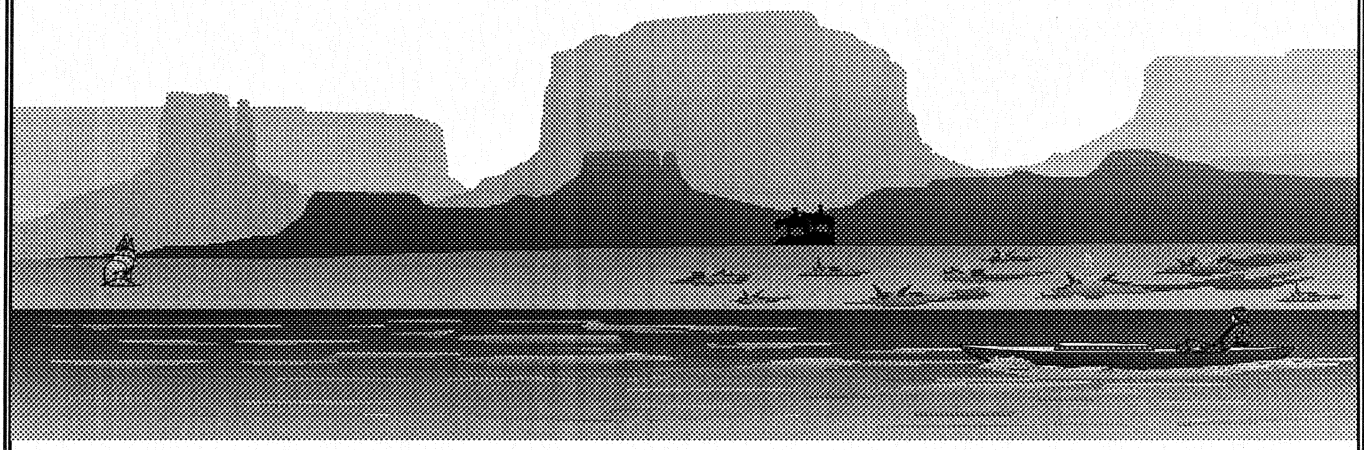
UTAH RIVER STUDY RESULTS REPORT: RECREATIONAL USE, VALUE, AND EXPERIENCE OF BOATERS ON RIVERS MANAGED BY THE BLM IN UTAH

VOLUME I: EXECUTIVE SUMMARY



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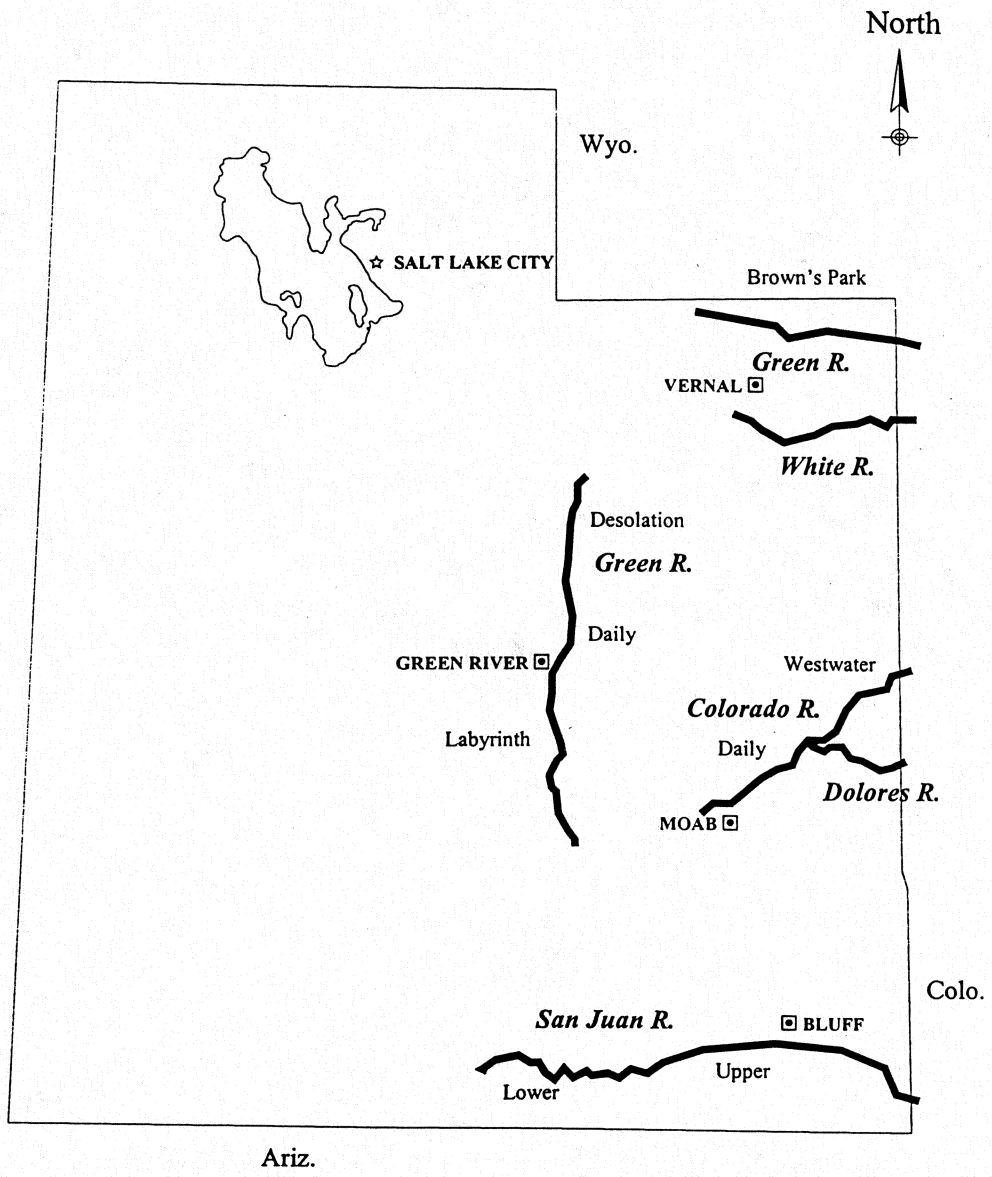

