
TECHNICAL MEMORANDUM

SUBJECT: **Snake/Salt River Basin Plan**
 Basin Water Use Profile - Recreation

PREPARED BY: Sunrise Engineering, Inc.

DATE: July 15, 2002

Introduction:

There is a significant amount of recreational activity within the Snake/Salt River basin. People travel from around the world in order to boat, fish, ski, camp, and hike in this part of Wyoming. Tourism has a major impact on the economies of the communities in the basin, with much of the tourism being linked to Grand Teton and Yellowstone National Parks. Many of the draws of these parks are water related, with the most notable water features within the basin being Jackson Lake and the Snake River. The Snake River is also a major draw throughout the Jackson Hole area as well as through Snake River Canyon toward Alpine, sometimes referred to as the Grand Canyon of the Snake River. Thousands visit the river each year for rafting, kayaking, fishing, and other activities. In addition to the Snake River and Jackson Lake, there are numerous rivers, streams, and lakes throughout the basin that are used for recreation. Other activities that utilize or require water in some form include waterfowl hunting and winter sports such as skiing. Much of the water based recreation in the basin takes place in areas that are managed by public entities, such as the National Park Service, Forest Service, Bureau of Land Management, and the State of Wyoming. This technical memorandum will look at these various types of water-based recreational activities throughout the Snake/Salt River basin.

Grand Teton National Park:

Grand Teton National Park is the largest tourist destination located entirely within the basin. There are many water-based recreational activities that draw people to the Park. The main focus of recreational water use in the park is divided between Jackson Lake and Snake River.

Jackson Lake

Most of the use of Jackson Lake is by private individuals participating in various activities, such as motorboating, pontoon boating, canoeing, kayaking, camping, and fishing. In the winter, activities such as ice fishing, cross country skiing, and snowshoeing are common. Many ice fishermen have used snowmobiles or snow planes for transportation across the frozen lake. The Park Service has concessioners that provide services such as boat rentals, scenic lake tours, guided fishing trips, and marina services. Boat launching is available at Leek's Marina, Colter

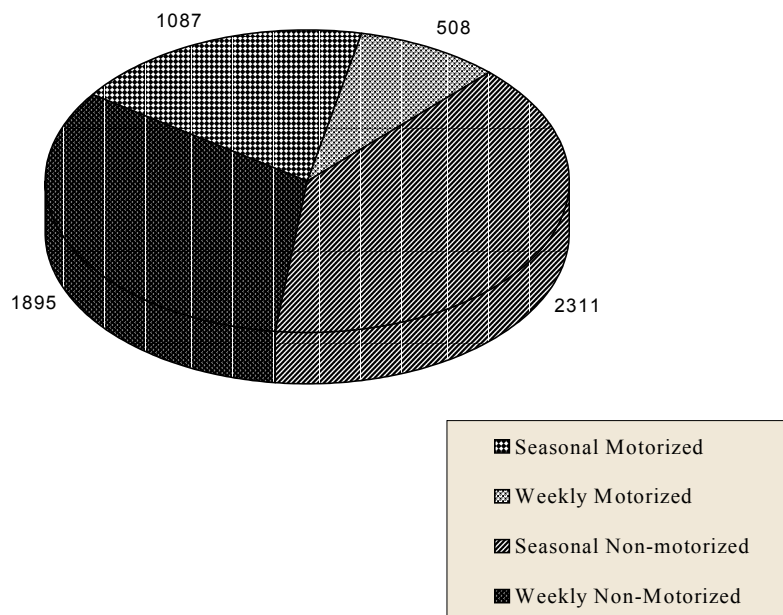
Bay, Spaulding Bay, and Signal Mountain. Data obtained from Grand Teton National Park outlining visitors using Park concessioners for water-related recreation are shown in **Table 1**.

