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

existing there. Policy 2D of the State Water Plan states that sturgeon habitat in the Snake and Kootenai Rivers should be protected. The Bliss Dam to C.J. Strike river reach is specifically mentioned in the policy discussion. Most fish prefer to rest in pools during the day. Sturgeon particularly like deep pools. Hill (1991) found the largest and deepest pools to be directly below rapids in the Middle Snake reach. The cutthroat trout fishery above Twin Falls Dam and its spawning habitat in Vineyard Creek also warrant special consideration.

The Water Board believes that the Middle Snake region can contribute additional resources to meet the state's future energy needs. Conservation acquisition, capacity expansion at existing facilities, and a contribution by new hydropower plants on the existing canal system should be the first priorities. An accelerated program in conservation and efficiency improvements can in fact increase the state's generation margin. This course buys time, limits new demands on the environment and is the most cost-effective choice.

The diversity of recreation opportunities available in the canyon must provide for the greatest range of recreation users. In view of the recent increase in the number of whitewater boaters, the Board supports preservation of this recreational opportunity. Special emphasis should be placed on those reaches where the state has licensed outfitters to provide this type of outdoor experience for those lacking the requisite skills and equipment to participate on their own. Where appropriate, additional facilities such as picnic areas and ramps should be developed.

As a long-term goal, the Water Board will work toward higher river flows during the summer months. The Idaho Water Resource Board would like to see more than a zero flow at Milner and will continue to examine options to secure flow throughout the year at the dam or main powerhouse. Increased flows would improve some aspects of water quality and fish habitat, and restore some of the scenic beauty to Twin Falls, Shoshone Falls, and many of the smaller, less famous waterfalls within the reach. At this time, there is no ready mechanism to provide this water. Increased irrigation efficiency could lead to increased operational flexibility in the Snake River, and perhaps more water through the Middle Snake reach during low-flow periods as a byproduct of rental pool use by Idaho Power.

A limited number of dredge mining operations might be acceptable, but the cumulative effect of a number of such operations must have an adverse impact on fishery habitat. Dredging may impact water quality with sediment displacement. Under current conditions dredging within the Middle Snake reach should be restricted to current rights.

Based on local concern, the single overriding consideration in developing a comprehensive plan for this reach of river is water quality and protection of the remaining falls and rapids within the

reach. Preventing changes to river equilibrium will maintain the free-flowing character of the Middle Snake reach and reduce additional impacts to water quality. Forestalling or reversing environmental degradation cannot be realized as long as the Snake River resources are allocated on a piecemeal basis. Although a single, small project may have only a small effect, it is necessary to consider the cumulative effects if a number of projects are developed on the same river or stream. More attention needs to be paid to cumulative impacts, the assimilation capacity of the river, and coordinated allocation of water resources, both ground and surface water.

Public comments also indicate a desire to minimize additional visual changes to the river canyon, particularly in natural or undeveloped areas. To accomplish this objective, visual changes in remaining free-flowing sections of the river and other natural landscapes must be minimized.

Designations

No action by the Board would run contrary to the coordinated efforts of local government to improve the water quality of the Middle Snake reach. In making protected river designations the Board must weigh development, improvement, and conservation opportunities. The Board believes State protected river designations are preferable to federal protection, and are in the best interest of the residents of the State of Idaho. Federal protection limits the flexibility of planning for the reach, and removes the option of amending the designation by action of the Water Resource Board and the Idaho Legislature.

Actions of the Board are consistent with the Idaho Code, private property rights, local and state management plans, the local *Coordinated Water Resource Management Plan for the Middle Snake River* adopted by Gooding and Jerome counties, and public comment garnered at the Public Scoping meetings, through the local Advisory Group, and the public hearings. The Board considered impacts of protection, improvement, and development on the social, economic, and environmental livelihood of the region, and makes the following designations and recommendations in the public interest.

In order to protect current resource use, and the multiple-use character of the Middle Snake reach, and recognizing that no action by the Idaho Water Resource Board using their comprehensive water planning authorities can interfere with vested rights, or the repair, replacement, or continued operation of existing facilities or works, the Idaho Water Resource Board takes the following action (Fig. 14):