Figure 1. Major floatable Utah rivers administered by the Bureau of Land Management.

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prepared for:
Bureau of Land Management
Department of Interior

BLM TASK ORDER #25
COOPERATIVE AGREEMENT #D910A30210
OMB #0596-0108

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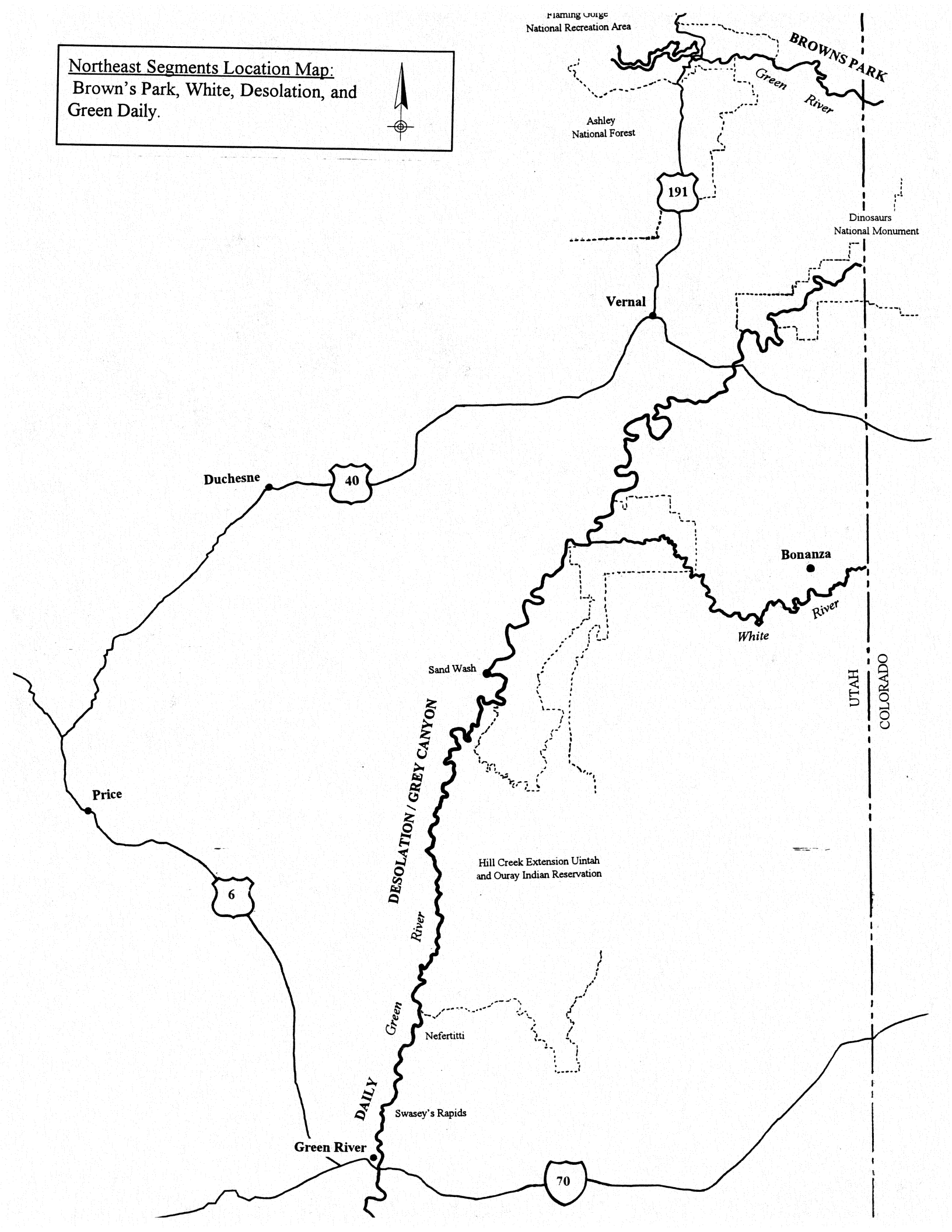
October 15, 2001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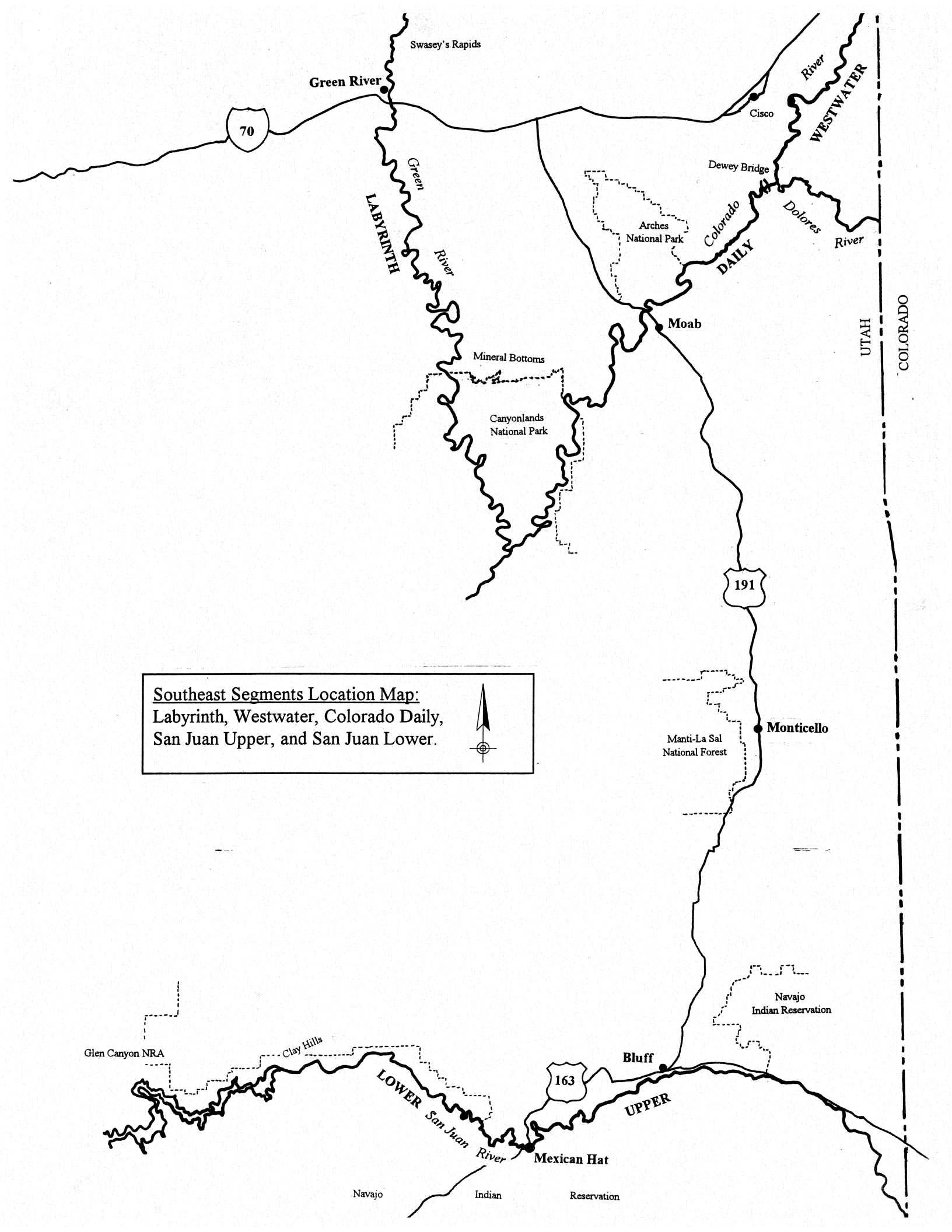
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I-A. INTRODUCTION

Many river boating recreation experiences (rafting, canoeing, kayaking, and fishing) in Utah occur on river segments managed by the Bureau of Land Management (BLM). Visitor counts for boaters are based on permit data and observations. Those figures demonstrate an increased demand for river recreation over the past few decades. In 1999, researchers at Utah State University (USU) conducted a survey of river runners in order to provide the BLM river managers with information about boaters' river management preferences in order to help guide management decisions.

