

GROWTH

Although economic activity has certainly improved in the state, it now appears that the state's pace of economic activity will slacken somewhat, and be more reflective of national trends. Local areas of the state are expected to experience very strong growth for the foreseeable future, while other areas are enduring long-term restructuring or decline.

Communities in the planning area are beginning to deal with growth issues. Issues have focused on the ability of the community to deal with increased demands for services associated with a rapidly growing population, the methods of funding these services, and the effects that growth is having on the character and livability of the community. Several studies have shown that the cost per resident of providing various public services increases with population (Gardner, 1979; Weinstein and Firestone, 1978, both cited in Power, 1988). The larger a local economy becomes, the more sophisticated the range of local public services that the local population demands. This tends to boost the level of taxes needed per capita since a greater variety of services is called for.

V. ALTERNATIVE ANALYSES

Alternatives

River segments with identified Outstanding resource values were assessed for State protection through six alternatives encompassing development, improvement, and the conservation of resources. All segments of the Middle Snake reach, with the exception of Bliss Reservoir, were found to possess at least one, and usually two or more, "Outstanding" classifications for either fish and wildlife, geologic features, scenic values, or recreation, as defined by criteria in Section III. The segments identified as eligible for protection based on the screening process were further refined by overlay of a land use map.

Those segments possessing little or no cultural modification were analyzed for potential designation as a Natural river. Idaho Code, Section 42 -1731, defines a Natural River as a waterway possessing the following characteristics: (a) outstanding fish and wildlife, recreation, geologic or aesthetic values; (b) free of substantial existing man-made impoundments, dams or other structures; and (c) riparian areas are largely undeveloped, although accessible in places by trails and roads. A Recreational River is defined as a waterway having the following characteristics: (a) outstanding fish and wildlife, recreation, geologic or aesthetic values; and (b) might include some man-made development within the waterway or within the riparian area of the waterway.

ALTERNATIVE A - NO ACTION

Under Alternative A no river segments are proposed for state protection. Current policies and authority are considered adequate for development, improvement, and conservation of the Snake River between Milner Dam and King Hill, Idaho (Fig. 7). The likelihood of major water consumptive developments in the planning area is not great, because (1) the basin is considered appropriated above Swan Falls, (2) the Swan Falls Agreement sets minimum flows at Swan Falls and Murphy, on the Snake River, and (3) the limited amount of trust water held by the State can only be used after meeting strict public interest criteria.

The Northwest Power Planning Council (NPPC) has designated the Snake River from King Hill to Perrine Coulee, (excluding Bliss Reservoir), and Shoshone Falls to Twin Falls Powerhouse as protected river segments (Fig. 13, p. 67). The presence of endangered or threatened species also acts as a constraint on development and water use throughout the reach. Site-specific studies and mitigation would likely be required as part of any stream-bed or flow-regime alterations.

Where land adjacent to the river is in federal ownership (Map: Land Ownership) many water impacting activities are proscribed by federal management plans. As an example, the Shoshone District of the Bureau of Land Management has five management plans that effect the reach. Local land-use planning also restricts development options. Gooding, Jerome, and Twin Falls counties all require building setbacks from the canyon rim. Jerome County seeks to maintain a one-half mile preservation zone northward from the river on public lands to provide public access.

Commercial mining activity is currently regulated by the Division of Environmental Quality, the Department of Lands and the Department of Water Resources.

ALTERNATIVE B - PROTECT ALL OUTSTANDING SEGMENTS

This alternative attempts to preserve for posterity the current character of the reach. Alternative B designates for state protection all river segments identified as Outstanding in the screening process for fish and wildlife, recreation, geologic, and scenic values (Fig. 8). State designations for the Middle Snake reach:

- Milner Dam to Murtaugh Bridge - Recreational
- Murtaugh Bridge to Hansen Bridge - Natural
- Hansen Bridge to backwaters of Bliss Reservoir - Recreational
- Bliss Dam to Clover Creek - Recreational

ALTERNATIVE A - No Action Middle Snake Reach

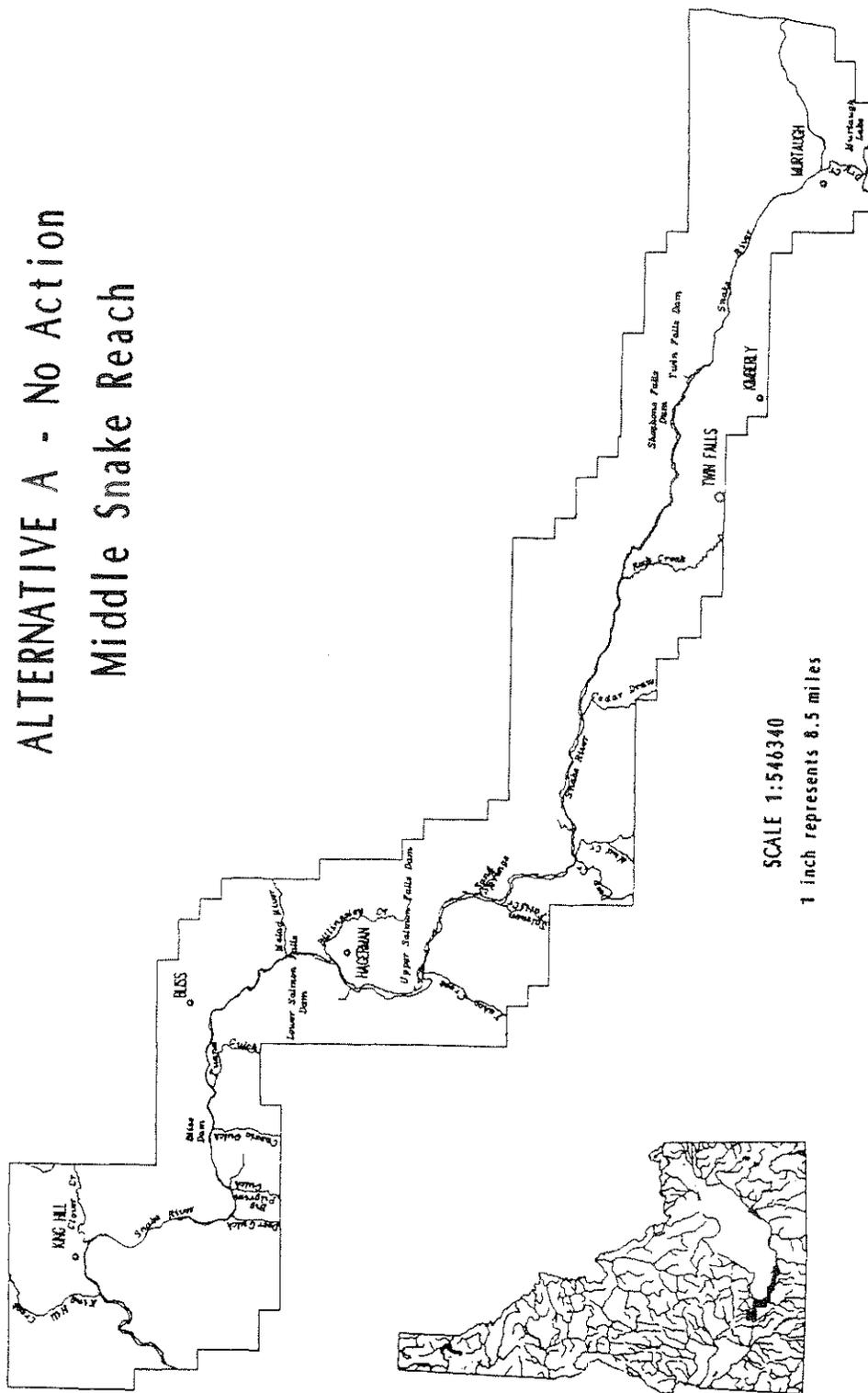


Figure 7. Alternative A: No Action.