Table 1. Grand Teton National Park Visitors by Use (Concessioner Use)

Year	River Float Trips	River Fishing Trips	Lake Fishing Trips	Boat Rentals	Scenic Lake Tours	Ferry Service
1990	74,836	1,872	2,876	20,173	20,835	73,697
1991	75,809	2,187	2,864	24,641	24,129	76,170
1992	82,321	2,758	1,724	15,441	11,253	83,292
1993	77,230	2,920	2,503	20,761	18,571	79,502
1994	84,976	3,542	2,750	18,389	16,879	86,277
1995	82,753	2,700	2,570	26,014	18,791	90,209
1996	79,583	3,228	3,588	27,940	25,917	93,187
1997	71,969	2,836	2,331	26,179	20,980	83,342
1998	68,160	2,476	2,581	28,489	18,023	90,123
1999	70,553	2,322	4,458	23,295	20,506	88,035
2000	63,456	3,227	3,070	24,069	21,028	84,085
2001	59,431	2,685	1,869	17,471	9,547	70,526

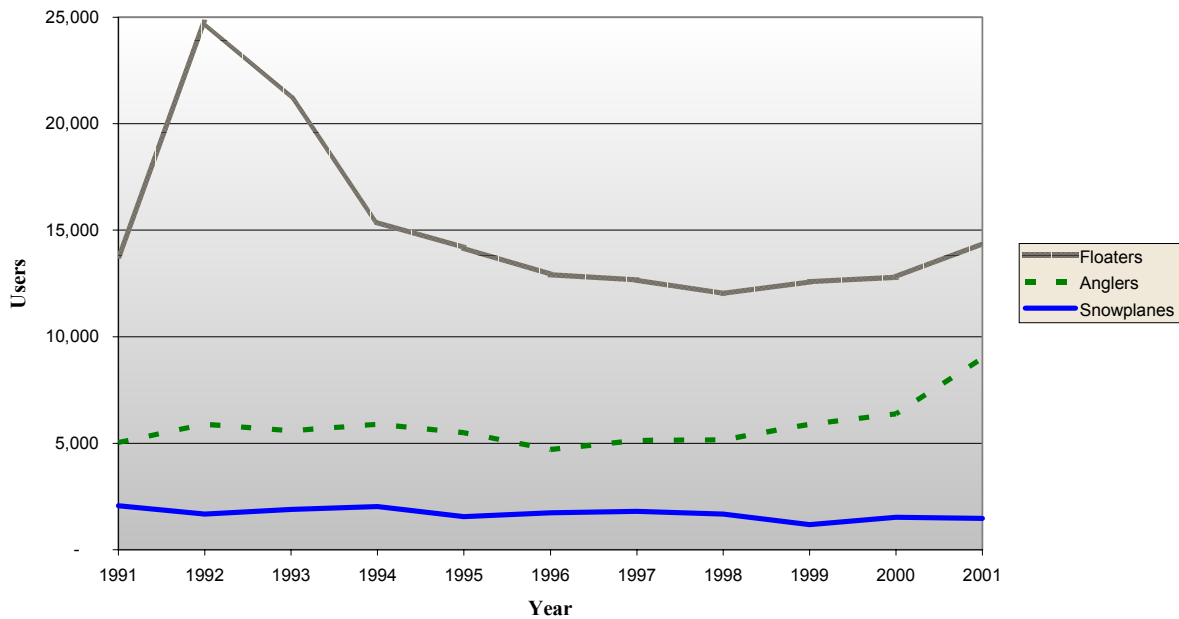
There are approximately 19 lakeshore camp sites located at 10 locations around Jackson Lake that are accessible only by boat. Other campgrounds adjacent to the lake include Lizard Creek, Colter Bay, and Signal Mountain. Grand Teton National Park requires all privately owned vessels to have a park permit. A breakdown of boat permit sales for 2001 are shown in **Figure 1**.

Figure 1. GTNP Boat Permit Sales 2001



The National Park Service has estimated private users on the Snake River for both floating and angling activities. A graph indicating the number of private users for these recreational activities is shown in **Figure 2**. In addition to estimating the number of floaters and anglers in the Park, the National Park Service has also estimated the number of snowplane users on Jackson Lake during the winter months. Snowplanes are used as a mode of transportation on the lake when it is frozen over, much like snowmachines. It must be noted that recent decisions by the National Park Service have resulted in the banning of snowplanes from the Park beginning in the winter of 2002-2003.