The purpose of this research project was to conduct a visitor study for selected river segments on or adjacent of BLM administered land in Utah. The specific objective of this study were to: 1) update visitor use and experience related information, 2) collect economic expenditure data, 3) standardize visitor social and economic information for all river segments, 4) provide information useful for updating or developing BLM management plans for the selected rivers, and 5) gather data that can be relevant for future economic and community development strategies.

The study focused on river segments that have commercial boat operators on raftable whitewater. For the initial phase of the study, intercept surveys were administered to a random sample of commercial and private boaters on nine segments of the Colorado, Green, San Juan, and White Rivers for one full visitor use season and were collected on site (see Volume II). The second phase involved mailing a more comprehensive questionnaire to boaters intercepted at the various take-outs who gave field technicians their names and addresses (see Volume III and IV). The data obtained from this research identified characteristics, behavior, motivation, managements opinions, and expenditures of

the floaters. For a summary of the sampling results, see Table I-A.1.

The resulting report, *Utah River Study Results Report: Recreational Use, Value, and Experience of Boaters on Rivers Managed by the BLM in Utah*, summarizes the results of that study and is presented in five volumes. VOLUME I: EXECUTIVE SUMMARY is divided into sections that briefly describes the contents of each of the other volumes. The second volume, INTERCEPT SURVEY RESULTS, reports on the results of the intercept phase of the study. The third (MAIL SURVEY RESULTS) and fourth (RIVER MANAGEMENT POLICY BACKGROUND AND RIVER RUNNERS' ATTITUDE TOWARD MANAGEMENT POLICY) volumes reports on the findings from the mail-back survey. Volume IV begins by describing management policies on these rivers in the context of state and federal laws and regulations. The final volume (VOLUME V: ANALYSIS PAPERS) offers two in-depth analysis papers dealing with implications for river management in a regional context and comparing results with this study and a similar one conducted in 1975 on two of the river segments. The tables and figures referred to in the text of the report are located at the end of each section of the volumes.

Table I-A.2 presents summary descriptions of the study segments. Beginning at the north end of the state, the *Brown's Park* segment of Green River exits Flaming Gorge Dam and flows to the Brown's Park Bird Refuge near the Colorado boarder. It is a blue-ribbon trout fishery with many of the boaters using drift boats and other craft as fly fishing platforms. The top half of the segment (from Spillway to Little Hole) is managed by the U.S. Forest Service as part of the Flaming Gorge National Recreation Area. The segment is usually run in a single day.

The *White River* headwaters are in the northern Colorado Rockies. While the Colorado

portion contains whitewater opportunities, the Utah stretch, or Bonanza segment, is essentially flat-water and canoeists take about three days to run the river and take out before entering the Uintah-Ouray Indian Reservation.

Below the confluence with the White River, the Green River flows through *Desolation* and *Upper Gray Canyons* as the river cuts through one of the most remote areas of the state, the Tavaputs Plateau. A popular destination, rafters generally spend three or four days floating this segment, stopping along the way to take short hikes and visit archeological and historic sites. The Green River then flows through *Lower Gray Canyon* from Nefertiti Falls to Swasey's Rapids near Green River, Utah (which we refer to as the *Green Daily*). This segment typically takes four to six hour and, depending on flow rate, has seven or eight Class II to III rapids. Starting at Green River State Park, the Green flows through *Labyrinth Canyon*, a stretch that takes about four or five days to float. This stretch is also quite remote, as the river finds its way through the red rock canyon country of Southeastern Utah. Most boaters take out at Mineral Bottom, just before entering Stillwater Canyon at the northern boundary of Canyonlands National Park.

Westwater Canyon of the Colorado River offers the steepest gradients and most challenging rapids of the study segments. Most of the river runners take a full day to run this stretch, although quite a few enjoy turning this segment into an overnight trip. The *Colorado Daily* segment takes about four hours, has minor rapids, and attracts many visitors visiting Moab, Utah. It is but one aspect of the "Moab Experience" which includes visiting state and national parks, mountain biking on "slickrock" trails, red rock four-wheeling, and rock climbing.

The San Juan River in the southeastern corner of the state is bounded by the Navajo Indian

Reservation to the south. At certain points, its flow has cut enormous meanders through thousands of feet of sandstone, creating spectacular geologic features such as the Goosenecks of the San Juan. Some boaters take just a few days and float either the *Upper San Juan* or the *Lower San Juan* segments, and other may take longer and run both segments. Both stretches offer many opportunities for hiking up side canyons with waterfalls, hanging gardens, and ancient cliff dwellings.

Table I-A.1: River survey sampling days and intercept and mail surveys response rate.