ALTERNATIVE C - PROTECT ALL FREE-FLOWING SEGMENTS

Of the 780 miles of the Snake River located in Idaho, approximately 65 percent is in a free-flowing condition (IPC, 1984). Of the approximately 91 river miles in the Middle Snake reach, 68 miles (75 percent) are free-flowing. This alternative embodies the priority issues identified at the public scoping meetings, and the policies set forth in the *Draft Coordinated Water Resource Management Plan for the Middle Snake River*, prepared by the Middle Snake Study Group. The priority issues identified at the public scoping meetings were: (1) water quality, (2) the protection of free-flowing stretches, and (3) coordination with other planning efforts. Alternative C designates for state protection all free-flowing river segments identified as Outstanding in the screening process for fish and wildlife, recreation, geologic, and scenic values (Fig. 9). State designations for the Middle Snake reach:

Milner Dam to Murtaugh Bridge - Recreational
Murtaugh Bridge to Hansen Bridge - Natural
Hansen Bridge to backwaters of Twin Falls Reservoir - Recreational
Shoshone Falls to Warm Creek - Recreational
Rock Creek to Highway 30 Bridge - Recreational
Lower Salmon Falls Dam to backwaters of Bliss Reservoir - Recreational
Bliss Dam to Clover Creek - Recreational

ALTERNATIVE D - DEVELOP HYDROPOWER ON MAINSTEM

This alternative seeks to preserve outstanding characteristics of the Middle Snake reach, but makes allowance for active hydropower development proposals, and requests that the Northwest Power Planning Council remove protected designations from segments not identified under State protection (Fig. 10). State designations for the Middle Snake reach:

Murtaugh Bridge to Hansen Bridge - Natural
Shoshone Falls to Warm Creek - Recreational
Rock Creek to Cedar Draw - Recreational
Deep Creek to Thousand Springs - Recreational
Bliss Dam to Deer Gulch - Recreational
I-84 Bridge to Clover Creek - Recreational

ALTERNATIVE E - PROTECT MIDDLE SNAKE FALLS AND RAPIDS

This alternative embodies public testimony given at hearings for (1) FERC licensing, (2) the Middle Snake Study Group Draft Plan, and (3) Section 401 certification to protect the remaining rapids and falls in the Middle Snake reach. Alternative E designates for state protection all segments (1) identified as Outstanding in the screening process for fish and wildlife, recreation, geologic, and scenic values, (2) that were also identified as eligible for suitability study under the Wild and Scenic Rivers Act, (3) with the exception of the Milner Bridge to Main Milner Powerhouse segment, and the (4) addition of falls or rapids not covered under the above (Fig. 11). State designations for the Middle Snake reach:

Idaho Power Company Main Powerhouse to Murtaugh Bridge - Recreational
Murtaugh Bridge to Hansen Bridge - Natural
Shoshone Falls to Perrine Coulee - Recreational
Cedar Draw to Deep Creek - Recreational
Lower Salmon Falls Dam to backwaters of Bliss Reservoir - Recreational
Bliss Dam to Clover Creek - Recreational

ALTERNATIVE F - FEDERAL PROTECTION

This alternative seeks long-term protection with federal authorities to prohibit new water supply and hydropower projects in the reach that would have a direct and adverse effect on the values for which the river was designated (Fig. 12). Alternative F recommends federal protection under the Wild and Scenic Rivers Act for segments found suitable for wild and scenic designation by the Bureau of Land Management (BLM). The State would request designation and state management as Scenic and Recreational rivers under the Wild and Scenic Rivers Act for segments of the Middle Snake reach found suitable. Three segments were found eligible by the BLM for suitability studies:

Milner Dam to backwaters of Twin Falls Reservoir - Scenic
Lower Salmon Falls Dam to backwaters of Bliss Reservoir - Recreational
Bliss Dam to King Hill Creek - Recreational