Figure 2. Grand Teton National Park Snake River & Jackson Lake Private Use Estimates



Snake River

Activities on the Snake River within the Park include canoeing, kayaking, float trips, and fishing, with these activities being conducted by private individuals as well as concessioners. Data regarding these uses have been shown previously in **Table 1** and **Figures 1** and **2**. Access locations along the river are at Southgate, Flagg Ranch, Lizard Creek, Jackson Lake Dam, Cattleman’s Bridge, Pacific Creek, Deadman’s Bar, Schwabacher Landing, and Moose. Current regulations prohibit floating the river from December 15 to April 1.

Other Locations

In addition to Jackson Lake and Snake River, lakeshore camping is available at Leigh Lake and Phelps Lake. Boat ramps are available at Jenny Lake and String Lake. Motorized boating is allowed on Jenny Lake and Phelps Lake. Non-motorized boating is permitted on Jenny, Phelps, Emma Matilda, Two Ocean, Taggart, Bradley, Bearpaw, Leigh, and String Lakes.

Bridger-Teton National Forest:

Snake River

There is significant use of the Snake River within the Bridger-Teton National Forest. A majority of the use consists of rafting, boating, and kayaking in Snake River Canyon between Hoback Junction and Alpine. In this area, there are also six campgrounds maintained by the Forest Service. Many commercial rafting outfitters use this area as part of their rafting business. Statistics regarding the use of the river by rafters, both commercial and non-commercial, are kept by the Forest Service and are shown in **Table 2**.

Table 2. Snake River Rafting Use – Bridger Teton National Forest

Year	Non-outfitted*	Outfitted	Total
1973	3,100	21,200	24,300
1974	3,900	24,100	28,000
1975	4,900	35,300	40,200
1976	5,900	45,700	51,600
1977	5,300	51,000	56,300
1978	5,200	58,700	63,900
1979	7,000	59,700	66,700
1980	8,000	58,500	66,500
1981	19,900	62,700	82,600
1982	22,700	59,300	82,000
1983	24,500	64,100	88,600
1984	28,400	70,800	99,200
1985	28,100	69,300	97,400
1986	29,000	69,200	98,200
1987	29,700	67,100	96,800
1988	32,700	73,700	106,400
1989	32,700	76,200	108,900
1990	33,600	90,400	124,000
1991	34,600	92,300	126,900
1992	35,600	104,400	140,000
1993	34,600	98,100	132,700
1994	39,300	117,300	156,600
1995	38,000	121,200	159,200
1996	37,200	118,500	155,700
1997	37,000	99,400	136,400
1998	37,000	109,000	146,000
1999	46,000	102,000	148,000
2000	57,000	98,000	155,000
2001	52,000**	91,000	140,000

* Non-outfitted numbers reflect number of persons coming to the river, and not the number of times those persons ran the river in a given visit. Noncommercial users average 2-3 trips down the river in a given day of use. Noncommercial numbers are estimates based on periodic counts, reviews of river photographs and group permit numbers.

**The decrease in noncommercial use in 2001 is a result of enforcement of the large group permit system required by the *Snake River Management Plan*.

Other Recreational Uses

There are many other water-based recreational opportunities in the Bridger-Teton National Forest besides rafting the Snake River. According to the Greys River Ranger District of the BTNF, other activities include canoeing and other watercraft use, fishing, and to a lesser extent ice fishing, waterfowl hunting, and swimming. Recreational Visitor Days (RVD's) for the Greys River Ranger District and Jackson Ranger District as estimated by the Forest Service for 1994 are shown in the following **Table 3**.