		San Juan River		*White R.*	*Green River*				*Colorado River*		
		Upper	Lower		Brown's	Daily	Labyrinth	Desolation	Daily	Westwater	Total
Days in sampling period	weekend	4	5	2	5	14	8	14	10	12	74
	weekday	13	13	6	12	24	18	24	17	27	156
Number of contacts		137	185	50	157	173	158	265	667	568	2360
Completed intercept surveys	weekend	23	52	-	75	78	50	77	293	142	790
	weekday	103	124	47	69	74	99	183	345	414	1458
	total	126	176	47	144	152	149	260	638	556	2248
Intercept response rate		92.0%	95.1%	94.0%	91.7%	87.9%	94.3%	98.1%	95.7%	97.9%	95.3%
Number of addresses		62	136	33	106	83	92	183	378	362	1435
(%)		(49.2%)	(77.3%)	(70.2%)	(73.6%)	(54.6%)	(61.7%)	(70.4%)	(59.2%)	(65.1%)	(63.8%)
Undeliverable addresses		3	1	0	3	1	2	4	7	19	40
Legitimate addresses		59	135	33	103	82	90	179	371	343	1395
Mail surveys returned		40	99	23	49	45	54	119	159	214	802
Mail survey response rate		67.8%	73.3%	69.7%	47.6%	56.0%	60.0%	66.5%	42.9%	62.4%	57.5%

Table I-A.2: Summary characteristics of study rivers.

Response	*San Juan River*		*White R.*	*Green River*				*Colorado River*	
	Upper	Lower		Brown's	Daily	Labyrinth	Desolation	Daily	Westwater
Number of boaters -- 1998[1]	5,600	5,900	1,400	52,000[2]	11,000	8,000	6,000	59,000	14,000
Segment length (miles)	26	58	30	16	8	70	84	13	17
Rapid Classes	II-III	II-III	I-II	I-III	II-III	I	II-III	I-III	III-IV
Average trip length (days)[3]	2	6	3	2	1	5	6	1	2

[1] Based on 1998 BLM estimate.

[2] Based on estimates *in* "The Recreation Use Capacity of the Green River Corridor Below Flaming Gorge Dam" prepared by Institute for Human Ecology for Flaming Gorge Ranger District, Ashley National Forest, USDA Forest Service, Dutch John, UT, Contract No. 53-8499-0-002, April 1991. The report stated that the USFS estimated 52,000 people floated the Green River from the Flaming Gorge Dam spillway to the Colorado Border and that 96% of those 52,000 pulled out before floating the Browns Park section.

[3] Based on 1999 intercept survey.

I-B. VOLUME II SUMMARY:
Intercept Survey Results

The intercept survey data collection phase of this project consisted of teams of research technicians rotating among the different river take-outs and handing out questionnaires. The boaters were asked to fill out the surveys which contained questions relating to river running experience, satisfaction with their trip, perceptions of crowding and physical impacts, economic expenditures, and demographics.

Section II-C (Demographic Characteristics) discusses river runners' demographic characteristics for the 9 studied segments. Demographic characteristics include: 1) place of residence, 2) gender, and 3) age of boaters. The majority of rafters (94.2%) resided in the U.S., while the majority of these U.S. rafters (80.6%) came from western states (UT, CO, CA, AZ, NM, WA, OR, NV, ID, MT, WY). The Colorado Daily was the segment with the highest percentage of non-U.S. resident rafters (12.9%). Utah and Colorado residents accounted for over 50% of all boaters on almost all segments, and Colorado residents alone made up 53.5% of rafters on Westwater. Gender was a fairly even mix on all segments but Brown's Park and Westwater, which had a majority of male river runners (83.1% and 62.8% male respectively). Only river runners over the age of 15 were interviewed, so no information on younger boaters was obtained. Younger floaters between 15-20 were most likely to be found on Labyrinth and the Upper San Juan, while floaters from 51-60 were most likely to be found on Brown's Park. Boaters between 31-50 years of age accounted for at least 44% of boaters on all segments but Labyrinth (41.4%).

Section II-D (River Runner Characteristics) discusses the river runner characteristics for each segment, which include: 1) experience of rafters, 2) type of group (commercial or private), 3) length of trip, and 4) campsites. To assess the level of experience, floaters were asked if they had floated that segment previously, if they had floated a Utah river before, and how many times they had floated a Utah river. Over 75% of floaters on Labyrinth, the Colorado Daily, and the San Juan Upper reported *not* floating that segment before. These three segments were also the only segments where over 55% of floaters had *not* floated a Utah river before. Of the boaters who had experience floating a Utah river, the majority on all segments reported 1-10 times. Over a third of the Westwater respondents reported floating Utah rivers over 20 times before. The majority of all trips on all segments but the White (53.2% commercial) were private trips. Over 80% of trips on the San Juan Lower were private. Aside from the White, the segments with the most commercial boaters were the Upper San Juan (49.6%) and the Colorado Daily (40.1%). Average group sizes for commercial trips were higher than the average size for private trips on all segments but Brown's Park, which also had the smallest group size for commercial and private trips than any other segment. Time spent floating each segment varied from less than a day on the Daily segments to 14 days on Labyrinth. The San Juan Lower, Desolation, and Labyrinth averaged the longest (6.1, 5.5, and 4.7 days respectively), while the Colorado Daily, Green Daily, Westwater averaged the shortest (1.1, 1.2, and 1.7 days respectively). Floaters were also asked for the location of their camp(s) if they reported a trip length of over 1 day on the river.