ALTERNATIVE E - Protection of Falls and Rapids Middle Snake Reach

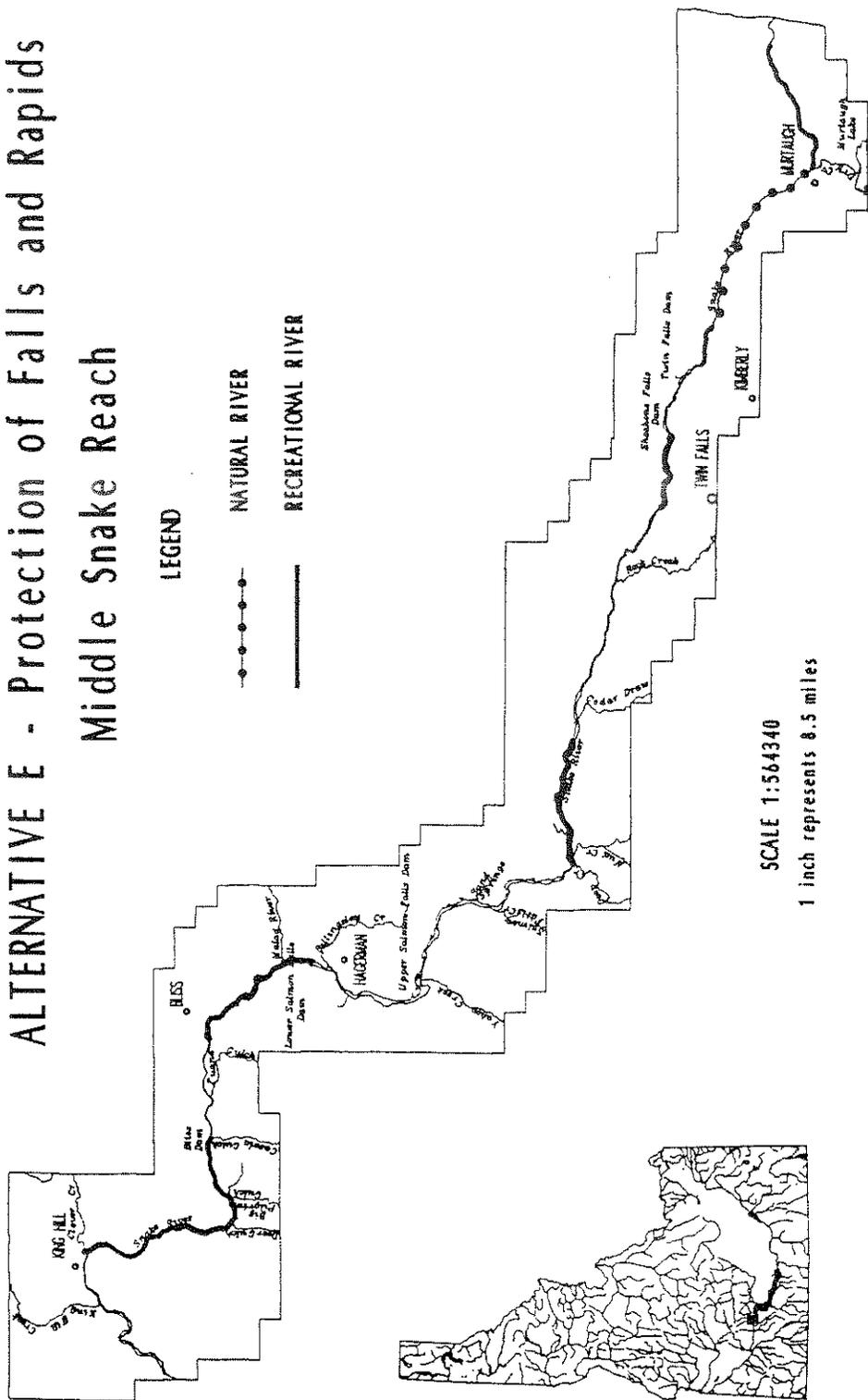


Figure 11. Alternative E: Protection of Middle Snake Falls and Rapids.

ALTERNATIVE F - Federal Protection Middle Snake Reach

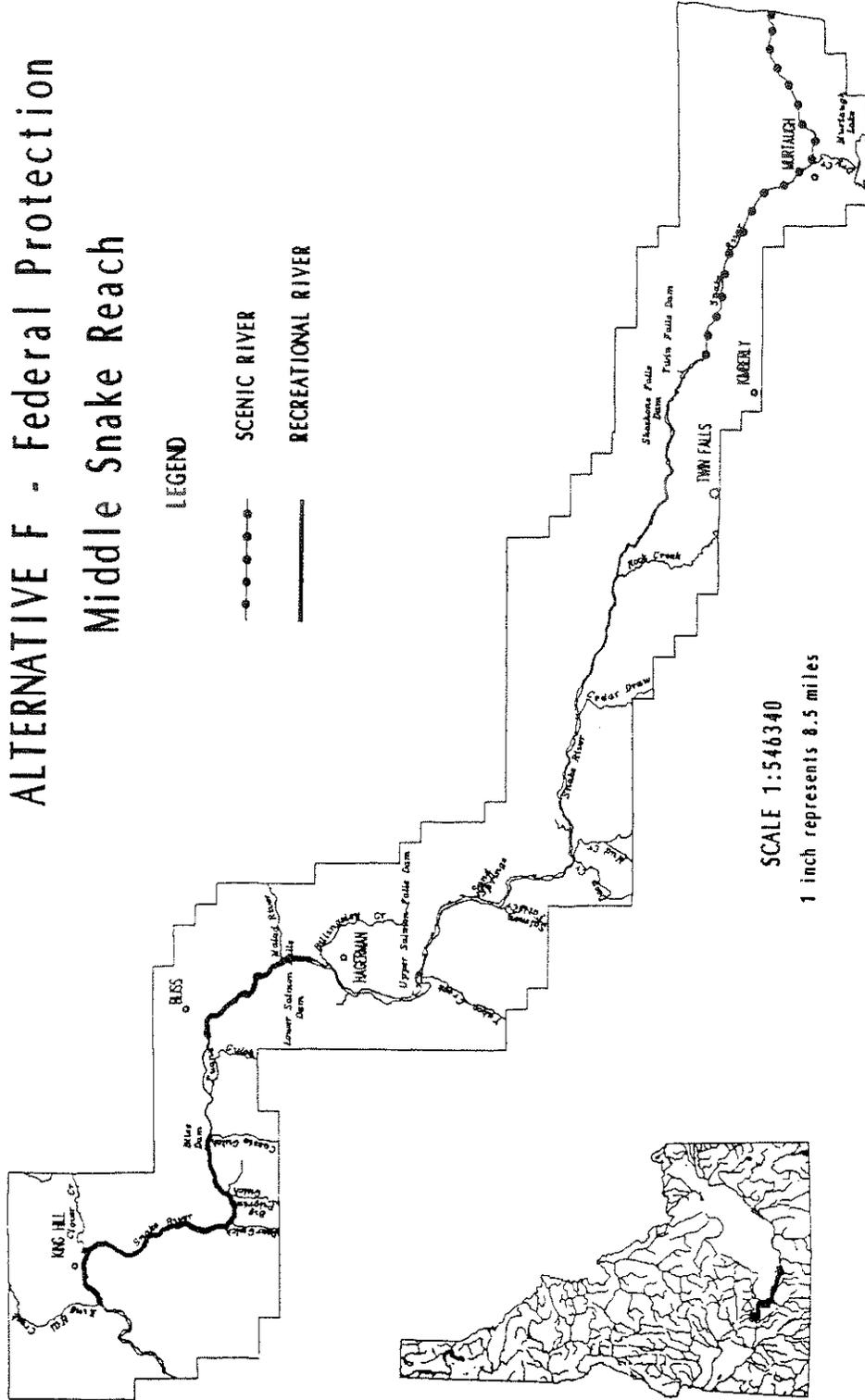


Figure 12. Alternative F: Federal Protection.

Impact of Alternative Actions on Resource Uses

On segments designated Natural, the Board must prohibit construction or expansion of dams or impoundments; construction of hydropower projects; construction of water diversion works; dredge or placer mining; alterations of the stream bed; and mineral or sand and gravel extraction within the stream bed.

On segments designated Recreational, the Board prohibits construction or expansion of dams or impoundments; construction of hydropower projects; and mineral or sand and gravel extraction. Within the stream channel, alterations would be prohibited except those necessary (1) to maintain and improve existing utilities, roadways, diversion works, fishery enhancement structures, and stream access facilities; (2) for the maintenance of private property; (3) for new diversion works; and (4) for construction of new public access facilities and fishery enhancement structures. Construction of private river access facilities (i.e., boat docks) may be allowed with Idaho Water Resource Board and other regulatory agencies' approval.

New diversion works are limited to pump installations which do not create an obstruction in the river; are to supply water for domestic, commercial, or municipal uses; are visually blended with the surroundings so as to be less noticeable from the river; and are constructed to minimize harm to fish and wildlife.