Table 3. Bridger-Teton National Forest Recreational Visitor Days

Use	RVD (Thousands)	
	Greys River (District 3)	Jackson (District 4)
Swimming & Water Play	1.3	3.96
Diving	0.1	0.10
Water Skiing & Other Water Sports	0.8	0.11
Boat, Powered	1.1	0.31
Canoeing	1.8	8.65
Sailing	1.1	1.49
Other Watercraft	1.5	70.06
Hunting, Waterfowl	0.9	0.94
Fishing, Cold Water	13.6	7.47
Fishing, Ice	0.1	0.11

The above mentioned recreational activities take place throughout the forest, which has numerous rivers, streams, lakes, and ponds.

Ski Areas & Winter Sports:

There are three major ski resorts located in the Snake/Salt River basin. Snow King Resort is located in the Town of Jackson, and has 400 skiable acres. The resort has a base elevation of 6,237 feet and a top elevation of 7,808 feet, for a vertical rise of 1,571 feet. Tubing and ice skating are also available at Snow King. Grand Targhee Resort is located 5 miles east of Alta, and has 2,000 lift-served skiable acres and 1,000 snowcat served skiable acres. The resort has a top elevation of 10,000 feet, and a vertical rise of 2,395 feet. They also have 15 kilometers of groomed cross country trails. Jackson Hole Mountain Resort is located at Teton Village and has 2,500 skiable acres. The resort has a base elevation of 6,311 feet and a top elevation of 10,450 feet, for a vertical rise of 4,139 feet. Over 17 kilometers of groomed cross country trails are also available, as well as sleigh rides and dog sledding. All three resorts have incorporated snowmaking facilities into their resorts. For the 1998-99 ski season, the three resorts combined

for nearly 550,000 skier days. Skier Days for the ski areas in the basin are shown in **Table 4**. In addition to the resorts described above, there are also companies that provide heli-skiing in the mountain ranges throughout the basin.

Table 4. Skier Days

Season	Skier Days			Total
	Jackson Hole	Grand Targhee	Snow King	
1999-00	392,000	137,000	61,000	590,000
2000-01	364,000	132,000	55,000	551,000
2001-02	352,000	131,000	52,000	535,000

The three ski areas utilize snowmaking during the early season, which can be from mid-October through January. Snow King snowmaking typically starts in October to accommodate World Cup race training prior to the season opening. According to the technical memorandum prepared by BBC Research & Consulting entitled “Future Water Demand Projections”, typical water usage for snowmaking are roughly 1.25 millions gallons per season at Grand Targhee, 20 million gallons per season at Snow King, and 80 million gallons per season at Jackson Hole Mountain Resort. While all three resorts have installed snowmaking facilities on portions of their ski areas, the success of the ski season is dependent upon natural snowfall. Typical snowfall amounts for the resorts are 500 inches per year at Grand Targhee, 400 inches per year at Jackson Hole Mountain Resort, and 150 inches per year at Snow King.

There is generally adequate snowfall across the basin to support winter sports at locations other than the ski areas. Other activities such as cross-country skiing, snowshoeing, and snowmobiling are popular, and miles of trails are groomed throughout the basin for use by snowmachiners and skiers. Also, the annual World Championship Snowmobile Hill Climb has been held at Snow King for over 25 years.

Fishing:

Fishing is a significant recreational activity throughout the Snake/Salt River basin. According to the Wyoming Fishing Guide produced by the Wyoming Game and Fish Department, “[Yellowstone] Park remains one of the meccas of American trout fishing.” Also, “fishing the Snake River in Grand Teton National Park is like stepping into a photo mural. The experience would be worth a king’s ransom even if there were no trout. In fact, there are trout – lots of them. The Hoback and Greys rivers, Flat Creek, and Jackson Lake also provide excellent fishing in this region.” Fly fishing dominates on the Snake River, and the significant game fish in the basin are shown in **Table 5**.