Section II-E (River Trip Characteristics) discusses the river trip characteristics for each segment, which include: 1) satisfaction with trip, 2) river trip characteristics (comments having to do with aspects of the trip that added to or detracted from trip), 3) perceptions of crowding, 4)

perceptions of environmental impacts, and 5) trip expenditures. A large majority of river runners were satisfied with their river running experience. On all river segments but Labyrinth (92.5%), over 95% of river runners reported being very satisfied or satisfied with their river trip. This section also discusses the responses from a question on the survey which asked floaters "what factors do you feel added to or detracted from the quality of your river trip?" This open-ended question solicited a wide range of responses. These responses are valuable in identifying some of the biophysical and social characteristics of each segment that boaters identify with and notice (or don't notice) on their trips.

Boaters were asked about the average number of people and watercraft (other than those from their own party) that they saw on their trip, and to rate how they felt about this. The majority of river runners on all segments studied felt that they saw "about the right number" of people and watercraft on the river during their trip. More people and craft were reported seen on Brown's Park and the Colorado Daily segments than any of the other segments. Floaters on the Green Daily felt the least crowded, while Lower San Juan and Desolation floaters were most likely to feel crowded. This shows that boaters on the longer more isolated trips may see fewer people than on other segments, but feel more crowded because they are not expecting to see people; while boaters on the segments where larger numbers of boaters are expected to be seen, such as the Green Daily, felt less crowded. The respondents were also asked to rate the physical impact due to river runner recreation observed while on the river. Brown's Park floaters were the most dissatisfied with recreation related impact and reported the highest amount of impact (11.7% moderately high, 2.9% extremely high). On all segments but the Lower San Juan (49.1%) and Brown's (37.2%), over 50% of floaters reported seeing "Moderately Low" or "Extremely Low" impact.

This section also describes results of questions asking river runners about their trip expenditures. The most expensive trips for those on commercial and private trips were the segments that took the longest to float (Desolation, Lower San Juan, and Labyrinth) while the two Daily segments were the least expensive. In almost all cases, the majority of the money spent for a floater's river trip was spent in Utah. Commercial trips cost more per person than did private trips on almost all segments, although commercial and private trip costs were almost equal on the Colorado Daily. Non-residents made up the majority of boaters on all segments but the Green Daily, where over 70% of the floaters lived in Utah. The majority of non-residents on all segments but Westwater (which had a majority of floaters who were Colorado residents) and the White (47.6% and 22.9% respectively) were likely to spend nights in Utah while not on the river. Non-residents were more likely to be found on private trips than commercial trips on all segments but the White, Green Daily, and Upper San Juan.

Appendix II-1 contains the survey instrument and the calender of survey dates. The survey instrument is shown exactly as presented to the floaters, while the calender shows the dates during which survey teams were present at each of the 9 segments discussed in this report. Appendix II-2 contains the maps of U.S. and European/Other non-U.S. residency distribution. Appendix II-3 contains a list of the responses received from the question on the survey instrument, which asked what aspect(s) of the trip added to or detracted from their experience. Appendix II-4 contains a list of the campsites stayed in for each segment.

I-C. VOLUME III SUMMARY:
Mail Survey Results

The mail survey instrument consisted of about 200 questions in a 12 page booklet. Names and addresses for this phase of the project were obtained from the river runners who filled out the intercept survey. Overall, about 62% of the boaters who filled out the intercept survey agreed to participate in the mail survey and filled out legitimate addresses. The overall response rate to the mail survey was about 58% but ranged from around 43% of the Colorado Daily floaters to 72% on the San Juan.

As presented in section III-C, the rafters on the segments tended to have a diversity of genders expect on two of the segments (Brown's Park and Westwater) which were predominantly male and the San Juan Upper in which nearly two-thirds were female. Boaters on each segments also have a wide range of ages with the median age being highest at Brown's Park (52) and lowest at Labyrinth (31). The respondents also have relatively high levels of education, income, and occupational status. When asked where they were from, boaters on only three of the segments (Colorado Daily, San Juan Upper, and Westwater) were from other countries. Each river segment attracts floaters from different regions. For instance, 78% of the Green Daily respondents were from Utah and 9% from Colorado compared to San Juan Upper where 5% were from Utah and 32% from Colorado. Most of the floaters reside in urban areas. It does appear, however, that the San Juan River segments tend to attract a greater percentage of small town and rural area dwellers than the other segments.