Vested Rights

No provision of the Comprehensive State Water Plan shall limit, restrict, or conflict with approved applications for the appropriation of water or with vested property rights, i.e., existing water rights, diversions, improvements, mineral rights, and other private property rights. No provision of this plan shall bar a water user or their agent from cleaning, maintaining, or replacing an existing water diversion structure. A water user or their agent may remove any obstructions from the stream channel, if such obstruction interferes with the delivery of, or use of, water under any existing water right. Management of land adjacent to protected rivers remains the responsibility of land owners or managers, and local planning authorities. Nothing in this plan shall prevent or restrict the relicensing of existing hydropower projects that have been licensed by the Federal Energy Regulatory Commission. Designation of waterways as protected rivers shall not affect the operation or relicensing of any existing hydropower project which does not enlarge existing boundaries or project impoundments.

Erosion, Sedimentation, and Water Quality

Land-disturbing activities from construction would cause erosion and sedimentation, and possible water quality problems. Hydrologic modifications may also hinder water quality improvement measures.

Placement of a structure to divert streamflow would alter stream dynamics and the velocity distribution of the flow. Sediment deposition and bedload retention above instream diversion structures and in canals, could result in broadening of the stream channel and increased bank erosion. Channel scour may occur downstream of a dam or powerhouse. Water released from an impoundment or powerhouse can carry a greater sediment load. New diversions would alter flow/velocity distributions in bypassed reaches, and could cause increased deposition in and below the bypassed reach.

Impoundments slow velocity and increase water temperatures, and usually reduce turbidity. Thus light may penetrate to a greater depth and an expansion of macrophyte communities could be expected. Substrate stability is also increased in areas where flow is slowed. The root systems of macrophytes are more able to become established and the area of substrate available for macrophytes increases. Reduced flows over rapids, due to diversion, could further diminish the assimilative capacity of the river. Oxygen, depleted from the water column by macrophyte respiration, is reaerated in rapids.

Hydropower Development

The impacts of new hydroelectric development vary greatly from project to project. A project may effect water quality, land use, wildlife, or aesthetics, and there are specific impacts associated with construction.

There are no emissions of greenhouse gases or particulates, and only small quantities of solid wastes are generated by hydroelectric power plants. However, diversion and/or impoundment of a river or stream alters the hydrologic regime. A hydroelectric project that has an impoundment associated with it would generally have a more severe impact than a run-of-river project.

Fish and Wildlife Protection

Alteration of the existing streamflow patterns, reduced flows and consequent changes in water velocity could cause further degradation to already severely limited habitat in the Middle Snake reach.

Existing data shows that gravel substrate habitat is limiting in much of the Middle Snake reach, as evidenced by the concentration of fish in areas with suitable substrate below rapids. The limited habitat confines fish species, including trout, to areas immediately downstream of rapids, and any subsequent reduction of gravel substrate or water quality in these reaches would cause direct impacts to the existing fishery, since no other adequate habitat refuge exists for fish in the river.

Construction or dredging would likely disturb river sediments, which would have a substantial impact on water quality. Impacts to water quality would vary depending on the location of the dredging. Suction dredges, which pull up sediment with the substrate and catch water in sediment ponds, would not likely impact water quality. However, rock substrate, habitat for aquatic invertebrates and insects, would be removed and with the current lack of flushing flows, disturbed substrate would not be replenished.

Oxygen, depleted from the water column by macrophyte respiration, is restored through reaeration. Flow reduction at rapids, due to diversion, would reduce dissolved oxygen levels. Currently the macrophyte beds comprise up to 20 percent of the stream habitat in segments of the reach from May to October. Increased macrophyte density from increased sedimentation and reduced flow velocity could further intensify existing diurnal oxygen problems in the reach.

Operation of hydropower projects affects both fish and wildlife habitat. The timing and magnitude of bypass flows, ramping rates, and fluctuating pool elevations may have detrimental effects. Operation of hydroelectric facilities to meet peak energy demands induces rapid fluctuations in water level. Rapidly increasing or decreasing flows during project start-up or shutdown could strand fish and/or mollusks. Channel scour downstream of dams or powerhouses may have a significant impact on aquatic biota and channel stability. Decreases in mixing depths and rates from hydropower project operations may further reduce dissolved oxygen levels and pool habitat which is already limited to shallow depths. A large reduction in flows could make rapids impassable to sturgeon. Water fluctuation is expected to have adverse effects on nesting and feeding waterfowl.

Construction of structures and water impoundment may destroy wetlands and scarce riparian vegetation, a diminishing resource along the Upper Snake River that provides important habitat for deer, pheasant, waterfowl, and nongame birds. Backwater flooding with impoundments removes habitat and directly impacts fish, riparian, and wildlife resources. Fluctuating water levels may preclude development of shoreline vegetation, reduce shoreline use by riparian wildlife, and lower the spawning and rearing success of fish. Riparian vegetation provides cover, which in turn moderates water temperatures and increases rearing habitat for juvenile fish. Riparian habitat will also be indirectly affected by reduced river flow in reaches bypassed by diversions.

New transmission lines which cross the Snake River could be a collision hazard for birds, such as waterfowl and bald eagles, using the river valley as a flyway and /or using habitat in the Wildlife Management Areas.

Wildlife values may be impacted by disturbance to important habitat or wildlife during critical periods. Wildlife could be disrupted by construction or heavy recreation use. Heavy recreation use may also result in disturbance to wildlife and riparian areas, and erosion of fragile soils.

Recreation Development

New hydropower project proposals for the Middle Snake reach all include measures to increase and develop recreational access. Some projects would provide facilities, such as parking and boat ramps, where they are currently lacking. Developed access sites at new hydropower projects may increase use in the area, and/or change the natural character of some sites.

Many of the resource values attracting recreation use are fragile and susceptible to adverse impacts from recreation activities. Heavy recreation use may result in disturbance to wildlife and riparian areas and/or erosion of fragile soils.

Construction of a dam and water impoundment in the Lower Salmon Falls to Bliss Bridge segment, or the Bliss Dam to Clover Creek segment, would preclude substantial white-water boating use and opportunity. Diversions on other rapids in the Middle Snake reach may preclude future boating opportunities as well as potentially affect fishing, wildlife viewing, and scenic values.

Scenic Values

The impact of facilities construction in the river on scenic values, or natural settings with historical significance would be substantial. Dams, impoundments, weirs, structures, noise, power lines, and reduced flows in undeveloped areas would constitute a significant visual and recreational impact.

Employment and Tax Revenue

The Federal Energy Regulatory Commission may limit hydropower development in the Middle Snake reach in recognition of State designations that prohibit dams and the construction of hydropower projects.

If hydropower projects are precluded from the Middle Snake reach there would be a potential loss of construction jobs and tax revenues to counties. Hydropower projects create employment

through the construction of generating plants and the maintenance of facilities. Construction employment tends to be relatively short term in nature. Operations employment refers to the employees needed to maintain a facility. These employee requirements are less than those needed for construction, but the employment is longer term. Employee positions may last the lifetime of the power plant.