Table 5. Gamefish of the Snake/Salt River Basin

Common Gamefish Name	Scientific Name
Snake River Cutthroat Trout	<i>Oncorhynchus clarki ssp.</i>
Yellowstone Cutthroat Trout	<i>Oncorhynchus clarki bouvieri</i>
Mountain Whitefish	<i>Prosopium williamsoni</i>
Lake Trout	<i>Salvelinus namaycush</i>
Brook Trout	<i>Salvelinus fontinalis</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Golden Trout	<i>Oncorhynchus aguabonita</i>
Kokanee Salmon	<i>Oncorhynchus nerka</i>
Brown Trout	<i>Salmo trutta</i>
Arctic Grayling	<i>Thymallus arcticus</i>
Rainbow-Cutthroat Trout Hybrid	

According to the Wyoming Game and Fish Department, many of the streams and lakes in the basin are managed to preserve the indigenous Snake River Cutthroat Trout as well as to preserve wild trout fisheries. Maintaining the supply and increasing the diversity of sport fishing in the basin is also a management goal of the Department. There are also trophy fish in the area, as evidenced by two state record fish. A 50 pound lake trout was caught in Jackson Lake, and a mountain whitefish over 4 pounds was caught in the Snake River.

There is a variety of lakes and streams in the basin that provide a wide range of fishing experiences, from small wilderness streams and lakes to the Snake River and Jackson Lake. Some areas, such as Jackson Lake, see a considerable amount of ice fishing in the winter. A document produced by the Game and Fish Department entitled “Jackson Fish Management - Sub-basin Management Plans” in 1995 contains data on fishing in the Snake/Salt River basin. In this report, the basin has been broken into various sub-basins, with information on the existing fishery and future management plans outlined for each sub-basin. **Table 6** provides a summary of selected data from this report from each sub-basin.

The Wyoming Game and Fish Department has developed a stream classification system for the rivers and streams in the State of Wyoming. This classification system is based on the aesthetics, availability, and productivity of the stream. Aesthetics includes the characteristics of the stream channel, water quality, development, and landscape. Availability looks into the quantity and ease of access. Productivity is the pounds of trout per mile in the stream. This classification map is for trout only. The classifications are as follows:

- Class 1 (blue) – Premium trout waters – fisheries of national importance
- Class 2 (red) – Very good trout waters – fisheries of statewide importance
- Class 3 (yellow) – Important trout waters – fisheries of regional importance
- Class 4 (brown) – Low production trout waters – fisheries frequently of local importance, but generally incapable of sustaining substantial fishing pressure
- Class 5 (no color) – Very low production waters – often incapable of sustaining a trout fishery

In the Snake/Salt River basin, the Snake River is the only Class 1 or blue stream. The Salt and Greys Rivers are Class 2 or red streams. The stream classifications are presented as a GIS theme as part of this basin plan.

Table 6. Fishery Management Data by Sub-Basin

Sub-basin	Stream Miles	Lake Surface Acres	Angling Pressure (d/yr)
Snake River (below Jackson Lake Dam)	311	5,232	47,453
Snake River (above Jackson Lake Dam)	91	17,966	25,764
Snake River Basin (wilderness waters)	67	30	518
Hoback River Basin	224	41	7,690
Gros Ventre River Basin	167	1,334	4,270
Fish Creek Basin	90	350	3,711
Spread Creek Basin	48	23	912
Buffalo Fork Basin	57	28	1,378
North Buffalo Fork Basin	39	123	344
South Buffalo Fork Basin	45	60	620
Cub Creek Basin	15	38	297
Pacific Creek Basin	68	228	2,426
Palisades Basin	11	0	336
Teton River Basin	135	338	2,333
Lower Salt River Basin	155	18	9,577
Upper Salt River Basin	42	41	1,805
Greys River Basin	133	69	5,845
Little Greys River Basin	45	2	688
Total =	1743	25,921	115,967

Waterfowl Hunting:

Waterfowl hunting is another recreational activity that is possible due to water features in the basin. The Snake/Salt River basin is located between the Central and Pacific Flyways, which are major routes for migratory birds between Canada and Mexico. The major route of the Central Flyway is in the Midwest through the states of Nebraska, Kansas, Oklahoma, and Texas. The major route of the Pacific Flyway is along the Pacific Coast through Washington, Oregon, and California. The Wyoming Game and Fish Department distinguishes between the two flyways using the Continental Divide, with the Central Flyway on the eastern portion of the State and Pacific Flyway on the western portion. While the basin is not directly in a major flyway route, there are a significant number of birds that migrate through the area, and there are numerous locations that attract waterfowl as well as hunters. The Wyoming Game and Fish Department reports data regarding the hunting of waterfowl, as well as other birds and small game, in the Annual Report of Upland Game & Furbearer Harvest. The trends in harvest of the most

commonly hunted waterfowl in Wyoming, ducks and geese, are shown in **Figure 3** as taken from the annual report for the 2000 hunting season.