Section III-D (River Runner Experience) presents results from the questions dealing with the amount of river running experience the boaters have and their level of expertise. Those floating

Westwater Canyon had the greatest amount of experience floating rivers in general and Utah rivers. Those floating the White River had the least amount of experience in general and those on the San Juan Upper had less experience on Utah rivers than the other segments. When asked to rate their river running skill level, about half of those on the San Juan Upper and Colorado Daily rated themselves as beginners. About a quarter of those who ran Westwater considered themselves experts comparted to only about 5% on the Colorado Daily, White River, Brown's Park, and San Juan Upper. When asked about their previous experience on the segment they floated when contacted by the researchers, Westwater boaters had the greatest amount of experience and Labyrinth the least.

The next section (Characteristics of River Trips) reports on survey questions regarding characteristics of typical river trips and the specific Utah trip. Westwater boaters tend to take the highest number of trips in a typical year compared to floaters on the White with the least number. The longest typical trips are taken by those on the most remote and longest sections (White, Labyrinth, Desolation, and the San Juan segments). Over 95% of respondents on all segments usually go boating as a member of larger group. With the exception of San Juan Upper and Colorado Daily, the most common group category was family and friends. When asked about their current trip, floaters on most segments indicated that they were on a private trip compared to the Upper San Juan and Colorado daily where a majority indicated that they were on a commercial trip. Rafts are the most common type of watercraft on all of the segments. However, canoes tended to be the preferred boat on the White River (85%) and Labyrinth (64%), and dories (drift boats) comprise nearly half the boats on Brown's Park. Besides floating the rivers, river runners engage in a variety of other outdoor recreation activities. These include camping, photography, hiking, and visiting cultural and historic sites. When asked what

source of information they used to find out about floating these segments, the largest percent indicated family and friends.

Section III-F (Trip Expectations and Outcomes) reports on a series of statements designed to measure the motivations considered when deciding on running these segments and the extent to which those expectations were met. Experiencing Solitude and Nature is the most important expectation on most segments, but are less important for Brown's Park, Green Daily, and Colorado Daily boaters. Social Interaction and Novelty of New Areas and Experiences are also important for boaters on most segments. Boater expectations for Thrills and Rapids was especially high for Westwater followed by boaters on the two Daily segments and Desolation Canyon. Most boaters rated the Sill and Accomplishment and Social Status/Image items relatively low but still in the low to moderately important range. The only segment where Good Fishing was the most important expectation consideration was Brown's Park. The survey items designed to measure desired outcomes of the river trips also showed similar response patterns to the expectation items.

The last section of this volume (Willingness to Pay a Fee) reports on the survey questions asking about using means of collecting fees from private boaters to raise additional funds for river management. Private boaters on all but three segments (the two Daily segments and the White River) were generally in favor of fees. Paying a per trip fee is the most preferred method on most segments. Boaters at Brown's Park preferred a daily or weekly use fee and the two Daily segment floaters have mixed opinions with no obviously preferred fee collection method.

Appendix III-1 contains a copy of the mail survey instrument. Comments that were added to the end of the questionnaire are included, in whole, in Appendix III-2.

I-D. VOLUME IV SUMMARY: River Management Policy Background and River Runners' Attitudes Toward Management Policy

This volume is divided into two sections. The first presents a background of current river management policy on each study section. The second presents results from the mail survey concerning river management preferences and problems encountered along the rivers.

Section IV-A (River Policy and Management Background) examines some of the laws relevant to river management in general and specific to the study rivers. Federal laws such as the Federal Land Policy and Management Act of 1976, the Wilderness Act of 1964, the Wild and Scenic Rivers Act of 1968, and Federal Register Notices are discussed in light of management of the Utah BLM rivers. There is also a discussion of the role that Utah's boating laws and regulations play in formulating policy. The remainder of this section provides a comprehensive discussion of current river management policies for each of the study river segments. This section concludes with a fairly comprehensive and useful list of references use to report relevant river management policy information.

Section IV-B (River Runners' Attitudes Toward Management Policy) continues the description of the results from the mail survey that began in Volume III. The primary focus is on the items in the questionnaire dealing with river management priorities, physical impacts caused by the number of people, acceptable number of people on the river, and problems seen while on the trip. Boaters on all segments reported that providing safety and river trip information required only a medium priority. However, providing river history information and information on reducing impacts was rated from medium to high on all segments. When asked the priority of protecting historic artifacts, boaters on all

segment rated it a medium to high with the San Juan Upper boaters having the highest mean score compared to Brown's Park with the lowest. Providing toilets and trash receptacles are considered high priorities on all segments except the White River. Only on the San Juan Lower is providing a better campsite reservation system a high priority. Floaters on half the segments (the San Juan segments, Brown's Park, and Desolation) feel that a medium to high priority should be given to reducing crowds.