Excluding the Dike and Wiley hydropower projects, the five active FERC projects (Star Falls, Auger Falls, Boulder, Empire, and Kanaka Rapids) could generate approximately \$21 million in wages for construction. Construction materials expenditures and the expenditures of construction workers would represent an additional beneficial short-term impact. This additional spending could stimulate some minor, secondary employment in the local retail trade and service sectors. Based upon estimated local expenditures, approximately \$3 million in additional state revenues could originate from the proposed projects during construction.

An estimated 360 jobs could be provided by the proposed projects during construction. Permanent operations at the five projects would create eight jobs with annual wages of approximately \$250,000. After completion of construction, yearly local taxes could total approximately \$900,000 with State sales tax for power sales estimated at \$200,000 annually.

Estimates for construction and operation are imprecise for the larger Dike and Wiley hydropower projects. However, an estimated 1,000 construction jobs paying \$80 million in wages could be created by the two projects. Estimated additional tax revenues from local expenditures during construction are \$7 million. Permanent operations at the two projects could create 27 jobs. Yearly local taxes from the two projects are estimated at \$3 million, and state sales tax from power sales at \$400,000.

Federal Designations

Under federal designation (Alternative F) a management plan for the river corridor (0.25 mile-wide on each side of the river) would be developed by either State or federal agencies, with public input, for designated segments, and must be approved by federal management agencies.

Under federal designation land uses and development on private lands within the river area which were in existence when the river was designated may continue. New land uses must be evaluated for their compatibility with the purposes of the Wild and Scenic Rivers Act. Where land use controls are necessary to protect river area values, the managing agency may utilize land-use control measures including zoning, scenic easements, and fee acquisition. Grazing and agricultural

activities could continue on public lands provided that these activities do not degrade the outstanding qualities of the river.

Federal "Recreational" designation does not impose new restrictions on existing mining operations, however, federal land within the corridor will be withdrawn from new mineral entry. Recreational use of the river may increase as a result of designation. Federal protection will preclude FERC licensing of hydropower projects on the Snake River in designated segments.

Intergovernmental Coordination

Other state, federal, and local entities have major roles in the regulation and institutional aspects of water use. Comprehensive plan consistency is one factor among several considered by the Water Resource Board in its policy decisions.

Agriculture - The Governor's Task Force on Idaho Agricultural Policy (1980) recommended that a thorough analysis be made of energy, water, and the immediate demand for specific crops before development of new agricultural lands is allowed. The recommendation is aimed at protecting farmers from falling crop prices due to oversupply, rising energy costs due to depleted streamflows, and overappropriation of water supplies.

Idaho Division of Environmental Quality (DEQ) - The DEQ maintains and enforces water quality standards. Under DEQ, the State Agriculture Water Quality Program (SAWQP), created in 1980, makes grants to Soil Conservation Districts to assist in the development of water quality plans, and for cost-sharing with farmers who apply Best Management Practices. The SAWQP projects are funded with dollars from the Water Pollution Control Fund and are intended to be demonstration projects which encourage farmers to adopt Best Management Practices. Projects are selected based on the water quality benefits. In the Middle Snake River area, there are currently three agricultural water quality projects funded under SAWQP: Cedar Draw, Vineyard Creek, and East Upper Deep Creek.

DEQ has identified segments of the Middle Snake reach as water-quality limited. Rather than mandate a Total Maximum Daily Load (TMDL) for the water quality limited reach, DEQ is seeking to model nutrient loading and the hydraulics of the river, and develop industry-specific nutrient management plans pursuant to the Nutrient Management Act of 1989. After approval by public and technical advisory committees, the plans will be sent to the Director of the Department of Health and Welfare for signature, and then returned to the industries for implementation. If the management

plans are deemed acceptable by the U.S. Environmental Protection Agency, a Total Maximum Daily Load would not be established.

Idaho Department of Fish and Game - IDFG is mandated to provide management direction in providing continued supplies of fish and fishing opportunities per state law. The key management goal of the Department's Fisheries Management Plan, (1991-1995), is maintaining and improving the quality of fish habitat. The plan calls for emphasis on coldwater fisheries due to the overwhelming preference of Idaho anglers for coldwater fisheries. Stream fisheries have a higher priority than lakes and reservoir fisheries, as they are preferred by anglers and are in shorter supply than lake and reservoir fisheries. The plans also identifies fish species of special concern. Included among these are white sturgeon and cutthroat trout, both of which have relevance to the Middle Snake.

Idaho Department of Lands - The State Board of Land Commissioners are mandated to manage State Trust lands for maximum financial return (Idaho Const. Art.9, § 8). Income from State Trust lands is used for public education in Idaho. Within the planning area most state lands are leased for grazing. However, the Department of Lands is initiating a planning effort for roughly 1500 acres of state land in the Perrine Bridge area, on the north side of the canyon. A draft plan is expected for public review in late 1993 (Kestie, 1992). An option that will be explored is leasing the lands for commercial development. Currently, the lands are leased for grazing, stockpiling by the Jerome Highway District, and for equipment storage by the Twin Falls Canal Company.

Counties and Cities - A very small portion of Elmore County is in the planning area; most under BLM jurisdiction. Private lands are used for irrigated agriculture. The County's comprehensive plan (1992 Draft) promotes the use of the Snake River as a "working river" with emphasis on agricultural development and multiple use.

The Gooding County Comprehensive Plan was adopted in 1975 and revised in 1985. It contains goals, objectives and policies for government and finance, public facilities and services, soil, mineral, water, wildlife, rangeland, agricultural, residential, commercial, industrial and recreation resources. Specifically, the plan promotes the protection of productive agricultural lands, and protection and conservation of water resources. Development within 300 feet of the canyon rim requires a special use permit. The plan encourages preservation of a greenbelt along the Snake River and promotion of undeveloped recreation as a principal attraction in the county.

The Jerome County Comprehensive Plan (1990) was prepared to establish policies regarding land use development and zoning. The plan contains guidelines for land use in terms of housing, commerce, industry, preservation and recreation. The plan identifies the need to preserve its agricultural base, and promotes conservation of soil, water, wildlife, and other natural resources.

The plan includes a provision for conserving surface water for irrigation, recreation, and wildlife uses. Land uses deemed appropriate in the county are mapped. In the planning area those uses are predominately agricultural with preservation areas described. These include preservation of areas with geologic hazards or excessive erosion potential, unique and historic structures, rehabilitation of gravel mining operations, and public access to the Snake River canyon rim. Accordingly, buildings are not allowed within 100 feet of the canyon rim unless development is proven to do no harm to resource values.

Twin Falls County is zoned for agriculture or outdoor recreation in the Snake River canyon. The County's Comprehensive Plan (1978) focuses on three issues: 1) protection of natural resources; 2) identification of land for municipal growth; and 3) identification of suitable areas for farm-residential development. The plan sets goals and policies to preserve agricultural and recreational resources which contribute to the economic base of the county, and encourages development and enhancement of recreational opportunities in the canyon. Urban development is promoted in close proximity to existing communities to protect productive agricultural land and reduce expenses for provision of services. The Twin Falls plan designates both Star Falls and Murtaugh Bridge as undeveloped recreation sites.

