor potentially impacting water quality to minimize pollution.
4. Minimize soil erosion.
5. Maintain or improve water in a biologically beneficial condition.

Fisheries

6. Maintain or improve the health of the cutthroat fishery.
7. Prevent over harvest of the fishery.

Riparian Management

8. Maintain or improve the health of the riparian area.

Wildlife

9. Maintain or improve wildlife habitat.
10. Recognize the value of waterfowl, wildlife and birds of prey.
11. Maintain or improve basin ecological integrity.

Recreation

12. Maintain or improve the quality of the outdoor recreation experience.
13. Maintain or improve the quality of the fishing experience.
14. Improve safety at the Big Feeder for boaters.

Development & Growth

15. Minimize or prevent adverse effects from development along the river corridor, particularly the canyon.
16. Protect private property rights.
17. Encourage citizens to be involved in the development or revision of county land use plans.

Agency Management

18. Management decisions should use the best available science.
19. Improve coordination among agencies, private landowners and the public in managing resources in the South Fork Snake River Basin.

Water Allocation

20. Work toward cooperation between all water users.
21. Look at ways to allow greater flexibility in allocating water to different uses and address the changing demands for water in the basin and state while respecting existing rights.
22. Identify areas where instream flows are appropriate.

Operation of Palisades

23. Balance flows and timing from Palisades Reservoir to meet the needs of irrigators, flood management, power generation, private property owners, fisheries, wildlife, cottonwood regeneration, and recreation.

Irrigation

24. Encourage irrigation efficiency.

Flood Management

25. Address future flood management in the South Fork Snake River Basin

Strategies Considered in Response to Issues, Concerns and Goals

Advisory group meetings focused on providing information and discussing the priority issues identified early in the process. The advisory group and public suggested strategies to address the issues and achieve goals. Strategies include actions, recommendations or policies that would accomplish the desired goal. Over an eight month period, the Board received more than 245 strategies from the advisory group, other members of the public, and agencies. These strategies represent the alternatives considered for the basin.

The advisory group, local citizens and agency representatives reviewed the alternative strategies. The group first conducted an evaluation of all the strategies, identifying those they could not support. Those strategies that received support by all were forwarded as recommendations to the Board. Strategies not receiving complete group support were discussed by meeting participants to determine if consensus could be reached by suggesting word changes or new strategies. When participants felt comfortable with a strategy it was added to a list of recommendations submitted to the Board. The recommendations supported by the Board are listed in the *Actions and Recommendations* section that follows. The strategies, or alternatives, considered are listed in Appendix C.

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