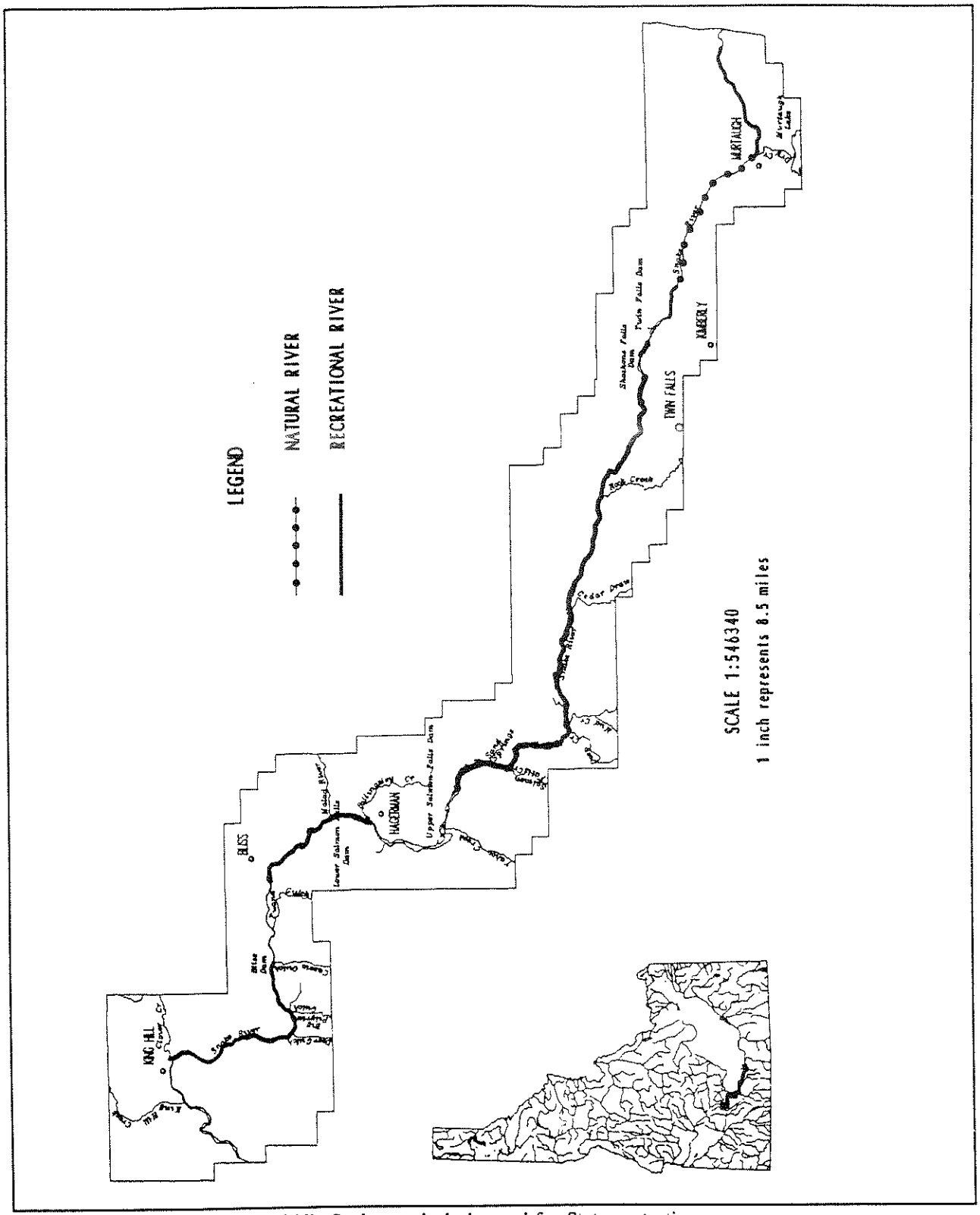

Figure 14. Segments of the Middle Snake reach designated for State protection.

1) Designates the Snake River from the downstream project boundary of the Milner Hydroelectric Project, (approximately 700 feet downstream from the Idaho Power Company main Milner powerhouse), River Mile 637, to a point 100 feet downstream of the Murtaugh Bridge "Recreational" (7 miles). Within the segment 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.

2) Designates the Snake River 100 feet downstream of the Murtaugh Bridge to a point 100 feet upstream of the Hansen Bridge as "Natural" (9.5 miles). Within the segment the Board prohibits 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.

3) Designates the Snake River 100 feet upstream of Hansen Bridge to the upstream project boundary of Twin Falls Hydroelectric Project [River Mile 619.5, the east boundary of Lot 5, Section 10, T10S, R18E, B.M.] "Recreational" (2 miles). Within the segment 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 that 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.

4) Designates the Snake River from the downstream project boundary of the Twin Falls Hydroelectric Project [River Mile 617] to the confluence of the western most spring flow from the Devil's Corral spring area [River Mile 616] "Recreational" (1 mile). State protection of this segment

shall in no way impede relicensing of the Shoshone Falls Hydroelectric Project, or an expansion of the Shoshone Falls Hydroelectric Project boundary that would not result in any change in the size of the impoundment or in reservoir elevation. Within the segment 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.