Middle Snake Study Group - A consortium comprised of county commissioners, planning and zoning commissioners, and a representative at large from Gooding, Jerome, Lincoln, and Twin Falls counties, initiated the development of a comprehensive management plan for the Snake River between Milner Dam and Bliss Dam. Protection and improvement of water quality in the Middle Snake reach is the plan's key objective.

The *Draft Coordinated Water Resource Management Plan for the Middle Snake River* sets out policies for water resources management. The plan seeks legislation which would allow communities to adopt ordinances which provide more local control of water quality and quantity issues; asks for the establishment of a water district in the Middle Snake spring discharge area, the installation of water measuring devices, and monitoring to ensure compliance with permitted water rights; seeks (1) minimum stream flows on all streams and springs flowing into the Middle Snake reach; (2) preservation of existing wetlands in the Middle Snake region; (3) maintenance of existing free-flowing stretches of the Middle Snake for recreation and fish and wildlife values; and (4) the restriction of further development in the region which will have negative impacts on the water quality of the Middle Snake reach.

Gooding County and Jerome County have adopted the *Coordinated Water Resource Management Plan for the Middle Snake River*.

U.S. Bureau of Land Management - The Bennett Hills, Jarbidge, and Snake River Resource Management Plans (RMP) establish a framework for managing BLM lands adjacent to the Middle Snake reach. A purpose of the RMPs is to indicate the level of resource protection, management, use and development provided for on public lands. Several areas adjacent to the Middle Snake reach are to be managed for protection of sensitive and significant wildlife habitat, scenic values, cultural resources, watershed, and other resources.

The Shoshone District BLM is the lead District for conducting wild and scenic river studies for the Middle Snake reach. The District is conducting eligibility studies as part of the resource management plan (RMP) for the Bennett Hills Resource Area. 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 reach 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.

An initial eligibility study has been completed for the Middle Snake reach. This analysis involved identification of free-flowing river segments possessing "outstandingly remarkable" geologic, scenic, recreational, fish, wildlife, historic, and/or cultural values. The District will present initial eligibility findings in its draft RMP expected to be available for public review in early 1993. The initial study led to the following eligibility findings:

- Milner Dam to backwaters of Twin Falls Reservoir - Scenic
- Lower Salmon Falls Dam to backwaters of Bliss Reservoir - Recreational
- Bliss Dam to confluence with King Hill Creek - Recreational
- Vineyard Creek - Scenic
- Box Canyon - Recreational

After a public comment period, a final RMP containing the final eligibility findings will be published. River reaches found eligible for suitability analysis will be managed under interim protection to preserve those values contributing to its eligibility.

Within one year of the date of a Record of Decision (ROD), the Shoshone District will coordinate suitability studies with the counties and state (Cordell, 1992). The suitability study will follow a process similar to the RMP with public scoping, publication of draft recommendations for public review, and issuance of final recommendations and ROD. The suitability analysis will consider the effects as well as alternatives to wild and scenic designation. Any recommendations will

be forwarded to Congress for its approval. Congressional approval is needed for a river to become a part of the National Wild and Scenic River System.

The BLM has completed two emigrant trail management plans for lands in Idaho. Both plans recommend and propose actions for the preservation and marking of trail remnants and historic sites, the establishment of visual corridors along trail remnants on public land to protect scenic values, the installation of interpretive signs, and the development of facilities to encourage and accommodate proper public use.

National Park Service - The Hagerman Fossil Beds National Monument was designated by Congress in 1988 for the purposes of preservation, education, research and display of paleontological resources (Public Law 100-696, § 301(a)). The National Park Service is currently preparing a land management plan for the Monument. The plan will include proposals for development of research, recreation and interpretive facilities. A plan is expected to be available for public review in early 1993.

In 1981, the National Park Service completed the Comprehensive Management and Use Plan for the Oregon National Historic Trail. Recommendations made in the NPS plan are designed to make a range of educational and recreation opportunities available to the public along the Oregon Trail. Component sites of the Historic Trail include Thousand Springs (Boise District, BLM), and the cross-country segments include the North Trail Segment (Elmore County) along the Middle Snake reach. Other historic sites, not on lands administered by the Federal government, qualifying as components of the Oregon National Historic Trail include (1) Caldron Linn (private), (2) Shoshone Falls (State of Idaho, City of Twin Falls), and (3) Kanaka Rapids (State of Idaho). In Idaho, the Bureau of Land Management (BLM) was designated as the lead agency for the implementation of the recommendations contained in the NPS plan.

Northwest Power Planning Council - The Northwest Power Planning Council (NPPC), an interstate compact agency, has authority to set policy for hydroelectric power generation, and fish and wildlife protection and enhancement in the Columbia River Basin. The Council supports the concept of protecting some streams and wildlife habitats from hydroelectric development, where such development would have major negative and irreversible impacts, and designates segments to be protected from new hydroelectric development (called protected areas).

The Northwest Power Planning Council named segments of the Middle Snake as protected areas based on their resident fish and wildlife values (NPPC, 1988). The Snake River from King Hill to Bliss Dam, and from the backwaters of Bliss Reservoir to Perrine Coulee, and Shoshone Falls Reservoir are identified as protected areas (Fig. 13). This designation amounts to a recommendation