Estimates on waterfowl hunting activity in various sub-basins in Wyoming are made by the Wyoming Game and Fish Department, and are also included in their annual report. These estimates cover the number of hunters, the number of days they hunted, and the harvest of waterfowl. This data for the 2000 hunting season is presented in **Table 7** for ducks and **Table 8** for geese.

Figure 3. Wyoming Waterfowl Harvest

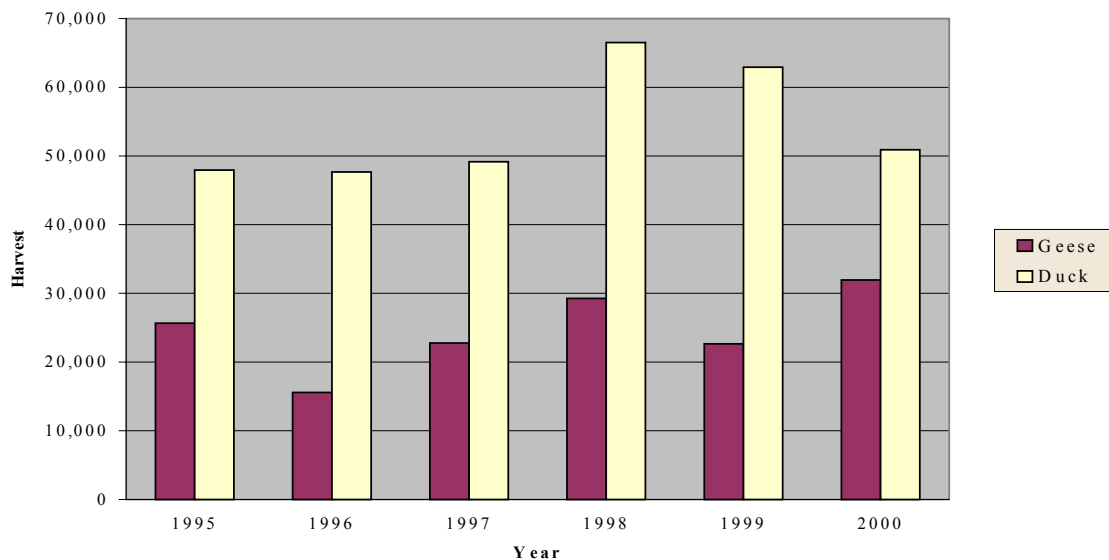


Table 7. Duck Hunting Estimates for 2000

Drainage	Hunters	Hunter Days	Harvest
Snake River	221	1,410	1,393
Salt River	248	1,220	1,572

Table 8. Goose Hunting Estimates for 2000

Drainage	Hunters	Hunter Days	Harvest
Snake River	191	940	475
Salt River	131	533	118

Other waterfowl included in this report, though they are hunted in much smaller numbers, include coots and mergansers. Migratory game birds included in the report include sandhill cranes,

mourning doves, rail, and snipe. Data regarding various other birds are included in the Game and Fish report as well, however they will not be included in this river basin plan.

Conclusion:

While recreation is generally a non-consumptive use of water, it is a very important part of life in the Snake/Salt River basin. A large portion of the economy is driven by tourist activity, most of which is due to the recreational opportunities in the area. Different forms of recreation are enjoyed each season of the year. These opportunities are available due to the water resources in the basin, which are renewed annually through the hydrologic cycle. Recreation also contributes greatly to the quality of life for those who live in the basin.