When asked about the acceptability of physical impacts caused by floaters, a majority of respondents on each segment indicated that the impact levels are currently acceptable or low. Although almost a third of the Brown's Park boaters indicated impact levels are moderately high or high. When asked about support of river regulations (e.g., requiring firepans, carry out trash, etc.) a majority of boaters on each segment support the use of such regulations with one exception. Only 36% of Labyrinth boaters supported assigning campsites. When asked about the number of other boaters seen during their trip, a majority indicated that it was about the right amount. However, about 40% at Brown's Park indicated that there were too many people. When asked about the acceptable number of people to see, there was a wide range of median values from 26 on the San Juan Upper to 153 at Westwater.

When asked what areas managers should focus their management efforts, a majority of San Juan Upper and Lower, Desolation, and Labyrinth boaters thought the emphasis should be on protection of land and river area. The highest percentage of respondents on the other segments thought that there should be an even mix of providing visitor services along with protecting the land and river resources. When asked about the most important problems that river managers should address, boaters on the San Juan Upper indicated destruction or defacing of historic resources, while those on the

Lower expressed concern with the difficulty of finding unoccupied campsites. Litter was also cited as a problem on both these segments. Too many boats on the river and too many people at the launch site were the two most common problems at Brown's Park. Mosquitos and insects were the most frequently indicated problems at both Desolation and Labyrinth. Finding unoccupied campsites was also a problem at those two segments. Lack of trash receptacles and lack of toilets were the two more frequently mention problems at Colorado Daily and too many people was the primary problem at Westwater.

Appendix IV-1 contains a copy of the mail survey instrument. Appendix IV-2 contains the complete set of responses to the open ended question that asked "Can you think of any other problems river managers need to address along the river segment you ran?"

I-E. VOLUME V SUMMARY:
Analysis Papers

This volume contains two sections that discuss implications related to river management revealed through statistical analysis of the research data.

The first section (Regional Study of Whitewater Boaters in Utah: Implication for River Corridor Planning and Carrying Capacity) focuses its discussion on planning and policy implementation within a regional context. Results indicate that use limitations are only appropriate on a few low use segments, and heavy use segments should be managed for a large number of boaters. This allows managers to provide for a spectrum of river experiences, concentrate visitor management for impact reduction in certain areas, and reduce aggregate physical impacts region-wide while boater numbers increase. This represents an ecosystem approach to wildland river management, and questions the traditional approach taken in many protected areas, where use capacities are studied and applied in individual, high use areas. The results also indicate that the use mandate of the National Park Service in not necessarily incompatible with resource protection as most observers argue; areas can be manage for both, as long as recreation use objectives are developed in a regional context, rather than within specific administrative units.

The second section (A Comparison of 1975 and 1999 River Runners on Two Utah Rivers: Desolation and Westwater Rivers Segments) discusses the comparison of this study with results from a similar study conducted 24 years earlier. Results indicate that over those intervening years, there has been an increase of the percentage of female floaters on the Desolation segment but that the ratio of

males to female has remained constant on Westwater. However, it appears that the age and education levels of river runners has increase on both segments from 1975 to 1999. There has also been a decrease in the percentage of first time floaters from 1975 to 1999. On both segments, a greater percentage of boaters on both segments indicated that the number of other people seen was about right in 1999 than in 1975, with lower percentages indicating that they saw too many. In 1975 on both segments, the highest rated expectation was to run a lot of thrilling rapids. In 1999, that expectation was ranked third behind finding solitude and experiencing nature (highest rated expectation) and social interaction with friends and family (second highest rated). The implications drawn from this type of longitudinal comparisons of data will help recreation managers assess relevance and function of existing management policy.

I-F. ACKNOWLEDGMENTS

This research project was funded by the Bureau of Land Management (BLM) administered through BLM/USU Assistance Agreement No. 1422-D910-A3-0210, Task Order #25, under the auspices of USU College of Natural Resources Landscape Ecology Modeling and Analysis Center (LEMA). The authors would also like to acknowledge the Institute for Outdoor Recreation and Tourism at USU for providing support facilities and computer time.

For assistance in developing the survey instruments, the authors would like to thank Suzanne Garcia and Russ Von Koch of the BLM along with the individual Utah BLM river managers for their insight and suggestions. We would also like to thank Alan Watson of the USDA Forest Service Rocky Mountain Research Station for his input into the research design and OMB approval assistance.

Field data was collected by Jana Custer, Matt Blahna, Brian Adams, Spencer Logan, and Ryan Keenan. Further help in organizing and assembling the data was accomplished with help from Lindsey Topham, Sarah Nielsen, and Jesse Evans. These people working behind the scenes and without much recognition provided invaluable service and have our undying gratitude.