NORTHWEST POWER PLANNING COUNCIL
 PROTECTED AREAS
 Middle Snake Reach

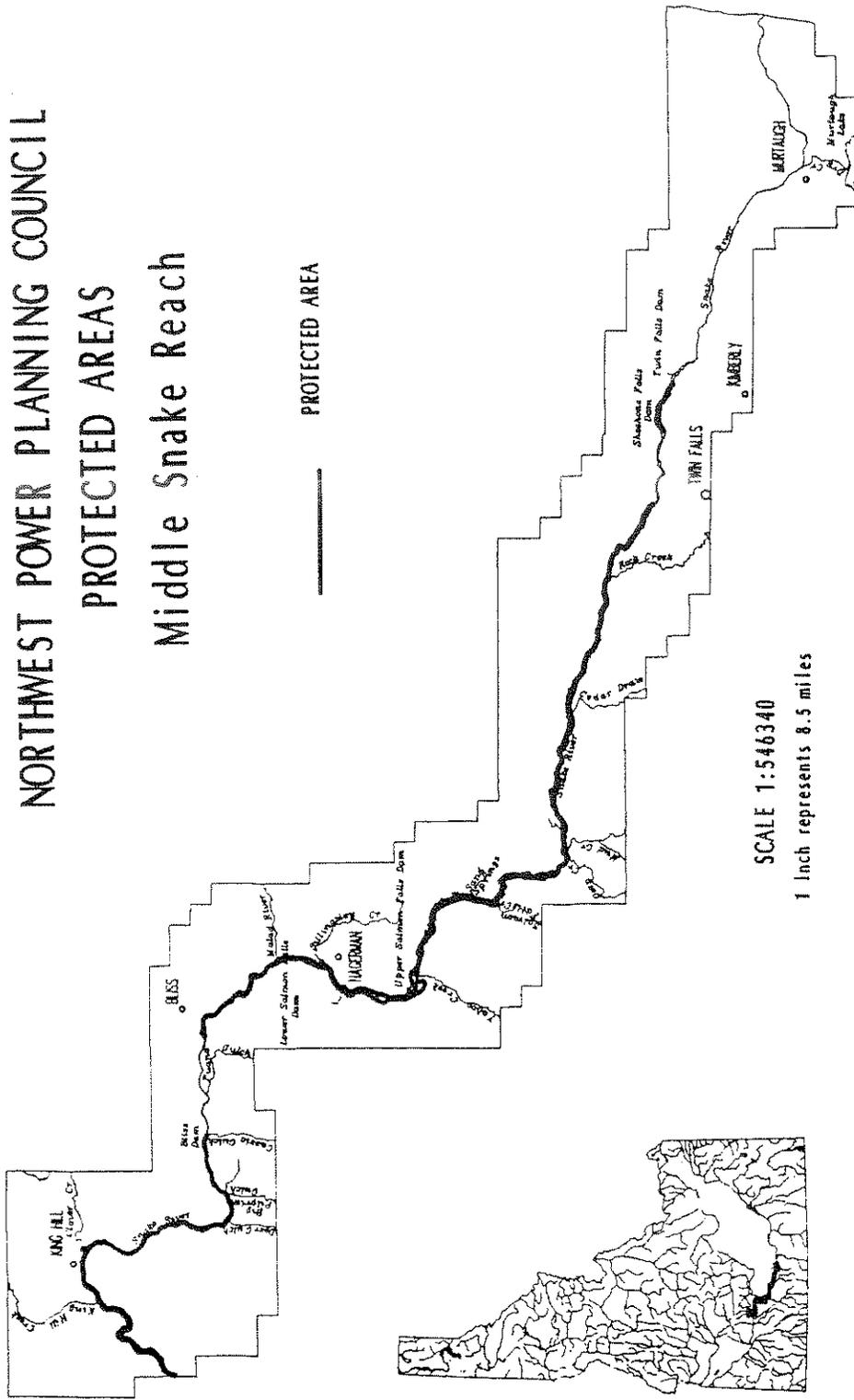


Figure 13. Northwest Power Planning Council protected segments within the Middle Snake reach.

to the Federal Energy Regulatory Commission that they not allow the construction of any hydropower facilities in the identified reaches.

The Council may review power project proposals in protected areas and may remove protected status or may grant exemptions. The Council granted exemption to the Auger Falls hydropower project on the Middle Snake reach. The exemption was granted on the condition that an agreement be reached between the developer and the Idaho Department of Fish and Game. The developer must show that the project will provide exceptional benefits to fish or wildlife. The Council considered, but did not change the designation for Box Canyon or Boulder Rapids. The Council deferred a decision on these projects until legal and biological agreements are reached between resource agencies and the developers.

Summary:

Development, Improvement, and Conservation Opportunities

Trends in the economy of the state will affect water allocation policies, which in turn affect the feasibility of water resource projects and programs. While agriculture is the key economic factor in the region, the opportunities to expand irrigated acreage in the area using Snake River water appear severely limited. The Swan Falls Agreement stipulates that the Snake River is fully appropriated. Additional reliable water, particularly during the irrigation season, must come from those former Idaho Power claims now held in trust by the state. In concert with irrigation demands, hydropower production is now dependent on stream flow technological efficiency, or demand-side management. Suburban development, growth in new industries, and more emphasis on outdoor recreation will require additional water supplies. The Hagerman area is growing as a second-home, resort, and retirement locale. A factory center is developing on the southeast side of Jerome. On balance, the economic factors that will predominate will tend toward conservation and less water use for reasons of greater efficiency, cost reduction, and structural shifts in the economy.

An overwhelming concern about water quality has been expressed by residents of the area. Water quality problems in the Middle Snake reach are the consequence of low water flows and nutrient and sediment loading from agricultural runoff, hatchery discharge, municipal effluent, and degradation of inflowing groundwater. Water quality degradation detracts from the scenic character of the Snake River canyon, limits recreational opportunities on the river, and threatens diversions for beneficial uses in and downstream of the Middle Snake reach. The quality of fisheries, wetlands, and wildlife in the Middle Snake reach has declined and will continue to decline under present conditions.

FISH AND WILDLIFE

Statewide goals for Idaho's fishery emphasize the preservation of stream habitat and management of stream fisheries. New impoundments within the reach, continued water quality degradation, or a reduction of fish habitat due to diversions or dredging would conflict with state fishery policy.

SCENIC VALUES

Potential improvement opportunities for scenic resource values are flow increases in the reach, and water quality improvement. Tourist based economies in the Snake River drainage historically have been negatively affected by low water conditions. Water conservation measures coupled with leasing from the water bank, could provide water for higher flows in the river channel, if a balance can be realized between instream flow and flushing needs of the river and aquifer recharge. Most management actions taken to improve water quality will also result in improvement in the scenic values of the river, as long as these actions do not entail major alteration to landforms or addition of contrasting structures.

Relicensing of the Shoshone Falls project will entail close evaluation of enhanced flows over the falls. Other hydro-electric projects will also likely be required to examine minimum flows for scenic value preservation. Although Federal Energy Regulatory Commission (FERC) licensing and relicensing efforts have to date examined bypass flows in terms of visual impacts, the FERC needs to take a harder look at this issue by examining more flow levels and incorporating local perception into the analysis.

As with other resource values in the canyon, cumulative impacts to the scenic landscape are important. Current development proposals would introduce contrasting structures, and modify the flow regime or distinctive features. Individually, these changes may be small, however, over the long term and as a whole, the scenic characteristics of the river canyon would be changed. Visual interest at these features would be diminished as water flow is reduced.

CULTURAL RESOURCES

Opportunities for development of cultural resource sites within the planning area involve interpretation of identified prehistoric and historic sites and occurrences, identification and excavation of sites to obtain additional information, and/or efforts to protect sites from vandalism and deterioration. Significant opportunities to interpret cultural resources exist in the Middle Snake reach. Cultural resource interpretation could economically benefit the region and local communities as part of its objective to promote and expand tourism in the region.

The Snake River canyon plays an important role in understanding the prehistoric and historic settlement of Southern Idaho. The visual and physical setting where these important events have occurred is being altered. Of particular concern are proposals at Kanaka Rapids and Star Falls where the visual setting is important to preserving its cultural value (Green, 1992). Visual impacts should be closely examined in any proposal located near important cultural resources.

RECREATION

The Middle Snake planning area possesses diverse and unique recreational characteristics as described in the Appendices. One of the major factors affecting outdoor recreation in the United States, and particularly in Idaho, is the large and rising demand. Recreational aspects of the state's water resources will play a major part in Idaho's future economy. Increases in recreational use of the Middle Snake reach, despite water quality degradation, signify demand for these resources.