5) Designates the Snake River from River Mile 614.4 (approximately 800 feet downstream from the Shoshone Falls powerhouse) to the Highway 30 Bridge "Recreational" (32 miles). The licensed Auger Falls Hydroelectric Project, FERC #4797, is exempt from the prohibitions of this designation. A permit to appropriate water for the Boulder Rapids Hydroelectric Project, FERC #10772, was approved in May 1984 with extensions for proof of beneficial use authorized in 1989 and 1993. A public hearing, held in response to a request for exemption from interim protection designation prohibitions, identified significant public concern that the Boulder Rapids development would preclude or jeopardize existing beneficial uses. However, Idaho Code 42-1734F(1) states that prohibitions promulgated pursuant to State designation of protected rivers shall not limit, restrict, or conflict with approved applications for the appropriation of water.

Within the segment 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 that 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.

6) Designates the Snake River from the downstream project boundary of the Lower Salmon Falls Hydroelectric Project [River Mile 573] to the upstream project boundary of the Bliss Hydroelectric Project [River Mile 565.5] "Recreational" (8 miles). Within the segment 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 that 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.

7) Designates the Snake River from the downstream project boundary of the Bliss Hydroelectric Project [River Mile 560] to the confluence of Clover Creek "Recreational" (12 miles). Within the segment 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 that 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.

It is the policy of the Board to amend the water plan when it determines that amendments are in the public interest. The Board will consider proposals for amendment to the plan from private parties as well as state agencies. In the event the Board determines that a proposal will not substantially impair the values which were the basis of a protected river designation, the Board shall follow the procedures required for the adoption of the original plan (Sections 42-1734A and B, *Idaho Code*). In addition, the Board shall review and reevaluate the Comprehensive State Water Plan at least every five years (Section 42-1734B(7).

Plan Recommendations

The Middle Snake River reach receives major nutrient, sediment, bacteria, and chemical loadings from a number of sources. Studies attempting to quantify the impacts of existing impoundments, fish hatchery effluent, sewage outflows, and agricultural return flows must be supported and continued. Planning for the various uses of water requires an understanding of the water quality impacts of the different competing uses.

In order to address water quality standard violations on the Snake River, the Division of Environmental Quality has initiated development of a water quality management plan under the Idaho Nutrient Management Act (Idaho Code 39-105(3)(o)). At the core of the overall plan will be industry-specific nutrient management plans. These plans are to contain both short and long-term actions, monitoring to demonstrate plan implementation and effectiveness, and mechanisms to ensure compliance.

- The Board supports development of a Nutrient Management Plan under the direction of the Division of Environmental Quality to improve water quality of the Middle Snake reach. The State's Water Pollution Control Account should be used to support planning, education, monitoring, and enforcement of water quality standards on the Middle Snake reach.

- The Board recommends studying methods for increasing flows during low-flow periods through the Middle Snake reach.

- The Board recommends examination of the need for additional protection of spring flows in a Snake River Plain Aquifer Plan, in light of concerns about reduced spring discharges into the Middle Snake reach, and declining ground water levels. The water quality and quantity aspects of conjunctively used stream-aquifer systems must also be understood.

It is the policy of the State of Idaho (Energy Plan, 1982) that private and public utility companies place a high priority on conservation, full development of generation at existing dams and hydropower facilities, and development of other renewable resources.

- The Board encourages the Idaho Public Utilities Commission to continue, through its regulatory authority, to encourage energy conservation and the commercialization of cost-effective alternative energy systems.

- The Board encourages the investigation of the feasibility of hydropower development on canals and return flows not associated with natural springs in the Middle Snake reach.

- The Board supports testing and implementation of new technology to increase hydropower potential.

Under the traditional form of ratemaking, a utility loses money for each kilowatt-hour conserved, even though conservation may be the utility's least-cost investment in the long term. If it reduces sales, a private utility loses some of the revenues it needs to cover fixed costs and pay a return to its stockholders. This effect creates a strong short-term disincentive to conservation, and an incentive to promote sales.

- The Board encourages the Idaho Public Utilities Commission to investigate regulatory models in which utility revenues and profits are linked to some measure other than kilowatt-hour sales (decoupling), to remove financial disincentives that utilities face when they cost-effectively save kilowatt-hours.

Local counties of the Middle Snake region have worked hard to address problems related to water quality and water supply. Intergovernmental cooperation is crucial to planning and implementation of measures to develop, improve, and conserve the water resources of the region.

- The Board encourages cooperation with local government entities in identifying water distribution and water pollution problems.

- The Board encourages counties to more forcibly address the problem of unauthorized disposal of rubbish into the canyon.