Public scoping identified a need for increased access, more developed and interpretive facilities, preservation of greenbelts and natural areas along the river, and concern for the effects of overuse, low flows, and poor water quality. Point access on the river is plentiful in the planning area; numerous developed recreation facilities are within the river corridor. However, ownership patterns in many areas limit the opportunity for extensive trail systems. Given the lack of contiguous land access along the river, the waterway serves as a trail.

Boat and fishing access, trails, and interpretive facilities were most often identified as recreation facility needs. Facilities development as proposed in hydropower plans, may be beneficial in that area.

Natural settings which are easily accessible to the public are dwindling as more development occurs on the Snake. Preserving a diversity of recreational opportunities and settings on the Snake River insures a broad range of activities for all members of the public. While development needs to occur in some areas to protect resource values, or to provide opportunities which are currently lacking or in demand, continued development of day-use facilities proposed by most new hydropower projects cumulatively diminishes the recreational diversity of the reach. The most important issue from a recreation and aesthetics perspective is the replacement of natural settings with developed facilities available elsewhere in the reach.

As with other uses in the study area, the current water quality problems severely limit recreational uses. Water sports, particularly waterskiing, swimming, and boating are impeded by algal blooms and macrophyte growth in the late spring and summer. Water quality also impacts fish habitat, and thus fishing opportunities.

IRRIGATION

The likelihood of major water consumptive development in the planning area is not great, because all natural flow is considered appropriated above Swan Falls. If additional land is brought under irrigation, there may be a loss in hydropower generation since the water consumptively used by irrigation is not available for running through power plants. *New consumptive diversions could also reduce the dilutive capacity of the river and aggravate water quality conditions.*

Both generating capacity and energy demand have increased the value of water for energy production. *Depleted streamflows reduce downstream hydropower generation and increase opportunity cost (value foregone).* Additionally, irrigation demand may consume large amounts of electricity for pumping and pressuring sprinklers. A rise in the price of electricity, due to displacement of hydropower generation would affect the competitive position of irrigated agriculture in the state.

WATER DELIVERY

The Draft Coordinated Water Resource Management Plan for the Middle Snake River emphasizes a need for accurate measurement of water to limit diversion to approved amounts. The Director of the Department of Water Resources has immediate direction and control of the distribution of water from all natural water sources in this state to diverting facilities (Idaho Code 42-602). The Director may also create water districts on adjudicated streams or other sources, by entry of an order to administer uses of the water resource. Each water district created shall be considered an instrumentality of the State of Idaho for the purpose of performing the essential governmental function of distribution of water among appropriators under the laws of the State of Idaho (Idaho Code 42-604). *The Director's order is subject to judicial review.* The adjudication of the Snake River Basin will result in a water district covering the Middle Snake reach.

Both the Northside and Twin Falls canal companies are concerned about reduction of spring flow, above American Falls, to supply natural flow rights. Basinwide conjunctive use of the total water resource will become necessary if economic return to the State and local area is to be maximized as agricultural, industrial, and urban development continues. Surface and subsurface storage and withdrawals must be coordinated. The impact of stresses, both quantitative and qualitative, imposed on aquifer-stream systems by future demands of cities, irrigation, power generation, and other uses must be understood.

MINING

Sand and gravel excavation sites are plentiful in the planning region. An expansion in the industry would not require dredging the river bed for resources. Gold mining within the Middle Snake reach is currently not economically feasible. Other industrial mineral resources, available in the planning area, are not associated with the stream channel.

POWER DEVELOPMENT AND ENERGY CONSERVATION

Material in the latest regional Power Plan leads to several conclusions. First, it is evident that the best and most effective resource action to deal with underlying energy uncertainties is the acquisition of cost-effective conservation and efficiency improvements. All available conservation is needed in most future load scenarios, so an aggressive effort will be required to achieve the potential energy savings.

Second, to the extent that environmental concerns are likely to make it more difficult to utilize conventional thermal resources there is a need to continue efforts to clearly identify the technical potential and cost-effectiveness of renewable resources where they are available. Third, energy planning for a regional system must be done on a regional basis. Finally, regional planning must integrate other power sources, including natural gas. Whether used as fuel for combustion turbines to supplement existing hydropower, or used directly for space and water heating loads, it appears that the future energy needs of the State will be met through an increased reliance on natural gas (IPUC, 1991).

The electrical power surplus is effectively gone. While Idaho utilities are not part of the group which must acquire resources immediately, resource acquisition must seriously begin early in the 1990's. No one energy resource is likely to be sufficient to meet the varied needs of the state. Instead, the state will benefit most over the next two decades by pursuing the development of a variety of resources. Less conventional sources of electrical generation, geothermal waters, solar radiation, municipal waste recovery, wind, and cogeneration are likely options in Idaho's future energy mix.

The State of Idaho will be best served in first improving what it has. Through conservation and the upgrading of existing energy systems, either utility or industrial, the state has the best short-term opportunity to increase generating capacity and moderate the growth in demand. These measures are attractive because of their low cost, short lead-time, and flexibility. Conservation measures and efficiency improvements will be more economic, and have less negative environmental impacts than building new hydropower or thermal plants. Even with the added costs of incentives, the cost of conservation is still less expensive than avoided cost. The regionwide costs of

conservation are half the cost of acquiring the same amount of power from most other types of generation (NEN, 1992b).

In addition to lower costs, conservation creates employment through the installation of conservation measures. A University of Oregon study found that weatherization spending of \$25.2 million between 1982 and 1986 generated \$52 million in total net income to Lane County, Oregon (Conservation Monitor, 1992). Another study at Simon Fraser University in Vancouver, B.C., concluded that energy conservation has a greater economic benefit to the province than building new hydroelectric projects. The study found that conservation programs would increase income in the province by \$762 million more than a specific hydroelectric project and create a greater number of jobs (NEN, 1991).

VI. ACTIONS AND RECOMMENDATIONS

In planning for the use of the water resources of the state, the Water Resource Board is charged with weighing and balancing competing uses and needs. Multi-objective resource planning necessarily involves making trade-offs aimed at achieving the greatest number and best combination of objectives, based upon the overall goals of planning. In theory, resource planning from a societal perspective would require the knowledge and use of the full costs and benefits, including external costs and benefits, of all resource options. In practice, much is unknown about the external costs and benefits of many resources. The quantification of environmental effects in monetary terms is often extremely difficult or impossible. As a result, judgment must often be exercised in resource planning to reflect external environmental and societal costs and benefits.

Plan Objectives

The Snake River is the engine that drives agriculture and industry in the Middle Snake region. But the river serves other values as well. The river is home to a rich variety of fish and wildlife and is a recreation area for residents. It is a place of scenic grandeur that enchants the eye and rejuvenates the spirit. The Idaho Water Resource Board, as its primary objective, would like to see the existing multiple-use mix along the reach maintained; development that would preclude or jeopardize existing beneficial uses or values would not be in the public interest.

Fish habitat in the Middle Snake reach should be protected. Specifically, the white sturgeon habitat below Bliss Dam must be protected to preserve the wild, naturally-reproducing population